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BULLETINS and NOTICES

PHERO SUBMISSION FOR BULLETINS AND NOTES SECTION

The Public Health Research, Education and Development (PHRED) Programs under the leadership of Hamilton-Wentworth's PHRED Program have undertaken the Effective Public Health Practice Project to provide a summary of the evidence related to many of the programs and standards/ requirements in the *Mandatory Health Programs and Service Guidelines (1997)*. Correspondence regarding this initiative including a document entitled Research Implications from Systematic Reviews to Date was recently sent by Dr. D'Cunha to all Medical Officers of Health. This document highlights the relevance of the systematic reviews to Mandatory Programs and summarizes practice and research implications for the 32 reviews completed to date. The reviews provide useful data for evidence-based practice and policy decision making. Lists of all summary statements and full reviews are available electronically at: http://www.health.hamilton-went.on.ca/csarb/ephpp/ephppSumRev.html

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A SURVEY OF HUMAN PAPILLOMAVIRUS INFECTION IN ONTARIO WOMEN

Introduction

Evidence that certain types of human papillomavirus (HPV) can cause cervical intraepithelial neoplasia (CIN),[1,2] a precursor of cervical cancer, has put HPV into the headlines recently. HPV is a sexually transmitted infection that is often asymptomatic and is thought to sometimes clear or become latent without treatment, but can persist and contribute to cellular changes leading to cervical cancer-one of the most common malignancies in women worldwide.[3]

HPV infection has emerged as the strongest risk factor for cervical cancer,[1,2] a causal association that is better understood as epidemiological data increases. Natural history studies of HPV show that young women will likely acquire the infection at some time in their life, usually remaining positive for several months.[4,5] Preventative measures on the horizon include screening programs, public health education, and vaccines. Further study of the prevalence and incidence of HPV by age and geographic region will help to establish the most effective interventions.

We surveyed women in Ontario using nucleic acid assays and questionnaires to determine the age-specific prevalences of cervical HPV infection (carcinogenic and non-carcinogenic types) and associated risk factors, as previously described.[6]

Methods

Sample Selection

Thirty-two family practices were recruited, proportionate to the populations in the 6 health planning regions of Ontario, and asked to enroll a maximum of 6 randomly selected, consenting women in each 5-year age group (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49). Over a period of 9 months (1998-99), women 15 to 49 years of age attending a participating family practice for cervical cytologic screening were randomly selected (sampling ratio 2:1) for enrollment in the survey. The survey was explained to each woman and written informed consent obtained; women who refused to participate were noted and asked to complete a brief questionnaire.

Clinical Procedure

Before her examination, each participant self-completed a questionnaire on demographics, reproductive history, and sexual behaviour. A routine cervical smear was then obtained by the physician. Two additional specimens were obtained from the region of the ectocervix and os using modified cone-shaped cervical soft brushes (Cervical Sampler, Digene Corp.), one for testing by the hybrid capture II (HC II) HPV assay method (Digene Corp., Gaithersburg, Md) and the other for testing by polymerase chain reaction (PCR). These were placed in transport tubes containing the appropriate medium: specimen transport medium for HC II and sterile phosphate buffered saline for PCR. Physicians completed a brief questionnaire about each woman's medical history.

HPV Laboratory Testing

The 2 cervical samples from each woman were stored at 4^{o}C and shipped to St. Joseph's Hospital by way of the Provincial Public Health Labs system within 2 weeks of collection. Testing of the samples, one by HC II and the other by PCR, was conducted blind to the other data on each subject at the McMaster University Regional Virology and Chlamydiology Laboratory at St. Joseph's Hospital.

The HC II assay, a second generation DNA probe test based on signal amplification, uses a chemiluminescent readout to indicate the presence of one or more of a group of carcinogenic HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 68) and was administered as per the procedure described previously.[6,7] The test was considered positive if the light emitted by a specimen was greater than or equal to the light emitted by a positive control.

For PCR, the brush specimens were processed as previously described.[6,8] If specimens remained beta-globin negative (n=131) after dilution to reduce the effect of any inhibitors and control for the presence of tissue DNA, they were excluded from the analysis of PCR results. Beta-globin positive specimens were tested by PCR for any of 13 carcinogenic genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68) and 4 non-carcinogenic types (6, 11, 42, 53) of HPV.[6]

Results

Descriptive Statistics

One thousand and four eligible women were randomly selected and approached for enrollment; of these, 49 (4.9%) refused to participate. The analysis is based on the 955 consenting women for whom questionnaires and two cervical specimens were received. The distribution of women across the 5-year age cohorts and their responses to select items on the self-completed questionnaire are summarised in Table 1. Visible warts were reported on the physician questionnaire for 10 (1.1%) of 909 women for whom a response was obtained. Physicians conveyed that in the past, 12.4% of the women had been referred at least once for colposcopic examination. The cervical cytology results for samples taken at the study visit, compared with rates of previously abnormal cytology and treatment for CIN, are given in Table 2.

Prevalence of HPV

The age-specific prevalences of one or more of a group of carcinogenic types of HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 68) as determined by HC II for all 955 women included in the analysis are shown in Table 1. Of these, 121 (12.7%, 95% CI 10.6% to 14.8%) tested positive for carcinogenic types of HPV by the HC II assay. The compared age-specific prevalences of HPV by PCR (for any type including carcinogenic types) and by HC II (for carcinogenic types only) are based on the results for 824 women with specimens positive for beta-globin. HPV (any type) was detected in 110 (13.3%; 95% CI 11.0% to 15.6%) of the 824 women. Carcinogenic types of HPV were detected by PCR and hybridisation with type specific probes in 79 of the 824 women (9.6%; 95% CI 7.6% to 11.6%).

Logistic regression was used to compare the prevalences of HPV among the 7 age groups. The HPV prevalence by PCR was significantly higher in two instances: for any type ($p=0.0123$) but not for carcinogenic types ($p=0.0752$) in the oldest women (45-49 yr) compared to the next age group (40-44 yr), and for carcinogenic types in the 20-24 year group compared to the oldest women surveyed ($p=0.0208$). HPV type 16 was the most prevalent type, found in 81.6% (71/87) of women who tested positive for HPV by PCR and hybridisation with type specific probes, followed by types 18 and 31 in 6.9% (6/87) and 5.7% (5/87) of women, respectively. Multiple types were detected in 17.2% (15/87) of women who tested positive for HPV by PCR.

