The First Nine Years

A Profile of Perinatal and Child Health
- in Peterborough County and City

Peterborough County-City Health Unit

January 2003

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1.0 Overview of the Report

Background

In December 2001, the Peterborough County-City Health Unit (PCCHU) received funds from the Ministry of Health and Long-Term Care, Public Health Branch for a one-year Perinatal and Child Health Survey Strategies Initiative. The initiative was to focus on the development and implementation of traditional survey approaches (e.g., instrument or measurement development; collection of data; analysis of data; interpretation of results; and dissemination of results) to address information needs in one or more of the following areas:

- preconception health;
- prenatal health;
- postpartum health/adjustment;
- child health, growth, and development from birth to 6 years of age; and
- parenting capacity.

With these guidelines in mind, PCCHU decided to revise, update, and expand a report released in 1999 entitled *The First Nine Years: A Profile on Child Health in Peterborough*.

PCCHU had been aware for some time that the information provided in the first version of *The First Nine Years* was outdated. A need for local baseline information with respect to the preconception and prenatal periods had been identified. There was also a need to synthesize and present existing local information about general sociodemographics as well as the postpartum period, child growth and development, and parenting.

Therefore, the goal for the Perinatal and Child Health Survey Strategies initiative became the creation of this data library entitled *"The First Nine Years: A Profile of Perinatal and Child Health in Peterborough County and City."* It includes local baseline data and a review of literature relating to general sociodemographics, preconception, prenatal, postpartum, child growth and development, and parenting in Peterborough County-City.

Why Focus on Children?

Recent and not so recent research from numerous disciplines (neurosciences, molecular and cellular biology, developmental psychology, medicine, public health, education, demography, epidemiology, sociology, anthropology, and economics) point to clear evidence that early child development has a long reach into later childhood, adolescence, and adult life (*Bertrand, 2001*).

Therefore, in order to develop a meaningful list of recommendations for public health programs that will positively influence children well into their adult years, it is important to understand the context in which children live, learn, and play.

This report subscribes to the theory of Urie Bronfenbrenner that interactions with others and the environment are the key to development. His model presented in Figure 1.1 illustrates that we all experience more than one type of environment including:

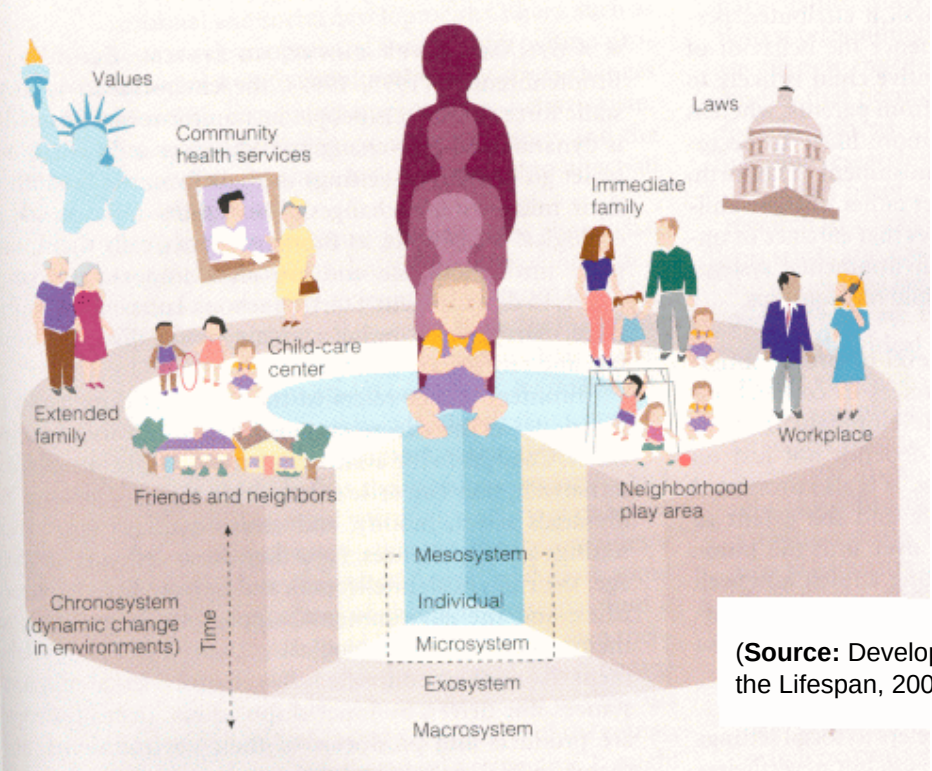
The Microsystem:
This innermost level of the environment refers to activities and interaction patterns in a person's immediate surroundings. For example, adults affect children's behaviour, but children's biologically and socially influenced characteristics - their physical attributes, personalities, and capacities - also affect the behaviour of adults.

The Mesosystem:
This level refers to connections between microsystems that foster development. For example, a child's academic progress depends not just on activities that take place in classrooms. It is also promoted by parent involvement in school life, and the extent to which academic learning is carried over into the home.

The Exosystem:
This level refers to social settings that do not contain the developing person, but nevertheless affect experiences in immediate settings. These can be formal organizations, such as the boards of directors in the individual's workplace or health and welfare services in the community. For example, flexible work schedules, paid maternity and paternity leave, and sick leave for parents whose children are ill are ways that work settings can help parents rear children and, indirectly, enhance the development of both adult and child.

The Macrosystem:
The outermost level of Bronfenbrenner's model is not a specific context. Instead, it consists of the values, laws, customs, and resources of a particular culture. The priority that the macrosystem gives to the needs of children and adults affects the support they receive at the inner levels of the environment (*Berk, 2001*).

Figure 1.1 Ecological Systems Theory



(**Source:** Development Through the Lifespan, 2001.)

This report includes local indicators about the health of children age 0-9 years relating to each level of Bronfenbrenner's model. It also has taken into account the information that is required by public health units in order to meet the Province of Ontario's *Mandatory Health Programs and Services Guidelines*.

Organization and Limitations of the Report

Like all data-filled reports, this version of *The First Nine Years* is a snapshot of perinatal and child health in Peterborough County and City at a particular period in time. It represents the collection of the best information that was available in 2002 for the myriad of indicators under investigation. The report consists of the following six sections:

2.0 Sociodemographic Snapshot

A host of general Information about the population presented in this section includes, among other indicators: age and sex, income, education, employment, ethnicity, characteristics of families, housing, and birth rates. Where possible, information from the 2001 Census has been presented. In instances where updated Census information was not available, other information sources have

been used to provide updated information on indicators that appeared in the 1999 version of the report.

3.0 The Preconception Period

New local data has been collected and analyzed for inclusion in this section of the report. A preconception questionnaire was developed for both male and female respondents, and carried out with a representative sample of total births in Peterborough County-City. For the first time, baseline information exists about the health behaviours of men and women in Peterborough County-City in the preconception period.

4.0 The Prenatal Period

This section includes a combination of newly collected local data and existing secondary information. In partnership with the Peterborough Regional Health Centre, a representative sample of records of patients who gave birth in Peterborough County-City in 2001 was analyzed.

5.0 The Postpartum Period

Some information from the record review carried out in partnership with the Peterborough Regional Health Centre is presented in this section. Also, local breastfeeding statistics, information about postnatal mood disorders,and information about children “at risk” can be found here.

6.0 Child Growth and Development

A lengthy list of indicators are presented in this section and include, among other statistics: morbidity and mortality, injury, mental health, disability, nutrition, readiness to learn, immunizations, child care, and the physical environment. It is important to note that an initial attempt has been made in this section to provide information about children with disabilities or special needs. This was identified as a significant gap in the 1999 version.

7.0 Parenting

Information about parenting programs, family violence, and children in care is presented in this section.

For Sections 2.0 - 7.0 there is a common structure for the presentation of the information (Relevant Literature, Local Data, Discussion, and Agenda for Future Action subsections). Wherever possible, local data have been compared to provincial, national, or international figures.

Information specific to the health of Aboriginal children is presented under the appropriate indicators throughout this report. The lack of information about the health of our local

Aboriginal children was identified as a significant gap in the first version of this report. As a result, national information has been synthesized and discussed with our First Nation representatives prior to its' inclusion in this report. Although a step forward, the lack of local information in this version of the report should still be considered a significant gap.

Appendix A lists the indicators outlined in the current *Reproductive Health and Child Health Guidelines (1997)* as well as the indicators outlined in the *Draft Reproductive Health and Draft Child and Youth Guidelines (2001)*. Beside each of the indicators listed, reference is made to where relevant local data can be found in the report. This will prove to be a useful cross-reference to quickly find the necessary local information for those implementing current programming under the existing guidelines, and for those who may be asked to develop new programming should the draft guidelines be adopted in the future.

A References Cited section appears at the end of the report.

It is our hope that this revised version of the report will be utilized as the original version was intended: as a foundation for planning; as a mechanism to validate the content and approaches of existing services; and to inspire and inform the vision the Peterborough County-City community has for its' children. May the actions taken as a result of the information presented in *The First Nine Years: A Profile of Perinatal and Child Health in Peterborough County-City* enhance the well-being of the children in our community throughout their life.

2.0 Sociodemographic Snapshot

Researchers have arrived at a middle ground, and now believe that no child's destiny is set at birth, either by genetics or by income (*CCCF/CICH, 2001*). Low socioeconomic status increases the likelihood of poorer health, lower academic achievement, and more behavioural problems during early childhood and later life, but it is far from destiny. A higher percentage of children living in families at the lowest end of the socioeconomic scale may have more difficulties than children in more affluent families, but the majority does not, and will not in later years (*Bertrand, 2001*).

Child poverty, however, is still an important measure of the health of children. Health problems associated with poverty include: greater likelihood of low birth weight; neural tube defects; undernutrition; iron deficiency anemia; childhood injury; early childhood tooth decay; decreased language and cognitive skills during the preschool period relative to other children; exposure to family or neighbourhood violence, and the development of aggressive behaviour patterns; increased incidence of mental health/psychiatric disorders; decreased school readiness; poorer school performance; and increased high school dropout rates and youth unemployment (*Ontario Ministry of Health, 2000*).

Family structure also has an impact on child development. Findings from the National Longitudinal Study of Children and Youth revealed that children in female lone-parent families were 1.5 to 2 times more likely to face various types of problems compared with children in two-parent families, whether or not they were poor (*Ontario Ministry of Health, 2000*).

The education level of parents/caregivers also has an impact on children. Analysis of the data from the National Longitudinal Study of Children and Youth found that low education of the 'Person Most Knowledgeable' regarding the child was significantly and independently associated with one or more child-related problems (e.g., hyperactivity, conduct disorder, emotional disorder, relationship problems, or repeating a grade). Conversely, higher levels of maternal education were associated with children's competencies such as motor and social development, receptive verbal abilities, and maternal reports of behaviour problems (*Ontario Ministry of Health, 2000*).

Employment responsibilities and work/family conflicts do not just affect parents. Large numbers of children are living with parents who are depressed due to work/family conflicts. Approximately 28% of professional men and 43% of non-professional women with dependents report high levels of depressed mood. Work family conflicts are associated with children feeling rushed; children spending little time relaxing with parents; withdrawal;

aggression; children being sent to school and/or daycare when they are mildly ill; and disturbances in parent-child relationships (*Ontario Ministry of Health, 2000*).

Where children live also affects their development. Some families in 'housing need' (living in unaffordable and/or unsafe homes) are confronted with challenges to both their health and well-being. Their homes are, in many cases, in poor repair, increasing the risk of injury or exposure to environmental contaminants, such as lead in old paint. Their homes are also more likely to be in unsafe neighbourhoods, further increasing the likelihood of injury and, potentially, of distress. Overcrowding may be an issue contributing to, among other health problems, the spread of respiratory disease. Families in 'housing need' are at increased risk of frequent moves and, in extreme but increasingly common circumstances, homelessness. Frequent moves and homelessness both have negative health and well-being implications (*CICH, 2000*).

Therefore, there are a myriad of socioeconomic factors that form an important part of the healthy child development equation.

Local Data

Geography

Peterborough County-City consists of eight townships, two First Nation communities (Curve Lake First Nation and Hiawatha First Nation), and the City of Peterborough. The County-City spans an area of 3,806.03 square kilometres, and consists of both urban and rural areas with 56% of the population living in the City of Peterborough. When compared to Ontario as a whole, Peterborough County-City has a much higher population density with 33.1 persons per square kilometre as compared to 12.6 persons per square kilometre. However, Peterborough County-City is less densely populated than other areas of Southern Ontario, and it is important to keep population density comparisons with the province as a whole in perspective.

Figure 2.1a Map of Peterborough County-City

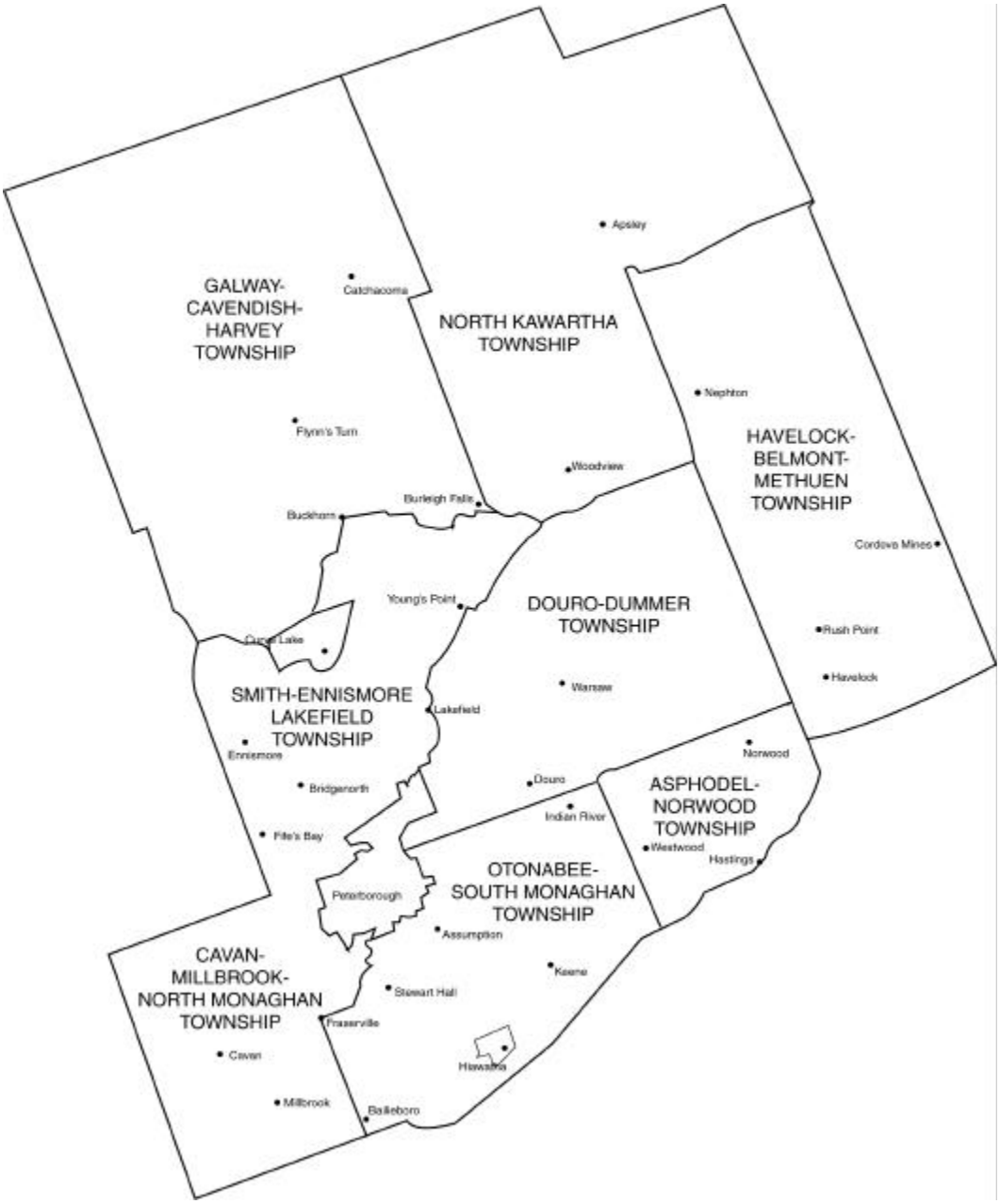


Figure 2.1b Map of City of Peterborough

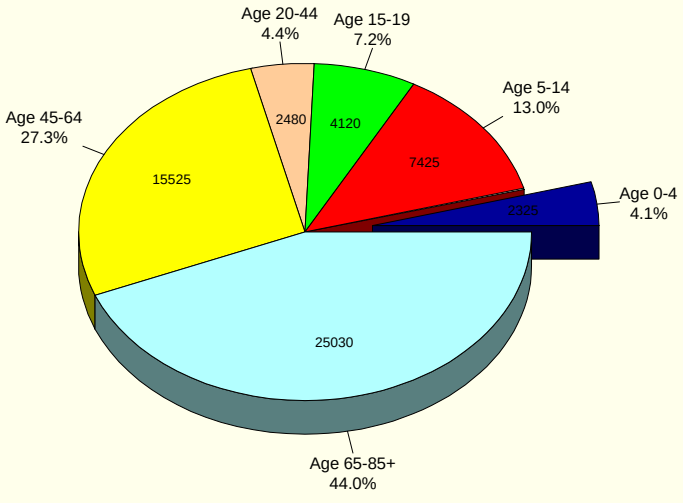
Population

As Figure 2.2 illustrates, the largest age group in Peterborough County-City are over the age of 65 years (44%). According to the 2001 Census, Children age 0-4 years account for 4.1% of the population and children age 5-14 account for 13% of the population. Unfortunately, the percentage of children age 0-9 cannot be presented as the figures for the age 5-9 age group were not provided in the Census.

The largest numbers of children in Peterborough County-City age 0-4 years reside in the City of Peterborough, Smith-Ennismore-Lakefield Township, and Cavan-Millbrook-North Monaghan Township.

According to national data, Aboriginal children are reported to be the fastest growing segment of the Aboriginal population. In 1996, 35% of Aboriginal people were younger than 15 years of age compared to about 21% for Canada (*AFN, 2000*). When comparisons are made with the 1996 and 2001 Census figures, this trend does not appear to be evident in our First Nation communities. In 1996, Curve Lake had 65 children age 0-4 which indicates there has been a slight decrease in this age group between 1996 and 2001. Hiawatha First Nation was reported to have 25 children age 0-4 in 1996 and therefore there has also been a slight decrease in this age group between 1996 and 2001. There is a feeling among representative of Curve Lake First Nation that these decreases may be of a short duration as they noted a marked increase in the number of births in their community in 2002.

Figure 2.2 Peterborough County-City Population Percentage by Age Group, 2001



Source: 2001 Census

Table 2.1 Population by Age for Peterborough County-City, 2001

Characteristics	Asphodel-Norwood	Cavan-Millbrook-North Monaghan	Curve Lake First Nation	Douro-Dummer	Galway-Cavendish-Harvey	Havelock-Belmont-Metheun	Hiawatha First Nation	North Kawartha	Otonabee-South Monaghan	Smith-Ennismore-Lakefield	City of Peterborough	County of Peterborough*	Peterborough County-City*
2001 Total Population*	3 985	8 450	945	6 655	4 370	4 480	295	2 145	6 665	16 415	71 446	54 410	125 856
Age 0-4	165	425	60	320	135	155	20	80	290	665	3 635	2 325	5 960
Age 5-14	595	1 315	150	1 005	435	495	50	245	1 000	2 150	9 075	7 425	16 500
Age 15-19	310	705	65	575	235	290	20	110	540	1 270	4 855	4 120	8 975
Age 20-24	170	470	45	300	150	190	15	65	300	775	5 130	2 480	7 610
Age 25-44	980	2 285	275	1 690	900	1 020	85	465	1 645	3 690	18 530	13 045	31 575
Age 45-54	590	1 430	145	1 065	695	675	45	360	1 140	2 790	9 770	8 945	18 715
Age 55-64	490	875	95	810	790	675	35	335	810	2 250	6 610	7 160	13 770
Age 65-74	350	535	65	555	725	625	25	320	580	1 700	6 580	5 480	12 060
Age 75-84	240	335	35	285	255	305	5	145	300	945	5 330	2 845	8 175
Age 85 and over	100	80	5	45	50	50	0	25	60	180	1 925	600	2 525
Median Age of the Population	41.8	39.1	36.9	39.7	50.5	46.4	38.5	47.6	41.3	43.7	39.9	----------	41.1
% of Population Ages 15 and Over	80.8	79.5	77.8	80.0	86.9	85.4	76.7	85.3	80.7	82.9	82.2	82.1	82.2
1996 Total Population*	4 080	8 252	891	6 684	4 400	4 327	277	2 104	6 584	16 107	69 742	53 915	123 448
1996 to 2001 Population Change (%)	-2.3	2.4	6.1	-0.5	-0.6	3.5	7.2	1.9	1.3	1.9	2.4	0.9	2.0

* Totals will not add up due to rounding.
(**Source:** 1996 and 2001 Census)

Ethnicity

English remains the most widely reported mother tongue and home language throughout Peterborough County-City. In 1996 (2001 Census data was not available in time for this report), 1,885 people reported speaking a language other than English. The most common languages spoken at home (other than English) were Polish, French, German, Korean, Chinese, Italian, Cambodian, and Ojibway.

Although the total immigrant population of Peterborough is predominantly from the United Kingdom, the United States, and Europe, there has been an increase in the number of recent immigrants from China (7.8% in 1996), India (7.8% in 1996), Philippines (7.2% in 1996), and South Korea (3.6% in 1996). (*Peterborough County and City Municipal Social Plan, 2002*).

Also, according to 2001 Census figures presented above, approximately 1% of the total population in Peterborough County-City are residents of either Curve Lake First Nation (945 people) or Hiawatha First Nation (275 people). Figures relating to the off-reserve Aboriginal population are not available, but past estimates have indicated that 2.9% of County residents, and 1.65% of City residents, are Aboriginal people (*Interim Action Plan, 2001*).

With regard to language, according to national data, a little over 29% of the Aboriginal population of Canada was able to speak an Aboriginal language in 1996. The percentage is highest for Inuit at almost 73%, compared to about 35% for North American Indians, and just under 9% for Métis. Fewer Aboriginal persons, however, regularly spoke an Aboriginal language at home. Age makes a difference, with older people more likely to speak an Aboriginal language (National Council on Welfare, 2002).

Representatives of Curve Lake First Nation agree that approximately 1/3 of their population is able to speak an Aboriginal language. However, an increase in the number of children speaking an Aboriginal language is expected as language instruction is now part of the regular curriculum at the preschool and elementary school level, and an option at the secondary school level.

Family Characteristics

In the 2001 Census information released in October 2002, a number of interesting observations can be made with respect to family characteristics in Peterborough County-City (Table 2.2):

- Married Couple Families account for 75% of all families, while 11% of families are Common-Law Couple Families, and 14% of all families are Lone-Parent Families.
- Curve Lake First Nation, Hiawatha First Nation, and the City of Peterborough all have lower percentages of Married Couple Families with 52%, 72% and

71% respectively.

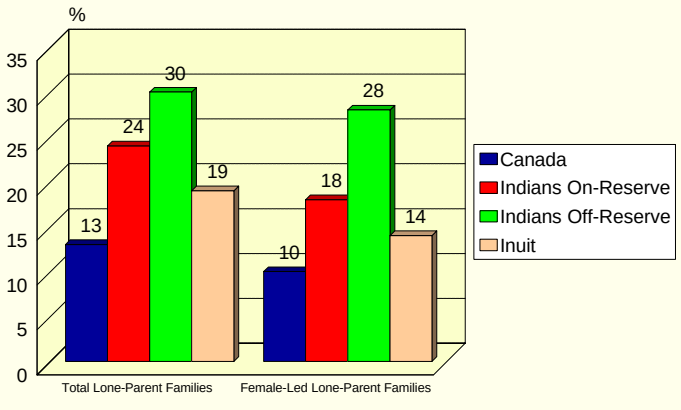
- The percentage of Common-Law Families is higher in Curve Lake First Nation (21%), Galway-Cavendish-Harvey (12%), Havelock-Belmont-Methuen (12%), and Hiawatha First Nation (16%).
- The number of Lone-Parent Families is higher in Curve Lake First Nation (26%), Hiawatha First Nation (16%), and City of Peterborough (18%).
- Female Lone-Parent Families (84%) are more common than Male Lone-Parent Families (16%).
- North Kawartha (88%), Otonabee-South Monaghan (85%), and Smith-Ennismore-Lakefield (89%) all have a higher percentage of Female Lone-Parent Families than the County-City.
- Only in Cavan-Millbrook-North Monaghan and Hiawatha First Nation are there more households containing a Couple (married or common-law) With Children than those Without Children.

National data regarding First Nation communities indicates that the proportion of Aboriginal and Inuit families that are Lone-Parent is at least 1.5 times the rate for Canadians overall (Figure 2.3). At least 19% of Canada's Aboriginal and Inuit families are headed by a Single-Parent, at least 14% are headed by women, and 30% of all Aboriginal families living off-reserve are headed by a single parent (*CICH, 1994*).

The 2001 Census data presented in Table 2.2 supports this claim with 26% of families at Curve Lake First Nation reported as Lone-Parent Families, and 16% of Families at Hiawatha First Nation reported as Lone-Parent Families. Of these Lone-Parent Families, 80% are headed by women at Curve Lake First Nation, while 66% are headed by women at Hiawatha First Nation.

Figure 2.3 Lone-Parent Families as a Percent of All Families

Aboriginal and Canadian Families, 1986



Source: Canadian Institute for Child Health, 1994

Table 2.2 Selected Family and Household Characteristics, Peterborough County-City, 2001

Characteristics	Asphodel-Norwood	Cavan-Millbrook-North Monaghan	Curve Lake First Nation	Douro-Dummer	Galway-Cavendish-Harvey	Havelock-Belmont-Metheun	Hiawatha First Nation	North Kawartha	Otonabee-South Monaghan	Smith-Ennismore-Lakefield	City of Peterborough	County of Peterborough*	Peterborough County-City*
Total Number of Families	1 170	2 445	285	1 965	1 515	1 440	90	720	2 055	5 140	19 815	16 835	36 650
Number of Married Couple Families	885	2 035	150	1 645	1 225	1 125	65	565	1 675	4 230	14 020	13 605	27 625
Number of Common-Law Couple[1] Families	125	230	60	165	175	170	15	70	170	415	2 250	1 595	3 845
Number of Lone Parent Families	160	185	75	160	115	140	15	85	205	490	3 550	1 625	5 175
Number of Female Lone-Parent Families	135	160	60	105	90	105	10	75	175	435	3 005	1 345	4 350
Number of Male Lone-Parent Families	25	25	20	45	20	35	10	10	40	60	545	280	825
Households Containing a Couple (Married or Common-Law[1]) With Children	445	1 230	105	865	425	475	40	180	865	2 015	7 560	6 645	14 205
Households Containing a Couple (Married or Common-Law[1]) Without Children	545	1 010	105	920	945	815	30	435	915	2 495	8 375	8 220	16 595

* Totals will not add up due to rounding.

1 Common-Law Couple refers to couples of the opposite sex as well as same-sex couples.

(**Source:** 2001 Census)

Education

In the City of Peterborough, 12.5% of the population held a university degree and 20.4% held a college diploma in 1996 (2001 Census data was not available in time for this report). In Peterborough County, 7.9% had a university degree, while 22% had a college diploma or certificate. The percentage of the population with less than a grade nine education had decreased from 10.5% in 1991, to 8.3% in 1996. The largest percentage of the Peterborough County-City population (26.4%) reported their highest level of schooling as grades 9-13 with no diploma. This includes students who are still enrolled in school (*Peterborough County and City Municipal Social Plan, 2002*).

It is important also to note that Aboriginal people have made some notable gains in education. For example, the percentage of Registered Indians with some post-secondary education rose by 5.5 percentage points between 1991 and 1996, compared to an increase of 3.8 percentage points for the total Canadian population. However, Aboriginal people are still well below their non-Aboriginal counterparts in educational attainment (*National Council on Welfare, 2002*).

Employment

Information about employment in Peterborough County-City was not available from the 2001 Census in time for this report. The following points summarize the employment picture in 1996:

- While the size of the male labour force decreased 1.2% between 1991 and 1996, the number of females in the labour force increased 4.2% during the same period.
- The participation rate for both males and females in Peterborough is slightly below the provincial average — 67.4% of males and 54.9% of females in Peterborough County-City are in the labour force, compared to 73% of Ontario males and 60% of Ontario females.
- The unemployment rate was 10.6% for females and 10.2% for males. In 1999, the unemployment rate for males and females was reported to be 6.9% (statistic for Economic Region 520 that includes Northumberland County, the Kawarthas, Haliburton, and Muskoka).
- Consistently since 1981, the proportion of both the Ontario and Peterborough County-City labour force employed in service industries increased, while goods-producing industries decreased. The most notable decline is in manufacturing, which has declined from 26.6% in 1981 to 14.88% in 1996.
- The largest industrial sectors in terms of labour force involvement in Peterborough County-City were retail and wholesale trade (19.44%), manufacturing (14.88%), and health and social services (12.37%).
- The most common occupations of females were clerical work, child care, homemaking, teaching, and secretarial work.
- The most common occupations of males were transportation equipment

operators, mechanics, clerical work, manufacturing assembly, construction, and trades helpers.

(*Peterborough Profile, 1999* and *Interim Action Plan, 2001*).

Income

Following a rise in income levels through the late 1980s, average income levels in Peterborough plateaued and fell through the early and mid 1990s. When measured in constant dollars, incomes began to fall after 1989 to levels typical of the previous decade. Families of every category experienced declining income after adjustments for inflation: a 4% decline for two-parent families, and an 8% decline for lone-parent families.

According to the 1996 Census (2001 Census data was not available in time for this report), average income amounts for all household types in Peterborough County and City were below the provincial average:

- Average income of all County-City families was $51,020 compared to $59,830 for Ontario.
- Husband-Wife Families' average income was $54,353 compared to $64,434 for Ontario.
- Male Lone-Parent Families' average income was $38,316 compared to $44,318 for Ontario.
- Female Lone-Parent Families' average income was $27,386 compared to $30,182 for Ontario.
- Non-family/Unattached Individuals' average income was $20,535 compared to $24,466 for Ontario.

According to Revenue Canada data, the average individual income in Peterborough County-City in 1998, based on all tax returns, was $26,889 (see Table 2.3 below). Average income in the City was $27,134 compared to $26,372 in the County (*Peterborough County and City Municipal Social Plan, 2002*).

Table 2.3 Peterborough City-County Average Income, 1998

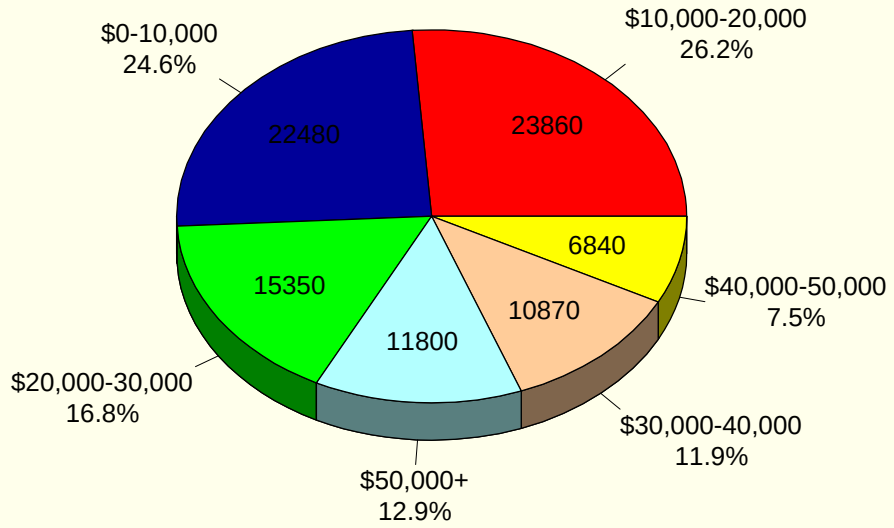
	City-County	City	County
All returns	$26,889	$27,134	$26,372
Male	not available	$34,313	$33,048
Female	not available	$20,758	$19,517

(**Source:** Peterborough County and City Municipal Social Plan, 2002)

Distribution of income is also a significant indicator of economic health. The distribution of incomes in Peterborough County-City presented in Figure 2.4 reflects the national trend

towards a growing income gap between the rich and the poor that developed throughout the 1990s. This increasing polarization in incomes results from a number of factors, including cuts in provincial social assistance rates; tighter eligibility for, and reduction in benefits, Employment Insurance; changes in the labour market; and a stagnant minimum wage (*Peterborough County and City Municipal Social Plan, 2002*).

Figure 2.4 Peterborough County-City Total Income Distribution, 1998



Source: Peterborough County and City Municipal Social Plan, 2002

According to the 1996 Census (2001 Census data was not available in time for this report), 13.1% of all families and 41.2% of unattached individuals in Peterborough County-City had incomes below the Low-Income Cut Off (LICO). Comparatively on a national level, the overall poverty rate in Canada was 16.9%; the rate for families was 13%; and the rate for non-family/unattached individuals was 39.4%.

As well, almost 19% of children in Canada are considered to be living in poverty (*Peterborough County and City Municipal Social Plan, 2002*).

Table 2.4 Incidence of Low-Income Families and Unattached Individuals in Peterborough County-City*, 1996

Municipality**	Total # of Families	# of Families with Low-Income	Percent	Total # of Unattached Individuals	# of Unattached Individuals with Low-Income	Percent
City	18 795	3 165	17%	10 655	4 815	45%
County	16 185	1 425	9%	3 950	1 180	30%
Asphodel-Norwood	1 140	165	15%	385	135	35%
Cavan-Millbrook-North Monaghan	2 360	145	6%	385	100	26%
Douro-Dummer	1 980	195	10%	390	110	28%
Galway-Cavendish-Harvey	1 440	155	11%	445	140	31%
Havelock-Belmont-Metheun	1 365	205	15%	450	150	33%
North Kawartha	675	90	13%	250	55	22%
Otonabee-South Monaghan	2 005	120	6%	415	115	28%
Smith-Ennismore-Lakefield	4 890	330	7%	1 255	370	29%
Peterborough County and City	35 055	4 590	13.1%	14 565	5 995	41.2%

* Figures will not add up due to rounding.

** Does not include data for Curve Lake First Nation or Hiawatha First Nation.

(**Source:** Peterborough County and City Municipal Social Plan, 2002 and Peterborough Profile, 1999)

The data from the 1996 Census does not provide a profile of people living in poverty in Peterborough County-City, but at the national level the following population groups have a higher rate of poverty than the overall population:

- young families (oldest adult under 25): 46.1%;
- lone-parent families led by mothers: 56%;
- Aboriginal people: 43.4%;
- visible minorities: 35.9%; and
- people with disabilities: 30.8%.

In addition to the rate of low-income, the average depth of low-income (gap between a household's income and the LICO) is an important indicator of the economic status of low-income residents. No data is currently available on the average depth of low-income for Peterborough County-City. The national average poverty gap in 1998 was $8,219 for families and $6,154 for individuals.

Low-income intensity (a measure combining depth and rate of low-income) for non-elderly families in Canada rose 9.9% between 1993 and 1997. Rural areas experienced the greatest increase (13.1%) in low-income intensity during this period compared to 11.9% in small/medium urban areas, and 8.0% in large urban areas (*Peterborough County and City Municipal Social Plan, 2002*).

With respect to First Nation communities, an accurate child poverty rate for Aboriginal children is not known. We do know, however, that in Canada a very high proportion of Aboriginal people live below the poverty line and that some live in such difficult circumstances that they may be hard for many Canadians to imagine. Many Aboriginal children in Canada experience living conditions similar to those in Third World countries (*CICH, 1994*).

Depth of poverty is a critical issue for Aboriginal people. As the National Council on Welfare's regular *Welfare Incomes* reports show, social assistance rates across the country can fall thousands of dollars short of the Low-Income Cut-Offs. And there are high rates of dependency on social assistance among Aboriginal people especially on-reserve. The most recent data from Indian and Northern Affairs Canada, indicate that nationally beneficiaries of social assistance comprised 35.8% of the on-reserve population in 2000-01. This rate reflects a steady decline since 1994-95 when it was about 43% (*National Council on Welfare, 2002*).

Representatives of Curve Lake First Nation confirm that income security is a significant issue for their community with a large proportion of their population considered working poor.

Housing

In Peterborough County, 58% of the households are permanent, 36% are seasonal (cottagers), and 6% are farm households (Table 2.5). In the City of Peterborough 99% of households are permanent, less than 1% are seasonal, and less than 1% are farms.

Table 2.5 Distribution of Household Types, 1999

Municipality*	Permanent	Farm	Cottages	Total
Asphodel-Norwood	1 314	219	134	1 667
North Kawartha	982	60	2 632	3 674
Cavan-Millbrook-North Monaghan	2 572	354	19	2 945
Douro-Dummer	2 080	360	845	3 285
Galway-Cavendish-Harvey	1 815	71	3 603	5 489
Havelock-Belmont-Methuen	1 780	167	2 137	4 084
Otonabee-South Monaghan	1 951	415	487	2 853
Smith-Ennismore-Lakefield	6 037	287	1 399	7 723
County Total (Excluding City)	18 531	1 933	11 256	31 720
City of Peterborough	30 265	11	8	30 284
Regional Total				62 004

* Does not include data for Curve Lake First Nation or Hiawatha First Nation.

(**Source:** Peterborough County and City Municipal Social Plan, 2002)

The 2001 Census data indicates that there are 49,650 dwellings in Peterborough County-City, with 75% of these dwellings being owned, and 25% rented.

Peterborough County-City has historically shown commitment to addressing housing issues at both a municipal and a grassroots community level. The withdrawal of senior levels of government from the creation of new affordable housing, coupled with restrictions on income security programs and changes in the labour market have necessitated ongoing attention to this issue locally.