Associations with HPV

The univariate analyses of selected putative risk factors and the rate of positivity for carcinogenic types of HPV by HC II are shown in Table 2. The detection of intraepithelial lesions (HSIL or LSIL) on cytologic examination was strongly associated with positivity for HPV as determined by the HC II assay (odds ratio 96.0, 95% CI 22.3 to 413.4; $p<0.01$). A history of genital warts, genital herpes or chlamydial infection was not significantly associated with HPV infection, nor did the presence of visible genital warts predict HPV.

Logistic regression was performed with 8 variables: geographic region, marital status, lifetime number of sexual partners, number of sexual partners in the past year, age at first intercourse, parity, current smoking status, and current use of oral contraceptives. The resulting model used 6 factors (Table 3): never-married status, divorced or separated status, more than 3 lifetime partners, more than 1 partner in the past year, current cigarette smoking, and current use of oral contraceptives. No significant association between the presence of HPV infection and geographic region was found, regardless of adjustment for age.

To investigate the higher prevalence of any type of HPV by PCR in the oldest age category (45-49 years), we compared the distribution of risk factors between women 40-44 years and those 45-49 years (Table 1) but found no significant differences to support a cohort effect.

Discussion

Overall, the burden of infection with carcinogenic types of HPV was high in our sample relative to other sexually transmitted infections such as Chlamydia trachomatis, especially in young women surveyed.[9] The prevalence of carcinogenic HPV types was highest among women 20 to 24 years of age at 24.0% as determined by the HC II assay; the rate of infection became progressively lower with age (Table 1 and Figure 1). This pattern of reduced HPV prevalence with age has been observed in surveys of women in a rural province of Costa Rica[10] and a suburb of Amsterdam.[11,12] In a survey of women attending an inner city clinic in Winnipeg, Young et al (1997) found an overall HPV prevalence of 33%.[13]

Our finding of higher HPV prevalence (any type) by PCR in the oldest age category (45-49 years) is paralleled in a study by Herrero and colleagues.[10] Using a less sensitive, earlier version of the HC test, they described a similar pattern in Costa Rican women 60 years of age or older-

Table 1.

Univariate analyses to detect an association between specific factors and the presence of HPV among Ontario women.

Variable	No. of women	No. (%) with HPV*	Crude OR (95% CI)
Age (yr)			
15-19	89	14 (15.7)	5.32 (1.69-16.78)
20-24	125	30 (24.0)	9.00 (3.06-26.45)
25-29	159	26 (16.4)	5.57 (1.89-16.44)
30-34	163	20 (12.3)	3.99 (1.33-11.99)
35-39	157	15 (9.6)	3.01 (0.97-9.32)
40-44	144	12 (8.3)	2.59 (0.81-8.26)
45-49	118	4 (3.4)	1.0
Marital Status			
Co-habitating/widowed†	631	46 (7.3)	1.0
Single	244	54 (22.1)	3.47 (2.27-5.29)
Separated/divorced	77	21 (27.3)	4.00 (2.20-7.26)
Lifetime no. of partners			
≤3	485	34 (7.0)	1.0
>3	434	81 (18.7)	3.04 (1.99-4.65)
No. of partners in past year			
≤1	807	83 (10.3)	1.0
≥ 2	115	37 (32.2)	4.14 (2.63-6.50)
Age at first intercourse, yr			
≤ 15 yr	179	32 (17.9)	1.0
16 - 19 yr	527	68 (12.9)	0.68 (0.43-1.08)
≥ 20 yr	218	17 (7.8)	0.39 (0.21-0.73)
No. of live births			
0	403	69 (17.1)	1.0
1	150	19 (12.7)	0.70 (0.41-1.21)
2	263	23 (8.7)	0.46 (0.28-0.76)
≥3	123	8 (6.5)	0.34 (0.16-0.72)
Cigarette smoking			
Never	412	46 (11.2)	1.0
In the past	251	19 (7.6)	0.65 (0.37-1.1)
Currently	285	55 (19.3)	1.90 (1.24-2.91)
Current use of oral contraceptive			
No	583	58 (10.0)	1.0
Yes	371	63 (17.0)	1.85 (1.26-2.72)

Note: OR = odds ratio, CI = confidence interval

*Carcinogenic types of HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 or 68) by the HC II test

†Widowhood was combined with cohabitation because these categories are most similar in sociologic terms.

Table 2.

Univariate analyses to detect an association between specific cytologic factors and the presence of HPV among Ontario women.

Variable	No. of women	No. (%) with HPV*	Crude OR (95% CI)
Cervical cytologic results†			
Negative‡	878	90 (10.3)	1.0
ASCUS	38	8 (21.1)	2.33 (1.04-5.25)
LSIL	22	20 (90.9)	87.55 (20.13-380.71)
HSIL	3	3 (100)	100.68 (23.35-434.06)§
Previously abnormal cytologic results			
No	698	64 (9.2)	1.0
Yes	112	29 (25.9)	3.46 (2.11-5.68)
Treated for CIN			
No	86	9 (10.5)	1.0
Yes	20	3 (15.0)	1.51 (0.37-6.17)

Note: OR=odds ratio, CI=confidence interval, ASCUS=atypical squamous cells of undetermined significance, LSIL=low-grade squamous intraepithelial lesion, HSIL=high-grade squamous intraepithelial lesion, CIN=cervical intraepithelial neoplasia

*Carcinogenic types of HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 or 68) by the HC II test

†According to Bethusda System nomenclature at the time of screening. Results are not shown for unsatisfactory smears (6/951, 0.6%) or for smears that showed atypical glandular cells of undetermined significance (4951, 0.4%) - neither of these categories included women who had positive HPV results by hybrid capture II.

‡Includes benign cellular changes.

§OR, 95% and p value were calculated for LSIL and HSIL data combined because there was a zero value in one cell of the cross-tabulation.

Table 3.

Multivariate logistic regression of factors significantly associated with the presence of HPV.

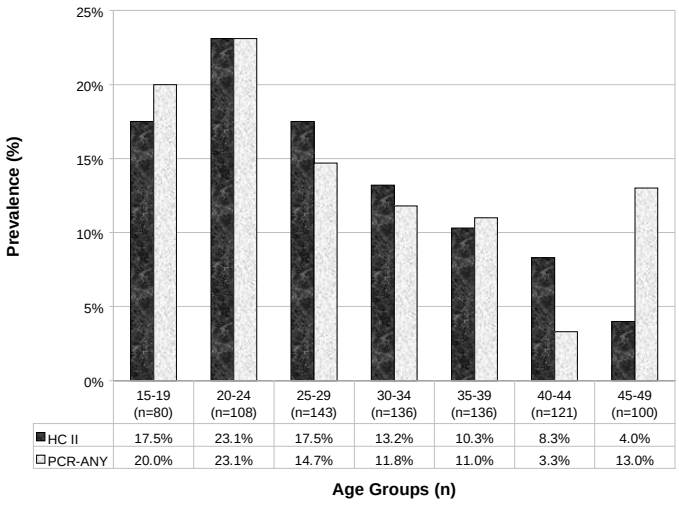
Variable	No. (%) with HPV*	Crude OR	Adjusted OR (95% CI)
Marital Status			
Co-habiting/widowed†	46 (7.3)	1.0	1.0
Single	54 (22.1)	3.47	2.31 (1.39-3.85)
Separated/divorced	21 (27.3)	4.0	2.53 (1.31-4.90)
Lifetime no. of partners			
≤3	34 (7.0)	1.0	1.0
>3	81 (18.7)	3.04	2.20 (1.38-3.50)
No. of partners in past year			
≤1	83 (10.3)	1.0	1.0
≥ 2	37 (32.2)	4.14	1.78 (1.03-3.05)
Cigarette smoking			
Never	46 (11.2)	1.0	1.0‡
In the past	19 (7.6)	0.65	1.0‡
Currently	55 (19.3)	1.90	1.64 (1.06-2.52)
Current use of oral contraceptive			
No	58 (9.9)	1.0	1.0
Yes	63 (17.0)	1.85	1.68 (1.09-2.60)

*Carcinogenic types of HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 or 68) by the HC II test

†Widowhood was combined with cohabitation because these categories are the most similar in sociologic terms.

‡Reference category for smoking in the final model was dichotomized ("never" and "in the past" vs. "currently").

Figure 1.



results suggestive of either a cohort effect or re-emergence of latent infection. Since no obvious cohort effect was found that might explain the higher prevalence of HPV in the oldest women we surveyed, it is possible that HPV infection becomes latent and that compromised immunity with aging permits its re-emergence; this pattern is well known for herpes zoster. That florid disease caused by HPV (e.g., genital warts, cervical intraepithelial neoplasia) surfaces in immunosuppressed women after organ transplantation or HIV infection[9] also supports the hypothesis that HPV infection can become latent. A recent natural history study tested college women regularly for HPV and found a cumulative 36-month incidence of infection of 43%, suggesting a high probability of asymptomatic infection among sexually active young women.[5] Further study is needed to establish whether HPV infection usually clears or whether it becomes latent for extended periods.

In case-control studies in Brazil, Colombia and Spain, the risk factors for control women were determined to be a higher number of lifetime sexual partners, lower level of family income and younger age at first sexual intercourse.[1,4,5,14] The strong association found between abnormal cervical cytologic results and the presence of carcinogenic types of HPV in our study is consistent with the findings of others.[1,2,4,5]

To increase our understanding of the natural history of HPV infection we will resample many of these same women to determine the age-specific rates of acquisition and clearance of HPV infection over the subsequent year. This data will assist in the development of effective HPV vaccines, education and screening programs to prevent cervical cancer.

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MAD COW OR BOVINE SPONGIFORM ENCEPHALOPATHY (BSE) IN EUROPE

The following article was downloaded from the Health Canada website, Population and Public Health Branch: Information for Travel Medicine Professionals

Health Canada is aware of travellers' concerns about recent reports of domestic animal cases of mad cow disease or bovine spongiform encephalopathy (BSE) in Europe. BSE is a fatal degenerative illness that affects the central nervous system of cattle. It is part of a family of diseases known as transmissible spongiform encephalopathies, or TSEs, whose different forms affect different species of animals. All TSEs are believed to be linked to an abnormal form of a protein known as a prion. A build-up of this abnormal protein leads to a sponge-like appearance of the affected brain, causing neurological illness and eventual death. Diagnosis of BSE, not possible in live animals, can only be done by examining an animal's brain after death.

A human form of TSE was first diagnosed in the 1920s and was named Creutzfeld-Jacob disease (CJD) after the two German scientists who described the illness. Classical CJD occurs naturally in the population at a rate of approximately one person per million individuals per year, making it extremely rare. On average, 30 Canadians will be diagnosed with CJD each year, with an average age of 60 years. There is no known cure for the disease.

In the early 1990s, British researchers noted a new illness having many of the classical CJD symptoms, but with several unique characteristics. Most notably, the emerging illness affected people in their late 20s. In 1996, researchers confirmed a new variant of CJD, now called nvCJD. The cause of nvCJD appears to be the consumption of beef and beef products from cattle infected with BSE. Following this discovery, strict measures were put in place in the UK and elsewhere to control the spread of BSE among cattle and to minimize the risk to human and animal health.

As of February 2001, a total of 88 cases of nvCJD have been reported in the UK, one case in the Republic of Ireland and three cases in France.

For several years, Canada has banned the import of European beef and has restricted the importation of beef and beef products from any country that is not designated as BSE-free. Health Canada advises that domestic Canadian beef appears to be BSE-free and that Canadians are safe when eating beef produced in Canada.

It is important to note that few cases of BSE have occurred outside of the UK and even fewer cases of nvCJD outside the nations noted above; this is an indication of the low level of risk to humans from the consumption of infected beef. To date, there are no confirmed cases of nvCJD in Canada nor any confirmed cases of nvCJD in Canadians living abroad.

Stricter regulations regarding the movement of cattle and animal feed are being implemented throughout Europe. There has been a substantial decrease in the number of British cattle infected with BSE as a result of these efforts, but it is too early to tell if BSE will be found in other countries where it is not now known to exist.