The Taskforce on Homelessness and Housing Insecurity revealed through its' research that 28% of tenants in the City were paying over 50% of their gross income for shelter costs. In addition, it found that the average household income of tenants in 1995 was less than half that of owners, yet, on average, tenants paid almost as much for rent each month as owners paid for mortgages. According to the Canadian Mortgage and Housing Corporation, households should pay no more than 30% of their gross income for shelter costs (including rent, mortgage payments, property taxes, utilities).

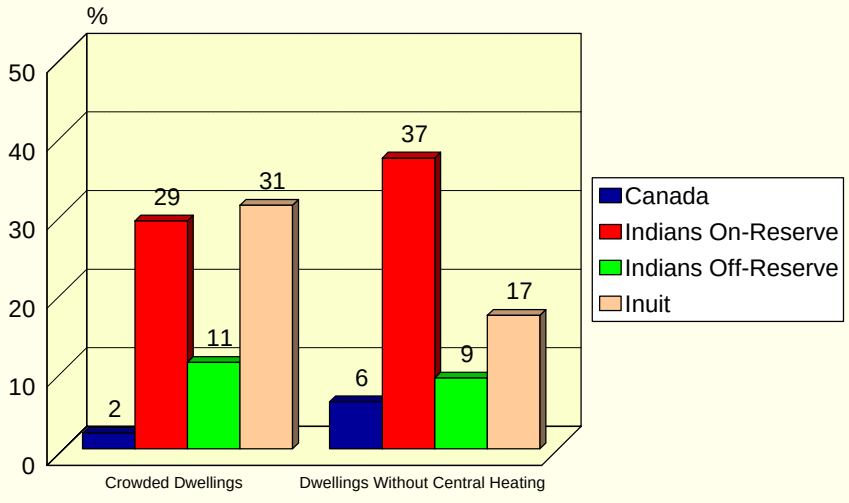
In the summer of 1999, the Housing Resource Centre re-opened to provide housing support services to tenants and homeless persons.

In 2000, Peterborough County and City Councils formed a community-based group, the Affordable Housing Action Committee (AHAC), to advise them on all matters related to affordable housing. AHAC has supported or instigated a number of initiatives in the community, including the establishment of a Warming Room for homeless persons and an Emergency Assistance Fund to aid persons who are homeless or housing insecure. Other subcommittees are working with the City with respect to the transfer of 2200 social housing units to the Peterborough Housing Corporation as well as on a strategic plan for permanent affordable housing in the City and County.

With over 1600 households on the waiting list for social housing, and average market rents outside the affordability range for households living on low incomes, our communities must work quickly to find innovative ways to make housing affordable for all our residents (*Peterborough County and City Municipal Social Plan, 2002*).

Housing also continues to be an issue of great importance in Aboriginal communities. Aboriginal and Inuit children are more likely than other Canadian children to live in inadequate housing. The proportion of Aboriginal dwellings on-reserve without central heating is more than 6 times greater than the Canadian rate, and about four times higher than the rate for Aboriginal dwellings off-reserve. In addition, the incidence of crowded dwellings among Aboriginal families is higher than the Canadian figure. Approximately 6 times more Aboriginal dwellings off-reserve and 15 times more Aboriginal dwellings on-reserve are crowded (*CICH, 1994*). Representatives of Curve Lake First Nation agreed that this national data is applicable to their community.

Figure 2.5 Housing Conditions, Indian and Inuit People
Canada, 1986



Source: Canadian Institute for Child Health, 1994

Discussion

We learned from the literature that a number of sociodemographic factors can negatively impact child development including poverty, the education level of parents/caregivers, family structure, and home environment. From the local data presented in this section, we have also learned that these factors are all a concern in Peterborough County-City. For example:

- Lone-Parent Families constitute 14% of all families in Peterborough County-City, and the majority of these families are headed by females.
- The largest percentage of the Peterborough County-City population in 1996 reported their highest level of schooling as grades 9-13 with no diploma (includes students who were still enrolled in school).
- Average incomes in Peterborough County-City for all household types remain below the provincial average.
- There is a continually growing gap between the rich and the poor.
- Approximately 13% of all families and 41% of all non-family unattached individuals are living below the Low-Income Cut Off (LICO).
- The availability of affordable housing continues to fall well short of the current demand, and therefore chances are that children living in inadequate housing will continue to increase.

Agenda for Future Action

2.1 Census 2001 information as well as other sociodemographic information sources for Peterborough County-City needs to be analyzed and utilized for planning purposes as it becomes available.

2.2 With respect to income security, the following objectives from the Peterborough County and City Municipal Social Plan should be supported:

a. enhancing employment opportunities for all population groups;
b. improving access to Income Security Programs;
c. advocating with provincial and federal governments to address economic and income security issues; and
d. addressing issues of economic and income security through the development of an action plan on poverty.

2.3 The Peterborough County and City Municipal Social Plan document stated that, "Continued support should be given to community initiatives working towards creating an affordable housing supply and ending homelessness." Therefore, the Peterborough County-City Health Unit should remain active in housing advocacy efforts related to housing supply, affordability, and quality in Peterborough County-City.

2.4 Peterborough County-City Health Unit should remain an active partner in the implementation of the recommendations in the Peterborough County and City Municipal Social Plan as well as in other social policy initiatives in the City and the County as they arise.

3.0 The Preconception Period

The health of both a man and woman before pregnancy (in the preconception period) makes a difference to the health of their future children. Lifestyle changes for both men and women that can enhance fertility and birth outcomes include: maintaining a healthy body weight, learning positive ways to handle stress, eating a well-balanced diet, being physically active, not smoking, avoiding hazardous chemicals, refraining from using alcohol and drugs, and healthy sexuality (*PCCHU, c*).

Canada's Food Guide to Healthy Eating recommends 5-12 servings of grain products per day, 5-10 servings of vegetables and fruit per day, 2-4 servings per day of milk products, and 2-3 servings per day of meat and alternatives for adults (*Health Canada, 1997*).

Health Canada recommends adults accumulate 60 minutes of low intensity physical activity every day to stay healthy or improve health. As progression is made to moderate activities, the time can be reduced to 30 minutes, 4 days a week. It is recommended that 4-7 days a week adults engage in endurance activities (continuous activities for heart, lungs and circulatory system), 4-7 days a week adults engage in flexibility activities (gentle reaching, bending and stretching to keep muscles relaxed and joints mobile), and 2-4 days a week adults engage in strength activities (activities against resistance to strengthen muscles and bones and improve posture); (*Health Canada, 1998*).

Although physical activity has many preconception benefits for men, physical activity before pregnancy is particularly important for women because:

- the back, knees and hips are strengthened in preparation for labour and delivery;
- stamina for giving birth and parenting is improved;
- recovery from childbirth is faster;
- energy level is increased;
- mood and body image are improved;
- a suitable body weight is more easily reached and/or maintained; and
- the risk of having a low birthweight baby is reduced (*PCCHU, b*).

Healthy eating and physical activity work in combination to help adults maintain a healthy weight. Healthy weight for an adult is considered to be a Body Mass Index (BMI) score of 18-24.9. Those adults with a BMI score of 25-27 are considered to be in the caution zone, those with BMI scores over 27 are considered to be in the health risk zone, while those with scores under 18 are considered underweight (*PCCHU, 1999b*).

It is also important for men and women in the preconception period to give consideration to chemicals at home or work, such as lead and mercury, and those in garden pesticides, as these can create problems when trying to get pregnant. Studies have linked infertility and miscarriages with exposure to chemicals and substances (e.g., pesticides, lead, household cleaners, industrial waste, x-rays, etc.). Smoking and being in smoke-filled places is the number one cause of babies being born underweight (*PCCHU, 1999a*). Smoking, alcohol, sexually transmitted diseases, and drugs, including anabolic steroids, may influence sperm count, the sperm quality, and mobility (*PCCHU, c*).

Couples planning a pregnancy are encouraged to explore the medical history on both sides of their family. The Genetics Program at Peterborough County-City Health Unit helps individuals and families understand genetic factors in diseases, disabilities, and birth defects. Genetic counselling is of benefit to: those who have a genetic disorder or think they may have one; those with a close family member with a disorder or condition that may be genetic; those who themselves have or their children or close family members have a birth defect that has not been diagnosed; those who think they may be a carrier of a genetic disorder which occurs in their ethnic group; those who have had three or more miscarriages or a stillbirth; those who are concerned that they or their partner may have been exposed to a drug, chemical, or radiation; and those who are planning a pregnancy or have recently become pregnant and want to know their chances of having a baby with a genetic disorder or birth defect (*PCCHU, 1999a* and PCCHU website).

Both joys and challenges come with parenting. Couples should prepare themselves in the preconception period for how they might deal with the emotional, physical, financial and career changes that would result should they become pregnant (*PCCHU, 1999a*).

Women have a few other important responsibilities in the preconception period aside from maintaining a healthy weight, keeping physically active, and making healthy lifestyle choices (*PCCHU, a*). All women who could become pregnant should take a multivitamin containing 0.4 mg of folic acid every day. To help reduce the risk of Neural Tube Defects (NTDs)[1], women should start taking the vitamin supplement at least one to three months prior to becoming pregnant, and continue through the first three months of their pregnancy. This is of particular importance because about half of the pregnancies in Canada are unplanned and the defects occur before most women know that they are pregnant (*Health Canada website, PCCHU, 1997* and *1999a*).

[1] Neural Tube Defects (NTDs) are birth defects that occur when the neural tube fails to close properly during the early weeks of pregnancy, resulting in abnormalities of the spine, brain or skull that can result in stillbirth or lifelong disability. Closure of the neural tube happens early in pregnancy, often before a woman knows she is pregnant. Spina Bifida is the most common NTD.

Women also need to know whether they have had German Measles (Rubella), Chicken Pox, or Hepatitis B, or if they have been immunized against them (*PCCHU, 1999a*). Immunization against Influenza is also recommended as is HIV/AIDS testing prior to pregnancy. These viruses can harm a developing baby. Women who are unsure about their immunity should discuss these issues with her doctor before becoming pregnant (*PCCHU, d*).

Women are not the only ones with particular responsibilities before becoming pregnant. Men are continuously producing millions of sperm. However, sperm that are ejaculated from the penis have needed months to develop and mature. During development they can be damaged. Because of this, it is very important for a man to make changes to his lifestyle, if needed, at least three months prior to planning a pregnancy with his partner.

Healthy lifestyle choices by both the male and female partner prior to pregnancy can have a direct effect on the health of their future children.

Local Data

Because there was no baseline data on the preconception health of men and women in Peterborough County-City, it was necessary to develop a preconception tool, pilot test the tool, carry out primary data collection, and analyze and interpret the results that are presented below.

A decision was also made to carry out the preconception survey with a sample of both men and women in Peterborough County-City, and that these surveys would be administered to both of these groups in the postpartum period (after the birth of their child). The decision to utilize this approach was based on a journal article entitled *Pregnancy Planning and Pre-Conception Counseling* by Melissa Adams et al (in *Preconception Counseling, Vol. 82, No. 6, 1993*). This article details an American study carried out by the Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Public Health Service, United States Department of Health and Human Services, Atlanta; and the Division of Biostatistics, Emory University School of Public Health, Atlanta, Georgia. This study's objective was to estimate the percentage of women with one or more of four potentially modifiable risks (smoking, alcohol consumption, inadequate weight, and delayed initiation of prenatal care) who could avail themselves of preconception counselling. Mothers were contacted 3-6 months after delivery and asked about their preconception behaviours and the planning status of their pregnancies.

Using a similar approach to the aforementioned study above, PCCHU designed a survey process that would:

- administer the preconception survey tool to a representative sample of postpartum families from the total sample of 2001 births in Peterborough County-City;
- utilize the postpartum information collected by the Healthy Babies, Healthy Children program to gain consent to carry out the preconception survey with respondents;
- administer the survey to both women and men during the postpartum period.

The survey sample size was determined by calculating the number of surveys required to have a representative sample of births in 2001. At the Peterborough Regional Health Centre in 2001, 1,354 babies were born. When a confidence level of 95% and a confidence interval of 6 (results within ± 3%) was applied to this population, a representative sample was calculated to be 224 respondents. The goal then became to survey 112 male respondents and 112 female respondents (from different postpartum families than the male respondents) for a total of 224 postpartum families. During the analysis phase, this would allow for conclusions to be drawn about the preconception practices of the population group as a whole (those who had babies in 2001) as the sample was large enough to be deemed representative.

The administration of the survey began in May 2002, and was completed at the end of September 2002. In the end, 243 surveys were administered — 113 surveys to men and 130 surveys to women. The administration of the survey to male respondents proved much more challenging than to the female respondents. They were much more likely to decline the survey than were the female respondents. And, in fact, an incentive program (a series of draw prizes) was introduced during the survey administration phase to entice male respondents to participate. Despite the incentive program, it still proved very difficult to engage men in the survey process.

Although more surveys in total were administered, and more were administered to female respondents, the original confidence intervals are still applicable because the minimum number of surveys required for each sex was reached. We can still be 95% confident that the results presented will be within ± 3% of the figures presented below.

Sociodemographic Characteristics of the Respondents

A number of variables (e.g., age, number of children, education, marital status, housing, employment, and income) are presented below to help to create a picture of the survey respondents and the postpartum population as a whole.

Survey respondents ranged in age from 20-45+ years (Table 3.1). The majority of female respondents were between 20-34 years of age (81%) as well as male respondents (68%). The largest group for both males and females were 30-34 years of age.

Table 3.1 Age of Survey Respondents, Peterborough County-City, 2002

Age	Female	Male	Total
20-24 Years	19 (14%)	5 (5%)	24 (10%)
25-29 Years	41 (32%)	25 (22%)	66 (27%)
30-34 Years	45 (35%)	46 (41%)	91 (38%)
35-45+ Years[1]	25 (19%)	36 (32%)	61 (25%)
Total	130 (100%)	112[2] (100%)	242 (100%)

1 The 35-39 years, 40-44 years, and the 45+ years age categories were collapsed due to the number of cases less than five in a number of the upper age categories.

2 One male respondent did not provide his age.

Source: PCCHU Preconception Survey, 2002

With respect to marital status, 78% of all respondents reported being Married, 17% reported that they were in a Common-Law relationship, 3% were Single/Were Dating, But Not Living Together; and 2% indicated Other.

All of the survey respondents had at least one child as the survey was administered in the postpartum period. A large number had two children, while lesser numbers reported having three or more children.

Table 3.2 Number of Children for Survey Respondents, Peterborough County-City, 2002

Number of Children	Female Respondents	Male Respondents	Total
1 Child	130	113	243
2 Children	81	69	150
3 Children	32	28	60
4-6 Children[1]	9	12	21
Total Number of Children	252	222	474

1 Due to the fact that the numbers of cases was less than 5 in several instances, the 4, 5, and 6 children categories were collapsed for presentation purposes.

Source: PCCHU Preconception Survey, 2002.

With respect to the education level of survey respondents, the most common highest level completed was Community College (44%) with 70% completing some form of post-secondary education. Interestingly, slightly more female respondents had completed University or Post Graduate Studies (29%) than male respondents (22%).

Table 3.3 Education Level of Survey Respondents, Peterborough County-City, 2002

Highest Level Completed	Female	Male	Total
Elementary School	0 (0%)	7 (6%)	7 (3%)
High School	35 (27%)	31 (27%)	66 (27%)
Community College	57 (44%)	50 (44%)	107 (44%)
University	31 (24%)	19 (17%)	50 (21%)
Post Graduate	7 (5%)	6 (5%)	13 (5%)
Total	130 (100%)	113 (100%)	243 (100%)

Note: Percentages may not add up to 100% due to rounding.
1 The 35-39 years, 40-44 years, and the 45+ years age categories were collapsed due to the fact that in a number of instances cases were less than 5.
Source: PCCHU Preconception Survey, 2002

The majority of survey respondents (54%) reported that they lived in the City of Peterborough. A substantial number (36%) reported that they lived in a Country/Rural Area and a small percentage (10%) lived in a Town/Village.

A large majority of the respondents (74%) reported that they Owned Their Own Home, while 18% reported they were Renters. A small percentage Lived With Family/Friends. As well, 79% of respondents provided an estimate of how much they paid for rent or mortgage payments/month. Of those who responded to the questions, 62% of respondents estimated that they paid $139-$800/month on rent or mortgage payments, while 38% reported monthly payments ranging from $801-$3,000/month.

Also, 47% of respondents reported that they Had Not Moved in the two years prior to they or their partner becoming pregnant, while 35% reported Moving Once, 12% Moving Twice, 4% Moving Three Times, and 2% Moving 4-5 Times.

The majority (90%) of survey respondents stated that their main source of income was Wages or Salary from a Job (Table 3.4). The majority (56%) also indicated that their annual household income prior to pregnancy was $60,000 or less per year (Table 3.5).

Table 3.4 Main Source of Income Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

Income Source	Total
Income from Self-Employment	19 (8%)
Wages and Salary From a Job	218 (90%)
Municipal Social Assistance, Workplace Safety and Insurance Board, Other	6 (2%)
Total	243 (100%)

Source: PCCHU Preconception Survey, 2002

Table 3.5 Total Annual Income Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

Amount	Total
<$10,001-20,000	10 (4%)
$20,001-30,000	16 (6%)
$30,001-40,000	33 (14%)
$40,001-50,000	36 (15%)
$50,001-60,000	41 (17%)
> $60,000	70 (29%)
Don't Know	10 (4%)
No Answer	27 (11%)
Total	243 (100%)

Source: PCCHU Preconception Survey, 2002

Prior to this pregnancy, 94% of all respondents reported that they were working. The most common occupations for respondents (Table 3.6) were Technologist/Technician/Technical occupation (17%), Other (17%), Sales and Service (15%), and Professional (15%).

Table 3.6 Type of Work Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

Type of Work	Total
Management	18 (8%)
Professional	35 (15%)
Technologist, Technician, Technical Occupation	38 (17%)
Administrative, Financial, or Clerical	22 (10%)
Sales or Service	35 (15%)
Trades, Transport, or Equipment Operator	32 (14%)
Processing, Manufacturing, Utilities	6 (2%)
Student, Farming, Forestry Fishing, or Mining, and No Answer	5 (2%)
Other	38 (17%)
Total	229 (100%)

Source: PCCHU Preconception Survey, 2002

Of those respondents who reported being employed, most were employed Full-Time in their jobs (75%), while 16% were Part-Time, 5% were Self-Employed, and 4% were Casual, Contract/Temporary, or Other. With respect to their hours of work, respondents most commonly worked Normal Business Hours (62%), while 21% reported working Weekends, 18% reported working Shift-Work, 13% had Self-Scheduled hours, and 16% had Flexible Hours (respondents were able to provide more than one response regarding their hours of work).

General Health and Health Care Practices

Ninety-five percent (95%) of survey respondents reported that they Had a Family Doctor prior to themselves or their partner becoming pregnant.

There were some differences between male and female respondents with respect to whether or not they talked to a doctor or nurse about improving their health for pregnancy. In fact, 25% of female respondents Did Speak to a Doctor or Nurse About Improving Their Health for Pregnancy, while only 12% of men did so. Of those male and female respondents who Did Speak to a Doctor or Nurse About Improving Health for Pregnancy, 68% did so prior to this pregnancy.

Female respondents were also more likely than their male counterparts to have a

Complete Physical Examination Prior to Pregnancy; as 50% of females and 44% of males indicated they had an examination. This also means that almost half of all respondents did not have a physical examination prior to pregnancy. For those that did have a Complete Physical Examination prior to pregnancy, 55% had an examination between 6 months and 3 years prior to this pregnancy.

Approximately 63% of respondents indicated that they had not been Tested for Sexually Transmitted Diseases (STDs) prior to becoming pregnant.

For those female respondents, 80% reported that they had a PAP Smear Test prior to becoming pregnant and 76% of these women had a test between less than 6 months to 1 year prior to pregnancy. For those women who reported not having the test, the majority (55%) did not know why, or had no answer as to why they did not have the test. A small percentage (23%) stated that their doctor did not think the test was necessary, and the same percentage stated that they personally did not think it was necessary, that they did not get around to it, or that personal or family responsibilities prevented them from taking the test.

Only 15% of female respondents and less than 5% of male respondents indicated that they had any Personal Health Problems prior to pregnancy that might affect their ability to have healthy children. Of those females who indicated a Personal Health Problem, 95% of them talked with a health care provider about this problem prior to pregnancy, while 100% of the male respondents did so.

In this survey, respondents indicated that 75% were Planned Pregnancies.

With respect to Making Health Changes for Pregnancy, 63% of female respondents made changes, while 37% of male respondents made changes. For those who made health changes for pregnancy: 3% made changes less than one month before pregnancy; 17% made changes in the period 1-3 months before pregnancy; 19% made changes more than 3 months before pregnancy; 27% made changes when they thought they or their partner might be pregnant; and 32% made changes after the doctor confirmed pregnancy.

Even though the majority of respondents waited until they thought they or their partner was pregnant, or until pregnancy was confirmed to make health changes, 44% of respondents indicate that they Learned About Improving Health for Pregnancy before they or their partner was pregnant. In addition, 18% learned about how to Improve Health for Pregnancy when their or their partner's pregnancy was confirmed, and an additional 18% stated that they did not learn how to Improve Their Health for Pregnancy. Another 21% of respondents stated that they Did Not Know, had No Answer, or responded Other to the question.

Respondents indicated that Advice From a Health Professional (37%), Information in the Media (21%), Brochures or Books (13%), Advice From a Friend or Relative (9%), and Workshops or Classes (7%) would be the best ways to convince men and women to make health changes before pregnancy. Male respondents more often chose Advice From a Friend or Relative, the Internet, and Workshops and Classes as the best ways to convince men to make health changes before pregnancy. Female respondents more often chose Information in the Media as the best way to convince women to make health changes before pregnancy.

Nutrition

Female respondents were asked if they took vitamin tablets containing folic acid before they were pregnant and 60% responded Yes to the question. For those who responded Yes, 97% reported that they took a folic acid tablet or vitamin tablet with folic acid once or more per day prior to pregnancy.

Both male and female respondents were asked about their nutritional intake in the two years before pregnancy (Table 3.7). The responses were as follows:

- the majority of female (73%) and male (68%) respondents were eating 2 or more servings of milk products per day;
- only 44% of female respondents and 27% of male respondents were eating five or more servings of vegetables and fruit per day;
- only 34% of female respondents and 35% of male respondents were eating 5 or more servings of grain products per day; and
- 55% of female respondents and 74% of male respondents were eating 2 or more servings of meat and alternatives per day.

Table 3.7 Nutritional Intake of Survey Respondents Prior to Pregnancy, Peterborough County-City, 2002

Servings	Female	Male	Average
Milk Products			
Not at all	0%	3%	1%
Less than 2 or more servings per day	25%	22%	24%
2 or more servings per day	73%	68%	71%
Vegetables and Fruits			
Not at all	2%	1%	1%
Less than 5 servings per day	53%	70%	61%
5 or more servings per day	44%	27%	36%
Grain Products			
Not at all	2%	2%	2%
Less than 5 servings per day	59%	60%	60%
5 or more servings per day	34%	35%	35%
Meat and Alternatives			
Not at all	2%	0%	1%
Less than 2 servings per day	42%	26%	34%
2 or more servings per day	55%	74%	64%

Source: PCCHU Preconception Survey, 2002

Only 26% of female respondents and 18% of male respondents stated that they Made Changes to Their Diet in the year prior to becoming pregnant or their partner becoming pregnant. For female respondents, the most common changes made included: Increasing Their Intake of Milk Products (61%), Increasing Their Intake of Vegetables and Fruits (76%), Increasing Their Grain Intake (49%), and Increasing or Not Making Any Changes to Their Meat and Alternatives Intake (both 39%). For male respondents, the most common

changes made included: No Change to Their Milk Product Intake (60%), an Increase in Their Vegetables and Fruit Intake (70%), No Change to Their Grain Intake (60%), and a Decrease in Their Meat and Alternatives Intake (55%).

Respondents were also asked about food security issues in their household prior to pregnancy and 76% stated that they Had Enough Food and the Kind of Food They Wanted to Eat; 23% Had Enough Food, But Not Always the Kind They Wanted to Eat; and 2% reported that Sometimes They Did Not Have Enough Food to Eat.

Physical Activity

Survey respondents were asked about the frequency and intensity (Table 3.8) of their physical activity two years prior to becoming pregnant or their partner becoming pregnant. Results from this question indicate that:

- The highest percentage of female respondents (22%) exercised 4-5 days per week, while the highest percentage of male respondents (41%) exercised 5 or more times per week. Therefore, the majority of respondents were not exercising as frequently as is recommended.
- The highest percentage of female respondents (43%) engaged in moderate physical activity, as did the highest percentage of male respondents (49%). However, male respondents were more likely to engage in vigorous physical activity than female respondents.

Table 3.8 Physical Activity Frequency and Intensity for Survey Respondents Prior to Pregnancy, Peterborough County-City, 2002

	Female	Male	Average
Frequency			
1 day weekly	9%	11%	10%
2 days weekly	15%	12%	14%
3 days weekly	19%	15%	17%
4-5 days weekly	22%	19%	21%
More than 5 times	19%	41%	29%
Never, No Answer, Don't Know	16%	2%	9%
Intensity			
Very light effort (e.g., shopping, dusting)	5%	0%	2%
Light effort (e.g., light walking, easy gardening)	30%	10%	20%
Moderate effort (e.g., biking, raking leaves)	43%	39%	41%
Vigorous effort (e.g., jogging, hockey, aerobics)	15%	36%	25%
Maximum effort (e.g., sprinting, racing)	3%	12%	7%
Don't Know, No Answer	4%	3%	5%

Source: PCCHU Preconception Survey, 2002

Only 14% of respondents (more female than male) stated that they Made Changes to the Intensity or Frequency of Their Physical Activity in the year prior to pregnancy, and 75% of these indicated that they Increased the Frequency or Intensity of Their Physical Activity.

Body Mass Index (BMI)

Survey respondents were also asked their height and weight prior to pregnancy. Their Body Mass Index (BMI) scores were then calculated.

Just over half of respondents (54%) overall had a BMI in the normal range. Male respondents (63%) were more likely to be in this range than female respondents (47%).

Female respondents were more likely to be considered underweight, while male respondents were more often overweight.

Table 3.9 BMI Scores Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

BMI Score	Female	Male	Total
BMI Greater Than 25 (health risk can range from increased to extremely high)	7 (5%)	28 (25%)	35 (14%)
BMI 18.0 - 24.9 (normal health risk)	61 (47%)	71 (63%)	132 (54%)
BMI Less Than 18 (moderate health risk)	49 (38%)	13 (12%)	62 (26%)

Source: PCCHU Preconception Survey, 2002

Smoking and Environmental Tobacco Smoke

Respondents were also asked about their smoking activity in the two years prior to pregnancy. The majority of females (72%) and males (67%) reported that they Never Smoked (Table 3.10). Slightly more male respondents than female respondents Smoked Occasionally and the same percentage of female and male respondents (22%) reported that they Smoked Daily.

Table 3.10 Smoking Behaviour Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

Smoking Frequency	Female	Male	Average
Never Smoked	72%	67%	70%
Daily	22%	22%	22%
Occasionally	5%	10%	7%
Don't Know/No Answer	1%	1%	1%

Source: PCCHU Preconception Survey, 2002

For those who indicated they were Daily Smokers, the majority (52%) Smoked Between 1 and 12 Cigarettes Per Day. When asked if they reduced the number of cigarettes they were smoking or quit smoking in the year prior to pregnancy, 43% of female smokers responded Yes and 56% of male respondents said Yes.

Respondents were also asked what best described smoking practices within their home prior to pregnancy. In 80% of responses, there was No Smoking in the House; in 7% of responses, Smoking Was Allowed in Certain Rooms Only; in 5% of responses, Smoking Was Not Allowed Around Young Children; and in 7% of responses, Smoking Was Allowed in the Home.

Alcohol and Drug Use

Respondents were asked about their consumption of alcohol in the two years prior to their pregnancy. The majority of female respondents indicated that they consumed alcohol Monthly or Less (60%), while the majority of male respondents (75%) said they consumed alcohol No More Than 2-4 Times Per Month (Table 3.11).

Table 3.11 Alcohol Use Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

Frequency	Female	Male	Total
Never	15%	11%	13%
Monthly or Less	45%	25%	36%
2-4 times/month	30%	39%	34%
2-3 times/week	7%	18%	12%
Four or more times/week	2%	7%	4%

Source: PCCHU Preconception Survey, 2002

Those who indicated that they did consume alcohol, were asked how many drinks containing alcohol they would have on a day that they chose to drink. Responses by male and female respondents were quite similar. For both groups, 32% reported they would have 1 Drink, 47% reported they would have 2-3 Drinks, and 20% reported they would have 4 or More Drinks on a day they were consuming alcohol.

As well, 61% of female respondents and 28% of male respondents who reported consuming alcohol, stated that they Cut Down on the Amount of Alcohol Consumed or Quit Drinking Alcohol prior to pregnancy.

Respondents were also asked about their use of street drugs (e.g., marijuana, cocaine,

heroin, LSD, ecstasy) in the two years prior to pregnancy; 91% of respondents stated that they Did Not Use Street Drugs, 7% stated that They Did, and 2% Did Not Know or Did Not Answer the question. There were slightly more male respondents (10%) who stated they Used Street Drugs than female respondents (5%).

Of those who reported using street drugs, 39% reported that they Did Use These Drugs in the 4 Weeks Prior to Becoming Pregnant or Their Partner Becoming Pregnant (17% were female and 50% were male).

Environmental Exposures at Work and at Home

Those respondents who indicated that they were employed were asked to indicate how concerned they were prior to pregnancy about whether environmental exposures in their workplace might affect their ability to have healthy children.

The majority (75%) of respondents were not concerned about these exposures. However, of those concerned, 36% stated a concern about Chemicals/Solvents and 31% were concerned about Heavy Lifting (Table 3.12). Overall, more females than males were concerned about Germs From Children, Heavy Lifting, and Chemicals/Solvents. More male respondents had concerns about X-Rays or Radiation, and Noise or Vibration.

Table 3.12 Workplace Environmental Exposure Concerns* Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

	Female	Male	Average
Germs from children	24%	11%	18%
X-rays or radiation	12%	17%	15%
Noise or Vibration	6%	18%	12%
Heavy Lifting	41%	21%	31%
Chemicals/Solvents	38%	34%	36%

***** Percentages presented in this table represent the Somewhat Concerned and Very Concerned responses.
Source: PCCHU Preconception Survey, 2002

Just slightly over 50% of respondents who indicated a concern, Expressed Their Concerns to Their Employer, Occupational Health and Safety Representative, or Occupational Health Nurse or Doctor. When asked what types of action were taken in response to their concerns: 26% reported Alternative Working Arrangements; 5% reported that a Policy Was Developed; 16% reported Using Safety Equipment; 6% reported that a Report Was Written; 11% Took Sick Leave; 22% said Other Actions Were Taken; 13% said No Actions Were Taken; and 1% responded Don't Know. Female respondents more often reported that No Action Was Taken; Alternative Working Arrangements were made; Sick

Leave Was Taken; and Other Actions Were Taken. Male respondents more often reported that a Policy Was Developed; Safety Equipment Was Used; or a Report Was Written.

Of those who were employed, 65% of female respondents and 87% of male respondents stated that they Knew How to Gain Access to Material Safety Data Sheets in their workplace prior to pregnancy.

Respondents were also asked to indicate how concerned they were prior to pregnancy about how environmental exposures in the home might affect their ability to have healthy children.

The majority (74%) of respondents did not have concerns about environmental exposures in their home (Table 3.13). However, of those concerned, 45% were concerned about Chemicals/Solvents, 32% about Germs From Food, and 23% about Germs From Animals. More females than males were concerned about Germs From Children, Germs From Animals, Germs From Food, and Chemicals/Solvents. More male respondents were concerned about Germs From Sex.

Table 3.13 Home Environmental Exposure Concerns* Before Pregnancy for Survey Respondents, Peterborough County-City, 2002

	Female	Male	Total
Germs From Children	21%	19%	20%
Germs From Sex	8%	12%	10%
Germs From Animals	25%	20%	23%
Germs From Food	36%	27%	32%
Chemicals/Solvents	49%	40%	45%

***** Percentages presented in this table represent the Somewhat Concerned and Very Concerned responses.
Source: PCCHU Preconception Survey, 2002

When asked if they Took Steps to Reduce Their Risk, female respondents who expressed concerns took steps 89% of the time, while 65% of males did so. Only 25% of female respondents, and 20% of male respondents, Expressed Their Concerns About Home Environmental Exposures to Their Health Care Provider.

Stress

Survey respondents were asked how they felt they were dealing with the level of stress in their life prior to pregnancy. Approximately 84% of respondents stated that they were Dealing Fairly Well or Very Well with the stress in their life, 13% said they were Having

Trouble at Times, 2% reported Often Having Trouble, and less than 1% felt they Could Not Deal With the Level of Stress in their life. There were no major differences between male and female responses with respect to the level of stress.

Overall, Finances (99%), Relationships (99%), and Health (98%) were the three most common issues causing respondents worry or stress prior to pregnancy. These top three issues were followed by Other (93%), Children (83%), Work (47%), and Family (30%). Interestingly, women were more likely than men to state that Family, Finances, Relationships, and Health were causing them excess worry or stress, while men stated more often that Work, Children, and Other were causing them worry or stress.

Personal Support Systems

The survey respondents were asked a series of questions aimed at gauging the strength of their personal support systems before they or their partner became pregnant. Responses to these questions indicate that: 84% had Someone to Take Them to the Doctor When They Needed It; 60% had Someone Who Showed Them Love and Affection; 94% had Someone to Help With Daily Chores if They Were Sick; 86% had Someone to Do Something Enjoyable With; 91% had Someone to Confide In or Talk to About Their Problems; and 93% had Someone to Prepare Meals if They Were Unable to Do It Themselves.

Transition to Parenting

Whether or not survey respondents discussed transition to parenting issues with their partner prior to pregnancy was also evaluated. The results indicate that:

- 75% of respondents discussed How They Would Share Household Chores with their partner when they had children;
- 83% discussed How They Would Share Looking After the Baby;
- 86% discussed the Cost of Raising a Child;
- 81% considered What Child Care Arrangements Would Be Required;
- 74% considered How Having a Child Might Affect Their Happiness;
- 71% discussed How Each Partner Solves Problems and Manages Stress;
- 86% discussed How They Were Raised by Their Parents;
- 73% discussed How Their Relationship Would Change if they were to have a child; and
- 83% discussed How to Manage the Behaviour of Children.

Parenting Information

At the conclusion of the survey, respondents were asked to indicate whether or not they knew How to Gain Access to Supports and Services for Parents in the community prior to pregnancy, and 76% of respondents stated that they Did Know how to access these services.

Prior to pregnancy, survey respondents stated that their knowledge about parenting was obtained through: Family (95%), Friends (86%), Books and Magazines (82%), Doctor or Health Care Provider (71%), TV/Radio/Newspaper (52%), Internet (37%), Workplace (40%), Library (26%), Health Unit (48%), Family Resource Centre (24%), School (35%), and Other (16%). Female respondents more often identified Friends, Books and Magazines, Doctor or Health Care Provider, Workplace, Health Unit, Family Resource Centre, Library, and School as sources of parenting information prior to pregnancy. Male respondents more often identified that Family, TV/Radio/Newspaper, Internet, and Other as sources of parenting information for them prior to pregnancy.

When asked what they felt was the best format for parenting information, survey respondents chose the following:

- One-to-One Conversations With Family and Friends (33%);
- Handbook (14%);
- Courses or Workshops (13%);
- TV/Radio/Newspaper (10%);
- Pamphlets (7%);
- Other (6%);
- Telephone Help Line (5%);
- Newsletter (3%); and
- Internet (4%).

Female respondents more often preferred Handbook, Telephone Help Line, TV/Radio/Newspaper, and Other formats for parenting information. Male respondents more often preferred Courses or Workshops, Internet, Newsletter, One-to-One Conversation With Family/Friends, and Pamphlets.

Respondents were also asked about the best location to gather and learn more information about parenting. They chose the following:

- Doctor or Health Care Provider's Office (34%);
- Family Resource Centre (16%);
- Health Unit (13%);
- Other (12%);
- Internet (8%);
- Library (5%):
- School (3%);
- Where You Shop (3%);
- Workplace (2%); and
- Telephone Help Line (<1%).

Female respondents more often chose the Doctor or Health Care Provider's Office, Health Unit, Telephone Help Line, and Workplace as the best locations to gather information

about parenting. Male respondents more often chose the Family Resource Centre, Internet, Library, Other, School, and Where You Shop as the best places to gather this information.

Discussion

As a result of the local preconception survey process detailed in this section, we can for the first time begin to characterize the preconception population in Peterborough County-City. Because a representative sample of postpartum families was surveyed, we can be 95% confident that the results will be within ±3% of the figures presented, and that they can be considered to represent the postpartum population of Peterborough County-City as a whole. In turn, because questions were geared to behaviours prior to pregnancy, we can draw some conclusions about the preconception practices of the Peterborough County-City population.

For the most part, individuals contemplating having children in Peterborough County-City:

- are between 20-34 years of age;
- are married;
- have other children already;
- most commonly have education levels up to the completion of community college;
- mostly live in the city, but a large percentage also live in a rural area or town;
- most commonly own their own home, and generally pay between $139-$800/month (rent or mortgage payment);
- move at least once in the two years prior to pregnancy;
- receive their main source of income from a job;
- generally have household incomes less than $60,000/year; and
- are almost always employed full-time during normal business hours, and most commonly employed in Technologist/Technician/Technical, other, Sales and Service, or Professional occupations.

For the most part, the preconception population in Peterborough County-City can be considered average. The people representative of this population are young, married, fairly well-educated, city dwellers, home owners, employed, and have substantial incomes. Although preconception messages should be geared to target this average population, it will be important to also consider the atypical individuals and what messages, vehicles, and channels would be best suited to helping them make healthy choices in the preconception period.

There are some similarities and some differences between males and females in the preconception period with respect to their general health and health care practices.

- A large percentage of both have a family doctor.
- The majority of females and males do not speak to a doctor or a nurse about

improving their health for pregnancy, although females do so more often; of those that do speak to a doctor or nurse, the majority of females and males do so before pregnancy.