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Table 1: Number of Cases of BSE in Cattle Reported Worldwide, 1989-2000

	United Kingdom	Belgium	Denmark	France	Germany	Ireland	Italy	Liechtenstein	Luxembourg	Netherlands	Portugal
1989	7 228	0	0	0	0	15	0	0	0	0	0
1990	14 407	0	0	0	0	14	0	0	0	0	1
1991	25 359	0	0	5	0	17	0	0	0	0	1
1992	37 280	1	1	0	1	18	0	0	0	0	1
1993	35 090	0	0	1	0	16	0	0	0	0	3
1994	24 436	0	0	4	3	19	0	0	0	0	12
1995	14 562	0	0	3	0	16	1	0	0	0	14
1996	8 149	0	0	12	0	73	0	0	0	0	29
1997	4 393	1	0	6	2	80	0	0	1	2	30
1998	3 235	6	0	18	0	83	0	2	0	2	106
1999	2 301	3	0	31	0	91	0	-	0	2	170
2000	1 101	3	1	161	7	145	0	-	0	2	142

SOURCE

Health Canada Information Bulletin, February 2001, produced by TSEs and Risk Management Strategy/Policy Team of Health Canada, the Canadian Food Inspection Agency and the International Office for Epizootics (http:// www.oie.int/eng/ info/en_esbmonde.htm).

RECOMMENDATIONS

It is currently NOT possible to state what the risk from eating beef in BSE-affected countries is to Canadians abroad. Health Canada recommends:

To avoid ANY risk of nvCJD, do not consume beef or beef products in the countries listed above in Table 1.

Alternatively, travellers to the countries listed above in Table 1 where BSE has been reported in cattle, and including countries where nvCJD cases in humans have been reported, may consider the following two options:

1. Reduce the consumption of beef and beef products; or

2. Consume only whole cuts of meat without attached spinal bone (e.g., steaks, roast) and avoid processed meats (e.g., sausages, burgers or patés).

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FOR MORE INFORMATION

For details on nvCJD and BSE, visit the Canadian Food Inspection Agency's Web site at http://www.cfia-acia.agr.ca/english/anima/heasan/disemala/bseesbe.shtml
or the Health Canada Web site at: http://www.hc-sc.gc.ca/food-aliment/english/organization/microbial_hazards/ travel_europe_and_ mad_cow_disease .html.

For additional information on Canada's import policies, visit the Canadian Food Inspection Agency's Web site at: http://www.cfia-acia.agr.ca/english/anima/heasan/heasane.shtml.

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LET'S GROW ... EVALUATION OF AN AGE-PACED DEVELOPMENTAL RESOURCE

Summary

Current research indicates that the net benefit of universal prevention as well as early identification and intervention, translates into lower expenditures by families, communities and governments on expensive, long term remedial and specialized services.[1] Research has also confirmed that encouraging the participation of parents in the monitoring of their children's development through screening tools/parent questionnaires, not only strengthens families' sense of responsibility and empowerment, but also promotes primary prevention.[1] A strategy to promote the earlier identification of developmental delays in children was developed by the Bruce-Grey-Owen Sound Health Unit. This strategy involved the mailing of age-appropriate health information packages to support parental monitoring of healthy child growth and development for the first five years of their child's life. Summaries of evaluation initiatives regarding this mailout program are discussed in this article. Results indicate that a population-based mailout initiative has had a positive impact upon parenting skill development and the earlier identification of delays in children living in Grey and Bruce Counties.

Introduction

In 1994, several service providers gathered to discuss the impact of the loss of the vision, speech and hearing centres operated by the Public Health Unit in Bruce and Grey Counties. The screening centres had played a valuable role in identifying children with developmental delays, prior to school entry. During this meeting, it was noted that children throughout Bruce and Grey Counties were being identified with developmental delays at school entry level and beyond. The service providers recommended that all health and social service agencies / organizations in the two counties undertake the challenge of identifying children with developmental delays at an earlier point in their development. The service providers also suggested that all agencies and organizations with a vested interest in families with young children work together to coordinate services and educational initiatives for this population.

Research suggests that the years before five are the foundation for healthy growth and development, future learning and health. Investments in the early years of life are as important as investments in education, post secondary education and health care.[2] The period from preconception to age five can be referred to as the "investment" stage for child development.[3]

Following this initial meeting, an interagency committee was established to develop a coordinated system of services for all families in Grey and Bruce Counties with children prenatal to age six. The "Let's Grow" committee membership included all agencies in Grey and Bruce Counties with a mandate to provide services for families with young children (such as, the local health unit, Children's Aid Society, preschool speech and language services, Ministry of Community and Social Services, Ontario Works, Board of Education).

The Let's Grow Committee coordinates the management and delivery of three service components: 1. The provision of information about healthy child growth and development to the general public, 2. Support and services for all families based on need and 3. Community development to create a culture which supports and nurtures families with young children. Subcommittees and task groups plan and coordinate specific activities to support the overall vision of Let's Grow.

Let's Grow Mailout Program

The healthy growth and development information component of Let's Grow takes the form of age-paced developmental mailout packages for all children newborn to five years of age. Research indicates that parents play the most important role in providing the nurturing and stimulation that children require, but they need information and support to develop good and effective parenting skills.[4]

The Let's Grow mailout program begins with the birth of a child. All families in Bruce and Grey Counties may subscribe, free of charge, to the Let's Grow mailout program in the hospital following the birth of their child. Let's Grow information packages are mailed to parents at age appropriate intervals for the first five years of their child's life.

In the past year (2000) approximately eighty-five percent of parents in Grey and Bruce Counties subscribed to the Let's Grow mailout program. A computer database of subscriptions generates a mailing list from which the issues are mailed to parents at the age appropriate intervals. There are currently 2710 families on the Let's Grow database. In 2000, 5558 issues were mailed to families in Grey and Bruce Counties.

There are 12 Let's Grow issues in total, spanning the age frame from newborn to five years. In each of the twelve issues, information is provided about child growth and development, speech and language skills, hearing, vision, safety, play and parenting skills. A Nipissing Developmental Screening Tool is included with each issue to encourage parents to monitor their child's growth and development. The Nipissing Developmental Screen is suggested by the Office of Integrated Services for Children for use as a parent-administered screening tool for healthy child development and learning, as outlined in the Healthy Babies, Healthy Children Early Identification Guidelines (2000). If a parent has concerns with their child's development, he/she is advised to call the Public Health Unit, where referrals can be made to the appropriate community resources and /or services.