- About half of females have a complete physical examination prior to pregnancy, while slightly less than half of the males do.
- The majority of females and males are not tested for sexually transmitted diseases (STDs) prior to pregnancy.
- Most females have a PAP smear test less than one year prior to pregnancy.
- Only a small percentage of females and males have personal health problems that might affect their ability to have healthy children, and almost all of these women and men talk to a health care provider prior to pregnancy.
- The majority of families plan their pregnancy.
- The majority of females and the minority of males make health changes for their pregnancy, but many do so after they suspect pregnancy, or their pregnancy is confirmed.
- The majority of males and females believe that advice from a health professional is the best way to make health changes before pregnancy.

Because survey respondents were not asked about their immunization history during the survey, it is not possible to draw any conclusions about how up-to-date men and women are in the preconception period in Peterborough County-City with respect to their immunizations.

From this information, we have determined that health professionals are an important conduit for preconception health information for both males and females. It is also evident that efforts with respect to STDs need to be expanded, and that information regarding immunization practices of the preconception population needs to be collected in order to determine if an information strategy needs to be developed.

With respect to nutrition in the preconception population, there are both positive and negative findings.

- Just over half of females in the preconception period take vitamin tablets containing folic acid.
- Most males and females are consuming two or more milk products per day.
- Less than half of males and females are eating five to ten servings of fruit and vegetables per day, or five or more servings of grain products per day.
- The majority of females and males are eating two or more servings of meat and alternatives per day.
- The minority of males and females make nutritional changes prior to pregnancy.
- A large percentage are not experiencing food security issues in the preconception period.

The promotion of the importance of folic acid for women in the preconception and prenatal periods needs to continue. In addition, the importance of fruits and vegetable as well as consumption of grains needs to continue. Although food security issues were not prevalent in this group, it is important to continue to advocate for food support programs and the elimination of poverty because we know from information presented in Sections 2.0 and 6.0 that income and food security are significant issues in Peterborough County-City.

Generally, the preconception population in Peterborough County-City needs to make improvements with respect to their frequency of physical activity as only about 1/4 of the female preconception population and slightly over 1/3 of the male preconception population is exercising as often as Canada's Guide to Healthy Active Living recommends. In addition, most males and females do not make changes to their physical activity level prior to pregnancy. Therefore, a continued effort to promote the importance and benefits of physical activity is required.

Most of the preconception population has a Body Mass Index (BMI) score in the normal range. However, a considerable percentage of preconception males are overweight, while a considerable percentage of preconception females are underweight.

The majority of the preconception population are non-smokers. Of the percentage who do smoke, there are more males than females. Also, of those who smoke, approximately half will reduce the number of cigarettes or quit smoking prior to pregnancy. A large majority of preconception households are also smoke-free.

With respect to smoking and environmental tobacco smoke, current reduction efforts should be applauded and sustained as the majority of people in the preconception phase report being non-smokers. Message development for those in the preconception period should focus on the effects of smoking, and exposure to environmental tobacco smoke, on conception, birth outcomes, and young children.

Alcohol consumption does not appear to be a concern in the Peterborough County-City preconception population as the majority of females drink monthly or less, while the majority of males drink 2-4 times/month. When they do consume alcohol, the majority of this population drinks 3 drinks or less. For preconception females, the majority quit drinking alcohol or reduce consumption prior to pregnancy, while the majority of males do not make this change. It is important to take into account that survey respondents generally under report their alcohol consumption.

A large majority of the preconception population does not use street drugs. Of those who do use these drugs, there are more males than females. Just over one-third who did used them in the four weeks prior to pregnancy.

Messages related to alcohol and drug use seem to have had an impact on the preconception population in Peterborough County-City. Not only are people reporting that they consume alcohol within the established low-risk drinking guidelines, but females are reducing or eliminating their consumption prior to pregnancy. There is still a need to sustain efforts to promote low-risk drinking (for women 9 and for men 14 or fewer standard drinks of 13.6 g of alcohol per week and no more than 2 drinks in any day) and eliminate street drug use.

The majority of the preconception population is not concerned about exposures to environmental toxins in their workplace or at home. For those who are concerned, it is most commonly about exposure to chemicals/solvents in the workplace or home. Approximately half of those who have workplace concerns will express their concerns to their employer, while only a quarter of those concerned about home exposure will discuss their concerns with a health care provider.

It is difficult to determine if people are aware of the risks of environmental exposures at work and at home and are not concerned, or if they do not have enough information about environmental exposures and their affects on conception and birth outcomes to register a concern. This uncertainty needs to be clarified to facilitate the development of effective messages about environmental exposures.

Most individuals in the preconception period in Peterborough County-City are dealing well with the level of stress in their life. Support systems for preconception individuals also seem to be quite strong. Finances, relationships, and health are the top three causes of stress reported. Preconception education efforts need to continually recognize the importance of stress reduction and support systems in relation to increased levels of family violence reported during pregnancy and the development of postnatal mood disorders.

The majority of the preconception population report that they are discussing transition to parenting issues prior to pregnancy such as: sharing household chores; looking after the baby; child care arrangements; changes to relationships; and the costs of raising a child. What is still unclear is whether the issues that were discussed prior to pregnancy adequately prepared parents for a successful and easy adjustment to parenthood.

Prior to pregnancy, most preconception individuals in Peterborough County-City are gaining knowledge about parenting from family, friends, and books and magazines. They feel that the best format for parenting information is one-to-one conversations with family and friends, but feel that the best location to gather and learn more information about parenting is the doctor's or health provider's office. Therefore, it is important that family and friends as well as health care providers have access to good information to share with this individuals. As well, the fact that classes/workshops were a preference of only 7% of the respondents when asked what would be the best way to convince men and women to

make health changes prior to pregnancy should be taken into consideration.

When considering enhancing messaging about transition to parenting, it will be important to consider where this population has indicated they gained their parenting knowledge prior to pregnancy; in what format and in which location they felt it would be best to learn more about parenting; and how adequately prepared they were for their new role. All of these issues will need to explored in greater detail as part of the "transition to parenting" component of the Peterborough County-City Health Unit's Healthy Pregnancy and Child Development initiative (a five-year initiative funded through the Ministry of Health and Long-Term Care Public Health Branch's Early Years Initiative).

Agenda for Future Action

3.1 All preconception messages should have two audiences. One audience should be males and females who are considered average (e.g., young, married, fairly well-educated, city dwellers, home owners, employed, substantial incomes). The other audience should be men and women who are atypical of the average preconception population. This approach will ensure that messages, vehicles, and channels will be utilized to help each audience make healthy choices in the preconception period.

3.2 Peterborough County-City Health Unit should continue to advocate that organizations promoting preconception messages should strive to:

- adopt practices that value pregnant women, children and families;
- encourage men and women to prepare actively for pregnancy;
- identify individuals with increased risks and provide information needed to make decisions and reduce the risks;
- be aware of the many environmental factors influencing the family including social, psychological, spiritual, and physical ones;
- respect the diversity of people's lives and experiences; and
- help women and their partners understand health issues as they relate to pregnancy and conception, possible through genetic counselling, so that they may make informed choices about pregnancy (*Best Start, 2002*).

3.3 Further research into the immunization practices of the preconception population should be considered, and appropriate actions developed based on the results.

3.4 Health professionals should continue to be considered as a primary conduit for preconception health information for both males and females in the preconception period.

3.5 Further research and action is required to increase the number of males and

females who are tested for STDs including HIV/AIDS prior to pregnancy.

3.6 The promotion of the importance of folic acid for women in the preconception and prenatal periods needs to continue.

3.7 Widespread promotion of the components of healthy eating, especially the importance of fruits and vegetable as well as grain consumption needs to continue.

3.8 Advocacy for food support programs and the elimination of poverty needs to continue.

3.9 A continued effort to promote the importance and benefits of physical activity in accordance with Canada's Guide to Healthy Active Living for men and women is required.

3.10 Promotion efforts with respect to BMI need to concentrate on the health consequences of men being overweight and the consequences related to conception and birth outcomes of women being underweight.

3.11 With respect to smoking and environmental tobacco smoke, current reduction efforts should be sustained. Message development for those in the preconception period should focus on the effects of smoking and exposure to environmental tobacco smoke on conception and birth outcomes.

3.12 The Peterborough County-City Health Unit should continue to advocate for enhanced smoking cessation programs in the community.

3.13 Efforts to promote messages related to reducing alcohol (e.g., Low Risk Drinking Guidelines) and drug use should be sustained.

3.14 Efforts should continue to build and maintain links with treatment agencies and needle exchange programs to identify and reach those at highest risk for substance abuse.

3.15 Message development regarding environmental exposures in the preconception period in the workplace and in the home should be expanded.

3.16 Preconception education efforts need to continually recognize the importance of stress reduction and support systems especially in relation to increased family violence during pregnancy and the development of postnatal mood disorders.

3.17 The community, in a coordinated fashion, must continue to promote services for parents or parents-to-be, and how these can be accessed (see Section 7.0

Agenda for Future Action).

3.18 Transition to parenting efforts (e.g., PCCHU's Health Pregnancy and Child Development Initiative) must recognize the preferences of the preconception population with respect to the best format (e.g., not classes) and the best location to access parenting information.

4.0 The Prenatal Period

Pregnancy is a time of emotional and physical change. Hormonal shifts affect every system of a woman's body. Discomforts arise as her body adjusts to accommodate the growing fetus. Although every pregnancy is different, most women expect and share common discomforts such as fatigue, heartburn, nausea, vomiting, and back pain. Some of these cause only minor discomforts, while in some instances they can lead to more serious problems.

Mild cases of nausea and vomiting of pregnancy (NVP) are associated with better pregnancy outcomes, including a lower risk of congenital malformations in general and cardiac malformations in particular (*Motherisk, 1998*). Severe cases of NVP, however, can lead to dehydration and electrolyte imbalance which often necessitate hospitalization and may be life-threatening if not treated properly (*Motherisk, 1996*).

There is a substantial body of evidence indicating that the prenatal experience is a major determinant of a child's long-term development, and that the postnatal environment is limited in its capacity to reverse the effects of prenatal damage. A child whose prenatal health has been compromised may experience significant physical and mental health problems that persist over the lifespan (*Canada's NGO Report 23*). A significant proportion of the incidents of low birthweight, congenital anomalies, and perinatal mortality and morbidity, result from poor prenatal care and fetal exposure to toxins such as alcohol and nicotine (*Canada's NGO Report 23*).

Babies are considered to have a low birthweight (LBW) when they weigh less than 2.5 kg (2,500 g or 5.5 lb) at birth regardless of how long the pregnancy lasted.

Approximately 75% of all newborn deaths and illnesses occur in LBW babies. As well, LBW babies are at greater risk of developing serious life-long disabilities such as learning disorders, visual problems, respiratory illnesses and cerebral palsy.

In Canada, about 20,000 LBW babies are born each year. This is approximately 6% of all births. It costs a tremendous amount of money to care for the immediate needs of these babies, and to provide the long-term care and special attention some will need throughout life. Families of LBW infants have to bear financial and emotional costs of living with children who often need special care and attention to overcome health problems.

Social and personal factors that increase the risk of LBW include: poverty, being a single or teenage parent, little or no prenatal care, living with a violent partner, generally stressful

life, workplace conditions, type and amount of work, smoking, alcohol and other drug use, poor nutrition before and during pregnancy, and limited stress relief strategies. Medical conditions such as high blood pressure, kidney disease, diabetes, chronic infections of the urinary or vaginal tract, and other chronic problems can also increase the risk for LBW (Best Start).

Some babies are born too soon (before 37 weeks); others do not grow enough while still in the uterus. The word *preterm* describes the first condition, and either *small-for-dates* or *growth restricted* describes the second.

A normal or *term* pregnancy lasts 37 - 42 weeks and ends with the onset of labour. Preterm (premature) labour is labour that starts before 37 weeks of pregnancy, and may end in a preterm birth (a baby being born too soon). In fact, 1 in every 12 babies in Ontario is born too soon and they account for 70% of LBW babies. The incidence of preterm births has increased slightly in the past few years in Ontario. Preterm babies:

- may have trouble breathing, feeding, and keeping warm;
- may be more likely to get infections;
- may need special care in the hospital; and
- may have to stay in the hospital after their mother goes home.

The exact cause of preterm birth is unknown, however, some women are more likely than others to have a preterm birth. These may be women who: are carrying a multiple pregnancy; are having a first baby; have had a previous preterm baby; have a serious medical problem; have a lifestyle risk factor; are living in poverty; are single; are a teen or over age 35; are less than 62" in height; or have uterine or cervical anomalies, or diethylstilbestrol (DES) exposure.

About 25% of preterm births are related to clearly identifiable health problems in the mother or baby, which affect fetal well-being. In some cases, the focus of primary prevention is on risk factors that can be minimized through action prior to preconception or during pregnancy. Research has identified several modifiable risk factors that are associated with an increased risk of preterm birth. Thus, it is prudent to minimize these risk factors in the population: cigarette smoking and exposure to environmental tobacco smoke; genital tract infections - bacterial vaginosis; high perceived stress; cocaine use; asymptomatic bacteriuria (infection in the bladder); poor nutrition - low Body Mass Index pre-pregnancy, poor weight gain in pregnancy, inadequate micronutrient intake; and prolonged standing on the job - greater than 3 hours (*Best Start, Preterm Birth FAQs*).

Adolescent pregnancy is a complex issue on its own involving physical, psychosocial, and financial factors. An increased risk of adverse reproductive outcomes in teen pregnancy (e.g., low birthweight and preterm births discussed above), independent of socioeconomic status has been well documented in the literature. Health risks to teen mothers, such as

poor weight gain and pregnancy-induced hypertension have also been reported. Psychosocial issues related to a lack of support systems, readiness for parenting, and loss of educational and/or employment opportunities have both short and long term implications for the health and well-being of children born to teen mothers. In addition, the financial ramifications of teen motherhood, including costs to the health care system, define teen pregnancy as an important public health issue (*Public Health and Epidemiology Report Ontario, 2001*).

Infectious diseases (e.g., rubella, chicken pox, toxoplamosis) and sexually transmitted diseases (STDs) including HIV/AIDS can harm a baby before and after birth. They can cause birth defects, illness, or death of the infant (*Algoma Best Start, 1998*). Women are encouraged to make an appointment with a health care provider for a check-up prior to becoming pregnant and once pregnant, should see their health care provider early in the pregnancy and regularly throughout. This will ensure that they are properly protected against infectious diseases, know how to protect themselves and their baby from germs, and that they are doing all that they can to ensure a positive birth outcome (*Best Start*).

Smoking and second-hand smoke, a poor diet, lack of exercise, and alcohol use are some of the lifestyle concerns over which pregnant women have some control (*Algoma Best Start, 1998*).

Healthy eating helps ensure that adequate nutrients are available to support a healthy pregnancy. Pregnant women have additional nutritional needs that can be met by making certain choices from Canada's Food Guide to Healthy Eating. Guidelines are geared to the age of the woman, and whether she was underweight, at a healthy weight, or overweight before becoming pregnant. For example:

18 Years or Younger (Underweight Before Pregnancy)	4 servings of milk products 3 servings of meat and alternatives 9-10 servings of vegetables and fruit 10-11 servings of grain products
19 Years or Older (Healthy Weight Before Pregnancy)	3-4 servings of milk products 2-3 servings of meat and alternatives 8-9 servings of vegetables and fruit 9-10 servings of grain products
19 Years or Older (Overweight Before Pregnancy)	3-4 servings of milk products 2 servings of meat and alternatives 8 servings of vegetables and fruit 9 servings of grain products

(*PCCHU, 2000*).

It is recommended that women take a multivitamin containing a minimum of 0.4 mg of folic acid every day. Before pregnancy, folic acid helps reduce the risk of having a baby with defects of the spinal cord and the brain (neural tube defects) by more than 70%. Since about half of the pregnancies in Canada are unplanned and since the defects occur before most women know that they are pregnant, Health Canada recommends that all women of childbearing age who could become pregnant take folic acid every day in order to prevent neural tube defects (*PCCHU, 1997 and 1996a*).

Women who do not gain enough weight during pregnancy may deliver a LBW baby. On the other hand, excessive weight gain may be associated with a high birth weight and possible consequences of prolonged labour and birth; birth trauma; birth asphyxia; caesarian birth; and increased risk of mortality (*Health Canada, 1999a*). Because there is no one ideal weight for people of the same height, it is impossible to say exactly how much weight any woman should gain during a pregnancy. However, what does exist is a range of weight gain that is linked with giving birth to a healthy baby. A woman needs to determine her Body Mass Index (BMI) before pregnancy and then:

BMI Range	**Weight Gain**
Range is below 20	Should be at least 28-40 pounds (12.5-18 kg)
Between 20 and 27	Should be between 25-35 pounds (11.5-16 kg)
Over 27	Should be at least 15-25 pounds (7-11.5 kg)

The weight gain ranges suggested above are meant for women expecting one baby. Those carrying twins should gain between 25 and 35 pounds, regardless of their pre-pregnancy BMI. Short women should aim for the lower end of the weight gain range for their BMI, and pregnant teens should gain closer to 35 pounds as their bodies are still growing. Women who have a slow, steady weight gain are more likely to have healthier babies. Normal weight gain in the first 3 months is about 1 pound a month. During the last 6 months, women should gain 3 to 4 pounds a month (*PCCHU, 1999b*).

The Canadian Fitness and Lifestyle Research Institute has stated that women who exercise regularly during pregnancy have increased levels of self-esteem; are better able to keep their weight in check; have fewer aches and pains including back pain; have an easier labour and birth; and recover faster. In addition, the Canadian Academy of Sports Medicine reports that regular physical activity by pregnant women may also reduce the incidence of depression and anxiety; decrease pregnancy-induced hypertension; help prevent and treat gestational diabetes; and reduce symptoms of pregnancy such as nausea, leg cramps, and insomnia. Regular physical activity before and during pregnancy also reduces a woman's risk of pre-eclampsia (onset of acute hypertension after the 24th week of gestation) according to researchers in Seattle, Washington (*The Medical Post, 2000*).

Pregnancy should not stop women from being physically active. Current research suggests that healthy pregnant women can continue to participate in physical activity. If a woman has been regularly active (for 30 minutes, 3 times a week) before pregnancy, she can safely participate in physical activity. For women who have not been active before pregnancy, the best time to start is considered after the 16th week of pregnancy, or in the second trimester. The Society of Obstetricians and Gynaecologists of Canada recommend that pregnant women engage in light aerobics, brisk walking, swimming, strength training and relaxation techniques. Heavy cardiovascular workouts or weight lifting may be harmful, and it is suggested that women avoid exercise if they have prior health problems, are carrying more than one baby, or have a lot of lower back pain or discomfort.

Work during normal pregnancy is not usually a problem. Certain types of work are associated with an increased risk of poor pregnancy outcomes. Within the workplace, a number of factors may influence pregnancy. These include exposures to physical hazards (heat, noise, radiation, cold, and vibration); biological hazards (physical activity levels, commuting, stress, or other workplace requirements or restrictions); and chemical hazards (e.g., lead, metal fumes, toluene, polychlorinated biphenyls (PCBs), solvents, radiation, phthalates, pesticides, mercury, or toxic waste).

Outcome:	**Associated With:**
Low Birthweight	- standing for long periods - heavy lifting - more than 40 hours a week - commuting more than 1 hour every day - stressful working environments - exposure to high noise levels - rotating shiftwork - physically demanding work
Miscarriage	- irregular hours - rotating shifts

Smoking in pregnancy is the most clearly established preventable risk factor associated with LBW. It is also associated with: placental problems and bleeding, miscarriage, and stillbirth and neonatal death. Tobacco smoke is known to contain at least 4,000 chemicals and at least 50 of these are known to cause cancer. Nicotine narrows blood vessels, and the blood (which carries oxygen) has a harder time getting through to the developing organs. Consequently, the baby gets less oxygen and does not grow as well. Carbon monoxide, another compound in smoke, reduces the amount of oxygen carried by the blood to the baby

Studies suggest that as many as 20%-35% of all pregnant women smoke throughout pregnancy. Pregnant women who smoke are more likely to have: miscarriages, stillbirths, babies born small for their age, babies who are born too early, babies with low birthweights, babies with birth defects, babies who have more breathing problems, and babies at a higher risk for SIDS (Sudden Infant Death Syndrome) (*East York Community, 1991*). Women who smoke are also less likely to breastfeed their babies.

Smoking rates are high among pregnant women living in poverty; this further increases their risks already associated with poverty as they are already women who have risk factors for negative birth outcomes.

A significant relationship has been found between LBW and exposure to second-hand smoke. Quitting or decreasing smoking during pregnancy, as well as avoiding second-hand smoke can improve birth weight.

Alcohol and drugs cross the placenta and achieve concentrations equivalent to those in the mother's circulation. During the course of pregnancy, alcohol and drugs can affect the development of the baby's brain, major internal organs, and overall growth. Drug use in pregnancy includes illicit drugs, caffeine, and over-the-counter medication. Use of any drug in pregnancy is discouraged without first consulting with a health care provider (*Best Start*).

National data indicate that around 18% of women consume alcohol during their pregnancy, and 7% continue to use illicit drugs while pregnant (*Canada's NGO Report 23*). Many children born in Canada will cope with the persistent and pervasive effects of Fetal Alcohol Syndrome (FAS), especially in Aboriginal communities where it is most prevalent. The Canadian Institute of Child Health has estimated FAS rates to be 1 in 500 children, while a Health Canada study in 1998 estimated as many as 3 per 1,000.

Pregnant women are particularly susceptible to physical abuse, with reported rates of assault during pregnancy ranging from 11% to 21%. Women assaulted during pregnancy are more likely to deliver by Cesarean Section, and be hospitalized before delivery for maternal complications such as kidney infections, premature labour, and trauma related to falls and blows to the abdomen (*Health Canada, 1999b*). Harm to a baby as a result of abuse can include: rupture of the placenta; premature birth; premature rupture of membranes, increasing the risk of infection; hemorrhage in the fetus; stillbirth; miscarriage; rupture of the bones of the baby; and low birthweight (womanabuseprevention.com). Abused women are also known to smoke more often and use more prescription and antidepressant drugs (*Best Start*).

The prenatal period is a time of great change and stress as there are significant physical changes occurring as well as new facets of relationships developing. Based on the

information presented above, there has been a great deal of interest provincially in discussion regarding strategies to prepare parents for parenting in order to have a positive impact on birth outcomes. The terms “transition to parenthood” and “readiness to parent” are difficult concepts to define and operationalize.

The term “transition to parenthood” refers to the fairly brief period of time from the beginning of a pregnancy to the first few days and weeks after birth. This period of time is one of significant adjustment to the physical and psychological changes of pregnancy, and emotional and social adjustment to changes in role and status for all family members.

Successful adjustment during this period is thought to contribute to maternal and infant health, and healthy new beginnings for the family. Individual and/or family level outcomes indicating a smooth adjustment to the transition to parenthood (or “readiness to parent”) include:

- development of positive and realistic goals for early parenting;
- development of parenting skills and coping resources (including social supports) to draw on during the early postpartum period;
- improved self-esteem or sense of self-confidence about becoming a parent;
- enhanced family relationships/development (including communication between the woman and her partner/family and positive parent-infant interaction); and
- awareness of and/or linkage to appropriate community resources (*Ontario Ministry of Health, 2001*).

The prenatal period is a crucial one with respect to the development of a child throughout their life. For a number of reasons, children are still being jeopardized before birth. Energy and resources need to be continually focused at this stage of the perinatal and child health continuum in order to positively influence birth outcomes.

Local Data

The local prenatal data that follows is derived from the following sources: the Ontario Livebirth Database; the Provincial Health Planning Data Warehouse; the Ontario Population Projections Database; the Peterborough Regional Health Centre (PRHC) 2000 and 2001 Perinatal Database Maternal Characteristics Report; and a Perinatal Record Review - a partnership between the PRHC and the Peterborough County-City Health Unit (PCCHU).

The Perinatal Record Review took place during the summer of 2002. The intent of this review was to collect never-before analyzed local prenatal and birth information to create a snapshot of prenatal health practices and behaviours in Peterborough County-City.

In 2001, there were 1,354 children born at PRHC. A total of 305 PRHC patient records for

2001 births to Peterborough County-City residents were reviewed. Of these 305 records, 170 records (55%) were from the City of Peterborough, 134 (44%) records were from the County of Peterborough, and 1 record was unclassified. The percentage of records obtained from the County and City of Peterborough in the sample is reflective of the population percentages of the two areas according to the Census.

This review of 305 records is considered to be a representative sample of births and therefore, the statistics presented can be considered to be representative of the Peterborough County-City population as a whole. In fact, we can be 95% confident that the percentages presented will be within ± 2.5%.

Within this record review, information was collected and analyzed from the Prenatal Clinic Record (37% of records reviewed had this form), the Antenatal Record 1 (96% of records reviewed had this form), the Antenatal Record 2 (94% of records reviewed had this form), the Physician Labour and Delivery Record (92% of records reviewed had this form), and the Birthing Suite Nursing Summary (97% of records reviewed had this form).

Where possible in this section, national Aboriginal data about the prenatal period has been included along with comments offered during discussions with Curve Lake First Nation.

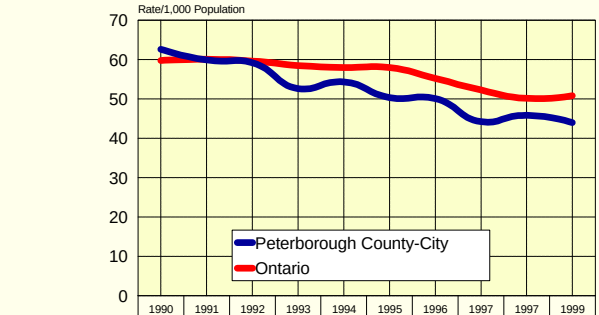
Fertility Rates

Figure 4.1 illustrates that the fertility rate (average number of live births to mothers of child-bearing age) in Peterborough County-City has been declining to a greater extent than Ontario's rate between 1990-1999.

In addition, the fertility rate in Peterborough County-City has decreased in the 15-19, 20-24, and 25-29 age groups while it has increased in the 30-34, 35-39, and 40-44 age groups (Table 4.1).

Figure 4.1 Fertility Rate

Peterborough County-City and Ontario, 1990-1999



	1990	1991	1992	1993	1994	1995	1996	1997	1997	1999
Peterborough County-City	62.6	59.86	59.17	52.61	54.29	50.31	50.09	44.19	45.8	43.94
Ontario	59.73	60.03	59.6	58.47	57.98	57.93	55.2	52.23	50.12	50.79

Source: Ontario Livebirth Database and Provincial Health Planning Data Warehouse

Table 4.1 Maternal Age-Specific Fertility Rates,*
Peterborough County-City and Ontario, 1985-1999

Year	15-19 years		20-24 years		25-29 years		30-34 years		35-39 years		40-44 years	
	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.
1985	25.95	20.90	76.76	78.82	138.53	126.40	77.81	81.20	14.91	24.37	1.26	3.42
1986	22.50	19.67	82.56	72.44	139.02	119.36	73.33	78.95	17.75	25.09	2.19	3.63
1987	20.25	19.13	83.81	69.16	133.95	116.86	73.02	79.40	21.00	26.73	1.71	3.79
1988	23.50	19.12	79.29	67.88	134.09	116.64	84.67	81.96	21.95	28.23	0.79	3.88
1989	24.00	20.54	80.95	67.95	138.04	116.63	78.09	85.49	96.36	30.02	3.25	4.47
1990	25.75	21.42	79.30	68.13	143.13	118.83	86.53	89.37	25.87	31.18	2.33	4.54
1991	22.85	22.04	70.65	66.72	136.61	116.98	88.99	100.17	27.63	32.67	3.77	4.55
1992	21.13	22.23	71.97	65.39	146.96	117.77	82.12	92.77	29.14	33.59	4.23	4.92
1993	25.00	22.40	64.72	63.94	121.27	113.33	82.48	93.82	21.61	34.64	2.90	5.22
1994	26.36	22.42	65.65	62.84	131.31	112.42	84.30	94.21	23.61	35.31	3.04	5.62
1995	26.46	22.48	56.84	61.96	113.03	110.26	82.71	96.94	30.91	37.71	2.75	5.98
1996	22.70	20.01	66.90	58.39	119.25	105.26	77.72	95.12	30.98	38.64	1.44	6.13
1997	16.83	17.27	55.24	54.20	99.71	99.41	81.24	92.15	26.47	38.44	4.77	6.35
1998	18.23	17.05	54.52	53.91	105.78	95.49	89.94	89.66	30.27	37.51	4.49	6.21
1999	14.67	15.88	51.52	52.96	110.33	97.31	86.78	94.31	28.47	39.23	3.49	6.82

*** Maternal Age Specific Fertility Rate** represents the number of live births among 1,000 women in a specific age category during a specific period of time.
Source: Ontario Livebirth Database and Ontario Population Projections Database

Births

The Crude Birth Rate is the average number of live births over a period of time in the total population. Figure 4.2 illustrates that Peterborough County-City's Crude Birth Rate has historically been lower than that of Ontario, and is continuing to decline more quickly.

In Peterborough County-City, the majority of local babies (62%) in 1995-1999 were born to mothers between 25 and 34 years of age. Women age 25-29 had the greatest percentage of live births in the 1995-1999 period (Table 4.2). The percentage of live births in Peterborough County-City in the 15-19 age group declined slightly between 1995-1999, while a slight increase was evident in the 35-39 age group. It is important to note that in 1999, Peterborough County-City's percentage of live births to the 15-29 age groups remained higher than the percentages in these age groups for Ontario as a whole.

Peterborough Regional Health Centre statistics for births in 2000 and 2001 are presented in Table 4.3. The totals presented are a count of all births at the hospital regardless of where the mother resided and cannot be considered a count specifically for Peterborough County-City. In 2001 the majority of babies born at PRHC (63%) were born to mothers

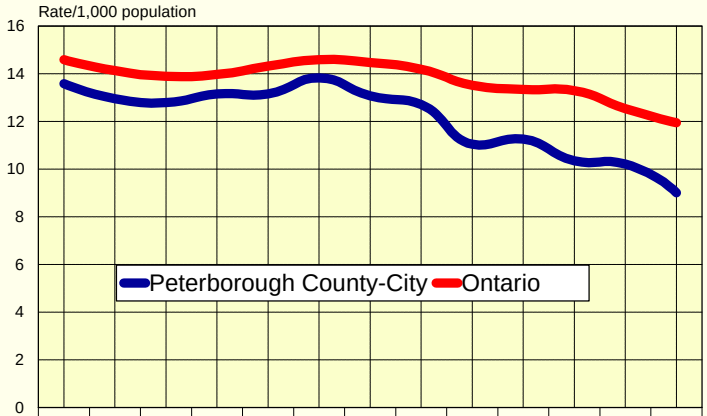
age 25-34. Mothers less than 20 years of age accounted for 5% of 2001 births, while 17% were mothers 20-24 years of age and 15% were mothers age 35 years and over.

In 2001, 43% of women who gave birth at PRHC were having their first child, 35% their second child, 14% their third child, 5% their fourth child, 2% their fifth child, and 1% their sixth or more child. Of the 1,354 babies that were born at PRHC in 2001, 53% were male and 47% were female. Also, according to PRHC statistics, 7 sets of twins were born at the hospital in 2001.

The trend toward more babies being born to single mothers in Peterborough County-City continues to be evident (Table 4.4) as the percentages have risen from 12.1% in 1985 to 16.8% in 1999. Babies born to married mothers in Peterborough County-City have declined from 86.3% in 1985 to 67.8% in 1999 while those born into other arrangements (e.g., common-law, same-sex couples) rose from 1.6% in 1995 to 15.4% in 1999. When compared with Ontario in 1999, Peterborough County-City had higher percentages of single mothers, lower percentages of married mothers and comparable percentages of other arrangements.

Figure 4.2 Crude Birth Rate

Peterborough County-City and Ontario 1985-1997



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Peterborough County-City	13.58	12.96	12.79	13.15	13.16	13.83	13.08	12.71	11.04	11.26	10.35	10.21	9
Ontario	14.59	14.13	13.9	13.97	14.32	14.59	14.47	14.19	13.52	13.34	13.29	12.54	11.94

Source: Ontario Livebirth Database and Ontario Population Projections Database

Table 4.2 Livebirths by Age of Mother
Peterborough County-City and Ontario, 1995-1999

Year	15-19 years		20-24 years		25-29 years		30-34 years		35-39 years		40-44 years	
	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.
1995	8.0%	5.3%	17.2%	15.8%	31.8%	31.6%	30.0%	33.0%	11.9%	12.2%	1.0%	1.7%
1996	7.0%	5.0%	20.1%	15.2%	32.8%	30.9%	27.4%	33.3%	12.0%	13.4%	0.5%	1.9%
1997	6.0%	4.6%	18.8%	14.9%	29.9%	30.5%	31.2%	33.3%	11.8%	14.3%	2.1%	2.2%
1998	6.4%	4.7%	18.0%	15.3%	29.8%	30.1%	31.3%	32.6%	13.3%	14.8%	1.9%	2.2%
1999	5.5%	4.4%	18.1%	14.9%	33.0%	29.9%	29.1%	32.7%	12.7%	15.4%	1.6%	2.5%

Source: Ontario Livebirth Database

Table 4.3 Peterborough Regional Health Centre, Birth Statistics, 2000 and 2001

	2000	2001
Total Number of Births*	1,375	1,354

***Note:** These totals include all births at PRHC rather than just those of Peterborough County-City Residents.

Source: PRHC Perinatal Database Maternal Characteristics Report, 2001

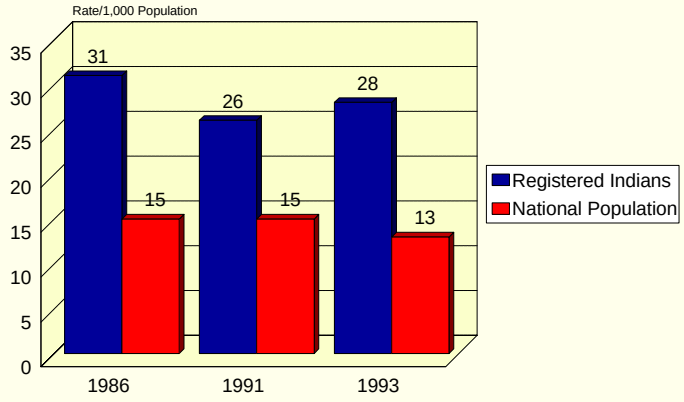
Table 4.4 Livebirths by Marital Status
Peterborough County-City and Ontario, 1985-1999

Year	Single		Married		Other	
	Ptbo.	Ont.	Ptbo.	Ont.	Ptbo.	Ont.
1985	12.1%	11.3%	86.3%	87.4%	1.6%	1.3%
1986	13.5%	11.8%	85.4%	87.2%	1.1%	1.0%
1987	14.7%	12.5%	84.6%	86.9%	0.7%	0.6%
1988	17.0%	13.2%	82.4%	86.2%	0.6%	0.6%
1989	13.4%	13.5%	86.1%	85.9%	0.5%	0.6%
1990	16.8%	14.4%	82.8%	85.0%	0.4%	0.6%
1991	17.6%	15.9%	80.5%	78.2%	1.9%	5.9%
1992	18.8%	15.8%	79.4%	76.3%	1.8%	7.9%
1993	22.5%	15.6%	73.6%	71.7%	3.9%	12.7%
1994	20.3%	15.0%	71.4%	70.1%	8.3%	14.9%
1995	19.9%	14.5%	71.8%	67.6%	8.3%	17.9%
1996	17.6%	14.0%	71.3%	67.9%	11.1%	18.1%
1997	17.7%	16.9%	70.1%	73.4%	12.2%	9.7%
1998	20.5%	15.1%	66.5%	72.2%	13.0%	12.7%
1999	16.8%	13.2%	67.8%	71.6%	15.4%	15.2%

Source: Ontario Livebirth Database

With respect to Aboriginal communities, the Registered Indian birth rate has been consistently higher than the national birth rate in Canada (Figure 4.3). The higher birth rate results in a relatively young Indian population, and highlights the need for adequate and accessible services that meet the social and health needs of pregnant women, infants, children and youth (*CICH, 2000*). When this trend toward higher birth rates was discussed with representatives from Curve Lake First Nation, it was determined that Curve Lake's birth rate is much closer to the national birth rate presented in Figure 4.3 than to the rate presented for the Registered Indian population.

Figure 4.3 Birth Rate, Registered Indians and National Population
1986, 1991, and 1993



Source: Canadian Institute for Child Health, 2000

Prenatal Supports and Programming in the Community

Prenatal care is a critical component of a child's healthy development. We know from the Perinatal Record Review that in less than 1% of clients attending the Prenatal Clinic at PRHC, a concern was identified about access to prenatal care. Prenatal care for those attending the Prenatal Clinic was by General Practitioners (62%), Obstetricians (34%), and Midwives (2%). The Physician Labour and Delivery Record also indicates that 96% of patients had a physician for prenatal care.

In general, women visit the Prenatal Clinic between 14 and 38 weeks gestation with about 50% visiting between 14 and 28 weeks and the other 50% between 29 and 38 weeks gestation. The most common time for women to visit the Prenatal Clinic is at 28 weeks gestation. Client referrals to the Prenatal Clinic are by: General Practitioners (42%), Gynecologists (less than 1%), Midwives (1.8%), Obstetricians (29%), and Self-Referrals (24%).

The prenatal educational opportunities available in Peterborough County-City, and the numbers attending these programs in the year 2000 and 2001 are outlined in Table 4.5. The estimated totals indicate that there were 1,471 involved with prenatal programming in 2000, and 1,539 involved in 2001. It was not possible to obtain an unduplicated count. At this time, it is unknown how many individuals are accessing a number of services at the same time. It is also not possible to determine how many of those individuals that make up part of the total actually reside outside of Peterborough County-City.

Information about, and referrals between programs was also captured during the Perinatal Record Review in the Prenatal Clinic Record. The Prenatal Health Fair was discussed

with clients 81% of the time, and Childbirth Education Classes were discussed 75% of the time, while the Healthy Babies, Healthy Children program was discussed 42% of the time. Consent to refer the client to the Healthy Babies, Healthy Children program was obtained 50% of the time, while consent to refer the client to Babies First was obtained 53% of the time.

The Perinatal Record review revealed information that could impact on transition to parenting. Concerns were identified for the following issues for the clients of the Prenatal Clinic: impact of pregnancy on the mother (11%), financial impact of pregnancy (16%), impact of pregnancy on relationships (9%), and becoming a parent (8%). Information gleaned from the Antenatal Record 1 indicates that the couple's relationship was discussed 13% of the time, and parenting concerns were discussed 8% of the time.

It is also difficult to gauge how much time is spent in the local prenatal programs on the concept of 'transition to parenthood,' and the preparation for the emotional and social adjustment to changes in role and status for all family members prior to a birth. Given the fact that most childbirth classes are at the most 6 sessions in length, and that the Prenatal Health Fair is one evening, one can conclude that it is unlikely that much time is spent on transition to parenthood preparation.

One important mechanism that exists in relation to prenatal programming is Peterborough Perinatal Support Services. This network, established in 1997, includes, the Peterborough County-City Health Unit, the Peterborough Regional Health Centre, the Women's Health Care Centre, and the Peterborough Family Resource Centre/Ontario Early Years Centre. Managers of these agencies meet regularly and the network hosts an annual forum for interested parties in the broader perinatal community in Peterborough.

Also, meetings are held in to coordinate referrals with respect to Prenatal High Risk Clients. As well, there are coordination meetings with Childbirth Educators on a regular basis.

Table 4.5 Summary of Prenatal Educational Opportunities Peterborough County-City, 2000 and 2001

Provider and Description of Service	2000	2001
Peterborough Regional Health Centre - Childbirth Education Classes (3 classes)	263	291
Peterborough Regional Health Centre - Prenatal Clinic	733	744
Peterborough District Childbirth Association - Childbirth Education Classes (6 classes), Refresher Classes (3 classes), Sibling Classes (1 class), Hospital Tour	 26 -- -- 62	 32 3 4 68
Private Educators - Kawartha Birthing and Lactation Consultants Group (6 classes) 1:1 (1 session)	 24 17	 21 23
PCCHU - Prenatal Health Fair	159	160
PCCHU - Teen Prenatal Supper Club	39	46
PCCHU - Healthy Babies, Healthy Children Prenatal Referrals	63	58
Lovesick Lake Native Women's Association - Canadian Prenatal Nutrition Program (CPNP)	7	17
Peterborough Family Resource Centre - Babies First (CPNP) Program	78 (new prenatal women) (1,150 visits)	72 (new prenatal women) (1,132 visits)
Total*	**1,471***	**1,539***

*** Note:** Totals are not unduplicated counts. The same individuals may have accessed a number of services listed during a particular year. Also, the totals presented in the table may include individuals who live outside of Peterborough County-City who may also have accessed these local prenatal services.

Nutrition and Folic Acid Supplementation

Little information is available about how closely pregnant women in Peterborough County-City follow Canada's Food Guide to Healthy Eating in terms of the types and amounts of food they eat.

Prenatal Clinic Records indicate that concerns were identified about: the Healthy Eating Guide (3.5%); access to food (less than 1%); vitamin supplements (7%); and folic acid supplementation (27%).

Additional nutritional concerns were documented on the Antenatal Record 1 form as follows: folic acid/vitamins (40%), milk products (57%); balanced diet (50%); restricted diet (3%). A referral was made to a dietitian 1% of the time.

Pre-Pregnancy Body Mass Index and Weight Gain During Pregnancy

Information about height and pre-pregnancy weight collected during the Perinatal Record Review was used to calculate the pre-pregnancy body mass index of the sample of those who gave birth in 2001. The pre-pregnancy BMI percentages for this population are as follows:

BMI Score		**Health Risk**
Greater Than 40	1%	(Extremely High Health Risk)
35.0 - 39.9	2%	(Very High Health Risk)
30.0 - 34.9	6%	(High Health Risk)
25.0 - 29.9	19%	(Increased Health Risk)
18.0 - 24.9	37%	(Normal Health Risk)
Less Than 18	1%	(Moderate Health Risk)
No Answer	34%	

A woman's weight gain during pregnancy is recorded on The Physician Labour and Delivery Record. The following frequency of weight gain was noted: weight loss (0.3%); weight gain of 0-24 pounds (10%), weight gain of 25-29 pounds (20%), and weight gain of 40 or more pounds during pregnancy (17%). This information was missing in 52% of the records reviewed.

Physical Activity

Few specific statistics available at the local level to adequately assess the physical activity levels of pregnant women in Peterborough County-City. For those patient records that included a Prenatal Clinic Record, the physical activity level of the client was a concern 2% of the time. The Antenatal Record 2 also includes exercise as a discussion topic. This topic was checked off as discussed in 25% of the records.

Smoking and Environmental Tobacco Smoke

Information relating to the smoking habits of pregnant women in Peterborough County-City and their exposure to environmental tobacco smoke is as follows:

- The Peterborough Regional Health Centre Perinatal Database reports that in 2000, 19.6% and in 2001, 21% of women who gave birth at PRHC were smoking at 20 weeks of pregnancy.
- The Perinatal Record Review determined that concerns were identified about smoking in 14% of those patients who attended the Prenatal Clinic, and that 10% of these patients were smoking 10 or more cigarettes per day.
- Concerns were also identified about environmental tobacco smoke for 19% of

those patients who attended the Prenatal Clinic.

- For those patients who had an Antenatal Record 1 on file, 19% indicated that they were smokers, and 6% of these patients reported smoking 10 or more cigarettes per day.
- For those patients who had an Antenatal Record 2 on file, smoking was discussed with them 36% of the time.

Therefore, the number of women who continue to smoke during their pregnancy in Peterborough County-City is still a concern.

Alcohol and Drug Use

Alcohol use during pregnancy is of great concern due its link to Fetal Alcohol Spectrum Disorder (FASD), a condition that results in lifelong disability. It is diagnosed when the following constellation of features is observed: growth deficiencies; developmental delays; neurological, behavioural and intellectual deficits; skull or brain malformations; and characteristic facial features. There is no verified rate for FASD in Canada, although 1/500 live births is a rough estimate (*CICH, 2000*).

Using this estimate, approximately 3 children in Peterborough County-City would have been born in 2001 with FASD (using 2001 total births at PRHC in the calculation).

FASD in First Nation communities is estimated be at least 30 times that of the general population (*Assembly of First Nations, 2002*). According to a Manitoba case study, the proportion of First Nations children in some First Nations communities affected by FASD is between 28-72 per 1,000 compared to a worldwide incidence of 1.9 per 1,000 live births (*Assembly of First Nations, 2001*). Curve Lake First Nation was unable to estimate the number of children with FASD in their community. There was an impression that fetal alcohol effects may be the cause of some behavioural issues in some children. Representatives felt strongly that more work is needed to develop tools to screen for FASD.

The Perinatal Record Review provided information with respect to alcohol and drug use in pregnant women in Peterborough County-City. A concern or issue was identified with:

- alcohol use in less than 1% of women who visited the Prenatal Clinic.
- street drugs in less than 2% of women who visited the Prenatal Clinic.
- drugs in 1.6% of completed Antenatal 1 Records, while alcohol was considered an issue 4% of the time. These records also indicate that substance use was discussed 8% of the time.
-

The completed Antenatal Record 2 forms indicate that alcohol use was discussed 31% of the time, while drug use was discussed 30% of the time.

Work and Home Environments

Very little can be gleaned from current local information with respect to pregnant women's exposure to environmental contaminants in homes and workplaces in Peterborough County-City. The Perinatal Record Review provided some facts related to work environments:

- Of those women who attended the Prenatal Clinic, 47% were employed full-time, while 16% were employed part-time.
- Information gathered from the Prenatal Clinic and Antenatal Record 1 indicates that women are most commonly employed in the sales/service or professional sectors.
- When women who attended the Prenatal Clinic were asked about workplace exposures, concerns were identified less than 1% of the time regarding ergonomics and biological exposures, while no concerns were identified about chemicals or the physical environment.
- Information from the Antenatal Record 1 indicates that occupational/environmental hazards were a concern 1.6% of the time.
- Information from the Antenatal Record 2 indicates that a work plan with respect to pregnancy was discussed 23% of the time.

Family Violence Issues

Actual rates of family violence during pregnancy are not available for Peterborough County-City. The Perinatal Record Review did capture some information related to this topic.

- A concern was identified about feeling safe in 1.7% of records of those who attended the Prenatal Clinic. In 2.6% of the Clinic records, safety in personal relationships was a concern, 0.8% had a safety concern within the home, and 1.7% had a safety concern within the neighbourhood.
- Actual abuse was also a concern identified in the Prenatal Clinic Records as 4% had a concern identified about feelings being hurt, being put down, or experiencing other kinds of hurt, and 1.7% had a concern identified about being hit, slapped, kicked, pushed or hurt in the present or past.
- The Antenatal Record 1 also indicates that 6% of the records indicated family violence was discussed with patients.

Other Prenatal Concerns

The Perinatal Record Review also captured a number of other valuable pieces of information relating to the prenatal period from the Prenatal Clinic Record, the Antenatal Record 1, and the Antenatal Record 2.

In the Prenatal Clinic Record, concerns were identified with the accompanying frequency for the following issues:

Maternal Health	6%	Tests	<1%
Genetic	4%	Rh	21%
Risk Factors	25%	Nausea/Vomiting	4%
Discomforts	16%	Heartburn	35%
Allergies	28%	Anemia	5%
Prescription Medications	12%	Constipation	13%
Over the Counter Medications	3%		

The following concerns were identified with the accompanying frequency in the Antenatal Record 1:

Bleeding	20%	Hem./Transfusions	<1%
Vomiting	33%	Variscosities/Phlebitis	2%
Infertility	<1%	Age $35 at EDB	8%
Radiation	1%	“At Risk” Population (Tay-Sach’s, sickle cell, etc.)	2%
Hypertension	4%	Known Teratogen Exposure (includes maternal diabetes)	3%
Endocrine/Diabetes	3%	Previous Birth Defect	2%
Heart	3%	Neural Tube Defects	<1%
Renal/Urinary Tract	6%	Developmental Delay	2%
Respiratory	2%	Congenital Physical Anomalies (includes congenital heart disease)	5%
Liver/Hepatitis/GI	0%	Chromosomal Disease (Down’s, Turner’s)	<1%
Neurological	2%	Genetic Disease (cystic fibrosis, muscular dystrophy)	7%
Autoimmune	<1%		
Breast	1%		
Gyn/Pap	6%		
Hospitalizations	15%		
Surgeries	53%		
Anesthetics	33%		

The following diseases were recorded as having been discussed with patients with the following frequency according to the Antenatal Record 1:

STDs/Herpes	23%
HIV	21%
Varicella	21%
Toxo/CMV/Parvo	10%
TB/Other	7%

The following tests were ordered with the accompanying frequency in the prenatal period according to the Antenatal Record 2:

Pap	40%
GC/Chalamydia	35%
HIV	31%
B. vaginosis	17%
Group B strep	10%
Urine Culture	22%
Sickle dex	0%
Hb electro	0%

Amnio/CVS	<1%
Glucose Screen	15%

There is a great deal of information presented above. Commentary is provided below on three pieces of this information: nausea and vomiting of pregnancy (NVP), heartburn, and HIV testing in pregnancy.

Nausea and vomiting of pregnancy (NVP) is the most common condition of pregnancy, affecting an estimated 80% of all pregnant women (*Koren and Bishai, 2000*). NVP is responsible for lost time at work and for costs related to hospitalization. As well as seriously altering the quality of life for many pregnant women, severe nausea and vomiting may lead to the decision to terminate a pregnancy (*Motherisk, 1998*). In Peterborough County-City, 33% of Antenatal Record 1 forms indicated a concern with vomiting as did 4% of Prenatal Clinic Records.

Gastroesophageal reflux (heartburn) affects 30%-50% of all pregnant women. In Peterborough County-City, 35% of all Prenatal Clinic Records indicated a concern identified with heartburn. Symptoms can begin at any time during pregnancy, but usually become worse as the pregnancy advances. When heartburn symptoms are severe enough to interfere greatly in the normal daily activities of the patient, therapy might be required. It is recommended that patients presenting with symptoms should first undergo an adequate trial of lifestyle measures (i.e., elevating the head of the bed, avoiding excess caffeine and alcohol, eliminating irritating foods, eating small low-fat meals, decreasing or stopping smoking) and antacid therapy. If a patient's symptoms still do not respond to these measures, a trial of Ranitidine could be considered (*Larson et al, 1998*).

Vertical (or perinatal) transmission is the transmission of HIV from an infected pregnant woman to her fetus or newborn. It is well established that vertical HIV transmission can occur intrauterine (in the uterus before labour and delivery), intrapartum (at the time of labour and delivery), and postpartum (after delivery). (*Health Canada, 2002*)

Ontario began its universal prenatal testing program for HIV in December 1998. The number of women being tested in Ontario has increased to 70% from 30% when the program began (*Public Health and Epidemiology Report Ontario, 2002*). The Public Health Branch of the Ontario Ministry of Health and Long-Term Care reports that Peterborough's HIV testing rate was 71% between January and March 2002, compared with 74% for Ontario as a whole. Interestingly, the review of Antenatal Records from 2001 indicate that HIV was discussed with patients 21% of the time and HIV tests were ordered 31% of the time. It is unclear what the reasons might for this discrepancy.

Gestation

We know from the literature that a normal or term pregnancy lasts 37-42 weeks. In 2001, 5.7% of babies born at PRHC were born before the 37th week of pregnancy (premature).

This is slightly lower than the percentage of preterm births documented for 2000 (6.8%). Facts about and signs of preterm labour were discussed 92% of the time with clients of the Prenatal Clinic and discussed 14% of the time according to the Antenatal Record 2 analysis. In addition, for those patient records where an Antenatal Record 2 was present, 42% of women had 1 ultrasound, 31% had 2 ultrasounds, and 10% had 3 or more ultrasounds during their pregnancy.

Delivery Type

The majority of women giving birth at PRHC in 2001 had a vaginal birth (78%), while 15% had a primary Cesarean, and 7% had a repeat Cesarean.

Birthweight

The literature and research shows that low birthweight babies (born weighing less than 2,500 g) are more prone to a number of serious childhood problems. Peterborough County-City's low birthweight rate has declined overall between 1985 and 1999, and remains below Ontario's rates (Figure 4.4). In 2000, at Peterborough Regional Health Centre, 4.5% of babies born were considered low birthweight. In 2001, the number of babies considered low birthweight decreased to 4% of the total births for that year. This percentage is in line with provincial targets for low birthweight for the year 2010.

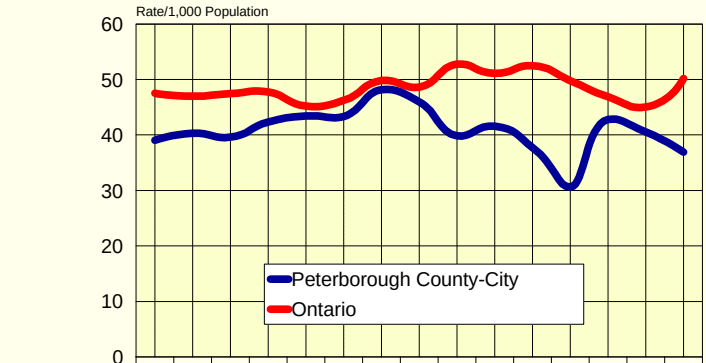
Changes in the low birthweight rates by the age of the mother are evident in the 1985-1999 period in Peterborough County-City. Decreases in low birthweight rates are seen in the 15-24 age groups, while increases are shown in the 25-39 age groups (Table 4.6). The low birthweight rate for women 25-29 years in Peterborough is slightly higher than the rate in 1999 for Ontario as a whole. Also, when Peterborough was compared to 54 other communities in Canada in 2002 by Danylo Hawaleshka of Macleans magazine, it was ranked 24th of 54 for low birthweight.

Aboriginal peoples have a slightly different birthweight distribution curve than Canada overall. Compared to the national distribution, fewer babies are born at the lower weights, more babies are born at the higher weights, and the median weight is somewhat higher (Figure 4.5). One explanation that has been proposed for the different birthweight distribution is that Aboriginal people have a genetic predisposition to heavier babies. There are insufficient data at this time to interpret the health implications of the Aboriginal birthweight distribution (*CICH, 2000*).

Even with the higher numbers of Aboriginal babies born at heavier weights, the rate of low birthweight in First Nations nationally has increased steadily since 1990 (Figure 4.6). Given the substantial health problems associated with low birthweight, the increasing rate among First Nations mothers is cause for concern (*CICH, 2000*). Representatives from Curve Lake First Nation agree that bigger babies are common in their community, but the trend toward increasing numbers of low birthweight babies being captured nationally in First Nation communities is not evident at Curve Lake.

Figure 4.4 Low Birthweight

Peterborough County-City and Ontario, 1985-1999



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Peterborough County-City	39.06	40.32	39.6	42.33	43.42	43.35	48.16	45.98	39.86	41.58	37.75	30.61	42.78	40.54	36.91
Ontario	47.51	47	47.47	47.75	45.21	46.24	49.82	48.64	52.76	51.09	52.51	49.81	46.88	45.06	50.19

Source: Ontario Livebirth Database

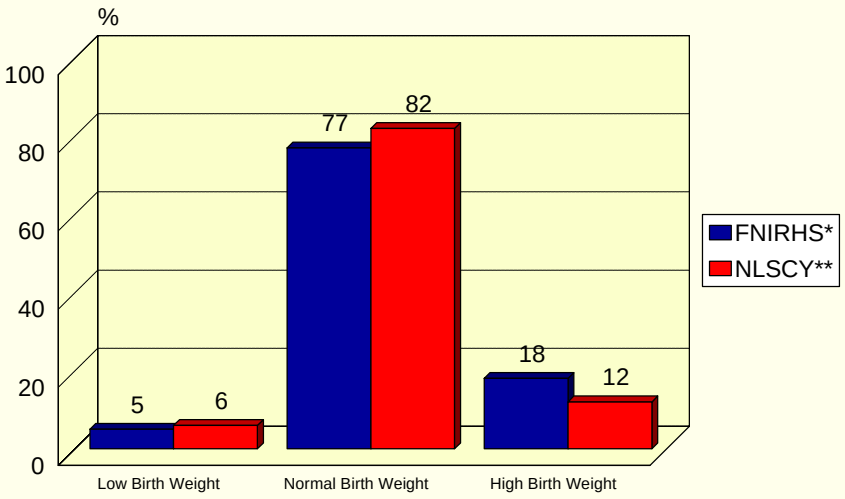
Table 4.6 Maternal Age-Specific Low Birthweight Rates, Peterborough County-City and Ontario, 1985-1999

Year	15-19 years		20-24 years		25-29 years		30-34 years		35-39 years		40-44 years	
	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.
1985	1.19	1.55	3.94	4.50	4.26	6.34	2.04	4.20	1.03	1.49	0.00	0.23
1986	1.00	1.51	3.26	4.27	5.12	5.87	2.86	3.95	1.25	1.42	2.19	0.25
1987	1.00	1.43	3.57	4.20	4.65	5.88	3.02	3.79	0.75	1.62	0.00	0.24
1988	1.00	1.42	4.52	4.26	6.14	5.91	1.33	1.63	0.98	1.82	0.26	0.28
1989	1.50	1.41	3.33	3.92	6.96	5.68	2.13	4.38	0.68	1.76	0.25	0.30
1990	0.25	1.46	3.95	3.93	6.67	6.15	2.86	4.42	1.74	1.83	0.00	0.29
1991	2.57	1.51	2.83	3.98	5.76	6.12	3.62	5.41	2.08	2.18	0.00	0.35
1992	1.29	1.66	3.56	3.72	5.71	6.07	3.59	4.94	1.78	2.16	0.22	0.34
1993	0.77	1.65	2.88	4.16	4.85	6.13	2.81	5.27	0.99	2.42	0.22	0.35
1994	1.01	1.63	3.92	3.79	3.63	6.26	3.67	5.32	0.98	2.42	0.22	0.48
1995	2.25	1.64	3.52	4.06	2.70	6.33	2.72	5.41	0.59	2.55	0.00	0.51
1996	0.74	1.48	2.54	3.53	2.22	5.67	2.38	5.54	1.38	2.59	0.00	0.53
1997	1.46	1.25	3.56	3.30	3.47	5.45	2.49	5.21	0.78	2.45	0.00	0.49
1998	0.72	1.10	2.56	2.72	3.90	3.94	3.64	3.57	1.16	1.86	0.39	0.38
1999	1.16	1.21	1.73	3.18	5.24	5.15	4.16	5.10	1.76	2.66	0.00	0.54

Source: Ontario Livebirth Database and Ontario Population Projections Database

Figure 4.5 Aboriginal Birthweight Distribution

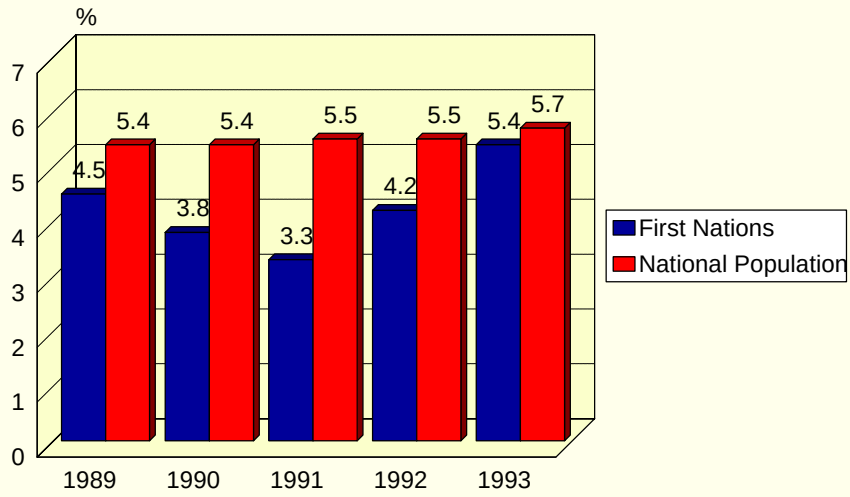
FNIRHS*, 1997



* First Nations and Inuit Regional Health Survey
** National Longitudinal Survey of Children and Youth
Source: Canadian Institute for Child Health, 2000

Figure 4.6 Percentage of Low Birthweight* Infants

First Nations and National Population 1987-1993



* Low birth weight refers to infants weighing less than 2.5 kilograms at birth.
Source: Canadian Institute for Child Health, 2000

Apgar Scores

The Apgar scoring system (named after Dr. Virginia Apgar) serves to draw attention to the newborn infant, and provides a standard for comparing the condition of different populations of infants at birth. At one and five minutes after birth an infant's heart rate, respiratory effort, muscle tone, reflex irritability, colour are evaluated. Each is given a score of 0, 1, or 2. The sum of the five scores is the Apgar score. A score of 7-10 indicates that the infant is in excellent condition. A score of 3-6 indicates moderate depression, and a score of 0-2 indicates severe depression. These Apgar scores correlate best with survival, and are not sensitive prognosticators of subsequent neurologic damage.

In 2001, 92% of babies born at PRHC had Apgar greater than or equal to 6 at 1 minute; 98.5% had scores of greater than or equal to 6 at 5 minutes (Table 4.7).

Table 4.7 Apgar Scores for PRHC 2001 Births

Apgar Score	Apgar - 1 minute	Apgar - 5 minutes
0-5	8%	1.5%
6-8	52%	17%
9-10	40%	81.5%

Source: PRHC Perinatal Database Maternal Characteristics Report, 2001

Discussion

We have learned a great deal in this section about the prenatal experiences of women in Peterborough County-City. There have been many successes, but challenges still exist.

Positive trends noted in the local data are as follows: there are a wide variety of prenatal support services available in Peterborough County-City; births to 15-19 year olds continues to decrease, although the rate still remains higher than the province; the incidence of preterm labour is decreasing, while the number being educated about the signs and symptoms of preterm labour continues to increase; Apgar scores for children born at PRHC are generally high; the rate of low birthweight babies in the general population continues to decrease; Aboriginal communities report that the national trend toward lower birthweight babies in First Nation communities nationally is not evident locally; and access to prenatal care is excellent in this community.

However, we still need to find ways to continue to address the following issues during pregnancy: smoking; exposure to environmental tobacco smoke; drug and alcohol use; eating a balanced diet before and during pregnancy; pre-pregnancy BMI rates; folic acid supplementation before and during pregnancy; nausea and vomiting of pregnancy; heartburn; prenatal HIV testing rates; and preparation for breastfeeding.

Consideration also needs to be given to avenues where transition to parenting issues can be addressed during the prenatal period. This need has already been identified, and will begin to be addressed by PCCHU in its 4-year plan for Healthy Pregnancy and Child Development. In 2004, a communication strategy focused on transition to parenting will be developed that will include key message development, tool development, training for agencies on messages and tools, and dissemination of information to agencies. The goal of this initiative is to increase awareness of issues related to transition to parenting for those who are planning a pregnancy, or are in the early stages of pregnancy.

There are also still many things we would like to know from a research perspective about the prenatal period at the local level.

- What is the rate of multiple births (e.g., twins, triplets) in Peterborough County-City and what specific programming is available for this group of expectant parents?
- How many local women and their partners are actually involved in prenatal programming (an unduplicated count)?
- How well are pregnant women meeting their nutritional requirements?
- What are the physical activity levels of pregnant women?
- What infectious and sexually transmitted diseases are affecting pregnant women?
- What are the rates of exposure of pregnant women to contaminants in homes and workplaces?
- What tools exist to identify FASD and what are our rates locally?
- What programming is most effective in addressing family violence during pregnancy?

Clarification is required with respect to prenatal documentation processes as well. The 2002 Perinatal Record Review captured information as it was recorded on the Prenatal Clinic Form, the Antenatal Record 1 and 2, the Physician Labour and Delivery Record, and the Birthing Suite Nursing Summary. What came into question as the results were analyzed was whether or not the issue had been discussed with a patient and because no concern had been identified a check did not appear on the form. The forms, especially the Antenatal Records, require the physician to bounce between areas on the form where they are expected to check off that issues were discussed with the patient and areas where they are expected to check only when a concern is identified with respect to a particular issue.

There is still a great deal of work to be done with respect to prenatal health in Peterborough County-City. There is a need to continue and enhance what already exists using information from reliable data sources and local research. In doing so, we will be able to positively influence birth outcomes through the focused use of energy and resources in the prenatal period.

Agenda for Future Action

4.1 Continue to collect and analyze on a regular basis reliable local information relating to the prenatal period from Ontario government sources, as well as the Perinatal Partnership Program of Southeastern Ontario (PPPSEO) and the Peterborough Regional Health Centre.

4.2 Strategize with Peterborough Perinatal Support Services members and other community agencies about ways to enhance and collaborate on programming to address the following issues during pregnancy: smoking and exposure to environmental tobacco smoke; drug and alcohol use; eating a balanced diet before and during pregnancy; pre-pregnancy BMI rates; folic acid supplementation; nausea and vomiting of pregnancy; heartburn; prenatal HIV testing rates; and preparation for breastfeeding

4.3 Discuss with Peterborough Perinatal Support Services members, other community agencies, and government departments the need for local research on: multiple birth rates and support services; a community-wide system to evaluate and track the types of prenatal programming offered and the numbers of people who attend (unduplicated counts) as well as the number of individuals who are seeking prenatal information.

4.4 PCCHU should continue to provide information and leadership in the community with respect to the following prenatal issues: healthy eating practices; physical activity levels; infectious and sexually transmitted disease rates and message development; environmental exposures to contaminants and hazardous materials in homes and workplaces; Fetal Alcohol Spectrum Disorder (FASD); and family violence during pregnancy.

4.5 PCCHU should maintain and enhance where possible efforts to educate individuals about prenatal health in the workplace.

4.6 Implement, using a wide variety of vehicles and channels, the transition to parenting component of the Peterborough County-City Health Unit's Healthy Pregnancy and Child Development 4-Year Plan.

4.7 With respect to violence during pregnancy, ensure that knowledge and skills of staff are integral parts of the capacity building component of the Peterborough County-City Health Unit's 4-Year Plan for Injury and Family Abuse Prevention.

4.8 That appropriate partners in Peterborough County-City review the forms used in the 2002 Perinatal Record Review to determine if there are revisions that could be considered that would make them more user-friendly from a health care provider and a research perspective. This review should involve an advocacy component regarding the importance of these forms and the information they contain to patient care during pregnancy and birth.

4.9 Discuss any pertinent findings from data analysis as well as primary research exercises with any relevant community agencies providing prenatal services or supports. Perhaps, the annual forum of the Peterborough Perinatal Support Services would be an opportunity for such discussions.

5.0 The Postpartum Period

In the postpartum period (after birth), there are many issues considered to be important with respect to child health. This section reviews three of these issues --- the number of women who are breastfeeding; the number of women experiencing a postnatal mood disorder; and the number of children considered 'At-Risk.'

The World Health Organization currently recommends exclusive breastfeeding to the age of six months, with continued breastfeeding and complementary food for up to two years of age or beyond. Babies weaned prior to four to six months are considered to be weaned prematurely (*Ontario Ministry of Health, 2000*).

Breast milk is uniquely composed to meet a baby's nutritional requirements. Human milk is species-specific, and changes according to the baby's needs. In the morning, breast milk has a higher volume and lower fat content. This gradually reverses throughout the day. In the evening, milk with a lower volume and higher fat content allows the baby to stay full longer (*CCCF/CICH, 2001*). Breastfeeding has benefits for both the baby and the mother as it:

- provides the best food for baby with all the nutrients needed at each different stage of growth and development;
- protects against infections, diarrhea and dehydration; when infants receive only breast milk for the first 6 months, ½ of ear infections and ¾ of respiratory infections are prevented;
- decreases the risk of Sudden Infant Death Syndrome (SIDS), also called crib death;
- prevents obesity in children;
- reduces the risk of childhood cancers when children are breastfed for more than 6 months;
- improves a child's response to immunization;
- protects against allergies, especially if there is a family history;
- promotes brain and vision development;
- improves jaw, tooth, and speech development;
- increases protection against illnesses such as childhood diabetes and bowel disease;
- build's a woman's confidence in her ability as a mother;
- protects against breast and ovarian cancer;
- keeps a woman's bones strong;
- produces hormones which reduce a mother's response to stress;
- maintains a closeness with baby when a mother returns to school or work;

- decreases mothers' time missed from work or school as baby is often healthier; and
- costs nothing (*PCCHU, 2002a*).

Breastfeeding has also been positively linked to adult intelligence. Mortenson et al (2002) in The Journal of the American Medical Association stated that, "Independent of a wide range of possible confounding factors, a significant positive association between duration of breastfeeding and intelligence was observed on two independent samples of young adults, assessed with two different intelligence tests."

An analysis of data from the National Longitudinal Study of Children and Youth suggests that maternal depression is one of the most important determinants of child-related problems such as hyperactivity, conduct disorder, emotional disorder, relationship problems, and repeating a grade (*Ontario Ministry of Health, 2000*). Postpartum depression is believed to be underdiagnosed and underreported, and it has a profound effect on the mother, infant, and family. An association between postpartum depression and child behavioural disturbances, physical ill health, insecure attachment, poor adjustment to school, limited prosocial behaviour, sleep disturbances, temper tantrums, and depressive symptoms and disorders, particularly for boys has been demonstrated (*Ontario Ministry of Health, 2000*).

There is a range of postnatal mood disorders, associated with the birth of a baby, ranging from Postpartum Blues, to Postpartum Depression, and even Postpartum Psychosis. Postpartum "Blues" or "Baby Blues" are common. Approximately 80% of women have the blues starting three to four days after their baby is born. They may feel weepy, sad, tired, irritable, sensitive, anxious, overwhelmed, or confused. With good physical care, emotional support, and information, these symptoms usually subside within two weeks. If after two weeks these symptoms continue or worsen, it may be a more serious problem.

It is estimated that postpartum depression occurs in approximately 30% of women who have a baby. Depression may develop any time in the first year, but more often appears two to four months after a baby is born. Women with depression may have symptoms similar to the blues, but they last longer, are stronger, and interfere with their ability to carry out day-to-day activities. They may also:

- feel out of touch, or not themselves;
- have persistent aches and pains;
- feel worried, guilty, overwhelmed, hopeless, panicky, or trapped;
- have difficultly sleeping, or relaxing;
- eat more or less than usual;
- lose interest in doing things, or seeing people they once enjoyed;
- become easily frustrated, irritated, or moody;
- have problems concentrating, and completing tasks;

- have difficulty, or not enjoy, caring for their babies; and even
- have thoughts of harming themselves, or their babies.

Postpartum psychosis is rare, occurring in 0.01-0.02% of births. It usually begins a few hours or days after delivery, but can occur later. A woman with postpartum psychosis loses touch with reality, becomes suspicious, and may have strange and frightening thoughts. She may be unable to sleep or eat, slow down, or relax. Her judgement may be impaired, and she should not be left alone with her baby. She needs immediate medical attention, and often, hospitalization and medication.

Anyone can develop a postnatal mood disorder. It is not known for certain what causes these conditions, but there are factors that increase the risk:

- depression that develops during pregnancy;
- personal or family history of depression, or other emotional problems (e.g., anxiety or eating disorders);
- severe premenstrual syndrome (PMS);
- thyroid disease;
- history of physical, sexual, or emotional abuse;
- difficulties in a woman's relationship with her mother or father;
- use of alcohol or drugs to cope with problems;
- not having enough of the right kind of support after a baby's birth;
- personality traits, such as having high expectations of yourself, or a sad pessimistic outlook, or low self-esteem;
- recent losses (e.g., death of a loved one, loss of job, miscarriage, moving, or loss of freedom);
- history of infertility, high risk pregnancy, or difficult delivery; and
- stressful life events (e.g., money or relationship problems; a sick, fussy, or colicky baby; and unplanned pregnancy). (*PCCHU, 2002b*)

Therefore, the presentation and analysis of local information regarding breastfeeding, postnatal mood disorder rates, and children 'At-Risk' that follows is important when trying to understand the myriad of issues that impact on child health outcomes.

Local Data

Breastfeeding

Presently, very little information exists that summarizes the number of Peterborough County-City women who leave hospital breastfeeding their newborn (initiation rate). According to the Better Beginnings, Better Futures research initiative at Queen's University, for which Peterborough is a comparison site, women in the Peterborough sample were significantly more likely to initiate breastfeeding compared to women in the Better Beginnings demonstration sites. The initiation rate in the demonstration

communities was 70.5%; Peterborough had a higher rate of 91.4% (*Better Beginnings, Better Futures, 2000*).

There are, however, a number of sources that document women's intention to breastfeed.

- Data collected in the Perinatal Database by the Peterborough Regional Health Centre indicates that in 2000, 80.5% of new mothers indicated an intention to breastfeed. In 2001, 82% of new mothers indicated an intention to breastfeed.
- During the Perinatal Record Review carried out in 2002 (details documented in Section 4.0 The Prenatal Period), it was discovered that 94% of those who attended the Prenatal Clinic indicated an intention to breastfeed and 88.5% of those charts with a Birthing Suite Nursing Summary indicated an intention to breastfeed.

Therefore, intention to breastfeed in Peterborough County-City ranges between 82% and 94%, with the average being 88%.

Interestingly, breastfeeding was discussed with women during their pregnancy only 40% of the time according to the review of Antenatal 2 Records during the Perinatal Record Review process.

The Peterborough County-City Health Unit also carries out a breastfeeding duration survey every five years. The report documenting the results of the 2000/01 survey was in the process of being compiled during the development of this report. The document entitled *"2000/01 Peterborough Breastfeeding Survey: An Evaluation of Breastfeeding Promotion in Peterborough County-City"* is expected to be available by the end of 2002. In this study, mothers were surveyed 6 months and one-year postpartum. A total of 246 women answered questions about breastfeeding duration and cessation in the six-month survey. Of these 246 women, almost half (48%) continued to breastfeed either exclusively or in combination at six months postpartum. Over a quarter (27.6%) were breastfeeding exclusively.

When these breastfeeding rates were compared to previous survey results, the percentage of mothers in Peterborough County-City exclusively breastfeeding at four months had increased by 32% between 1990 and 2000 (the four month time period was the time period common to all three years the survey was administered).

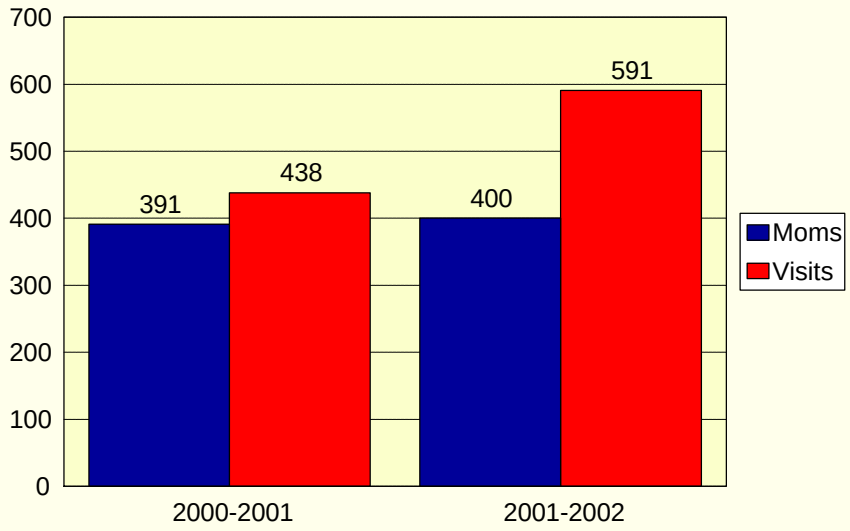
Of the 86 respondents to the one-year postpartum survey (35% of the original sample), 80 answered questions about duration and cessation of breastfeeding. Of these 80 women, 35% continued to breastfeed at 12 months postpartum; 15% continued to breastfeed exclusively; and 19% fed a combination of breastmilk and breastmilk substitute.

Breastfeeding support is also a very important factor in breastfeeding duration. At the

present time, there is no comprehensive mechanism in the community to collect information either prenatally or postnatally on the numbers of women seeking and receiving breastfeeding information and support. Figure 5.1 below provides recent data on the number of women accessing services at the Breastfeeding Clinic.