One Let's Grow subcommittee, the Let's Grow Writing Team, has written the text for the Let's Grow issues. The Writing Team consists of an infant development worker, a speech language pathologist, a local resource centre coordinator, a children's aid society staff member, a member of the local Board of Education and a Public Health Nurse. A grade 3-5-literacy level is maintained in each issue to account for the varying levels of literacy among parents living in Grey and Bruce Counties. The Writing Team works closely with a local graphic artist who designs the layout of each issue. "A picture is worth a thousand words", is the philosophy of this graphic artist. All pictures relate directly to the text of the issue. Photographs depict parents and children interacting in age-appropriate activities that stimulate healthy child growth and development.

Evaluation Initiatives

The Let's Grow mailout program has been operating in Grey and Bruce Counties since 1998. During this time, a number of questions have arisen regarding the effectiveness of the mailout program such as:

- What impact has the Let's Grow program had on parental monitoring of child development?
- Do parents read the Let's Grow issues?

- Do parents discuss the content of the issues with each other?
- Do parents do the activities suggested in the Let's Grow issues?
- Are parents using the Nipissing Developmental Screen to monitor the development of their child?
- Did parents contact anyone about a concern with their child's growth and development?
- Would parents recommend the Let's Grow issues to other parents or caregivers?

A number of initiatives have been conducted in order to evaluate the success of the Let's Grow mailout program. The first initiative was a focus group, which took place in the fall of 1998. New parents were asked about format, content and readability of the Let's Grow issues. All feedback was positive.

Next, a telephone survey of Let's Grow parents was conducted in early 1999. The survey achieved an 81% response rate. A sample of 100 Let's Grow subscribers across Bruce and Grey Counties were contacted by telephone. Half of the sample had received the first package in the hospital and the remaining half had received more than one Let's Grow package in the mail.

Several questions were asked focusing on issue appeal, readability, usability and content. Ninety percent of the sample had read the Let's Grow issues and had kept the issues for future reference. All parents said they were able to use at least one piece of information from the issues in their parenting. Many of multipara parents said that they wished they had received the Let's Grow packages with their first child.

A third indicator of the success of the Let's Grow mailout program is the average age of referral to developmental intervention services. The Grey-Bruce Integrated Preschool Speech and Language initiative reports that the average age of referrals to their programs has been steadily declining. For example, from April 1, 1999 to March 31, 2000, the average age of referral for speech and language services was 36 months. From April 1, 2000 to June 30, 2000, the average age of referral had dropped to 33 months. Likewise, from July 1, 2000 to September 30, 2000 the average referral age had dropped again, this time to 30 months. This trend may indicate that parental monitoring of child growth and development is resulting in earlier referral and intervention services.[5]

The fourth evaluation initiative consisted of a parental feedback form in the 1 1/2 to 2 years Let's Grow issue to all parents who had subscribed to the mailout program in Grey and Bruce. Five hundred and twenty eight stamped evaluation forms were mailed to parents and one hundred twenty three responses were received giving a response rate of 23%.

The form asked parents for feedback about appeal, content and usefulness of the Let's Grow issues. Parents were asked if the information in the Let's Grow issues had prompted them to seek out more information about their child's development. For example, did they call their family doctor or request a consultation with a child development professional? Results indicate that the majority of respondents enjoyed receiving the Let's Grow issues in the mail. They found the packages "useful and interesting", as well as "clear and easy-to-read". In addition, ninety-six percent of respondents found the activities described in the issues "easy to do".

Parents stated that they learned more about their child's speech and language skills (85%) and physical development (93%), as a result of the mailout packages. Furthermore, the majority of parents used the Nipissing Developmental Screening Tool. One third of respondents said they had consulted with a professional regarding a concern they had about their child's development. Of those parents who contacted a professional, the family doctor was most frequently named, followed by Public Health Nurse and physiotherapist. Mom and Dad were the primary readers of the Let's Grow issues and they typically discussed the information with each other. Nearly all respondents reported that they would recommend the Let's Grow issues to other parents and caregivers. Some additional comments from parents were:

> "The issues were clear, concise and extremely helpful".
>
> "The short but informative articles are super for a parent who gets little spare time for reading".
>
> "I enjoy Let's Grow because I have discovered my son is progressing well - I use the Nipissing Screen in every issue".
>
> "I especially like that the information arrives right at the time I need it. Also that it's concise and easy-to-read - even with a busy family!"

Future evaluation initiatives will include focus groups with parents in early 2001, and an evaluation feedback form provided in the final Let's Grow issue of the series (4 1/2 - 5 1/2years).

Conclusions

Many communities throughout Ontario, and indeed, Canada are identifying the need for health promotion, prevention and early intervention activities as a means to identify developmental delays at an earlier stage of child development. In Grey-Bruce the Let's Grow mailout program is a starting point for an earlier identification process. The new Healthy Babies, Healthy Children Early Identification initiative further supports the groundwork of the Let's Grow mailout program.

Bruce and Grey County service providers have undertaken a commitment to doing a better job of identifying infants and children with developmental delays and linking them with the appropriate community resources and services. However, there is still much work to be done.

Since every newborn is vulnerable to some degree or another and since many developmental problems cannot be predicted at birth, ongoing care, support and education for every parent and child is essential. The Let's Grow mailout program provides age appropriate information to all parents. The program creates an opportunity for parental screening and self-identification of developmental delays. "Parents possess in-depth information and are in the unique position to conduct ongoing observations of their children. This makes them valuable partners in the screening process".[1]

Let's Grow also promotes linkages to community resources and services for intervention and treatment, where appropriate. Let's Grow is population based and, as such, it does not discriminate between "at risk" and "not at risk" families. Parental support and education is essential for healthy child growth and development. "It is clear that the early years, from conception to age six, have the most important influence of any time in the life cycle on brain development and subsequent learning, behaviour and health. Supportive initiatives for parents should begin as early as possible - from the time of conception - with programs of parent support".[2]

Future studies focusing on school-readiness may further support the Let's Grow mailout program with its goal of earlier identification of developmental delays. The Let's Grow experience in Bruce-Grey Counties demonstrates that a population-based mailout initiative has had a positive impact upon parenting skill development and the earlier identification of developmental delays in children.

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RECENT CHANGES AND EVOLUTION IN CARE PATTERNS IN THE CHILDREN IN NEED OF TREATMENT (CINOT) DENTAL PROGRAM: 1990 - 1999

Background

CINOT is a mandatory public health program under the Child Health section of the *Mandatory Health Programs and Services Guidelines, December 1997*. The CINOT program is part of the social safety net of health services for children in Ontario. The objective of the CINOT program is to provide a specified level of basic dental care to children, from birth to Grade 8 (or their 14th birthday, whichever is later), who have identified dental conditions requiring urgent care. Children are eligible for this program if they have no dental insurance and the parent/guardian has signed a written declaration that the cost of the necessary dental treatment would result in financial hardship.

From its inception in 1987 until January 1, 1998, CINOT was funded 100% through the Ministry of Health and Long-Term Care (MOHLTC). Effective January 1, 1998, municipalities were required to fund 100% of all public health programs including CINOT. On March 23, 1999, the province announced that retroactive to January 1, 1999, it would cost-share MOHLTC approved budgets for boards of health. The funding approach was changed from a budgeted cost per program basis to a global contribution for all public health activities.

A number of changes, which occurred more or less simultaneously, are likely to impact utilisation and expenditures of the CINOT program. Most significantly:

Change in Social Services legislation

Up until 1998, there was a direct link between the CINOT program and children eligible for social assistance. The MOHLTC received reimbursement for the associated treatment costs from the Ministry of Community and Social Services (MCSS) for children eligible for General Welfare Assistance (GWA) who received treatment through the CINOT program. The same arrangement existed for children from families receiving Family Benefits Allowance (FBA) who received additional services through CINOT that were not covered under their social assistance basic dental benefits. The FBA program covered a broad range of individuals with disabilities, their spouses and dependants, as well as single mothers and their children.

In the spring of 1998, the MCSS introduced a new structure for social assistance that included two new programs, the Ontario Works Program (OW) and the Ontario Disability Support Program (ODSP). The programs also redefined eligibility requirements. All eligible GWA clients and sole support parents, who were previously part of FBA, were transferred to the OW program. Disabled individuals, their spouses and dependant children, were automatically transferred to ODSP. Under the OW and ODSP programs, all children are eligible for the same basic dental benefits so there is no longer a need for children from families receiving social assistance to access the CINOT program. While the transfer to OW occurred during 1998, a diminishing number of GWA and FBA children utilized the CINOT program as reflected in Tables 2 and 3. All children of families receiving social assistance are now referred to their respective programs for coverage. Several health units predicted that their case loads for CINOT would increase with the introduction of the new programs given that more low-income families would be ineligible for social assistance.

Change in reimbursement for services

The introduction, in 1998, of the MCSS Schedule of Dental Services and Fees modified reimbursement for dental services. It tied payment of services to 75% of the 1998 Ontario Dental Association (ODA) Suggested Fee Guide for General Practitioners. For simplicity and consistency, reimbursement levels for the CINOT program were changed to mirror the MCSS Schedule. While this approach was expected to increase fees by approximately 3% overall, it was anticipated that some fee codes would increase more while others remained the same or decreased very slightly. The most significant areas of change were composite (white coloured fillings) that had traditionally been reimbursed at the same fee as amalgam (silver) fillings. Under the current Schedules, composites are reimbursed at a significantly higher rate than amalgams. Health units predicted that this would result in broader use of composites given the higher reimbursement and public perception of superior safety.

Change in Access to OHIP-funded Operating Room Facilities

Around 1997, there was increased difficulty in obtaining operating room time for dental procedures. This has led to the transfer, to the private sector, of these services and a shift in the funding from the Ontario Health Insurance Plan (OHIP) to the MOHLTC CINOT budget (see Graph 4 & 5 -Adjunctive Services).

Implications and Indications of the Impact of these Environmental Changes

Program utilization data is complex and includes many different components. Changes to the mix of services performed, the types of services covered, reimbursement rates, or the number of clients accessing services can dramatically effect programs. The data from 1999 indicates some significant changes (e.g., increased use of white-coloured fillings on back teeth and an increased use of general anaesthetic services). Data from 2000 and onwards are required before any definite conclusions can be drawn.

Changes to Social Services Case Load and its Impact

In recent years, the number of individuals eligible for social assistance has decreased. MCSS data reveals that 108,900 children left Ontario Works between May 1998 and May 2000. This translates into a 32% reduction. Approximately 30% of children on social assistance access their dental benefits in any given year. When these children leave the social assistance rolls, they often have no access to dental insurance and, therefore, must wait until they develop an urgent condition which makes them dentally-eligible for the CINOT program. Consequently, one would expect a lag phase before any decrease in social assistance rolls translated into an increase in CINOT utilization. It will be interesting to monitor CINOT data to determine if the increase in CINOT usage witnessed in 1999 (see Table 1 and Graph 1), is an anomaly or the start of a trend of CINOT servicing former social assistance children. It is important to note that the increase in CINOT usage, in 1999, was not evenly distributed across the province. Rural and urban areas have been impacted differently by changes in social assistance rolls which, in turn, is impacting variably on demand for CINOT coverage at the local level.

In addition, the length of time clients remain on Ontario Works has decreased for many families. This has increased the number of instances where a child begins dental treatment under social assistance dental benefits but is unable to complete the course of treatment before his/her eligibility expires. In these cases, an application is often made to CINOT to complete the course of treatment, particularly for cases requiring general anaesthesia where hospital waiting lists are up to nine months in length. This bouncing back-and-forth between social assistance and CINOT programs is a new phenomenon and one which requires extra time, at the health unit level, to ensure that children receive a seamless transition in coverage to complete the treatment that they require.

Increase in Cost Per Claim

An increase in the average cost per claim occurred between the years 1997 and 1998 and 1998 and 1999 (see Table 1). The second part of this trend may be explained by the increase in fees made to the February 1999 version of the CINOT Schedule of Dental Services and Fees. This increase in fees along with the increase in utilization in 1999 led to an increase in total CINOT spending (for non-welfare children) that exceeds spending in any of the previous years of the decade. In 1998, utilization on the program was at the lowest level for the period 1994 to 1999. In 1998, CINOT was funded entirely by municipalities.

Graphs 1 and 2 illustrate how CINOT expenditure patterns have traditionally followed utilization patterns fairly closely until 1999. Graph 3 illustrates how the average cost per claim increased in the early years of the decade, decreased during the mid 1990s and then increased markedly in the last two years. Further years data will be required to confirm if the change in 1999 is an anomaly or due to some underlying factor(s).