Figure 5.1 Breastfeeding Clinic Statistics

Contact by Mothers, April 2000-March 2001 and April 2001-March 2002



Source: Women's Health Care Centre, 2002

For those women surveyed as part of the Breastfeeding Survey at 6 months postpartum, 28% indicated that the reason they stopped breastfeeding was that they were returning to work. Returning to work was the reason cited 35% of the time for breastfeeding cessation for women surveyed one-year postpartum.

For those 88 women surveyed who were working at six months postpartum, 49% found their workplace supportive. Supports included: flexible work time or reduced hours of work; a private location for expressing milk; encouraging comments; and arrangements to work from home.

For those women surveyed at one-year postpartum, 40 women had returned to work or school and had continued to breastfeed. Of these women: 38% indicated their school or workplace was supportive; 33% felt that they were indifferent; and 13% reported that their workplace was unsupportive. Supports in workplaces included locations for expressing breastmilk; encouraging comments; and flexible or reduced hours.

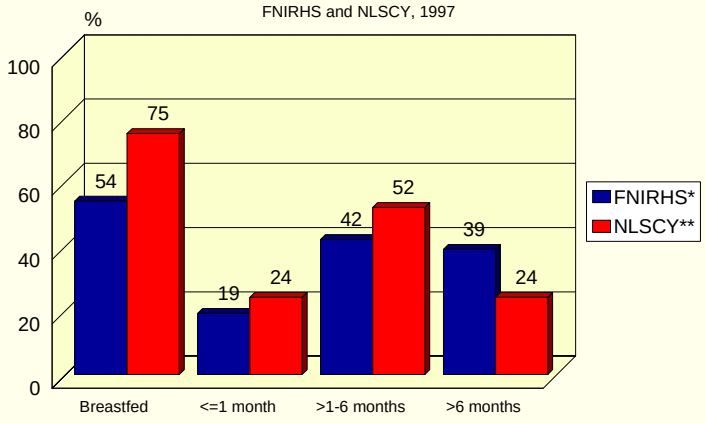
The Peterborough County-City Health Unit reports that in 2001, 23 workplaces met a workplace challenge by agreeing to provide a private, clean location for breastfeeding or pumping of breastmilk, and by being willing to discuss a women's plans for breastfeeding upon her return to work. In addition, a teaching package related to breastfeeding was sent to each Family Studies teacher in Peterborough County-City in 2001.

Also, as part of the Breastfeeding Survey, mothers surveyed at six months were asked whether they felt uncomfortable breastfeeding in public and they reported that they were uncomfortable breastfeeding: in malls (39%); in restaurants (39%), and in the presence of family and friends (17%). When women surveyed at one-year were asked the same question, they reported being uncomfortable breastfeeding: in malls (46%); in restaurants (46%); and in the presence of family and friends (18%).

With respect to breastfeeding practices in Aboriginal communities, according to national statistics, Aboriginal mothers were less likely to initiate breastfeeding than their Canadian counterparts (Figure 5.2). However, those Aboriginal mothers who did breastfeed were more likely to breastfeed for six months or more. This suggests that efforts to promote breastfeeding in the Aboriginal population need to focus on increasing the initiation rate (*CICH, 2000*).

Representatives from Curve Lake First Nation report that these national statistics do not accurately represent their population. In fact, Curve Lake's breastfeeding initiation rate is around 80%, and the majority of breastfeeding women are continuing to breastfeed for at least six months.

Figure 5.2 Percent Breastfed, Age Less Than 1 Year of Age, and Months Breastfed for Those Who Were Breastfed, Age Less Than 2 years of Age



* First Nations and Inuit Regional Health Survey
** National Longitudinal Study of Children and Youth
Source: Canadian Institute for Child Health, 2000

Postnatal Mood Disorders

Peterborough County-City is currently engaged in a research/demonstration project related to postnatal mood disorders. The Peterborough Postnatal Mood Disorders Collaboration was funded by the Ontario Women's Health Council in April 2001. This demonstration project proposes to reduce the percentage of women who experience postnatal mood disorders by: screening women; providing information for women, their families and service providers; ensuring access to an integrated continuum of supports and services; and supporting women in exercising informed choices about their options.

As part of a comprehensive screening program, the Edinburgh Postnatal Depression Scale (EPDS) and a standardized adult attachment questionnaire were administered to women prenatally, within 48 hours of delivery, and at three weeks, two months, four months, and six months postpartum.

Prenatal screening was administered from June 1, 2001 up to and including all women who were due on or before September 1, 2002. The 48-hour screening began on June 18, 2001 and included women who had a prenatal screening or gave birth on or before August 16, 2002.

As of September 2002, an initial screening had been administered to 912 women (527 prenatal and 385 postnatal). Women were recruited at various sites (470 Prenatal Clinic or physician referrals, 432 during the Peterborough County-City Health Unit's 48-hour phone call, 88 through Kawartha Community Midwives, and 6 through Lovesick Lake Native Women's Association).

As of September 30, 2002, 527 women had completed their six month assessment.

Based on previous research, it was proposed in this demonstration project that the EPDS score be reduced for individuals who are insecurely attached and/or have experienced depressive episodes. It was also expected that insecure, avoidant women would be less likely to report their current feelings of depressions and anxiety which is supported in the research. Thus, women are identified at risk for postnatal mood disorders if they met one of three criteria:

- EPDS score $12;
- EPDS score $9 and insecurely attached; or
- EPDS score $9 with previous episodes of depression.

As of September 2002, 726 screenings had identified women to be at risk for, or experiencing, postnatal mood disorders (297 women in total, 133 women were identified at risk more than once). Women were most likely identified to be at risk during the prenatal screening (28%). Approximately 11-14% of women were identified at risk at each of the postnatal screenings.

Women who were identified as being at risk for, or experiencing, postnatal mood disorders were informed of community-based and professionally-facilitated treatment options, and provided with guidance and support if needed to make an informed decision.

Women thus far have expressed interest in a wide variety of services which are provided using project funds or in-kind contributions of participating organizations. As of September 2002:

- 201 women expressed interest in programs at the Peterborough Family Resource Centre (12 women were interested in joining the parenting classes; 65 women were interested in joining Babies First; 7 women were interested in joining the Teen Supper Club; 14 women were interested in joining Steps and Stages; and 54 women were interested in joining breastfeeding classes; and 28 expressed an interest in the drop-in);
- over 200 women expressed interest in programs at the Women's Health Care Centre (124 women requested individual therapy with a social worker; 18 women requested couple's therapy; 58 women requested group therapy; and 23 women requested breastfeeding support);
- 194 women requested visits through the Healthy Babies, Healthy Children program at the Peterborough County-City Health Unit (98 women requested a Family Home Visitor (1,023 consultations and visits in total) and 96 requested visits from a Public Health Nurse (1,448 consultations and visits in total);
- women have requested massage therapy (144 for self, and 105 interested in an infant massage class); and
- they also requested psychological intervention (59 individual therapy, and 17 couple's therapy).

Although women may have requested these services, they may not have used them. For example, 37 women identified 'At-Risk' have participated in programs at the Peterborough Family Resource Centre; 70 women have participated in individual, groups, and/or couple's therapy with a social worker; 86 women had Healthy Babies, Healthy Children program visits; 71 women have used massage therapy; 42 women have participated in an infant massage class; and 21 women have received individual or couple's therapy from a psychologist.

Interestingly, women were more likely to enrol in program services after one of the later screenings (ranging from 54% enrolment at three weeks, to 88% enrolment at two months postpartum) than the prenatal (33%) or 48-hour screening (34%) (*October 15, 2002 Project Status Report to the Ontario Women's Health Council*).

We are beginning to create a picture with this local demonstration project of how many women are at risk for postnatal mood disorder in Peterborough County-City. It will be important to review the final project findings (expected in 2003) to gain a clear

understanding of the extent of the problem; the effective interventions; and what the appropriate next steps in the community should be in the short-term, and the long-term, response to the issue.

During the 2002 Perinatal Record Review (see Section 4.0 The Prenatal Period for details), information was also collected relevant to the issue of postnatal mood disorders:

- for 18% of those women who attended the Prenatal Clinic in 2001, a concern was identified with depression, and in 6% a concern was identified with mental illness;
- in 10% of Antenatal 1 Records were emotions/depression discussed; and
- in 5% of Antenatal 2 records indicated that depression was discussed.

Therefore, there is a high percentage of prenatal women at-risk for postnatal mood disorders (which is also evident in the preliminary findings from the demonstration project) and small numbers of women who discuss these issues with the health professional responsible completing their Antenatal Records. Although there are higher percentages of women prenatally who are identified to be at risk for postnatal mood disorders, it is important to note that most choose not to enrol in program services until the postpartum period.

Children 'At Risk'

The joint Ontario Integrated Services for Children Division (*Ministry of Health and Long-Term Care* and *Ministry of Community, Family, and Children's Services*) initiative in Ontario called Healthy Babies, Healthy Children run locally by the Peterborough County-City Health Unit has a very important postpartum component.

The intended population of the Healthy Babies, Healthy Children program is all families with children prenatal to age six who are at risk for physical, cognitive, communicative, and/or psychosocial problems.

There are children and families in Peterborough County-City who are dealing with stresses or risk factors that could have a negative effect on a child's ability to achieve optimal development, and in a universal screening program, would be assessed 'at risk.' The stresses that would put a family at risk include:

- economic and social risk factors, such as lack of social support, social, geographical or cultural isolation, low level of education, sole support parenting, maternal age at the birth of the child (e.g., adolescent mothers), and low income;
- infant health risks such as low birthweight, congenital defects and/or syndromes, parent(s) with a physical or developmental disability; and
- parent health risks, such as parent(s) with a psychiatric illness, substance abuse problems, or dual diagnosis (e.g., psychiatric disorder and substance

abuse); or a history of domestic violence and abuse.

Following the birth of their baby, families are asked if they would like to be contacted within 48 hours of discharge from hospital by a Public Health Nurse. During this contact, a postpartum assessment of the mother's health, the infant's health, as well as of the family, is carried out to determine if the family has the resources and resilience to manage on their own. Dependent upon the results of this assessment, a more in-depth assessment may be required to better determine their level of risk and identify appropriate interventions and supports.

High risk families, including those already receiving services are the intended population of the Lay Home Visiting component of the Healthy Babies, Healthy Children program, but not all high risk families are appropriate for this approach. The Public Health Nurse conducting the assessment will identify which high risk families are likely to benefit from and be appropriate for lay home visiting, and those who will be better served through other programs and initiatives.

Between January 1 and December 31, 2001, the Peterborough County-City Health Unit's Healthy Babies Healthy Children program received notice of 1,020 families with newborn babies. Of these 1,020 families, 1,016 (99%) were contacted shortly after arriving home. In addition, 348 of these families accepted the offer of a postpartum home visit (34%).

A total of 19 births or 1.8% of the 1,028 births that the Health Unit was advised of in 2001, were given an in-depth assessment. An additional 59 births (5.7%) were referred to an in-depth assessment, but did not get an assessment primarily because the family refused the assessment or staff were unable to contact them. Therefore, approximately 7.5% of births in 2001 were considered to require an in-depth assessment.

Discussion

We know from the local data that is available regarding the postpartum period that:

- breastfeeding initiation rates are higher in Peterborough than in other parts of Ontario, but there is no mechanism to regularly collect this information.
- according to the 2000/01 Peterborough Breastfeeding Survey, an increasing number of women are breastfeeding for longer periods of time, but that the percentage exclusively breastfeeding for six months or more in Peterborough County-City could, and should, be improved.
- a mechanism to accurately capture the number of women accessing breastfeeding information (prenatally and postnatally) and supports does not currently exist.
- returning to work is a major reason for breastfeeding cessation and only about ½ of the women who return to work feel their workplace is supportive of their

continued breastfeeding.

- a substantial percentage of breastfeeding women reported that they felt uncomfortable breastfeeding in malls, in restaurants, and in the presence of family and friends.
- approximately 7.5% of the births in Peterborough County-City are considered to require an in-depth risk assessment and over half of these do not receive an assessment due to family refusal or the inability to contact the family. The reasons for refusal need to be examined. Despite the fact that the Healthy Babies, Healthy Children program is a voluntary program, a mechanism to track whether those who initially refuse assessment eventually end up on the Healthy Babies, Healthy Children caseload should also be explored.
- a local demonstration project (The Peterborough Postnatal Mood Disorder Collaboration) is currently underway to determine the prevalence of postnatal mood disorders in Peterborough County-City and effective intervention strategies.
- preliminary results from the Postnatal Mood Disorders Collaboration indicate that a higher percentage of women are being identified at risk for postnatal mood disorders prenatally, but that most do not enrol in program services until the postpartum period.
- Antenatal Records 1 and 2 reviewed during the 2002 Perinatal Record Review indicate that depression was discussed in only a small percentage of records. This issue requires further exploration to determine if the low percentages checked off are due to the confusing nature of the form.

Agenda for Future Action

5.1 Upon release of the 2000/01 Breastfeeding Report, a forum should be held to determine the need for and feasibility of:

a. a community-wide mechanism to easily determine the breastfeeding initiation rate for Peterborough County-City.
b. continued efforts to support women to breastfeed and to do so exclusively for six months or more.
c. a comprehensive community-wide mechanism to collect information on the number of women seeking breastfeeding information (prenatally and postpartum) and those women accessing breastfeeding support services.
d. continuing to promote the importance and benefits of breastfeeding in the preconception, prenatal, and postpartum populations in Peterborough County-City;
e. continuing to engage workplaces in the “Breastfeeding Friendly Workplace” concept;and
f. continued promotion of breastfeeding acceptance in the broader community (e.g., malls, restaurants).

5.2 Due to the numbers of women being identified at risk for postnatal mood disorders, information regarding postnatal mood disorders should continue to be made readily available in the community through a variety of vehicles and channels.

5.3 Based on the information collected during the 2002 Perinatal Record Review, discussion should be held with prenatal health professionals about how commonplace discussions with their clients actually are about postnatal mood disorders.

5 4 Following the release of the Peterborough Postnatal Mood Disorder Collaboration's final research results, a forum should be held to determine the community's collaborative short- and long-term response to the issue.

5.5 As set out in the Early Identification Plan for Peterborough County-City, the Peterborough County-City Health Unit and community partners should advocate with the Ministry of Community, Family and Children's Services for resources (funding and information systems) to track screening data and link Larsen, Parkyn and Nipissing screens (at 18 months and 3 years) with child development outcomes. This would provide a mechanism to link those who refuse postpartum assessments with those families who enter the Healthy Babies, Healthy Children program when their children are older.

5.6 Research should continue to determine what other local data is in the process of being collected (e.g., The Ontario Mother and Infant Survey II) or could be collected and analyzed in the future with respect to postpartum issues.

6.0 Child Health and Development

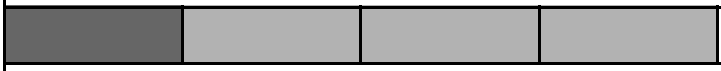
An infant is born with about 100 billion brain cells, called neurons, designed to store and transmit information. At birth, most of these neurons are not connected to each other, but after birth they quickly launch into a burst of activity, joining together to form neural pathways - it is these connections that enable the child to see, hear, smell, walk, talk, and think.

But not all of the infant's 100 billion neurons will become functional. As the infant continues to grow, some of the original neurons are strengthened, and others discarded. Called "wiring" or "sculpting," this natural refining process happens most rapidly in early childhood, then continues on more slowly into adolescence.

Opportunities for a child to hear, learn, and use language are important. Recent research indicates that children who can express their thoughts and feelings well are better able to regulate their emotions and behaviour. Research also indicates that timing is very important: the more vocabulary a child is exposed to before age two, the better a child's verbal abilities will be.

Children also need stimulating activities- but not overly stimulating, with room to explore and make choices. Mostly what a young child needs is "ordinary activity" - lots of touching, talking, singing, holding and playing (*CCCF/CICH, 2001*).

Early in life, the brain is most receptive to certain kinds of learning. It does not mean that a person stops learning after this period of time. It means that during this time, brain cells are most receptive to making connections, and forming patterns for life-long learning in areas such as those listed below.

² 0 years	² 1 year	² 2 years	² 3 years	² 4 years	² 5 years	² 6 years
Vision - creating brain patterns so that both eyes can see correctly.						
						
Motor Development - before birth, the brain is creating patterns for muscle control.						
						
Language - creating brain patterns to listen, speak, read, and write.						
						
Social Attachment - creating brain patterns to relate well to others at home, and later at play and work.						
						
Emotional Control - creating brain patterns to manage emotions.						
						
Symbols - creating brain patterns to understand that one thing can stand for another, such as letters and numbers.						
						
² 0 years	² 1 year	² 2 years	² 3 years	² 4 years	² 5 years	² 6 years
Most darkly shaded part of graph indicates time of greatest brain activity.						

(P.E.I. IODE, 2000).

Results of a 2000 United States Study (*Brio, 2000*), indicate that parents of young children and other adults:

- do not understand when children begin to “take in”, and “react to” their world;
- are confused about when young babies begin to sense, and be affected by the mood of others;
- believe that a baby six-months old or younger has no long-term memory, and hence will not suffer any long-term effects from witnessing violence;
- do not understand that babies can be depressed;
- are more likely to think play is important for older (five years old) than younger children (ten months old);
- are more likely to see play as beneficial to social development than they are to see play as beneficial to intellectual or, especially, language development;
- believe a six-month old can be spoiled;
- expect toddlers to share before (according to developmental research) they are able to do so;
- incorrectly believe that working parents cannot develop a bond with their children as strong as that of stay-at-home parents; and

- are misinformed about the effects of not always responding to a three-month-old crying baby.

The family is considered to be the primary influence on a child's readiness to learn. Early child care environments, preschools, elementary schools, playgrounds, neighbourhoods, and societal and cultural values also impact children significantly. School readiness at age six predicts academic performance in the early grades which, in turn, is a significant predictor of whether the child completes high school. Lack of school readiness has other negative effects on children, such as inability to cooperate with others, physical aggression, bullying, and being excluded from group activities. The lack of appropriate social skills at the time of school entry is one of the best predictors of delinquent behaviour in early adolescence (*Ontario Ministry of Health, 2000*).

While there are many Canadian databases that can be used to obtain information on adults with disabilities, few provide data on children with disabilities. The Canadian Council on Social Development (*2001*) has developed several indices to identify children with "special needs" using data from the 1994 National Longitudinal Study of Children and Youth (NLSCY), which is the most current survey information on children with disabilities in Canada.

One index focuses on children age 0-11 years, and includes the following variables: allergies, asthma, bronchitis, heart condition, epilepsy, cerebral palsy, kidney disease, mental handicap, other conditions, and other activity limitations in age-appropriate activities. In 1994, nearly one-quarter (24.1%) or about 1.1 million of all Canadian children in this age group had at least one of these special needs; 17.5% had only one special need; and 6.5% had two or more special needs.

Another index includes all of these variables listed in the previous index, as well as learning disabilities, emotional problems, chronic pain or discomfort, visual impairments, hearing impairments, and mobility impairments for children aged 6 to 11 years. In 1994, one-third (33.3%) or nearly 0.8 million Canadian children in this age group had one or more of these special needs.

The Canadian Institute for Child Health (*1994 and 2000*) has also estimated that 7.7% of children age 0-19 years of age have physical disabilities. In 1991, the severity of disability for this age group was estimated as follows: severe 4%, moderate 11%, and mild 85%.

In addition, the percentage of children age 0-9 years with a limitation in activity is estimated to be 10% for males and 5% for females, while 1% of females and 0.9% of males age 4-9 are estimated to have a hearing problem.

The National Longitudinal Study of Children and Youth revealed that 20-25% of Canadian

four year olds had one or more serious emotional, behavioural, or learning disabilities. It is estimated that approximately 25% of Ontario's children from birth to age 11 are experiencing a learning or behavioural difficulty (*Ontario Ministry of Health, 2000*).

National and provincial data regarding the mental health and well being of school aged children is limited. More than 18% of children and adolescents in Ontario have at least one diagnosable psychiatric disorder and 2/3 of these have two or more disorders. Factors most strongly associated with psychiatric disorder were (in decreasing strength of association): family dysfunction; being on welfare; late age walking; having a chronic functional limitation; late age talking; living in subsidized housing; having a low birthweight; chronic medical condition; having few friends; parent ever being arrested; having a low income; having a single parent; being 12-16 years old; being unemployed; having low participation skills; mothers' low education; living in overcrowded housing; living in an urban setting; parental chronic health problem; and being male (*Ontario Ministry of Health 2000*).

Safety is a major factor in child health and development. Health Canada has estimated that in 1995, preventable injuries costs Canadians $8.7 billion, or $300 for every citizen. On average, each injury generates $4,000 in direct and indirect costs. Injuries from childhood falls costs Canadians $630 million every year. According to the Canadian Institute for Health Information, 1998/999, pediatric injury patients spent an average of 3.5 days in a hospital. A fall-caused pediatric admission required about 2.4 hospital days on average (*PCCHU, 2002c*).

Shaken Baby Syndrome is a potentially fatal form of child abuse. At present there is no Canadian data that indicates how many babies are the victims of shaking. If a baby is shaken with force in a moment of anger, it can damage a child's brain; cause permanent disabilities, like blindness or paralysis; and even cause death. No child, at any age should be shaken (*Caring for Kids website*).

Sudden Infant Death Syndrome (SIDS) refers to the sudden and unexpected death of an apparently healthy infant under one year of age, which remains unexplained even after a full investigation. Current estimates for SIDS in Canada are 36/100,000 live births. Although the underlying cause or mechanism of SIDS remains uncertain, research has demonstrated that infants who sleep on their backs have the lowest risk for SIDS. Other factors potentially associated with an elevated risk of SIDS include smoking during pregnancy, exposure to environmental tobacco smoke after birth, and infant overheating (*CICH, 2000*).

Statistics reveal that recommendations against prone (tummy) sleeping have coincided with a reduction in the number of SIDS deaths in Canada. The number of SIDS deaths has

fallen steadily since the late 1980s - from 385 in 1989 to 138 in 1999. Despite concerns handed down from older generations that a baby might choke if put to sleep on their back, research has shown that the back sleeping position does not increase the risk of choking.

In addition, there has been a concern among parents and services providers about positional plagiocephaly, commonly referred to as "flat head." While there are no scientific data to show conclusively an increase in positional plagiocephaly, anecdotal reports do suggest an increase in this condition. Special clinics to treat this problem have been established in some children's hospitals in Canada and information campaigns are currently being launched (*Pediatric Child Health, 2001*).

Thirty percent of infant and perinatal death, and 11% of deaths of 1-9 year old children in Ontario are related to congenital anomalies (*Ontario Ministry of Health, 2000*). Neural tube defects are an important category of congenital abnormalities because they cause both long-term disability and death and occur in 79/100,000 births. Neural tube defects (anencephaly, spina bifida, and encephalocele) result from the failure of the neural tube to close completely during embryonic development. Reductions in neural tube defects have been attributed to early detection and subsequent termination of affected pregnancies, better diets, and the use of as folic acid supplements (*CICH, 2000*).

Developing humans can be uniquely vulnerable to environmental toxins. Many children's organs are not fully mature, and they go through several stages of rapid growth. This renders them more sensitive to the effects of certain pollutants. Children eat proportionately more food, drink more fluids, breathe more air, and play outside more than adults. Therefore, they are potentially at risk of higher exposure to environmental contaminants than adults. Health effects include, for:

air pollution	upper and lower respiratory diseases in healthy and asthmatic children, reduced lung capacity, increased rate of pneumonia and bronchitis, and increased hospitalization rates for asthma and chronic lung disease;
lead poisoning	IQ deficiencies, reading and learning disabilities, impaired hearing, reduced attention span, hyperactivity, and anti-social behaviour; and
indoor pollution	cockroaches, house mites, and moulds are major asthma triggering antigens found in indoor air; environmental tobacco smoke has been well-linked to asthma; pesticide use has been linked to behavioural changes, encephalopathy, ataxia, seizures, and coma; drinking water contaminants pose a risk to children as they are more sensitive to microbial contamination.

Children living in poverty may be at disproportionate risk from exposure to environmental hazards. The poor nutrition of children from low income households worsens their risks

from exposures to contaminants like lead and pesticides. Children living in apartments in poorer areas are more likely to be exposed to pesticides applied in the home. Low income neighbourhoods are also more often in closest proximity to sources of environmental contaminants such as landfills, urban industry, and roadways (*Ontario Ministry of Health, 2000*).

Young children of parents who smoke may:

- have slower lung and body growth;
- be 2 ½ times more likely to get asthma in their first year of life, and be 4 ½ times more likely to need medicine for asthma;
- have more infections (e.g., ear infections, bronchitis, pneumonia);
- miss more school days;
- have twice the risk of getting lung cancer when they grow up; and
- be 3 to 5 months behind in reading, math, and general ability (*PCCHU, 1991*).

Nourishing and nurturing infants and young children is essential to a child's physical, mental, and emotional development. Food choices families make for their children, play a direct role in nutritional health, and can significantly influence health status throughout life. There is scant data on actual feeding practices, nutrient intakes, and growth patterns of Canadian infants and young children. To date, national and provincial surveys which include nutrition data have focused on children over the age of 12 years and adults. This data suggests that Canadians need to increase their intakes of grain products, fruits and vegetables, and eat less saturated fat. Specific segments of the population do not have adequate intakes of essential nutrients such as folic acid, calcium, and iron. A lack of physical activity combined with unhealthy eating patterns is contributing to the increasing prevalence of obesity (*Ontario Ministry of Health, 2000*).

Since 1981, Body Mass Index (BMI) has increased at the rate of nearly 0.1 kg/m^2 per year for both sexes at most ages, indicating a clear trend toward an increase in the BMI of Canadian Children. The prevalence of overweight among boys increased from 15% in 1981, to 28.8% in 1996, and among girls from 15% to 23.6%. The prevalence of obesity in children more than doubled over that period, from 5% to 13.5% for boys, and 11.8% for girls (*Tremblay and Willms, 2000*).

The majority of children age four and five watch television on a daily basis. Time spent viewing television can lead to less available time for outdoor play, active play, or social interaction (*Ontario Ministry of Health, 2000*). The Canadian Fitness and Lifestyle Research Institute states that 2/3 of Canadian children age 5-17 are not physically active enough to promote good health.

According to Health Canada (*1998*) in Canada's Physical Activity Guide to Healthy Active Living, it is recommended that children increase the time currently spent on physical

activity starting with 30 minutes more per day, and reducing non-active time spent on TV, video, and computer activities by this amount of time. It is suggested that over a five month period, physical activity minutes should be increased by 90 minutes per day.

Oral health is also essential to general health. Of ongoing importance is the association between dental and oral health and poverty, and of periodontal health (of the tissues surrounding the teeth) and cardiovascular disease, chronic obstructive lung disease, and diabetes. Thus dental and oral diseases in childhood and continuing throughout life negatively have an impact on overall health, contributing to cardiac disease, stroke, diabetes, and pulmonary conditions. Early Childhood Tooth Decay (ECTD), like Baby Bottle Caries, a preventable form of rampant decay among very young children, has a prevalence of approximately 10% among preschool children (*Ontario Ministry of Health, 2000*).

It is a fact that many parents work outside the home. The majority of Ontario preschoolers receive their non-parental child care in a variety of unregulated child care settings in which the quality and consistency of care varies widely. Only 10% of all Ontario children birth to six years are in a regulated child care setting before Grade One. Unregulated child care means that there are no guarantees that health and safety standards are being met, or that care is developmentally based (*Ontario Ministry of Health, 2000*).

Many feel strongly that Canada's policies towards families and children do not recognize the costs associated with raising children, do not provide enough spaces for affordable high quality child care, provide inadequate maternity, paternity and family leave benefits, and guarantee few provisions for flexible work hours or schedules that would allow parents to balance their work and family responsibilities. Employees are increasingly requesting that employers develop "family friendly" workplace policies to help them to balance their work and family responsibilities (*Ontario Ministry of Health, 2000*).

There are also concerns regarding the availability and accessibility of recreational programs for children. Many children never participate in social activities beyond school. Participation in organized recreation, sports, and other leisure activities contributes to the healthy development, as these activities are associated with enhanced quality of life through the acquisition of new skills, improved physical and psychological health, and protection to some extent against emotional and behavioural problems (*Ontario Ministry of Health, 2000*).

It is evident that child growth and development is a complex topic that encompasses a myriad of issues. On the following pages, local data is presented related to: hospitalizations (morbidity); mortality; leading causes of death; Sudden Infant Death Syndrome; stillbirths; neural tube defects; injury; diseases and immunization; developmental milestones and readiness to learn; disabilities and special needs; mental

health; nutrition and food security; physical activity; childhood obesity; oral health; environmental exposure; and childcare and recreational programs.

Where possible, the most up-to-date local figures have been presented. In instances where no local data exists, prevalence has been estimated by applying statistics from the literature to the local population.

Local Data

Morbidity

The term morbidity refers to the rates of hospitalization for a population, and is calculated based on data on all patients discharged from public, private, and federal hospitals in Ontario (excluding provincial psychiatric facilities), including acute and chronic care hospitals, and acute psychiatric and rehabilitation units. Figures 6.1, 6.2, and 6.3, report the top 5 causes of hospitalization between 1995-1998 for children under 1 year, children age 1-4 years, and children 5-9 years respectively in Peterborough County-City and Ontario.

Children under 1 year of age in Peterborough County-City (Figure 6.1) were most commonly hospitalized for Certain Conditions Originating in the Perinatal Period (disorders relating to short gestation and unspecified low birthweight, other respiratory conditions of fetus and newborn, and the fetus or newborn being affected by maternal complication of pregnancy) in 1995-1998. It is important to note that Peterborough County-City's hospitalization percentages for Diseases of the Respiratory System as well as Symptoms, Signs and Ill-Defined Conditions for this time period were higher than the Ontario percentages.

For children age 1-4 years of age (Figure 6.2), the most common reason for hospitalization in 1995-1998 in Peterborough County-City was Diseases of the Respiratory System, and this percentage was slighter lower than Ontario as a whole. Interestingly in this period, Peterborough County-City had higher percentages than Ontario of hospitalizations in this age group for Diseases of the Digestive System and Endocrine, Nutritional, and Metablic Diseases and Immunity.

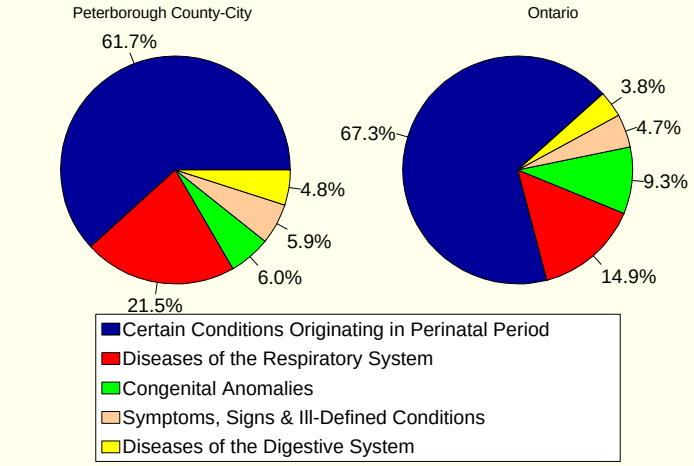
Children age 5-9 years in Peterborough County-City (Figure 6.3) were most often hospitalized in 1995-1998 for Diseases of the Respiratory System, although slightly less often than their Ontario counterparts. In this age group, the categories included in the top five causes of hospitalization vary from those in Ontario as a whole.

It is also important to note that Injury and Poisoning appears in the top five causes of hospitalization for children 1-4 years and 5-9 years of age in Peterborough County-City (Figures 6.2 and 6.3). Further local data with respect to injury will be explored later in this section.

According to the First Nations and Inuit Regional Health Survey, allergies are one of the most common chronic conditions in Aboriginal children (Figure 6.4). Approximately 13% of children are affected by allergies. Parents reported that approximately 15% of children under 6, 11% of children age 6-11 years, and 9% of children aged 12 years and older had asthma. Although bronchitis was reported less than allergies and asthma, it affected

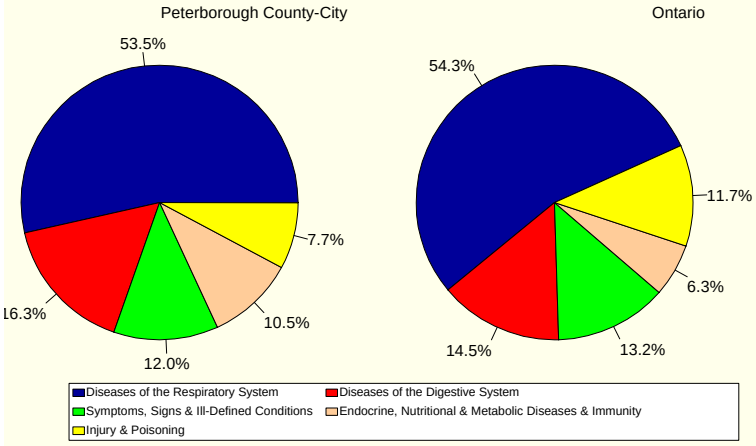
almost one in ten children under six. Respiratory illness is the greatest cause of hospitalization for young Aboriginal children (*CICH, 2000*). Representatives from Curve Lake First Nation felt that this national data was reflective of their community and attribute these conditions to housing quality issues, and the use of wood-burning heat sources.

Figure 6.1 Top 5 Causes of Hospitalization for Children Under 1 Year, 1995-1998



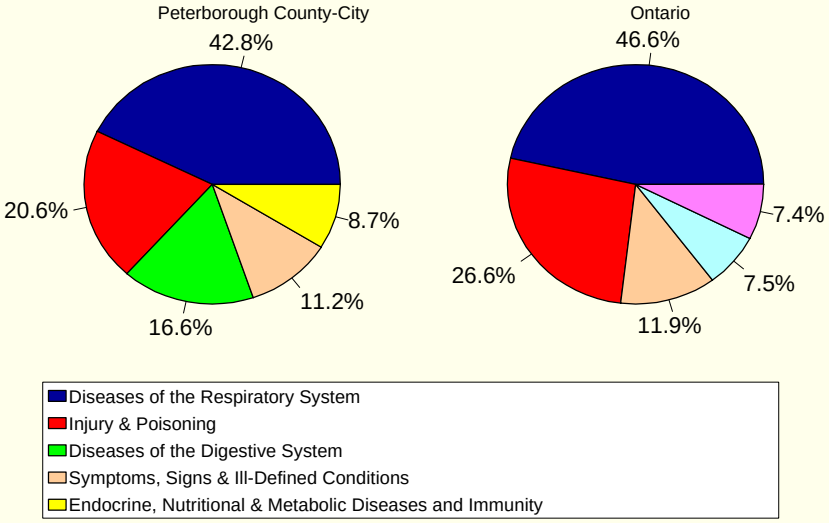
Source: Ontario Provincial Health Planning Data Warehouse, 2002

Figure 6.2 Top 5 Causes of Hospitalization for Children Age 1-4 Years, 1995-1998



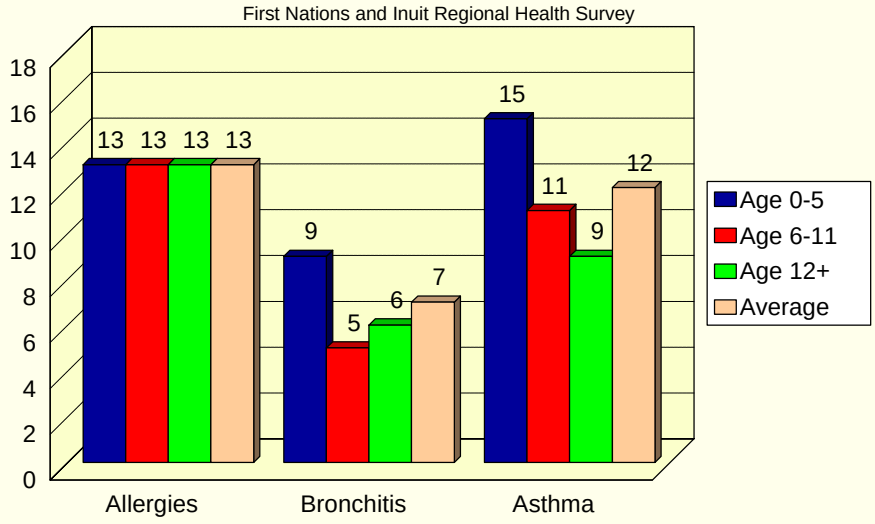
Source: Ontario Provincial Health Planning Data Warehouse, 2002

Figure 6.3 Top 5 Causes of Hospitalization for Children 5-9 years, 1995-1998



Note: Due a software limitation, categories do not appear in the legend for two slices of the Ontario pie graph on the right. The light blue slice represents Diseases of the Nervous System & Sense Organs while the pink slice represents Infectious & Parasitic Diseases.
Source: Ontario Provincial Health Planning Data Warehouse, 2002

Figure 6.4 Prevalence of Specified Medical Conditions of Aboriginal Children by Age Group,1997



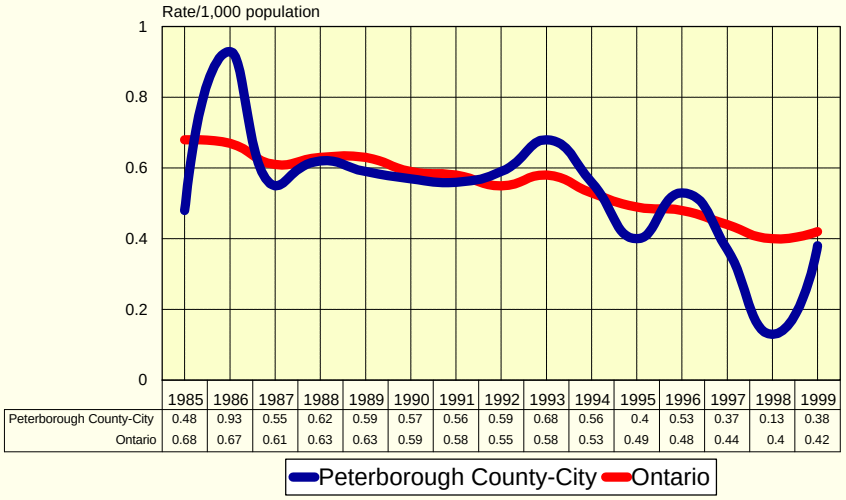
Source: Canadian Institute for Child Health, 2000

Mortality Rates

The mortality rate for children age 0-9 in Peterborough County-City has remained less than one per thousand population between 1985-1999, and has also been lower than Ontario's mortality rate for this age group with the exception of the years 1986, 1992, 1993, 1994, and 1996 (Figure 6.5). A slight, although not steady decline, in the mortality rate in Peterborough County-City is also evident in the 1985-1999 time period.

Figure 6.5 Mortality Rates for Children 0-9 Years, 1985-1999

Peterborough County-City and Ontario



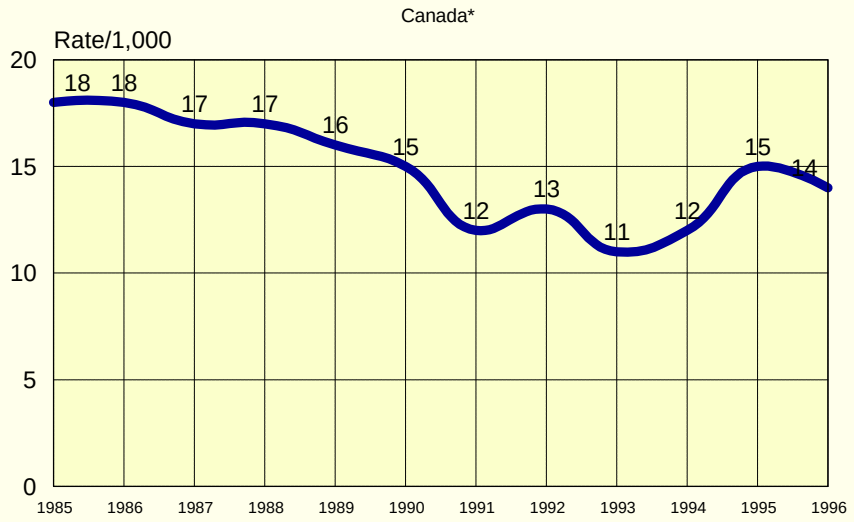
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Peterborough County-City	0.48	0.93	0.55	0.62	0.59	0.57	0.56	0.59	0.68	0.56	0.4	0.53	0.37	0.13	0.38
Ontario	0.68	0.67	0.61	0.63	0.63	0.59	0.58	0.55	0.58	0.53	0.49	0.48	0.44	0.4	0.42

Source: Ontario Stillbirth Database and Ontario Populations Projections Database, 2002

Although we do not have information about the mortality rates for children 0-9 years of age in the Aboriginal population, we do know that the Registered Indian infant mortality rate fell steadily during the last 20 years (Figure 6.6). In 1993, it approximated the 1979 national infant death rate. Between 1993 and 1996, the infant mortality rate for the Registered Indian population rose slightly (*CICH, 2000*).

Dramatic improvements have been made in Aboriginal neonatal health, such that the difference between the national and Aboriginal rates is less significant (Figure 6.7). This can be attributed, in part, to improved prenatal and postnatal care and services and, in part, to improved maternal health and health behaviours. Since 1979-81, the mortality rate for the postpartum period (post-neonatal) has declined in the Aboriginal and national populations. In 1979-81 and in 1991-93, the Aboriginal post-neonatal mortality rate was roughly 3.5 times that of the national population (*CICH, 2000*). Curve Lake First Nation representatives report that the infant mortality rate is very low in their community. They attribute this to improvements access to health care for prenatal mothers and better access to health care in general.

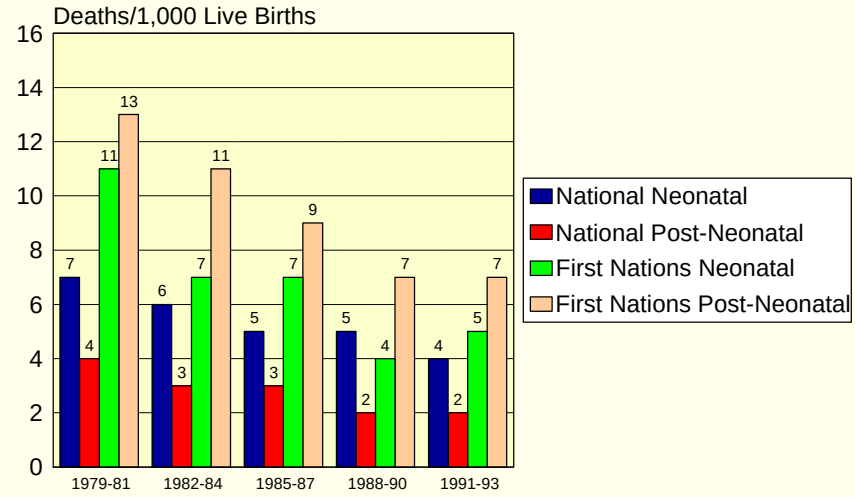
Figure 6.6 Registered Indian Population, Infant Mortality Rates, 1985-1996



Source: Canadian Institute for Child Health, 2000
* British Columbia data were not included in the counts and rates for 1985 and 1986 only; counts and rates for 1995 and 1996 do not include Atlantic Region andates since 1987 no longer include N.W.T. Indians

Figure 6.7 Neonatal and Post-Neonatal Mortality Rates, First Nations and National Population, 1979-1993

Three-Year Averages



Source: Canadian Institute for Child Health, 2000

Stillbirths

In Peterborough County-City there have been slight decreases in the stillbirth rates between 1985-1999 for mothers 15-19, 20-24, and 25-29 years of age (Table 6.1). It is important to note that in 1999, the stillbirth rate for the 15-19 age group was still higher than the Ontario rate.

Slight increases in stillbirth rates for 1985-1999 were recorded in the 30-34, 35-39, and 40-44 age groups. In fact, in 1993, 1994 and 1999, the stillbirth rate for the 30-34 age group in Peterborough County-City of 1.04/1,000 births was considerably higher than the Ontario rate of 0.60/1,000 births.

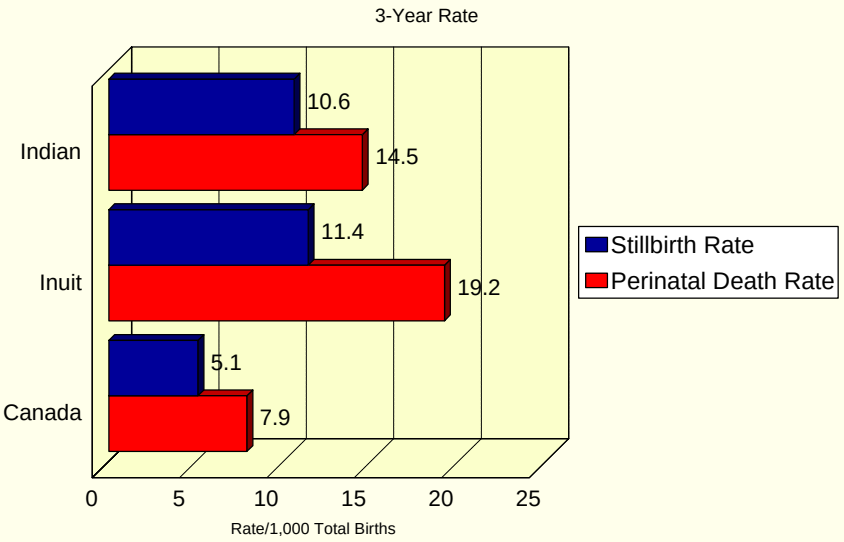
Table 6.1 Maternal Age-Specific Stillbirth Rates, Peterborough County-City and Ontario, 1985-1999
(**Rates/1,000 Births**)

Year	Age 15-19		Age 20-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44	
	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.	Ptbo	Ont.
1985	0.00	0.18	0.41	0.52	0.71	0.66	0.00	0.56	0.26	0.23	0.32	0.06
1986	0.00	0.19	0.70	0.47	0.49	0.63	0.71	0.48	0.31	0.18	0.00	0.06
1987	0.50	0.18	0.71	0.55	0.70	0.65	0.93	0.50	0.25	0.18	0.29	0.04
1988	0.25	0.18	0.71	0.47	1.14	0.67	0.44	0.48	0.00	0.26	0.00	0.06
1989	0.25	0.18	0.95	0.49	0.87	0.64	0.21	0.57	0.23	0.28	0.00	0.05
1990	0.50	0.15	0.47	0.48	2.08	0.62	0.20	0.57	0.22	0.24	0.00	0.07
1991	0.26	0.15	0.24	0.31	0.85	0.57	0.00	0.51	0.00	0.21	0.00	0.07
1992	0.00	0.19	0.48	0.50	0.68	0.71	0.00	0.59	0.22	0.33	0.00	0.05
1993	0.26	0.16	0.72	0.47	0.49	0.60	1.20	0.58	0.20	0.32	0.00	0.05
1994	0.00	0.15	0.49	0.42	0.52	0.57	1.22	0.59	0.20	0.33	0.00	0.07
1995	0.00	0.14	0.50	0.26	0.00	0.38	0.21	0.36	0.20	0.21	0.00	0.04
1996	0.00	0.14	0.25	0.42	0.83	0.59	0.00	0.54	0.39	0.33	0.00	0.06
1997	0.24	0.15	0.51	0.35	1.73	0.62	0.45	0.54	0.00	0.29	0.00	0.09
1998	0.24	0.12	0.51	0.36	0.30	0.55	0.48	0.57	0.19	0.28	0.20	0.07
1999	0.23	0.13	0.25	0.29	0.29	0.61	1.04	0.60	0.00	0.31	0.00	0.09

Source: Ontario Stillbirth Database and Ontario Population Projection Database

As Figure 6.8 illustrates, Aboriginal and Inuit babies have a higher rate of stillbirth than Canadian babies overall. In addition, the perinatal mortality rate, or death from 28 weeks gestation to the first week of life, is almost twice as high for Aboriginal babies and more than twice as high for Inuit babies than for the Canadian population overall (*CICH, 1994*). Curve Lake First Nation representatives felt that the national figures with respect to stillbirth and perinatal mortality were accurate, although their community's rates fall well below these national figures.

Figure 6.8 Stillbirth and Perinatal Death Rates, Indian, Inuit and Canada, 1985-1988



Source: Canadian Institute for Child Health, 1994

Neural Tube Defects

Although local data is available with respect to death caused by congenital anomalies and neural tube defects, the actual cases in Peterborough County-City over a 15-year period are still too small to report. Therefore, an estimate of the number of neural tube defects at the Peterborough Regional Health Centre would be approximately 1 case per year. This number is based on the number of births at the Peterborough Regional Health Centre in 2001 (1,354 births) and the estimated rate of neural tube defects reported in the literature of 79/100,000 births.

Leading Causes of Death

Figure 6.9 reports that Sudden Death, Cause Unknown was the leading underlying cause of death for children 0-9 years in Peterborough County-City between 1985-1999, and that this percentage was higher than that for Ontario. The other four leading causes of death in Peterborough County-City for the same time period were comprised of: Other Ill-Defined Causes of Morbidity and Mortality; Other Congenital Anomalies of the Heart; Other Respiratory Conditions of the Fetus and Newborn; and Effects of Other External Causes. These five leading causes of death represent 38% of all deaths of children age 0-9 years in Peterborough County-City between 1985-1999.

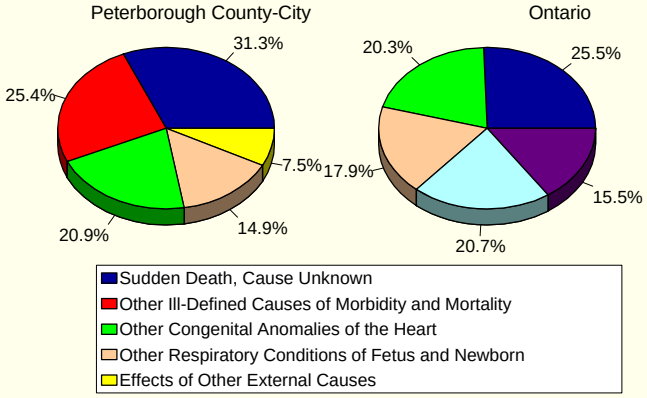
Sudden Infant Death Syndrome (SIDS)

When a healthy infant less than one-year old dies suddenly, and no reason for the death can be found, it can be said that the infant died of Sudden Infant Death Syndrome (SIDS). In Canada each year, there are about 400 SIDS deaths (most likely to occur in infants around 2 to 4 months old), making SIDS the leading cause of death for infants between one month and one year old. Therefore, it can be construed that many of the children in Peterborough County-City whose cause of death was Sudden Death, Cause Unknown died of SIDS.

Contrary to Canada's general population, where the SIDS rates are decreasing, the proportion of Aboriginal SIDS cases has been increasing over the years. In fact, between 1989-1993, SIDS was responsible for 27% of infant deaths in First Nation communities (Figure 6.10). Determinants of health frequently seen amongst First Nations, such as poverty, education levels, and poor health and social conditions are all believed to contribute to a high rate of SIDS. We also know that not only are First Nations infants at greater risk, infant boys are at a higher risk than infant girls are. Also, infants who are exposed to second-hand smoke in utero and in their environment are at greater risk from dying of SIDS. (*AFN, 1999*).

Representatives of Curve Lake First Nation were in agreement with the National SIDS statistics for Aboriginal communities. However, Curve Lake's SIDS rate is much lower than the national figures presented.

Figure 6.9 Top 5 Underlying Causes of Death for Children Age 0-9 Years*, 1985-1999

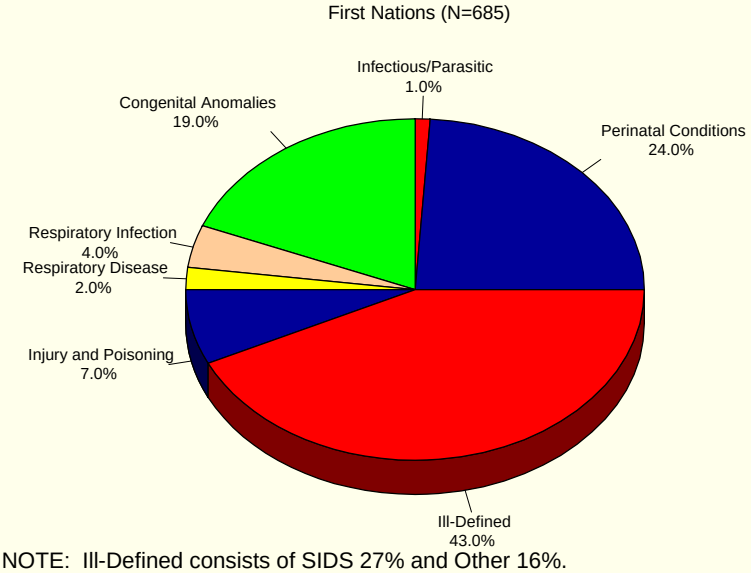


*** The top 5 causes of death for Peterborough County-City represent 38% of all deaths for the time period, while the top 5 causes of death for Ontario represent 31% of all deaths for the time period.**

Note: Due to software limitations, the legend above does not indicate the titles for two of the pie slices in the Ontario graphic. The light blue slice represents Disorders Relating to Short Gestations and Unspecified Low Birthweight. The purple slice represents Respiratory Distress

Source: Ontario Provincial Health Planning Data Warehouse, 2002

Figure 6.10 Causes of Infant Mortality as a Percentage of Total Deaths, 1989-1993



NOTE: Ill-Defined consists of SIDS 27% and Other 16%.

Source: Canadian Institute for Child Health, 2000

Injury

An analysis of local hospitalization data for 1996-2000 (Figures 6.11, 6.12, and 6.13) shows that Falls are the major cause of hospitalization due to injury for the 0-1 year, 1-4 year, and 5-9 year age groups. Falls account for 37% of injury hospitalizations in the 0-1 year age group, 36% of injury hospitalizations in the 1-4 year age group, and 45% of injury hospitalizations for the 5-9 year age group. This information is consistent with data on hospitalizations due to injury for the whole of Ontario for the year 2000 where Falls account for 43%, 37%, and 51% of injury hospitalizations in the 0-1 year, 1-4 year, and 5-9 year age groups respectively.

The second most common cause of hospitalization due to injury for the 0-1 age group, for both Peterborough County-City and the province as a whole, is Assault or Neglect Purposefully Inflicted by Another Person (abuse). Other injuries which affect this age group to a lesser extent include Suffocation and Obstruction of Airways, Poisoning, and Injuries Caused by Hot Substances and Animals.

For the 1-4 year old age group, Poisoning is the second most common cause of hospitalization due to injury, accounting for 16% of admissions both within Peterborough County-City from 1996-2000, and at the provincial level in the year 2000. In Peterborough, a somewhat smaller percentage of hospital admissions due to injury were the result of Animal and Insect Stings (11%), Being Struck By an Object (9%), or Motor Vehicle Collisions, including Being Hit by a Car as a Pedestrian (8%). These trends are fairly consistent with their occurrences at the provincial level.

Among children in the 5-9 year old age group, the second most common cause of hospitalization due to injury both within Peterborough County-City and at the provincial level is Motor Vehicle Collisions, accounting for 12% and 17% of the totals respectively. Being Struck by Objects, Cycling Injuries, Animals and Insect Bites, and Poisoning, all follow closely, accounting for 5-9% of injuries leading to hospitalizations.

Childhood deaths for the 0-9 age group in Peterborough County-City were also examined for the period 1981-1997 (Figure 6.14). Over this period, 39% of deaths were due to Motor Vehicle Collisions. Drownings and Suffocations represented 25% and 18% of deaths respectively. These findings are fairly consistent with deaths due to injury for children 0-9 years of age in Ontario in 1997. Motor Vehicle Collisions, Drowning and Suffocation accounted for 46%, 16%, and 10% of all deaths.

The importance of Falls as a cause of childhood injuries is further reinforced by data from the emergency rooms of 16 hospitals across Canada collected through the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). Statistics for 1999 show that 65% of injuries seen in emergency rooms among 0-1 year old children were due to Falls. Among both 1-4 year olds and 5-9 year olds, 56% of injuries seen in emergency

rooms were the result of Falls. Less than 7% of injured children were later admitted to a hospital. Although injury data is not presently collected in the emergency room at the Peterborough Regional Health Centre, we can assume that there are a much larger number of childhood injuries occurring in Peterborough due to Falls, than the number of children admitted to hospital for follow-up care.

A closer look at the types of Falls from 1996-2000 that led to hospitalization for children in Peterborough County-City, shows that some types of Falls were particularly noteworthy for specific ages of children. Among children under the age of one, the most common type of Fall (62%) was "From One Level to Another." CHIRPP describes these types of injuries as children falling from beds, chairs, or cribs; sliding out of their seats while being carried by a parent; or being dropped when an adult tripped. Many Falls in this age group also occur on stairs, as either a result of the child falling, or a person falling while carrying the infant and dropping him or her (23%).

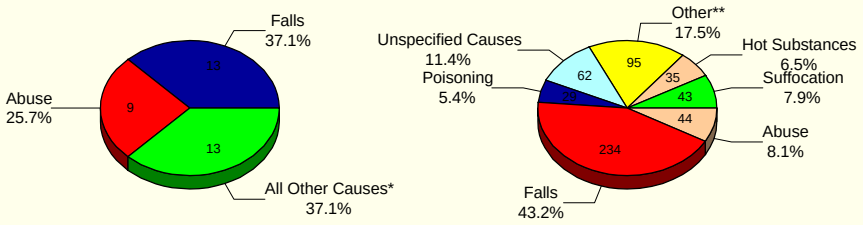
For 1-4 year old children in Peterborough County-City, the greatest number of Falls took place On Stairs or From Stairs (23%). This was closely followed by Falls from One Level to Another (21%); Falls From Playground Equipment (16%); and Slipping and Tripping (16%).

For 5-9 year old children, 46% of Falls requiring hospitalization involved Playground Equipment. This was followed by Slipping or Tripping (20%); and Falls from One Level to Another (18%). These trends are consistent with CHIRPP, which had found that children aged 5-9 years old account for the majority (54%) of playground injuries seen in emergency rooms, but that preschool children still account for 31%.

In order to design effective injury prevention programs, it is also helpful to identify the environment as well as the type of injuries affecting children. Data for Ontario for the year 2000 indicates that a large percentage of injuries take place in the home environment, and that the younger the child, the greater the likelihood that an injury will happen at home. This is consistent with information for emergency rooms through CHIRPP which reported that in 1999, injuries in the home accounted for 72% of the injuries among children less than one year of age, 60% of injuries in children age 1-4, and 32% of injuries in children age 5-9 years (*PCCHU, 2002c*).

Figure 6.11 Reasons for Hospitalization Due to Injury, Age 0-1 Year

Peterborough County-City 1996-2000 Ontario, 2000

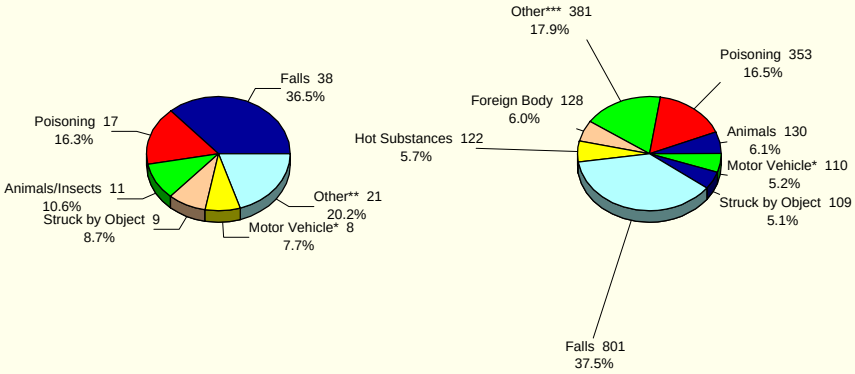


Source: Ontario Provincial Health Planning Data Warehouse, 2002.

* All Other Causes - none greater than 5 incidents each of: Suffocation, Poisoning, Injuries Due to Animals, Foreign Bodies in Orifices, and Unspecified Causes.
** Other - includes Foreign Bodies in Orifices, Struck by Object, Motor Vehicle Collisions, Drowning, Injuries Due to Animals and Insect Stings, Fire, and Other Causes.

Figure 6.12 Reasons for Hospitalization Due to Injury, Age 1-4 Years

Peterborough County-City, 1996-2000 Ontario, 2000

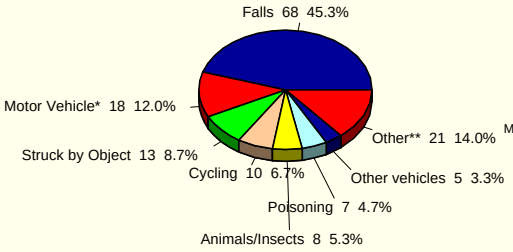


Source: Ontario Provincial Health Planning Data Warehouse, 2002.

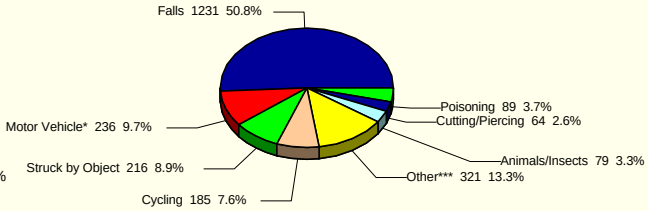
* Motor Vehicle Collisions - includes Pedestrian Injuries
** Other - none greater than 5 incidents of: Foreign Bodies in Orifices, Hot Substances, Suffocation/Choking, Drowning, Fire, Machinery, and Unspecified Causes
*** Other - includes Suffocation, Cutting and Piercing, Abuse, Cycling, Machinery, Fire, Drowning, and Unspecified Causes

Figure 6.13 Reasons for Hospitalization Due to Injury, Age 5-9 Years

Peterborough County-City, 1996-2000



Ontario, 2000

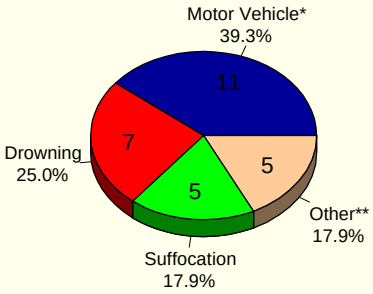


Source: Ontario Provincial Health Planning Data Warehouse, 2002.

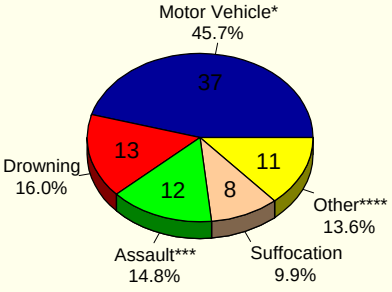
* Motor Vehicle Collisions - includes pedestrian injuries
** Other - none greater than 5 incidents each of: cutting/piercing, explosive material, overexertion, suffocation, machinery, and unspecified causes
*** Other - includes foreing bodies in orifices, hot substances, abuse, suffocation, machinery, other and unspecified causes

Figure 6.14 Causes of Death Due to Injury, 0-9 Years

Peterborough County-City, 1981-1997



Ontario, 1997



Source: Ontario Provincial Health Planning Data Warehouse, 2002

* Motor Vehicle Collisions - includes pedestrian injuries
** Other - none greater than 5 incidents each of: poisoning, fire, and abuse
*** Assault - includes undetermined accidental or purposefully inflicted injuries
**** Other - none greater than 5 incidents each of: falls, electric current, machinery, and others

Childhood injury is also a significant concern in Aboriginal communities. In fact, when compared to the total number of children in Canada, Aboriginal children have much higher death rates due to injuries as is illustrated in Figure 6.15 (*CICH, 1994*).

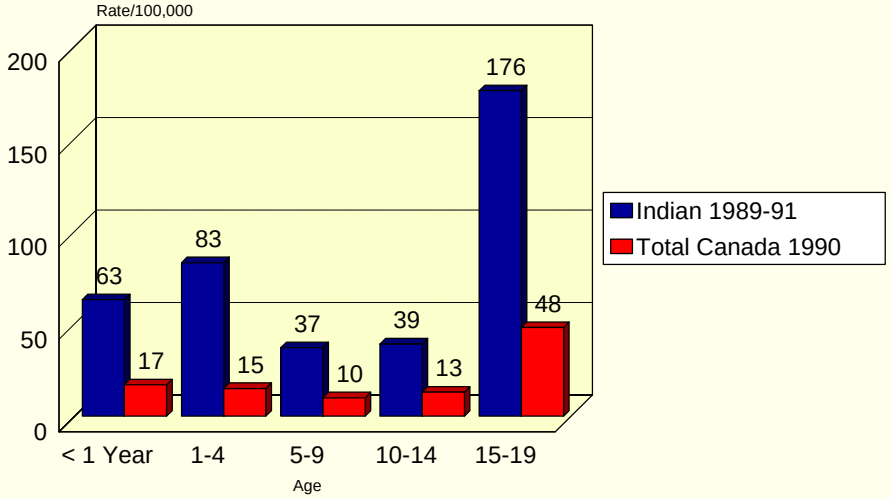
In the 0-1 age group, the death rate due to injuries in the Aboriginal population is reported to be more than 3 times greater than the national figures. Death rates due to injuries in the 1-4 year age group and the 5-9 year age group, are more than five times and three times higher than the national rate respectively.

Therefore, injury prevention is a priority health issue. Data on the lifetime prevalence of injury during the first 17 years of life (Figure 6.16), shows that 13% of First Nations and Inuit people will have a broken bone by the time they are 17, 4% will have incurred a serious head injury, 3% will have been seriously burned, 3% will have 'almost drowned,' and 2% will have experienced frostbite (*CICH, 2000*).

As has been the trend thus far in this report, representatives of Curve Lake First Nation have indicated that their community has a much lower incidence of childhood injury than national Aboriginal figures suggest. These lower rates are attributed to comprehensive local injury prevention efforts that include among others: bike safety; seatbelt use; swimming lessons; boat operator courses; water safety; first aid; and babysitting courses.

Figure 6.15 Comparison of Aboriginal Death Rates Due to Injuries by Age

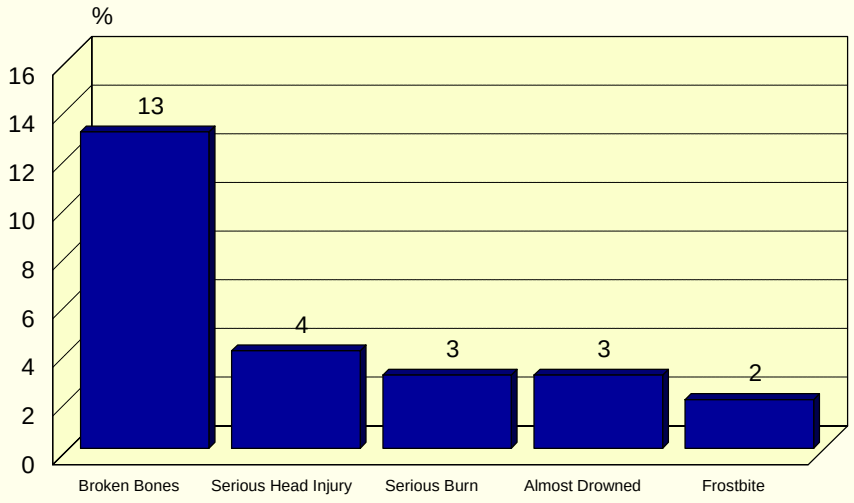
Indian, 1989-1991 (3-Year Rate) and Total Canadian Population, 1990



Source: Canadian Institute for Child Health, 1994

Figure 6.16 Lifetime Prevalence of Injury, to Aboriginal Children from Birth to 17 Years, 1997

First Nations and Inuit Regional Health Survey,



Source: Canadian Institute for Child Health, 2000

Diseases and Immunization

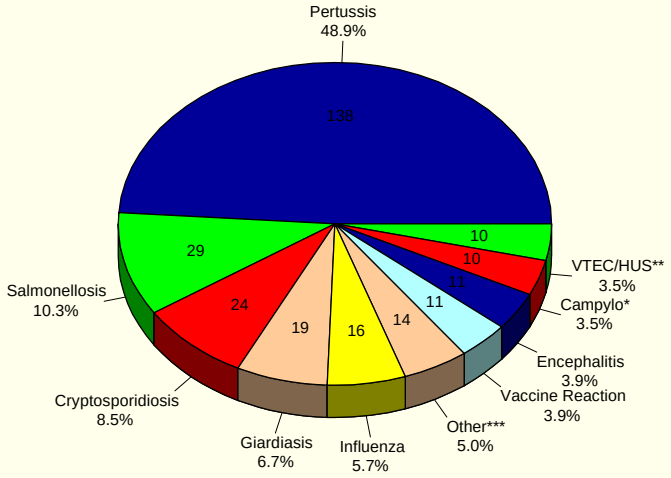
Pertussis (whopping cough) was the childhood disease most commonly reported in Peterborough County-City between 1998-2001 (Figure 6.17).

Figure 6.18 illustrates that between 1998-2001, over 90% of children in Peterborough County-City between the ages of 4 and 9 were adequately immunized against Diphtheria, Pertussis, Tetanus, Measles, Mumps, Rubella, and Polio.

Of those children attending a child care facility between 1998-2001, approximately 80% were immunized against Diphtheria, Pertussis, Tetanus, Polio, Measles, Mumps, and Rubella (Figure 6.19). An average of 75% of children attending child care were immunized against Haemophilus Influenza B (a requirement for children attending licensed child care facilities) between 1998-2001, although this number has increased with each passing year making it approximately 90% in 2001.

Figure 6.17 Reportable Diseases in Children Age 0-9 Years, 1998-2001

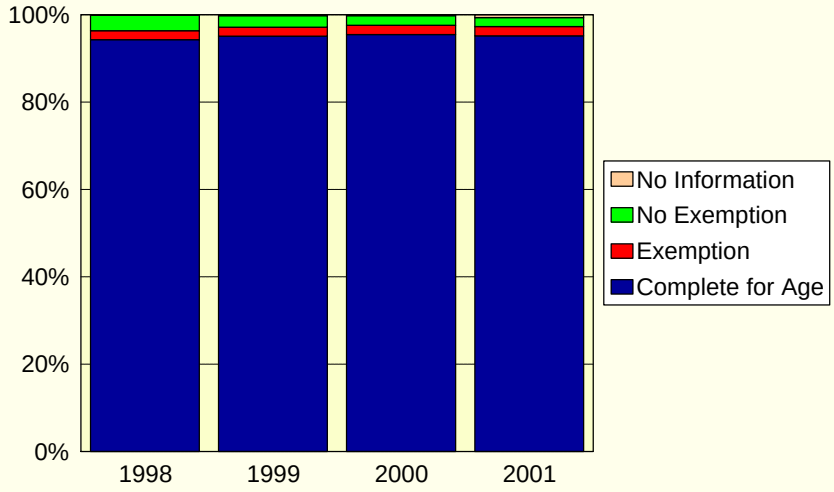
Peterborough County-City



* Campylo stands for Campylobacter Enteritis
** VTEC/HUS stands for Verotoxin-producing E.coli infection indicator conditions including - Hemolytic Uremic Syndrome (HUS)
*** Other includes cases less than 5 of: Amebiasis, Hepatitis C, Yersinia, Cytomegalovirus Infection (congenital), Haemophilus Influenzae B disease (invasive), Strepococcal infections, Group A (invasive), and Strepococcal infections, Group B (neonatal)
Source: PCCHU, Reportable Disease Information System, 2002

Figure 6.18 Immunization*, Children 4-9 Years, 1998-2001

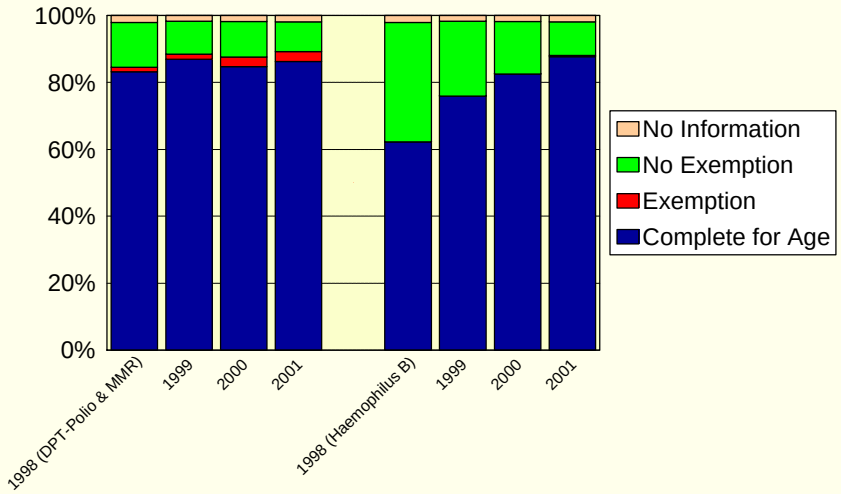
Peterborough County-City



* Immunization includes: Diphtheria, Pertussis, Tetanus, Polio, Measles, Mumps and Rubella.
Source: PCCHU Immunization Record Information System, 2002

Figure 6.19 Immunization* in Child Care Facilities 1998-2001

Peterborough County-City



* Includes Diphtheria, Pertussis, Tetanus, Polio, Measles, Mumps and Rubella totals for 1998-2001 and Haemophilus Influenza B totals for 1998-2001.
Source: PCCHU Immunization Record Information System, 2002

Developmental Milestones and Readiness to Learn

There is broad understanding and support of research regarding the importance of development in the first six years of life to learning, behaviour, and health over the entire life cycle of an individual. However, as organizations in Peterborough County-City have come to realize, very little information exists locally about how many children under six years of age are meeting, or are not meeting, developmental milestones, and as a result of developmental delays, are not prepared for school entry.

Figure 6.20 below, provides information about referrals in 2001 to the Infant and Toddler Development program operated by the Peterborough County-City Health Unit. The main reason children were referred to the program was for concerns regarding their development.

In addition, Figures 6.21, 6.22, and 6.23 summarize the 2001 Grade Three test results for Peterborough County-City Schools in the Kawartha Pine Ridge District School Board and the Peterborough, Victoria, Northumberland and Clarington Catholic District School Board. Although certainly not ideal, at this point in time, this is the best measure of readiness to learn available locally.

The Ontario Curriculum identified Level 3 as the provincial standard. Level 3 is considered to be a high level of achievement. Parents and teachers can be confident that students working at this level throughout the school year are well prepared for work in the next grade. Approximately 50% of Grade 3 students in Peterborough County-City schools in 2000-2001 were considered at Level 3 in Mathematics, while slightly less than 50% were considered a Level 3 in Reading and Writing.

The local data available is therefore, not particularly helpful in painting a picture of children's achievement of developmental milestones and their readiness to learn at school entry. Statistics presented in the literature applied to the local population may be more enlightening. It is estimated in the National Longitudinal Study of Children and Youth that 20%-25% of Canadian four-year olds have one or more serious emotional, behavioural, or learning disabilities, and that 25% of children age 0-11 are experiencing a learning or behavioural difficulty. When the first statistic is applied to the 2001 population for the 0-4 age group (5,960) in Peterborough County-City, it is projected that a figure of 1,490 children have one or more serious emotional, behavioural or learning disabilities prior to school entry.

A great deal of research and energy is currently being expended by the Learning Disabilities Association of Ontario to promote early intervention for learning disabilities. Recommendations are being made for new and more efficient approaches to identifying and remediating young students at risk of school failure, and of having a learning disability. At the heart of this effort is the following new definition of learning disabilities:

"Learning Disabilities" refers to a variety of disorders that affect the acquisition, retention, understanding, organization or use of verbal and/or non-verbal information. These disorders result from impairments in one or more psychological processes related to learning, in combination with otherwise average abilities essential for thinking and reasoning. Learning disabilities are specific, not global impairments, and as such are distinct from intellectual disabilities.