Procedure Code Profiling

The top three most utilized services provided through CINOT have remained constant from 1994 through 1999. Ranked in order, they were:

1. a two-surface amalgam (silver) restoration on a primary (baby) tooth;

2. bitewing radiographs (x-rays); and

3. an uncomplicated single tooth extraction.

In contrast, the twenty most frequently used codes did not remain constant during the 1990s.

For example, the use of white-coloured fillings in both primary and permanent molars (back teeth) has increased since 1997. As the reimbursement for white-coloured fillings, on molar teeth, has increased substantially in recent years, the cost to the program for these services has increased to the extent that they now appear in the top 20 procedure codes by dollars expended.

Around 1997, there was increased difficulty in obtaining operating room time for dental procedures. This led to a transfer, to the private sector, of these services and a shift in the funding from the Ontario Health Insurance Plan (OHIP) to the MOHLTC CINOT budget. The use of eight units of general anaesthetic (the largest amount of general anaesthetic covered by CINOT) has increased to the point where, in 1998, this service was ranked 18th (by dollars expended).

Procedure Code Profiling by Frequency of Use

Twelve services remained in the top twenty most utilized services list (albeit with a variable ranking) for the entire decade. All were in keeping with the type of program CINOT is; that is, a basic dental treatment program for children with urgent dental conditions. They were:

- 2-surface amalgam on a primary tooth
- 1-surface amalgam on a permanent tooth;
- uncomplicated single tooth extraction;
- additional uncomplicated extraction at the same appointment;
- vital pulpotomy on a primary tooth concurrent with a restoration; and
- prefabricated metal crown on a primary molar.
- examination (primary dentition)
- examination (mixed dentition);
- specific examination;
- emergency examination;
- bite-wing radiographs (x-rays);
- single periapical radiograph;

Of note, is that the 2-surface amalgam on a permanent molar ranked between 5th and 18th up until 1999 when it did not make the top twenty list. Also of note is the fact that the ranking dropped out of the top ten in 1996 and continued to drop rank in 1997 (13th) and 1998 (18th).

Procedure Code Profiling, by Expenditure, by Procedure Code Type

Graph 4 illustrates the numbers of procedures provided by procedure type (e.g., diagnostic) while Graph 5 demonstrates expenditure by procedure type. These graphs demonstrate that restorative services received the vast majority of program expenditure and their use has increased over the decade, particularly in the early 1990s. Noteworthy is that expenditure for this service group increased more significantly in 1999 than its utilization did. This is likely reflective of a different mix of restorative services being provided (e.g., more white-coloured fillings) which cost more. All other service groups have remained relatively constant with the exception of the increase in adjunctive service utilization and cost, due to the increase in general anaesthetic services billed to the program in 1998 and 1999.

Provider Profiling

Between 1990 and 1999, the top 20 dentists, ranked by dollars billed to CINOT, submitted between 3,129 and 5,672 claims (with an average cost per claim between $252 and $436) which translated into 0.96 to 1.66% of the total program spending.

Profiling of these dentists reveals that the majority were paediatric specialists which is to be expected given that specialists are paid an additional 20% for their specialist expertise in addition to being referred the more extensive, and therefore, more expensive cases to treat. Many of the general practitioners appearing in this profile work in the City of Toronto Public Health Unit (where the focus is on provision of treatment to low income and needy individuals) or urban areas.

Predetermination Services as a Proportion of Total Spending

Some more expensive services (e.g., dentures, general anaesthetic, crowns, etc.) require predetermination. This allows the health unit to do more accurate budget projections (e.g., because a claim involving a general anaesthetic may not be received for up to nine months due to the length of operating room waiting lists), particularly year-end projections. In 1999, 3487 services were predetermined at a total cost of $481,235. The ten most frequently predetermined services, in rank order, were:

- topical fluoride;
- general anaesthetic (8 units of time);
- panoramic radiograph (x-ray);
- scaling (1 unit of time);
- root canal treatment (3 canals);
- recall examination;
- root canal treatment (1 canal);
- general anaesthetic facility fees (8 units of time);
- scaling (2 units of time); and
- root canal treatment (4 canals).

Predetermined services amounted to only 2.56% of procedures provided across the province and 7.60% of provincial program expenditures. Health unit variation existed however, from a low of 0.23% of procedures and 0.21 % of all expenditures to a high of 10.86% of procedures and 23.44% of all expenditures. Further analysis is required to determine reasons for this variation (e.g., variations in use of private general anaesthetic facilities, etc.).

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Table 1

CINOT Expenditures[1]: 1994 to 1999[2]
Ministry of Health Portion Only
(non-welfare children)

Year	Number of Courses of Treatment[3]	Amount Paid	Average Cost/Course of Treatment
1994	22,396	$6,337,592	$283
1995	22,916	$6,338,275	$277
1996	21,982	$6,202,116	$282
1997	21,309	$5,798,256	$272
1998	19,529	$5,661,643	$290
1999	22,039	$6,792,904	$308

[1] Rounded to the nearest dollar
[2] Calendar years
[3] Software changes in May 1995, led to all claims for a course of treatment being tied to one child; therefore, the number of claims is equal to the number of course of treatment (which approximates the number of children)