Learning disabilities range in severity, and invariably interfere with the acquisition and use of one or more of the following important skills:

- *oral language (e.g., listening, speaking, understanding);*
- *reading (e.g., decoding, comprehension);*
- *written language (e.g., spelling, written expression); and*
- *mathematics (e.g., computation, problem solving).*

Learning disabilities may also cause difficulties with organizational skills, social perception and social interaction.

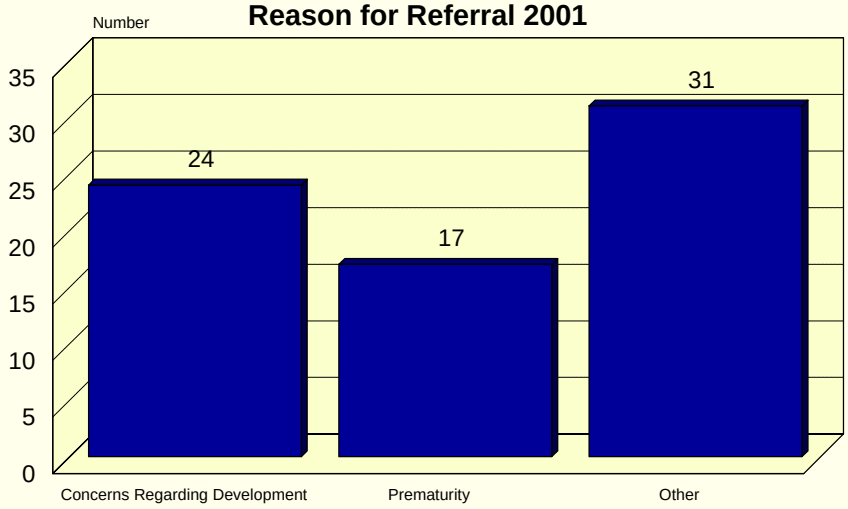
The impairments are generally life-long. However, their effects may be expressed differently over time, depending on the match between the demands of the environment and the individual's characteristics. Some impairments may be noted during the pre-school years, while others may not become evident until much later. During the school years, learning disabilities are suggested by unexpectedly low academic achievement, or achievement that is sustainable only by extremely high levels of effort and support.

Learning disabilities are due to genetic, or other congenital and/or acquired neuro-biological factors. They are not caused by factors such as cultural or language differences, inadequate or inappropriate instruction, socioeconomic status, or lack of motivation, although any one of these and other factors may compound the impact of learning disabilities. Frequently, learning disabilities co-exist with other conditions, including attentional, behavioural and emotional disorders, sensory impairments or other medical conditions.

For success, persons with learning disabilities require specialized interventions in home, school, community, and workplace settings, appropriate to their individual strengths and needs including:

- *specific skill instruction;*
- *the development of compensatory strategies;*
- *the development of self-advocacy skills; and*
- *appropriate accommodations.*

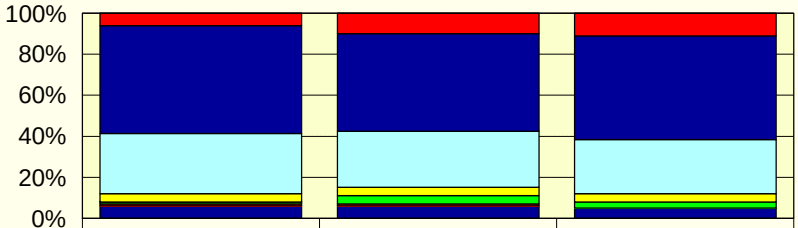
Figure 6.20 Infant and Toddler Development Program - Reason for Referral 2001



* Other includes the following: birth trauma, child welfare concerns, central nervous system malformation, failure to thrive, global developmental delay, low/high muscle tone, physical malformation, substance abuse, referral from Nobody's Perfect or Down's Syndrome group, and other. Many of these categories have less than 5 cases and have therefore, been grouped.
Source: PCCHU, 2002

Figure 6.21 Grade 3 Overall Achievement in Mathematics 2000-2001

Peterborough County and City Elementary Schools

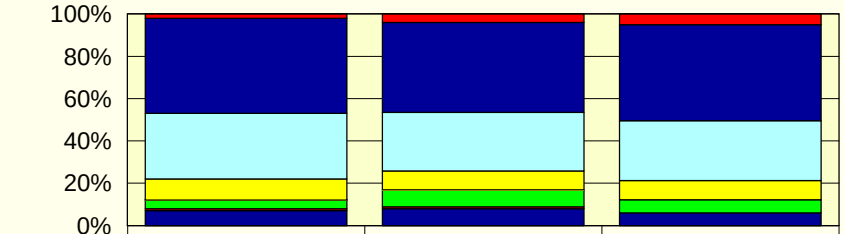


	Catholic	Public	Ontario
Level 4	6	10	11
Level 3	52	47	50
Level 2	29	27	26
Level 1	4	4	4
NE Level 1	0	<1	<1
IIS	1	4	3
No Data	1	1	<1
Exempt	6	6	5

Note: IIS standsfor Insufficient Information to Score and NE Level 1 stands for Student Did Not Produce Enough Evidence to Receive a Level 1 in Any of the Categories.
Source: Kawartha Pine Ridge District School Board, Board Community Profile, Elemenatary Schools 2000-2001 and Education and Quality Accountability Office (EQAO) Reports for Peterborough, Victoria, Northumberland and Clarington Catholic District School Board , 2001

Figure 6.22 Grade 3 Overall Achievement in Reading 2000-2001

Peterborough County and City Elementary Schools

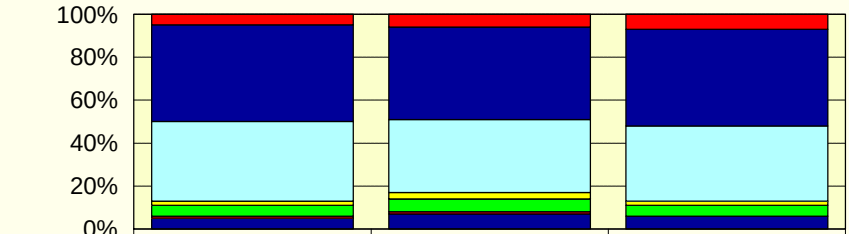


	Catholic	Public	Ontario
Level 4	2	4	5
Level 3	45	43	45
Level 2	31	28	28
Level 1	10	9	9
NE Level 1	0	<1	<1
IIS	4	8	6
No Data	1	1	<1
Exempt	7	8	6

Note: IIS stands for Insufficient Information to Score and NE Level 1 stands for Student Did Not Produce Enough Evidence to Receive a Level 1 in Any of the Categories
Source: Kawartha Pine Ridge District School Board, Board Community Profile, Elemenatary Schools 2000-2001 and Education Quality and Accountability Office (EQAO) Reports for Peterborough, Victoria, Northumberland and Clarington Catholic District School Board , 2001

Figure 6.23 Grade 3 Overall Achievement in Writing 2000-2001

Peterborough County and City Elementary Schools



	Catholic	Public	Ontario
Level 4	5	6	7
Level 3	45	43	45
Level 2	37	34	35
Level 1	2	3	2
NE Level 1	0	0	<1
IIS	5	6	5
No Data	1	1	<1
Exempt	5	7	6

Note: IIS stands for Insufficient Information to Score and NE Level 1 stands for Student Did Not Produce Enought Evidence to Receive a Level 1 in Any of the Categories
Source: Kawartha Pine Ridge District School Board, Board Community Profile, Elemenatary Schools 2000-2001 and Education Quality and Accountability Office (EQAO) Reports for Peterborough, Victoria, Northumberland and Clarington Catholic District School Board , 2001

Disabilities and Special Needs

There are a number of indices in the literature that can be used to estimate the number of children with disabilities and special needs.

One index includes the following variables: allergies, asthma, bronchitis, heart condition, epilepsy, cerebral palsy, kidney disease, mental handicap, other condition, other activity limitation in age-appropriate activities, learning disabilities, emotional problems, chronic pain or discomfort, visual impairments, hearing impairments, and mobility impairments for children age 6-11 years. In 1994, one-third (33.3%) of Canadian children in this age group had one or more of these special needs.

Although the above index does not fit with the 0-9 age group being explored in this report, it does provide a way to estimate the number of children with special needs locally. When the figure of 33.3% is applied to the 5-14 age group (16,500) in the 2001 Census, an estimate would be that 5,494 children in Peterborough County-City are experiencing one or more of the special needs outlined in the index above. This is only a very rough estimate due to the differences in the age ranges available in the Census.

Another more narrow statistic in the literature estimates that 7.7% of children age 0-19 years have disabilities, and that the severity for this age group can be estimated as follows: severe 4%, moderate 11% and mild 85%. When this statistic is applied to the 2001 Census figures for the 0-19 age group (31,435), this would mean that 2,420 children in Peterborough County-City age 0-19 have disabilities. Of those 2,420 children, approximately 97 have severe disabilities, 266 have moderate disabilities, and 2,057 have mild disabilities.

Because we have no method locally to gather and analyze disability statistics for the population as a whole, the estimates above are at present a best guess of the numbers of children affected in Peterborough County-City. What is available locally are statistics from individual organizations about the number of children served.

Five Counties Children's Centre in September 2001 was providing services to children age 0-9 years of age from Peterborough County-City for the following:

Speech	465
Developmental Coordination Disorder	43
Acquired Brain Injury	8
Neuromuscular	3
Musculoskeletal	16
Spina Bifida	9
Cleft Lip and Palate	11
Torticollis	16
Down Syndrome	21

Other Syndromes	10
Premature Infants	20
Developmental Delay	24
Autism Spectrum Disorder	15
Abnormal Gait (Toe Walkers)	9
Other	65

In 2001-2002, Five Counties Children's Centre reports that children age 0-21 from Peterborough County-City received the following services:

Physiotherapy	371
Speech-Language Pathology	915
Occupational Therapy	353
Augmentative Communication Service (ACS)	168
Family Counselling	102
Recreation	145
Resource Teachers	433

The waiting list at FCCC for 2001-2002 for Peterborough County-City children totalled 334 (a child needing two services is counted twice in the total). Speech-Language Pathology Assessment had the highest waiting list, followed by Augmentative Communication Service, and Occupational Therapy.

In addition, the Peterborough Community Access Centre reports that as of October 2002, 10 children age 0-9 are receiving services at home for enhanced respite; nursing; nutritional therapy; occupational therapy; and physiotherapy. They also report providing services to 281 children age 0-9 at school for nursing; nutritional therapy; occupational therapy; physiotherapy; and speech therapy. The majority of school clients are receiving speech therapy or occupational therapy.

The Peterborough County-City Health Unit's Infant and Toddler Development Program in the period April 2001-March 2002, had 14 children on the intake and active cases list with these disabilities: Agenesis Corpus Callosum, Down Syndrome, Meconium Aspiration Syndrome, Perinatal Asphyxia, Spina Bifida, and Speech.

Statistics from the Haliburton, Kawartha, Pine Ridge District Preschool Speech and Language Initiative reports that in 2000-2001, approximately 8% of children under 5 years of age are being identified and receiving service. It is estimated that 10% of children in this age group will experience speech and language difficulties.

The Preschool Speech and Language Initiative was originally developed in 1997 to provide services to children ages birth to four years with speech and language disorders, and includes early identification, access and support for parents and caregivers. It is now

available throughout the province. Community system committees, representing health, social services, and education boards and agencies, as well as professionals, parents, and business and volunteer organizations have been involved with developing and overseeing the implementation of the Preschool Speech and Language systems in each district of the province. Prior to 1996, only 17,000 of the estimated 60,000 children with speech and language disorders had their problems identified and received assistance prior to school entry. Today, almost two-thirds of the estimated 60,000 children with speech and language disorders in Ontario now have their problems identified, and are provided with assistance prior to starting school.

The Canadian National Institute for the Blind estimates that there are currently approximately 26 children in the counties of Haliburton, Peterborough, Northumberland, and Victoria with visual impairments on their caseload, and that 50% of these are children from Peterborough County-City. This organization is implementing an early intervention initiative for children from preschool age to nine years, and may have more specific data in the future.

The Canadian Hearing Society reports that although they see local children for hearing impairment devices, they do not keep specific statistics. Also, the organization nationally does not use a prevalence estimate for hearing loss in children at the present time.

The literature does estimate that 1% of females and 0.9% of males age 4-9 are estimated to have a hearing problem. If the figure of 1% was applied to the 2001 age 5-14 population (16,500), this would mean that approximately 165 children could be estimated to have a hearing problem in Peterborough County-City. This is only a very rough estimate due to the differences in the age ranges available in the Census. Also, this statistic provides no information about the severity of the hearing problem these children might experience.

An Infant Hearing Initiative has also just recently been launched by the provincial government that concentrates on screening and the confirmation of hearing loss in young children (well babies and infants in neonatal intensive care units) as well as communication development for those children identified with hearing loss. The communication development component of this program will be delivered through enhancements to the Preschool Speech and Language Programs across the province. Preliminary estimates from this initiative indicate that 3 to 6 infants/1,000 births in Peterborough County-City would be identified with severe or profound hearing loss in both ears and require ongoing communication services.

First Nation Youth are also at elevated risk of a physical, developmental, or learning disability (*AFN, 2000*). Aboriginal children and youth have a higher rate of disability than children and youth in the national population as a whole. According to the Aboriginal

Peoples Survey (1991), Aboriginal children off-reserve had a higher rate of “severe” disability (5.6%) than those on-reserve (3.5%). The rate of “severe” disability in the general population was 2.2%. (A severe disability limits daily living in a number of ways, and is not compensated for by an assistive device) (*CICH, 2000*). As well, it is estimated that one in every 2 or 3 children in First Nation communities currently stands to develop permanent hearing loss (*AFN, 2000*).

Representatives of Curve Lake First Nation report that their local disability rates in children are not very high (approximately 1%). Comments were also made that children in the community have high rates of ear infections and colds as well as ear tube insertions. Curve Lake First Nation representatives were not surprised at national estimates of Aboriginal children with permanent hearing loss.

Mental Health

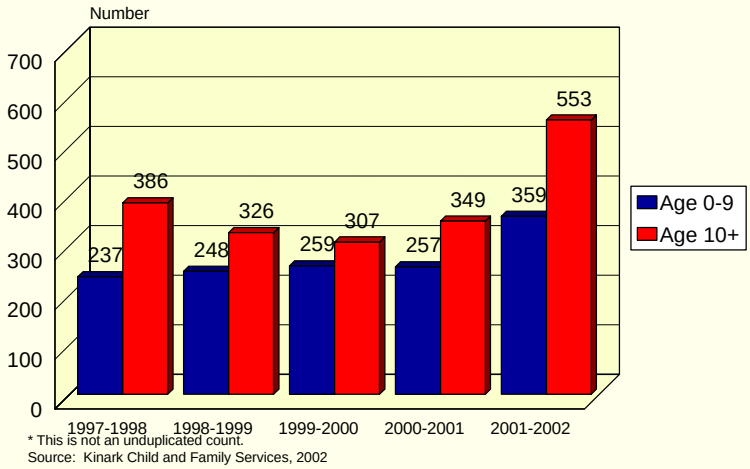
In the previous Developmental Milestones and Readiness to Learn sub-section, we have learned from the literature that 20-25% of children age 0-4 are experiencing one or more serious emotional, behavioural or learning disabilities, and that this figure translates to approximately 1,490 Peterborough County-City children age 0-4 with these challenges.

It is also estimated that more than 18% of children and adolescents in Ontario have at least one diagnosable psychiatric disorder and 2/3 of these have two or more disorders. When these percentages are applied to the Peterborough County-City 5-19 age group reported in the 2001 Census (25,475), 4,585 children age 5-19 have at least one diagnosable psychiatric disorder, while 3,053 may have two or more disorders.

Figures 6.24, 6.25, and 6.26 present recent data on the number of children served by Kinark Child and Family Services, Tri-County-Behavioural Services, and the Peterborough Regional Health Centre's Family and Youth Clinic. The numbers of clients being served continues to increase as does the wait list for many of these services. Agencies also report a trend toward mental health and behavioural issues surfacing in younger clients, and with more complex presentations than were seen in the past.

Figure 6.24 Kinark Child and Family Services

Clients Served* 1997-1998 to 2001-2002

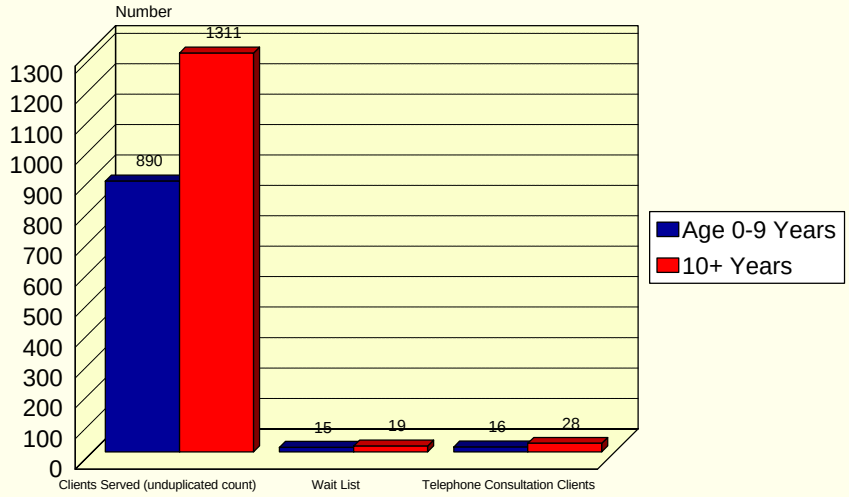


* This is not an unduplicated count.

Source: Kinark Child and Family Services, 2002

Figure 6.25 Kinark Child and Family Services Unduplicated Count of Clients Served, Wait Lists and Telephone Consultation Clients

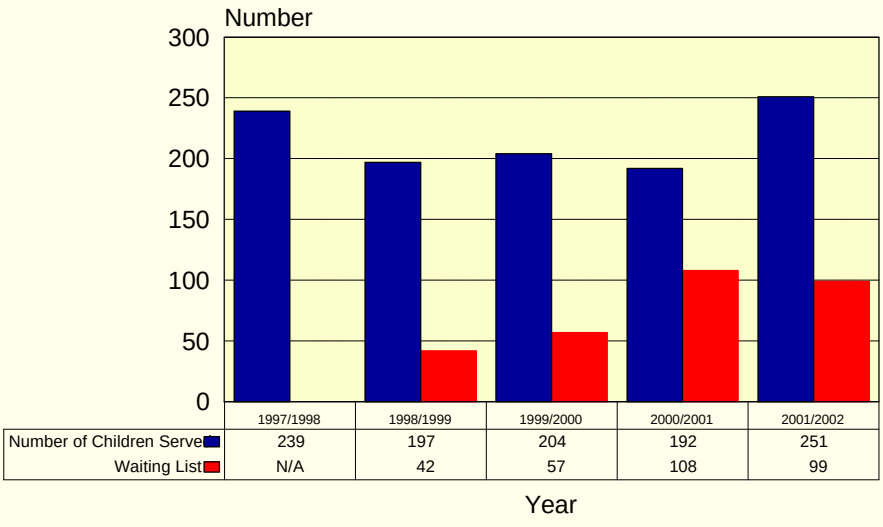
April 1997 - March 2002



Source: Kinark Child and Family Services, 2002

Figure 6.26 Tri-County Behavioural Services

1997/98 - 2001/02

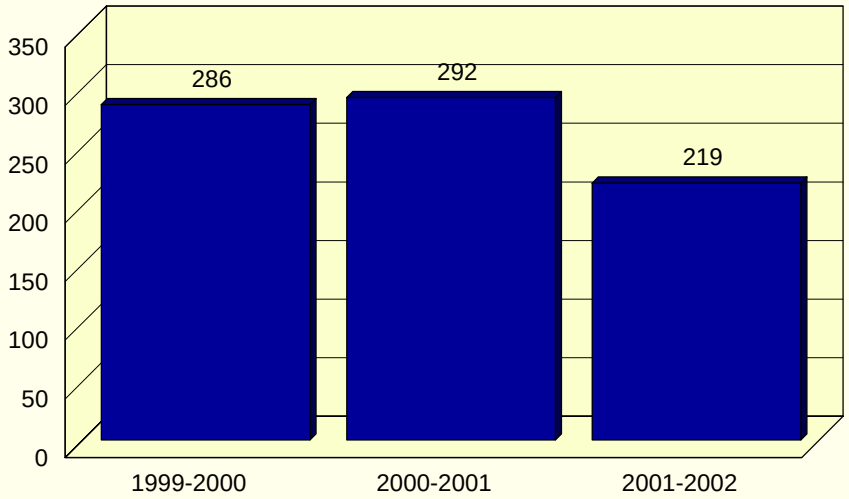


	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
Number of Children Serve	239	197	204	192	251
Waiting List	N/A	42	57	108	99

Source: Tri-County Behavioural Services, 2002

Figure 6.27 PRHC Family and Youth Clinic, Mental Health Services*

1999-2000 to 2001-2002

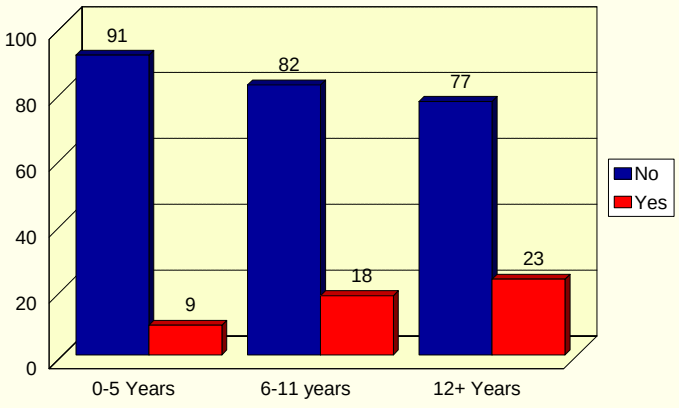


* This program serves young people age 0-18 years and their families presenting with moderate to severe mental health concerns including suicidality, psychosis, major depression, anxiety conditions, and eating disorders. Data indicates that the wait list for this program increased from 55 days to an average of 61 days between 1999 and 2002.
Source: Peterborough Regional Health Centre, 2002

A substantial minority of Aboriginal parents reported that their child (or children) had emotional or behavioural problems in the First Nations and Inuit Regional Health Survey (*CICH, 2000*) as presented in Figure 6.28. When representatives from Curve Lake First Nation reviewed this national data, they felt that their local situation with respect to emotional and behavioural issues in children was consistent.

Figure 6.28 Emotional or Behavioural Problems, by Age Group

First Nations and Inuit Regional Health Survey, 1997



Source: Canadian Institute for Child Health, 2000

Nutrition and Food Security

Just as the literature states, no data is available locally about the feeding practices, nutrient intakes, and growth patterns of infants and young children.

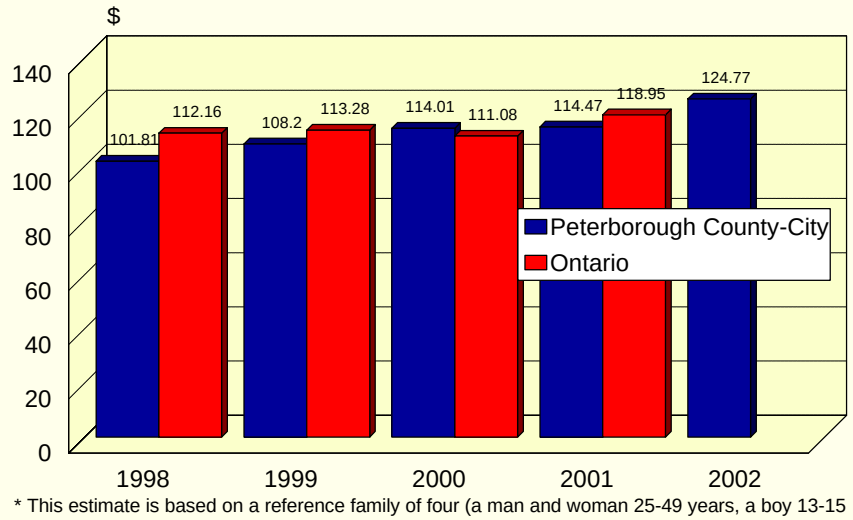
We do know locally, that the food costs in Peterborough County-City rose substantially between 2001 and 2002 for the first time in a decade (Figure 6.29). It is not clear at this point if this is also a provincial trend as the 2002 Ontario figures for the cost of a nutritious food basket have not been released.

We know from research carried out by the Nutrition Promotion Program at PCCHU, that substantial portions of annual incomes are needed to eat nutritiously. For those receiving social assistance (includes social assistance and tax credits), 37% of their annual income would be spent on a nutritious food basket. For a household with two minimum wage earners (based on two adults working 30 hours/week at $6.85/hour plus tax credits and National Child Benefit Supplement), 28% of their annual income would be spent on a nutritious food basket.

We also know that there are a number of children in Peterborough County-City who are faced with food insecurity. In fact, the number of children under age 18 served by foodbanks increased by 16% between March 2000 and March 2002 (Figure 6.30).

Figure 6.29 Cost of Nutritious Food Basket* 1998-2002

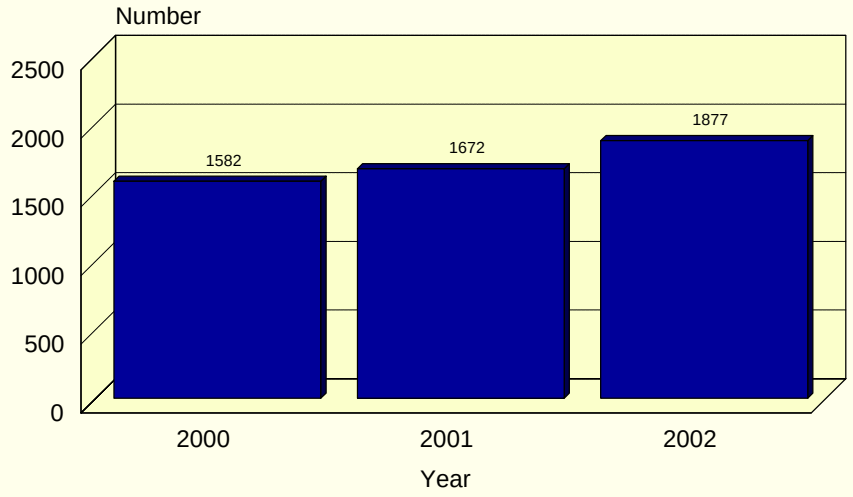
Peterborough County-City



* This estimate is based on a reference family of four (a man and woman 25-49 years, a boy 13-15 years, and a girl 7-9 years) and is the cost for one week.
Source: Peterborough County-City Health Unit, 2002

Figure 6.30 Number of Children Under Age 18 Served by Food Banks in Peterborough County-City

For Month of March 1999 - 2002



Source: Kawartha Food Share, 2002

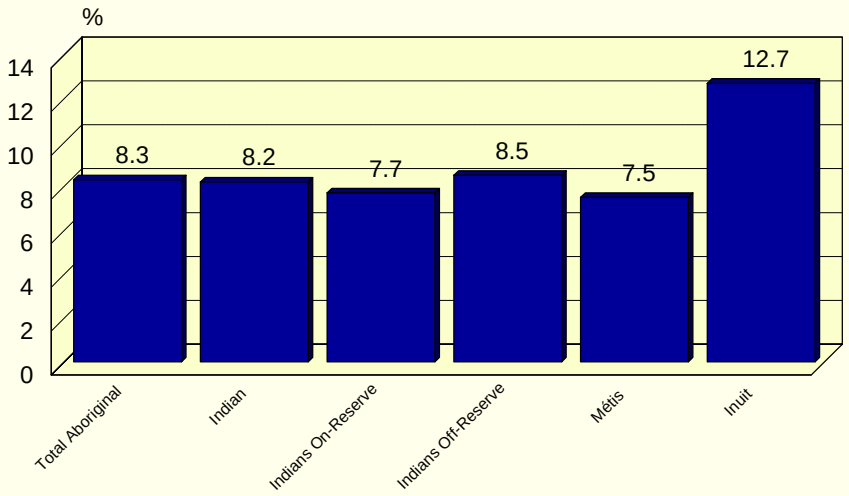
School breakfast programs in Peterborough County-City are widespread. In fact, in 2000/2001, programs were running in 26 sites, and served 1,800 children. In 2001/2002, 30 sites were operational and 2,200 children were served.

Food security is also a significant issue in Aboriginal communities. According to the Aboriginal People's Survey, 8.3% of all respondents reported food availability as a problem during the year before the survey (Figure 6.31). In total, 7.7% of all Aboriginals living on-reserve, and 8.5% of all Aboriginals living off-reserve reported food availability as a problem (*CICH, 1994*).

Curve Lake First Nation representatives report higher rates of food insecurity than the national data suggests. They estimate that approximately 20% of the population is using foodbank services, and that half of the foodbank users are families with two incomes.

Figure 6.31 Percentage of Aboriginal Peoples Reporting Food Shortages

Canada, 1991



Source: Canadian Institute of Child Health, 1994

Physical Activity

We currently have no local information regarding the level of physical activity in the 0-9 year age group. According to Health Canada's Physical Activity Guide, children need to increase the time spent on physical activity, and reduce the time spent on non-active activities.

Childhood Obesity

There are also no local estimates with respect to childhood obesity. We do know from the literature that the Body Mass Index (BMI) of Canadian children is increasing. The prevalence of obesity has been estimated at 13.5% for boys, and 11.8% for girls. When applied to the local population, this would mean that there are 2,159 boys age 0-19 years (total population 2001: 15,995) who are considered obese, and 1,822 girls age 0-19 years (total population 2001: 15,440) who are considered obese in Peterborough County-City.

The National Longitudinal Study of Children and Youth released new information in October 2002 about childhood obesity. It indicates that more boys than girls are overweight; younger children are more overweight than older children; higher proportions of children in low-income families were overweight; fewer obese children are active; and more children are overweight than those who are never overweight (*Statistics Canada, 2002*).

Oral Health

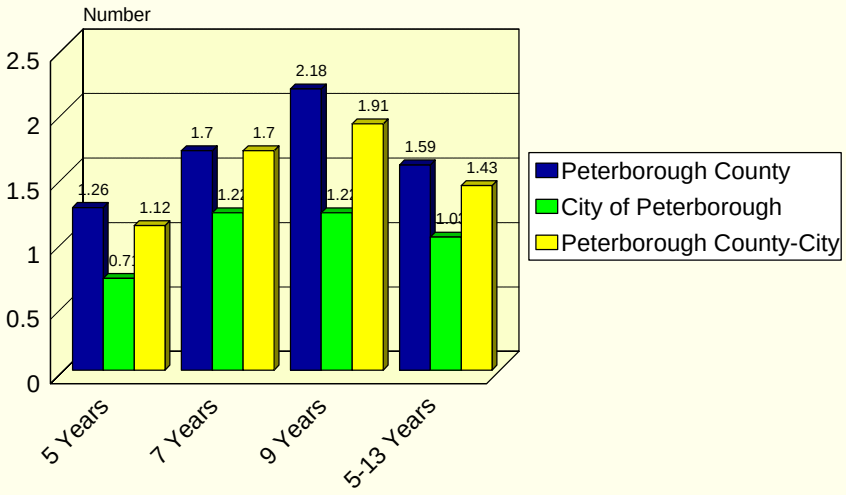
Early Childhood Tooth Decay (ECTD) is estimated by the Ministry of Health and Long-Term Care to affect 10% of preschool children. In 2001 when applied to the 2001 age 0-4 population in Peterborough County-City, this would mean that approximately 596 preschool children are affected by ECTD.

We can see from the information presented in Figure 6.32 that in 1997-1998, the average number of teeth affected by decay was highest among 9 year olds. In addition, children in the County had a slightly higher average number of teeth affected by decay than children living in the City.

The 1997-1998 Dental Indices Survey showed that the average number of teeth affected by decay among local children (age 5-13 years) was 1.43. This figure was down from the 1.69 reported in 1993-1994 and is lower than the provincial average in 1993-1994 of 1.88. New Dental Indices Survey information is expected to be released in 2003.

Figure 6.32 Average Number of Teeth Affected by Decay

Peterborough County and City, 1997-1998



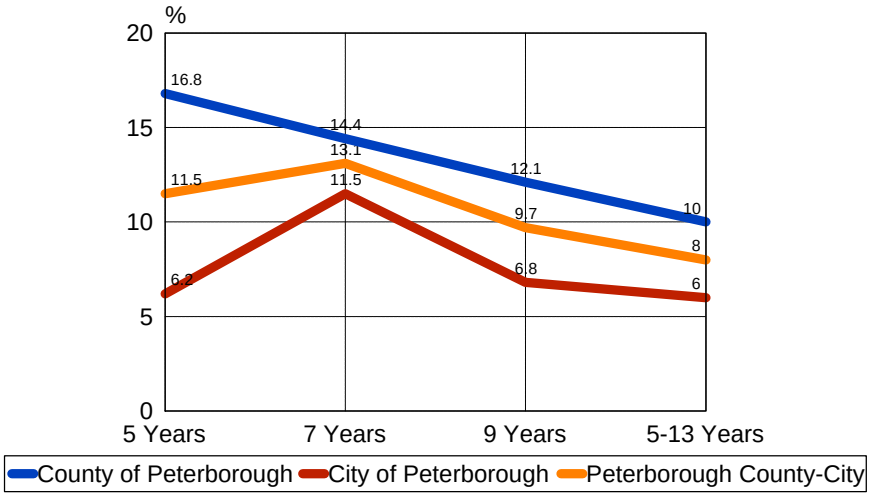
Source: Ontario Dental Indices Survey, 1997-1998

The CINOT (Children in Need of Treatment) program funds services to families without dental insurance, for whom the cost of treatment would create financial hardship. Figure 6.33 shows the percentages of children classified as “urgent” by CINOT criteria (e.g., decay, pain, infection). More children age 5-13 living in the County (10%) than in the City (6%) were CINOT recipients in 1997-1998. Almost 17% of County 5-year olds surveyed

required treatment compared to 6% in the City.

Figure 6.33 Children in Need of Dental Treatment (CINOT) Considered Urgent

Peterborough County and City, 1997-1998



Source: Ontario Dental Indices Survey, 1997-1998

Environmental Exposures

We know how susceptible infants and children are to environmental toxins. However, very little information is available at the local level to gauge children's exposure to air pollution, lead poisoning, and indoor pollution. The most detailed information that exists locally is in relation to exposure to environmental tobacco smoke.

Within the Peterborough County-City Health Unit's boundaries, in the May 2002 edition of Health Indicators, Statistics Canada reports that 18.7% of the local population, age 12 years and over, smokes daily (compared to 25.5% for Ontario), with higher rates being attributed to females. Also, 24.1% of the non-smoking population age 12 and over in Peterborough reports exposure to environmental tobacco smoke (ETS) as compared to 24.9% in the province.

Overall, in Peterborough in 2000, over half (57%) of homes were reported to have a complete smoking restriction, 31% had a partial restriction (whereby there were some restrictions as to who could smoke in the home, or where or when someone could smoke), and 12% had no restrictions on smoking in the home. There has been a remarkable increase in the number of homes instituting smoking restrictions, as compared with 1997 figures. In 2000, 10% more homes had partial restrictions, and 9% more homes had

complete restrictions in place in Peterborough County-City. In addition, 77% of homes who had at least one child under age six reported a complete restriction, while 47% of homes with children 6-18 reported a complete restriction (see Table 6.2)

In Peterborough County-City, it is also interesting to note that 61% of households with at least one vehicle in Peterborough County-City have a complete smoking restriction for all vehicles (Table 6.3). For those households with at least one child under the age of 6, 64% reported a complete smoking restriction for all vehicles, while 61% of households with children 6-18 reported a complete restriction for all vehicles.

Table 6.2 Cigarette Use in Peterborough Homes, 2000

	No Restriction	Partial Restriction	Complete Restriction
Total Households	12%	31%	57%
Age of Youngest Child in the Home			
No Child(ren)	16%	28%	56%
At Least One Child Under Age 6	___	23%	77%
All Children Between Age 6-18	___	49%	47%
Cigarette Smoker[1] Living in the Home			
Yes	22%	51%	26%
No	6%	21%	73%

1 Includes both daily and occasional cigarette smokers.

Source: Survey on Peterborough Attitudes Towards Health (PCCHU, unpublished), 2000

Table 6.3 Cigarette Use Inside Motor Vehicles in Peterborough, 2000

	No Restriction for any Vehicle	Partial Restriction	Complete Restriction for all Vehicles
Total Households with at least one motor vehicle	21%	18%	61%
Age of Youngest Child in the Home			
No Child(ren)	24%	16%	61%
At Least One Child Under Age 6		28%	64%
All Children Between Age 6-18	21%	19%	61%
Cigarette Smoker[1] Living in the Home			
Yes	39%	40%	22%
No	12%	8%	79%

1 Includes both daily and occasional cigarette smokers.

Source: Survey on Peterborough Attitudes Towards Health (PCCHU, unpublished), 2000

Child Care and Recreational Programs

Given that 60% of Canadian children are in non-parental child care arrangements while their parents work or go to school, the quality of non-parental care has a great influence on child development. Quality child care is an effective way to enhance development, improve school readiness, and help children develop the skills they will need as the next generation of workers and caring adults. It is a means to reduce the effects of poverty and disadvantages of children at risk.

A large proportion of Peterborough County-City children, like their Ontario counterparts, receive their non-parental child care in a variety of unregulated settings. Table 6.4 outlines the numbers of spaces available in regulated child care settings (with the exception of licensed home day care programs) in Peterborough County-City.
There are approximately 1,069 day care, private home care and school age spaces, and 135 nursery school spaces.

The Peterborough County-City community feels strongly that more child care spaces are required. In fact, a group is in the process of developing a local model for employer-sponsored child care intended to address the following needs:

- services for working families;
- contingency/back-up caregiving assistance for working parents who have young children who are mildly ill, and are unable to participate in their regular preschool/school programs;
- expanded availability of high quality, safe, flexible caregiving;
- high quality, safe, and educational after school activities/programming for

children of working parents; and
- expanded assistance and support for “Family-Friendly Workplace Policies” (e.g., flexible scheduling, job sharing, supports for caregiving).

The Peterborough County-City Health Unit is providing staff and leadership for this initiative with funding from the Public Health Branch of the Ministry of Health and Long-Term Care.

Aboriginal conceptions of child care differ radically from those of non-Aboriginals. Aboriginal child care is holistic in nature, and relies heavily on extended family. In addition to the importance of child care to parental employment, many Aboriginal groups consider Aboriginal child care an important component in the process of healing underway in many Aboriginal communities. They envision Aboriginal child care centres as vehicles of cultural affirmation and transmission (*CICH, 1994* and *2000*).

Generally, there are very few child care centres in First Nations communities. The National Inquiry into First Nation Child Care found 68 centres (*CICH, 1994*). In Peterborough County, Curve Lake First Nation and Hiawatha First Nation both operate child care centres.

The involvement of children in organized sports, recreation, and other leisure activities contributes to their healthy development. Unfortunately, local figures are not available with respect to the numbers and ages of children enrolled in such activities in Peterborough County and City.

Table 6.4 Child Care Programs in Peterborough County-City, 2002

	City of Peterborough	County of Peterborough*	Total for Peterborough County-City
Number of Day Care, Private Home Care and School Age Programs[1]	21	6	27
Number of Infant Spaces (0-18 months)	33	13	46
Number of Toddler Spaces (18 months - 2.5 years)	103	32	135
Number of Preschool Spaces (age 2.6-5 years)	372	81	453
Number of School Age Spaces (5 years and up)	332	103	435
Total Number of Spaces in Day Care, Private Home Care, and School Age Programs[1]	840	229	1 069
Number of Nursery Schools[2]	5	3	8
Number of Infant Spaces	0	0	0
Number of Toddler Spaces (2-3 years)	15	3	18
Number of Preschool Spaces (3-5 years)	93	24	117
Number of School Age Spaces	0	0	0
Total Number of Nursery School Spaces	108	27	135

* Totals provided for Peterborough County do not include child care spaces at Curve Lake First Nation or Hiawatha First Nation.

1 The totals do not include those spaces available in agencies operating private home care programs licensed under the Day Nurseries Act.

2 Nursery School programming is less than 6 hours per day, and is therefore considered a half-day program.

Sources: City of Peterborough website, and Peterborough Family Resource Centre website, Sept. 2002

Discussion

It is clear that child development is a complex topic that encompasses a myriad of issues. From the local data presented on the previous pages, we have learned a great deal about what we do know about child development, and what we do not know about child development at the local level.

- Children under one year of age are most commonly hospitalized due to Certain Conditions Originating in the Perinatal Period followed by Diseases of the Respiratory System, while children 1-9 years are most commonly hospitalized for Diseases of the Respiratory System.
- Respiratory illness is the most common reason for Aboriginal children to be hospitalized.
- Sudden Death, Cause Unknown is the leading underlying cause of death for children age 0-9, and that Sudden Infant Death Syndrome in the general and Aboriginal population continues to be a concern.
- Childhood injury, especially Falls, continues to be an issue.
- The most common reportable disease for the 0-9 age group is Pertussis (whooping cough).
- Our immunization rates for Diphtheria, Pertussis, Tetanus, Polio, Measles, Mumps, and Rubella are at about 90% for children age 4-9 years of age.
- We know very little locally about how many children are achieving developmental milestones, and are considered ready to learn at school entry.
- We also know very little about the numbers of children with disabilities in Peterborough County-City, and the severity of those disabilities.
- Mental health and behavioural issues in children continue to increase, and they are surfacing in younger children and with more complex presentations than have been seen in the past.
- We know little about what and how well our children are eating, but we do know that large numbers of children and their families are accessing food security programs.
- Little is also known about the physical activity levels of children, or about the numbers of children involved in organized sports, recreation, and other leisure activities locally.
- National data indicates an increased prevalence of childhood obesity, but there is no local data on this trend at this point in time.
- Oral health continues to be of importance to overall health, and new information will be released about the local area in 2003.
- Children continue to be exposed to environmental tobacco smoke, although the rates of exposure in homes and in motor vehicles are decreasing.
- We know very little about children's exposure to other environmental contaminants.
- Although children are enrolled in regulated child care programs, there is a need to expand both subsidized and non-subsidized child care spaces in Peterborough County-City.

There are two additional issues that were not directly addressed in this section, but are nonetheless important to child health and development. They are access to health care and coordination of services.

Access to health care continues to be a concern in Peterborough County-City with respect to child health and development. In a recent article by Danylo Hawalesheka in Macleans magazine (*2002*), the Peterborough area is ranked 51 out of 54 major communities surveyed in relation to physicians per capita. In response to the physician shortage issue, a Paediatric Preventative Health Clinic was established at the Peterborough County-City Health Unit in 2002. The clinic is for all children from newborn to 18 years of age who do not have a doctor. Children receive free health care that focuses on maintaining health and preventing disease. Care is provided by a Nurse Practitioner in partnership with local Paediatricians

As is evident from the variety of data sources presented in this section, there are numerous agencies providing services to children and their families. Coordination of these services and the development of new partnerships will remain crucial to effective service delivery in Peterborough County-City. A new Children and Youth Action Council (CAYAC) was established in 2002 to act as a local planning body that will identify needs and advocate for services for children and youth.

Agenda for Future Action

6.1 Continue to collect and analyze new local data as it becomes available for all facets of child health and development presented in this section.

6.2 In an effort to reduce hospitalizations related to diseases of the respiratory system, especially asthma, Peterborough County-City Health Unit should expand efforts to educate health care providers, asthmatics, and the general population about asthma utilizing the recent Report of the Chief Medical Officer of Health for Ontario (*Taking Action on Asthma*) and best practice research as a starting point.

6.3 Efforts to reduce childhood exposure to environmental tobacco smoke should continue to be a priority.

6.4 Carry out further research in relation to children's exposure to other environmental contaminants.

6.5 Continue and enhance efforts related to childhood injury prevention.

6.6 Continue and enhance education and prevention efforts related to Sudden Infant Death Syndrome and Plagiocephaly.

6.7 Sustain immunization efforts.

6.8 Advocate for research to determine how many local children are and are not meeting developmental milestones prior to school entry. This initiative should also advocate for a seamless system of child/family care plans for the transition from preschool to the school system and would involve obtaining consent at time of Junior Kindergarten registration so community agencies could share their assessment and treatment plans for children before they enter the classroom.

6.9 Carry out further research to determine the actual numbers of children with disabilities in Peterborough County-City, and the severity of these disabilities, and advocate for additional services to address the shortfalls in the current system (e.g., waiting lists) when appropriate.

6.10 Determine why increasing numbers of young children with behavioural and/or mental health issues are presenting with these issues and advocate for enhancements to children's mental health programs focused on prevention, early intervention, and treatment.

6.11 Continue to encourage increased physical activity levels for children according to the Canada's Physical Activity Guide.

6.12 Continue to encourage healthy eating practices for children according to Canada's Food Guide to Healthy Eating.

6.13 Continue to address barriers of access to services (e.g., lack of telephones, transportation issues, and low literacy levels) when developing programs to address child health and development issues.

6.14 Increase community awareness of the proportion of annual income families on social assistance or earning minimum wage must spend to purchase a nutritious food basket.

6.15 Continue to collaborate with school boards to provide child nourishment programs and social policy interventions that can reach children who are at risk of experiencing hunger.

6.16 Continue to support local food security programs while advocating for an end to poverty.

6.17 Monitor childhood obesity trends, and review best practices for reducing childhood obesity.

6.18 Continue to promote oral health for children, and provide financial assistance when appropriate.

6.19 Enhance the quantity, especially subsidized spaces, and quality of child care in Peterborough County-City.

6.20 Continue to monitor the impact of shortage of physicians in Peterborough County-City on child health and development.

6.21 The Peterborough County-City Health Unit should remain an active participant in the Children and Youth Action Council's activities.

7.0 Parenting

Effective parenting is defined as parents who carefully monitor children's performance, provide a caring environment, and encourage independence (*Ontario Ministry of Health, 2000*).

A child's brain is at its most receptive stage in infancy and early childhood, when any experience, good or bad, will influence how groups of neurons (nerve cells) are either strengthened or discarded through a natural "sculpting" process. A healthy attachment between a child and at least one adult helps to ensure that the neural pathways within the child's brain become sculpted with the best possible connections made to handle stress, reduce anxiety, and easily absorb new information and experiences (*CCCF/CICH, 2001*).

Developmental psychologists use the term "attachment" to describe the extent to which the young child develops a sense of trust that the caregiver will respond promptly and consistently (secure attachment). Infants have attachments with their mother, father, and other adults who care for them on a fairly regular basis over a period of time. Follow-up studies comparing groups of four and five year olds with secure attachment as an infant/toddler with groups whose attachment was insecure, found that those with a secure attachment have more: of a positive outlook; of a flexible approach with problem-solving; self-esteem; independence; empathy with other children; social competence; curiosity; purposeful and focused actions; and persistence with tasks. Therefore, parental involvement at an early age and the fostering of secure attachment to caring adults are the keys to later development and readiness for learning (*Ontario Ministry of Health, 2000*).

Physical or mental harm contribute to insecure attachment. Physical harm can come in the form of poor nutrition, illness, pain or abuse; mental harm can be caused by teasing or shaming, or even fights conducted within the child's hearing. Both physical and mental harm can be caused by neglect. But whatever the source of the harm, the result is the same: a high level of stress. When a child is under prolonged stress, the child's brain sends a signal for his body to produce greater amounts of a stress hormone called cortisol. The constant release of cortisol means the child is constantly on "high alert," always in fear or prepared for pain. This high alert status then gets permanently wired into the child's neural pathways, while other connections are turned off, and the child becomes over-responsive to stressful situations. The result is a child who is more likely to develop difficulties in learning, depression, anxiety, and behavioural problems such as hyper-activity or lack of emotional control. The child is also more likely to have life-long health problems (*CCCF/CICH, 2001*).
Therefore, responsive care recognizes both a child's physical and emotional needs (for

food, sleep, attention, etc.), and a child's limits (how many new experiences the child can take in or cope with at a particular time) (*CCCF/CICH, 2001*).

A recent Canada-wide survey of parents in all socioeconomic groups by the *Invest in Kids Foundation* suggests that parents lack knowledge regarding normal growth and development, as well as support for and confidence in parenting. Only 47% of parents knew that if a baby does not receive appropriate stimulation, his or her brain will not develop as well as that of a baby who receives such stimulation. Moreover, fewer than 30% of parents were sure of indicators of healthy and age-appropriate physical, emotional, social, and intellectual development. One out of two parents reported a lack of confidence in parenting skills and uncertainty regarding how to handle difficult situations with their child. Three out of four felt afraid of not being a good parent (*Ontario Ministry of Health, 2000*).

Research has also shown that the involvement of fathers is a key factor in the healthy development of children. The most recent studies show that dads spend 33% more time with their kids than their counterparts did 20 years earlier. When you combine workdays and weekends, men today spend an average of two to three hours a day engaged with their young children; this is far more than the oft-cited figure of 12 minutes a day, a statistic drawn from a 35 year-old study that looked only at workdays. (*CFII, 2001* and *Parents Magazine, 1998*). Research on father involvement summarized by John Gottman (*1997*) indicates that as a result of father involvement:

- at age five months, baby boys were more comfortable around strangers;
- at one year, babies cried less when left alone with strangers;
- toddlers learned how to read other people's body language, play actively, and keep their emotions at a level suited to having fun;
- three and four year olds whose dads played actively with them were more popular with peers, and the quality of father-child contact was more predictive of the child's later success in school and with friends than even the quality of the mother-child contact;
- boys with involved fathers were better able to balance assertiveness and self-control, and delay gratification;
- girls whose fathers were present and involved in their lives were less likely to become sexually promiscuous when young, and more likely to forge healthy relationships with men when they became adults; and
- even as adults, study participants who experienced more warmth from their fathers as children were more empathetic, compassionate adults than those whose dads were absent (the evidence included longer, happier marriages, having their own children, and engaging in recreational activities with non-family members).

Although there have been obvious shifts in the role of the father from simply

provider/protector, there are still significant issues associated with fathering. It is important to take into account societal and family pressures including relationships between spouses, working mothers, decreasing numbers of children, the precariousness of marital unions, and the resulting upheaval of societal values. Socially, this situation often translates into accepting as normal the absence of fathers due to increasing out-of-wedlock births and divorce rates. Therefore, it is estimated that up to 60% of today's children will spend part of their childhood apart from their biological father. Because father involvement is viewed as a protective condition for healthy child development, ways to increase father involvement that acknowledge these societal and family pressures need to be explored (*Lelièvre, 1998*).

Recognizing the need for continuous education and support for parents at all stages of their life (preconception, prenatal, postpartum) and in their everyday environment (e.g., school, work) is vitally important to the healthy development of children.

Local Data

Parent/Caregiver Support and Education

In 2000, the Peterborough County-City Early Years Steering Committee compiled an inventory of services for children age 0-6 and their families. Table 7.1 summarizes the information collected with respect to parent/caregiver support programs. In 2000, 12 agencies were providing a total of 31 programs in 33 locations across the City and the County. Almost half of the programs (48%) indicated that demand for their program exceeded their current capacity.

It is not possible at this point to present an up-to-date and unduplicated count of the numbers of parents with children age 0-9 who attended parent support programs. Approximately 11,045 parents/caregivers/families accessed programs in 2000. The 2001 Census reports that there are 22,460 children age 0-14 in Peterborough County-City. A rough estimate would be that only about half of the families with children age 0-9 were accessing parent/caregiver support opportunities in 2000. It is important to remember that the total presented in Table 7.1 is not an unduplicated count. The same parents/caregivers/families may have accessed a number of programs, and the age of their children was not captured during the inventory process.

Table 7.1
Parent/Caregiver Support Programs*, Peterborough County-City, 2000

Number of Agencies Delivering Parent/Caregiver Support Programs	**12**
Number of Parent/Caregiver Support Programs	**31**
Number of Permanent Locations for Programs Number of City Locations for Programs Number of County Locations for Programs	**33** 17 15
Number of Parents/Caregivers/Families Accessing Programs in 2000	**11, 045****
Assessment of Demand for Parent/Caregiver Support Programs Demand Exceeded Capacity Demand Was Good Match for Capacity More Than Enough Capacity to Meet Demand	 48% of programs 48% of programs 4% of programs

C Parent Caregiver/Support Programs refer to: parenting courses/workshops, information on child development, parent resource libraries, information hotlines, referrals, support groups, drop-ins, and family social events.

** It is important to note that the same families/caregivers/families may have accessed a number of programs in 2000 and therefore, the total presented is not an unduplicated count.

Sources: Peterborough County-City Early Years Three Year Action Plan, 2002 and Early Years Inventory, 2001.

In addition to the programs outlined above, approximately 40 organizations in Peterborough County-City have expressed an interest to Peterborough County-City Health Unit in receiving ongoing information about “family-friendly workplace” practices through newsletters and workshops.

With respect to school programming, we know from Section 5.0 (The Postpartum Period) that all schools in Peterborough County-City have received Resources for Educators and Administrators Collaborating for Health (REACH) Manuals developed by the Peterborough County-City Health Unit. Although there is some information related to breasfteeding included, there is little material related specifically to parenting.

The Community Action Program for Children (CAPC) funds community-based projects that support the healthy development of children, directly or through services for parents and caregivers. Substantial efforts are being made by Aboriginal communities to support Aboriginal families, and to promote the well-being of Aboriginal children (*CICH, 2000*). In Peterborough County-City, an on-reserve CAPC program is provided at Curve Lake First

Nation and an off-reserve CAPC program is currently operated by the Lovesick Lake Native Women's Association. These two Aboriginal programs, as well as the CAPC/Canadian Prenatal Nutrition Program (CPNP) operated by the Peterborough Family Resource Centre have been captured in the program count presented in Table 7.1.

It is important also to note when considering parent/caregiver support that on April 1, 2002, an Ontario Early Years Centre was established at the Peterborough Family Resource Centre to serve the provincial electoral boundary of Peterborough (the remainder of Peterborough County will be serviced by additional Ontario Early Years Centres scheduled to be established in neighbouring electoral boundaries in 2003).

Ontario Early Years Centres are part of a $30 million commitment by the Ontario government to create accessible resources for parents and young children across Ontario. It is expected that parents of children ages 0 to 6 will draw on their local centres during their child's early years. Centres will ensure that all families in Ontario - regardless of socioeconomic background, culture, or geography - have access to certain core Early Years services that will help give their children a healthy start. The key functions of the Ontario Early Years Centres include:

- provision of services and programming that are both parent/caregiver and child oriented;
- provision of education and training for parents/caregivers;
- provision of information about the community programs and services for children ages 0 to 6;
- helping families make connections to community services;
- monitoring of the effectiveness of the community's Early Years services; and
- tracking the community's progress in achieving local and provincial goals for child development outcomes.

Violence and Neglect

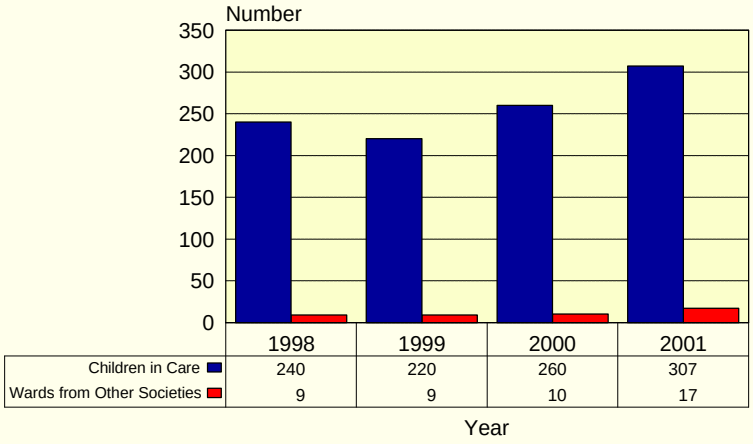
Despite efforts to promote and support effective parenting in Peterborough County-City, the number of children in the care of the Kawartha-Haliburton Children's Aid Society continues to increase. Figure 7.1 shows that the number of children in care in Peterborough, Victoria, and Haliburton Counties has increased by 22% between 1998 and 2001. Peterborough County-City numbers are not currently available, nor are the specific reasons for the children being placed in care.

It is important to note that rates of substantiated maltreatment documented by the 1993 and 1998 Ontario incidence studies have doubled in the past six years. While increasing public awareness and changes in investigation procedures appear to account for part of this change, the increase also reflects a significant shift in the types of maltreatment being investigated and substantiated. Exposure to domestic violence has increased nine-fold, and the proportion of neglect cases has more than doubled, while cases of sexual abuse are decreasing in Ontario (*Centre of Excellence for Child Welfare, 2002*).

There has been a decrease in the number of women (-19%) and children under 16 years (-20%) using YWCA Peterborough Crossroads Shelter Program since 1996/97 as Figure 7.2 outlines. It is unclear whether this decrease is an overall trend for all shelters that Peterborough County-City women and children may access and therefore, we must be cautious when considering this a positive trend overall.

Figure 7.1 Number of Children in Care 1998-2001

Peterborough, Victoria, and Haliburton Counties

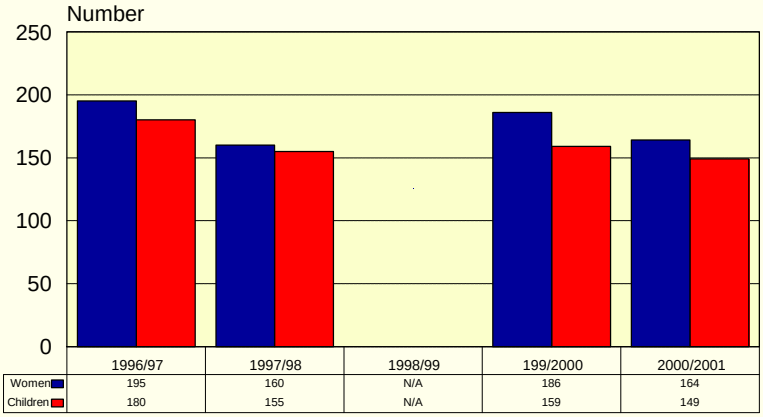


	1998	1999	2000	2001
Children in Care	240	220	260	307
Wards from Other Societies	9	9	10	17

Source: Kawartha-Haliburton Children's Aid Society, 2002

Figure 7.2 Use of Crossroads Shelters by Women and Children (under 16 years)

Peterborough, 1996/97 - 2000/01



	1996/97	1997/98	1998/99	199/2000	2000/2001
Women	195	160	N/A	186	164
Children	180	155	N/A	159	149

Source: YWCA Peterborough Crossroads Program, 2002

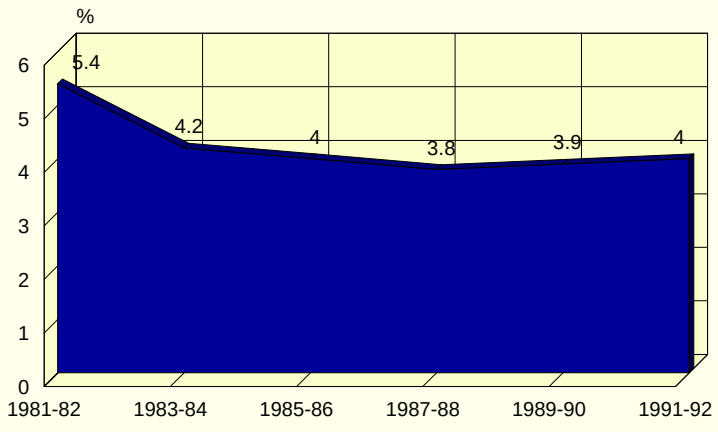
A recently released report produced by the Peaceful Communities initiative (*2002*), entitled *Report on Violence Prevention Research in Peterborough City and County,* provides information from surveys of community members and secondary school students, as well as focus groups about local attitudes and perceptions relating to issues of violence and violence prevention. Overall, community members surveyed indicated low levels of tolerance for a wide range of violent or abusive behaviours. Interestingly, 63% of high school respondents and 89% of community member respondents believed that poor parenting skills are contributing to violence in the community. Additional local information relating to violence and abuse including counselling statistics and police services statistics are detailed in Section 5.0 of this report, and should be considered when developing parenting related programming.

In Aboriginal communities across Canada in 1991-92, there were 4,586 on-reserve children (4%) in care (removed from their home) in Canada in 1991-1992. The proportion of children in care in the total Canadian population is estimated to be 0.8% (*CICH, 1994*).

When these national figures were discussed with representatives of Curve Lake First Nation, it was determined that Curve Lake's rate of children in care is about 1% and therefore closer to the Canadian average than that of the national average of on-reserve children in care.

Figure 7.3 Children in Care, Indians On-Reserve

1981-82 to 1991-92



Source: Canadian Institute for Child Health, 1994

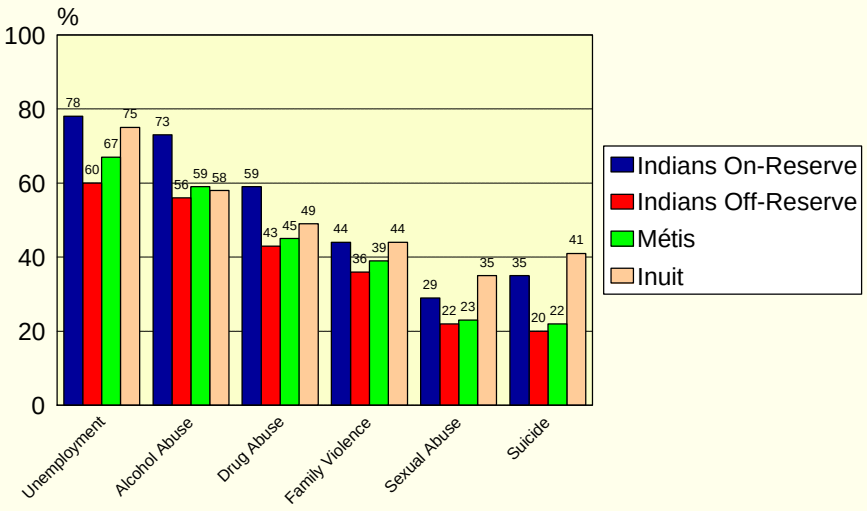
Although no national statistics have been presented here about the numbers of Aboriginal women and children who seek shelter from violent situations, Curve Lake First Nation representatives indicated that their community has placed an increased importance on educating community members about the various types of abuse and violence that exist.

Nationally, addition, unemployment, alcohol abuse and drug abuse are viewed by at least 50% of Aboriginal adults as important problems in their communities. About 40% of all Aboriginal peoples identify family violence as an important problem in their community, and 25% see sexual abuse as a problem (*CICH, 1994*) as Figure 7.4 outlines.

Curve Lake First Nation was in agreement that unemployment, alcohol abuse, and drug abuse were also priority issues for their community.

Figure 7.4 Proportion of Aboriginal Peoples Identifying Social Issues as a Problem

Canada, 1991



Source: Canadian Institute of Child Health, 1994

Discussion

With respect to parenting in Peterborough County-City, there is still work to be done in order to provide continuous education and support for parents (both mothers and fathers) at all stages of their life (preconception, prenatal, postpartum) and in their everyday environment (e.g., school, work, community).

Of major importance is a data collection/tracking mechanism to capture new and repeat users of programs, as well as evaluation mechanisms for parent/caregiver support programming. Information needs to be collected on how many programs are running (in the preconception, prenatal and postpartum periods), who attends the programs (using a method where an unduplicated count can be determined), how well the programs are received, and what other programs are desired or needed. All of this information will provide a picture of the proportion of the population in Peterborough County-City who are accessing programs and services to support effective parenting.

The data collection/tracking mechanism would go a long way to assist community organizations in finding creative and positive ways to engage parents who really need support. It may also provide some answers as to how programming can be geared to help parents find a balance between their parenting and other responsibilities.

In order to assess the positive effects of parent/caregiver support programming, statistics specific to Peterborough County-City need to be collected about the number of children in the care of the Haliburton-Kawartha Children's Aid Society. In addition, the reasons local children are taken into care need to be collected to inform discussions about new parenting programs that may be necessary in the community.

There also needs to be consideration given to how else we might measure improved parenting capacity in our community. Currently, some models are being investigated by other health units and organizations. It will be important to monitor their progress and determine if any newly developed strategies, programs, or models could be adapted for use in Peterborough County-City.

Agenda for Future Action

7.1 When developing parent/caregiver support programs in Peterborough County-City, consideration should be given to providing programming at each stage of the parenting continuum {e.g., the preconception period (when parents are considering children), the prenatal period (when they are in transition to parenthood), and the postpartum period and beyond (when they become parents)}. Programming should be focused on parents as a team, as well as mothers and fathers individually.

7.2 With respect specifically to fathering:

a. literature related to fathering should be reviewed to inform the transition to parenting work being undertaken by the Peterborough County-City Health Unit as part of the Healthy Pregnancy and Child Development Initiative;
b. all Peterborough County-City Health Unit programs should be assessed to determine their level of father involvement; and
c. the Peterborough County-City Health Unit should continue to support and advocate for other community fathering initiatives.

7.3 A community-wide coordination mechanism needs to be developed and utilized on an ongoing basis by a partnership of organizations in Peterborough County-City offering parent/caregiver support programs to determine:

- what types of parenting programs (e.g., high risk, universal, outcome-based) are being offered;
- what organizations are offering parenting programs;
- what times parenting programs are being offered;
- where parenting programs are being offered;
- where opportunities exist to expand existing programs;

- what gaps exist in the current parenting programming being offered;
- what other channels exist to deliver parenting programs (e.g., internet technology);
- how many programs are available and how often are they offered;
- how many parents (mother and father) and caregivers are attending programs, what ages are their children, and what aspects of the programming offered are most valued by parents/caregivers for monitoring and evaluation purposes.

7.4 A communication vehicle (e.g., newsletter, website) needs to be developed and maintained outlining the menu of parent/caregiver support programs and services available in Peterborough County-City.

7.5 When offering or developing parent/caregiver support programs, consideration should always be given to the transportation needs of parents and the child care needs of parents. Where possible, organizations in Peterborough County-City offering parenting programs should explore the option of running parallel groups --- groups for children and parents at the same time.

7.6 Efforts should continue in Peterborough County-City to engage workplaces in supporting parents, and these efforts should be captured in the community-wide monitoring and evaluation process.

7.7 Efforts should continue in Peterborough County-City to provide parenting resources which support the current school curriculum. Any efforts should be captured in the community-wide monitoring and evaluation process.

7.8 Further research should be carried out to determine local, regional, provincial, and national partners who may be interested in working to expand parenting resources in school curriculum.

7.9 Statistics related to violence and neglect (e.g., numbers of children in the care of the Haliburton-Kawartha Children's Aid Society and the reasons for being taken into care) of children in Peterborough County-City specifically should be regularly collected and monitored.

7.10 Efforts to educate parents and children about the types of violence and abuse, building upon the work carried out by the Peaceful Communities initiative, should continue.

7.11 Current research projects (e.g., Middlesex-London Health Unit), initiatives and programs related to parenting capacity, should be monitored and if feasible, replicated, relevant approaches adopted.

APPENDIX A

List of Indicators from Current Reproductive Health and Child Health Mandatory Health Programs and Services Guidelines and from Draft Reproductive Health and Draft Child and Youth Health Mandatory Health Programs and Services Guidelines

Indicator	Location of Relevant Data in Report
Current Reproductive Health Guidelines	
To reduce the low birth weight (under 2500 g) to 4 per cent by the year 2010.	Section 4.0
To decrease the prevalence of neural tube defects by 25 per cent by the year 2010.	Section 4.0
Current Child Health Guidelines	
To increase the percentage of children and youth who meet physical, cognitive, communicative, and psychosocial developmental milestones.	Section 6.0
To increase to 50 per cent the percentage of infants breast-fed up to six months by the year 2010.	Section 5.0
To reduce the prevalence of dental diseases in children and youth.	Section 6.0
To increase access to and the use of needs-based services and supports for children who are at risk of poor physical, cognitive, communicative, and psychosocial development, and their families.	Section 6.0
To increase effective parenting abilities in high risk families.	Section 7.0
Draft Reproductive Health Guidelines	
The proportion of full-term (>=37 weeks gestation), singleton infants born within a healthy birth weight range (>=2,500 and <4,000 g) will be increased to 90% (1995 baseline: 84%).	Section 4.0
The rate of neural tube defects will be decreased (1997 baseline: 0.79 per 1,000 births).	Section 4.0
The proportion of infants with Fetal Alcohol Spectrum Disorder (FASD) will be decreased.	Section 4.0
The proportion of infants who have adverse outcomes due to infectious diseases acquired in the prenatal period and during delivery will be decreased.	Section 4.0
An increased proportion of women planning pregnancies and pregnant women will, according to Health Canada recommendations, take an appropriate folic acid supplement and consume a diet rich in folate.	Sections 3.0 and 4.0

Indicator	Location of Relevant Data in Report
An increased proportion of pregnant women will quit and remain smoke-free throughout their pregnancy (1996/97 baseline: 55%).	Section 4.0
An increased proportion of women will have a “healthy” pre-pregnancy BMI (BMI 20-27) (1996 baseline for females 20-44 years: 65%).	Section 3.0
An increased proportion of people in their reproductive years will follow “Canada’s Food Guide to Health Eating.”	Section 3.0
An increased proportion of women will gain an optimal amount of weight during pregnancy, according to Health Canada recommendations.	Section 4.0
An increased proportion of pregnant women will follow “Canada’s Food Guide to Healthy Eating.”	Section 4.0
An increased proportion of people planning pregnancies and pregnant women will avoid alcohol (1996/97 baseline: 87%).	Sections 3.0 and 4.0
An increased proportion of people planning pregnancies and pregnant women will not use illicit drugs.	Sections 3.0 and 4.0
An increased proportion of people in their reproductive years will follow “Canada’s Physical Activity Guide to Healthy, Active Living” (1996/97 baseline for females 12-44 years: 45%, for males 12+ years: 46%).	Section 3.0
An increased proportion of pregnant women will engage in appropriate physical activity.	Section 4.0
An increased proportion of pregnant women will respond to the signs and symptoms of preterm labour by immediately seeking appropriate help.	Section 4.0
An increased proportion of environments, including homes, cars, workplaces and public places, will be smoke-free, limiting pregnant women’s exposure to environmental tobacco smoke (ETS).	Section 4.0
An increased proportion of workplaces will adopt and implement policies and practices that support the entire reproductive health continuum (preconception, prenatal, transition to parenthood).	Sections 6.0 and 7.0
An increased proportion of all pregnant women and their families will be linked to prenatal information sources, informal supports and/or existing programs and services in their community.	Section 4.0
An increased proportion of pregnant women and their families who are experiencing psychosocial and/or other health risk factors that are likely to affect birth outcomes will be identified, referred to services and/or directly supported in the prenatal period.	Section 4.0

Indicator	Location of Relevant Data in Report
The proportion of pregnant women and those planning pregnancies who intend to breastfeed will be increased to 92% (1996/97 baseline for breastfeeding initiation: 75%).	Sections 3.0 and 4.0
An increased proportion of pregnant women and their partners will prepare for and successfully adapt to the transition to parenthood.	Section 4.0
A decreased proportion of families will experience family violence during pregnancy.	Section 4.0
An increased proportion of women of reproductive age, living in households with incomes below the Statistics Canada Low-Income Cut-Off Points will have access to adequate and acceptable food, shelter and other basic needs.	Section 2.0
An increased proportion of households will live with incomes above the Statistics Canada Low Income Cut-Off Points.	Section 2.0
Draft Child and Youth Health Guidelines	
The breastfeeding initiation rate will be increased to 92%. (Target based on the best-of-the-best from the Breastfeeding Support Benchmarking Pilot Project, December 2000) (Baseline: OHS 1996-1997, for women (aged 15-49 years) who reported breastfeeding and gave birth sine 1994-1995, 84%)	Section 5.0
The rate of exclusive breastfeeding until six months, in healthy term infants, will be increased.	Section 5.0
The rate of breastfeeding until 12 months will be increased. (Baseline under investigation)	Section 5.0
The infant mortality rate due to Sudden Infant Death Syndrome (SIDS) will be reduced. (Baseline: 36/100,000, Statistics Canada, Canadian Vital Statistics System [death file], 1996, Perinatal Surveillance System)	Section 6.0
The morbidity and mortality rates due to Shaken Baby Syndrome will be reduced.	Section 6.0
An increased proportion of children and youth will reach developmental milestones. (Baseline under investigation)	Section 6.0
An increased proportion of children will be ready to learn at school entry. (Baseline under investigation)	Section 6.0
An increased proportion of children and youth will have good oral health. (Baseline: 1193-1994 school year Dental Indices Survey for ages 5, 7, 9, and 13 years for each of the following deft/DMFT = 1.24, 2.12, 2.59 and 1.66%, % caries free = 69, 51, 40, and 49 and % urgent = 9, 10, 7, and 5, % with fluorosis = 10, 27, 30 and 27, % with one or more fissure sealants = 1, 20, 32 and 32).	Section 6.0

Indicator	Location of Relevant Data in Report
An increased proportion of children will be free from Early Childhood Tooth Decay (ECTD).	Section 6.0
An increased proportion of children and youth will have reduced exposure to hazardous substances in their environment.	Section 6.0
85% of children and youth will live in families above the Statistics Canada Low-Income Cut-Off Points (LICO). (Baseline: Children and Youth (aged 0-17 years) Living in Low Income Families, Ontario, 1996, based on Statistics Canada, LICOs: provincial average 22.8%, target 1995 75th percentile)	Section 2.0
An increased proportion of schools will integrate information related to breastfeeding throughout school programming.	Section 5.0
An increased proportion of public places, workplaces, schools and childcare settings will have policies supportive of breastfeeding.	Section 5.0
An increased proportion of women will have access to programs and services to support breastfeeding.	Section 5.0
An increased proportion of women with breastfeeding problems will have access to adequate support.	Section 5.0
An increased proportion of children will have access to a range of coordinated and integrated prevention, early intervention, and treatment services.	Section 6.0
An increased proportion of children, identified as being at risk for poor developmental outcomes, will receive appropriate intervention prior to school entry.	Section 6.0
An increased proportion of children will have access to affordable, high quality, regulated, flexible, developmental childcare, including before and after school care, which meets provincial standards.	Section 6.0
An increased proportion of children and youth will have access to high quality, universal, affordable and sustainable nourishment programs.	Section 6.0
An increased proportion of children and youth will have access to dental care.	Section 6.0
An increased proportion of children and youth will have access to recreational programs. (Baseline under investigation)	Section 6.0
An increased proportion of children and youth will have access to skill building activities.	Section 6.0
An increased proportion of children and youth will have access to mentorship opportunities.	Section 6.0

Indicator	Location of Relevant Data in Report
An increased proportion of schools will integrate information related to parenting throughout school programming.	Section 7.0
An increased proportion of parents of children and youth will have access to programs and services that support positive parenting.	Section 7.0
Social and fiscal policies will be supportive of families with children and youth.	Section 2.0
An increased proportion of workplaces will implement policies and practices that support parents in their dual roles.	Sections 6.0 and 7.0
An increased proportion of schools, and childcare facilities will use Integrated Pest Management rather than conventional pest control measures.	Section 6.0
An increased proportion of women will breastfeed their babies in public places.	Section 5.0
An increased proportion of parents, caregivers, and others will adopt practices to minimize risk of Sudden Infant Death Syndrome (SIDS).	Section 6.0
An increased proportion of parents, caregivers, and others will never shake a baby.	Section 6.0
An increased proportion of parents and caregivers will promote healthy eating for children aged 0-4 years, according to Health Canada recommendations.	Section 6.0
An increased proportion of parents of children and youth will engage in positive parenting. (Baseline under investigation)	Section 7.0
An increased proportion of parents and caregivers will adopt preventive practices related to ECTD.	Section 6.0
An increased proportion of parents and caregivers will adopt practices that minimize children and youth's exposure to environmental contaminants.	Section 6.0
An increased proportion of households will use Integrated Pest Management rather than conventional pest control measures.	Section 6.0
An increased proportion of children and youth, as well as their parents and caregivers, will adopt pollution prevention strategies (e.g., walking, cycling, energy conservation measures, and use of alternative sources of energy such as solar and wind energy).	Section 6.0

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