Table 2

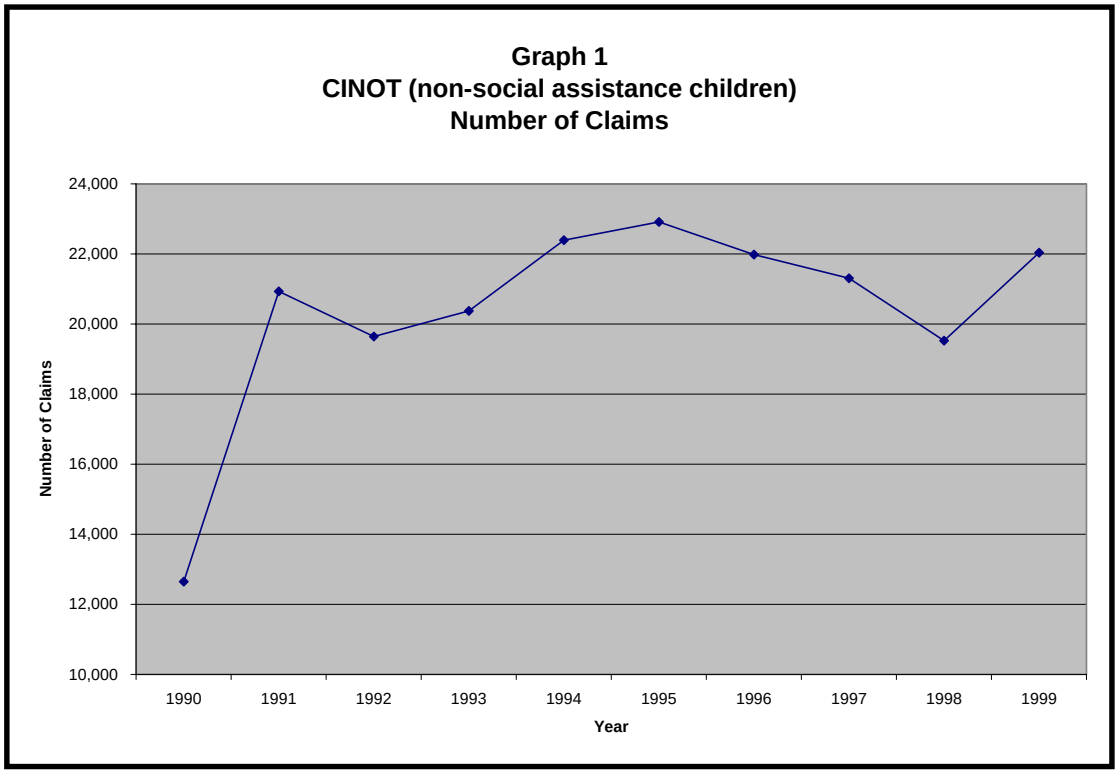
CINOT Expenditures[1]: 1994 to 1998[2] Ministry of Community & Social Services General Welfare Assistance (GWA)			
Year	**Number of Courses of Treatment[3]**	**Amount Paid**	**Average Cost/Course of Treatment**
1994	14,260	$4,251,282	$298
1995	14,692	$4,151,124	$283
1996	13,295	$3,839,449	$289
1997	12,433	$2,447,404	$277
1998	8,208	$2,414,642	$294

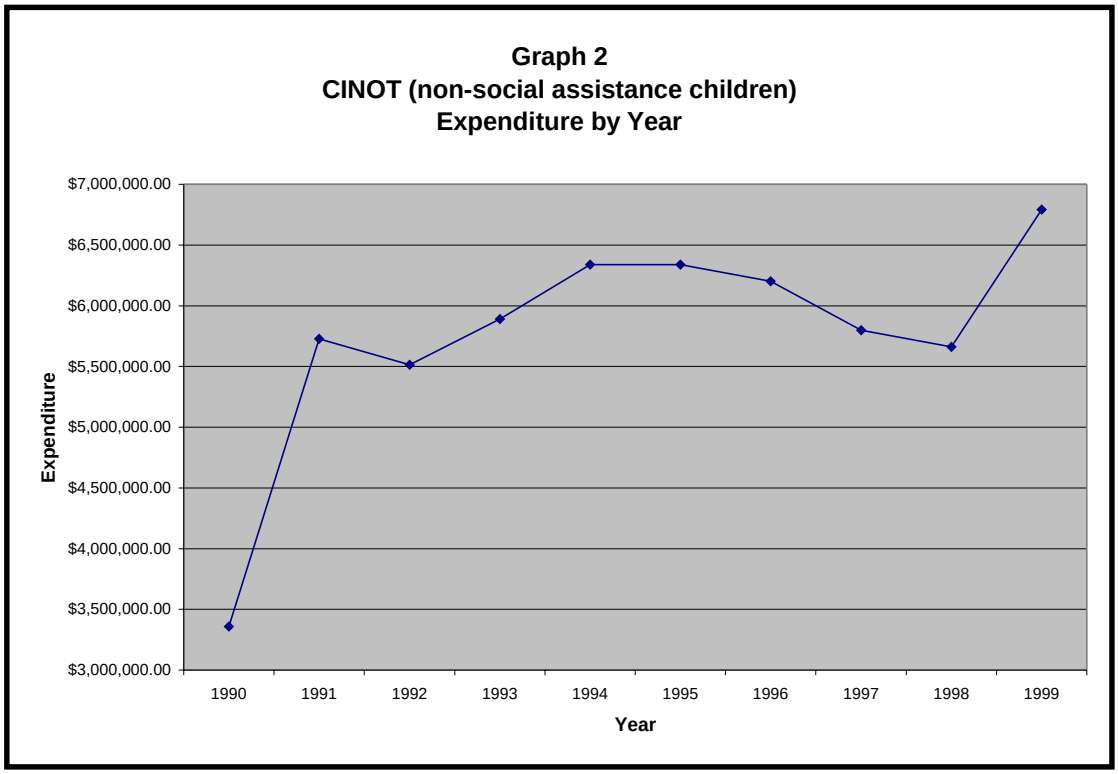
[1] Rounded to the nearest dollar
[2] Calendar years
[3] Software changes in May 1995, led to all claims for a course of treatment being tied to one child; therefore, the number of claims is equal to the number of course of treatment (which approximates the number of children)

Table 3

CINOT Expenditures[1]: 1994 to 1998[2] Ministry of Community & Social Services Family Benefits Allowance (FBA)			
Year	**Number of Courses of Treatment[3]**	**Amount Paid**	**Average Cost/Course of Treatment**
1994	1,562	$427,426	$274
1995	1,771	$445,580	$252
1996	1,354	$323,729	$239
1997	1,023	$255,447	$250
1998	773	$201,299	$260

[1] Rounded to the nearest dollar
[2] Calendar years
[3] Software changes in May 1995, led to all claims for a course of treatment being tied to one child; therefore, the number of claims is equal to the number of course of treatment (which approximates the number of children)


Graph 1
CINOT (non-social assistance children)
Number of Claims
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
Number of Claims
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Year


Graph 2
CINOT (non-social assistance children)
Expenditure by Year
$7,000,000.00
$6,500,000.00
$6,000,000.00
$5,500,000.00
$5,000,000.00
$4,500,000.00
$4,000,000.00
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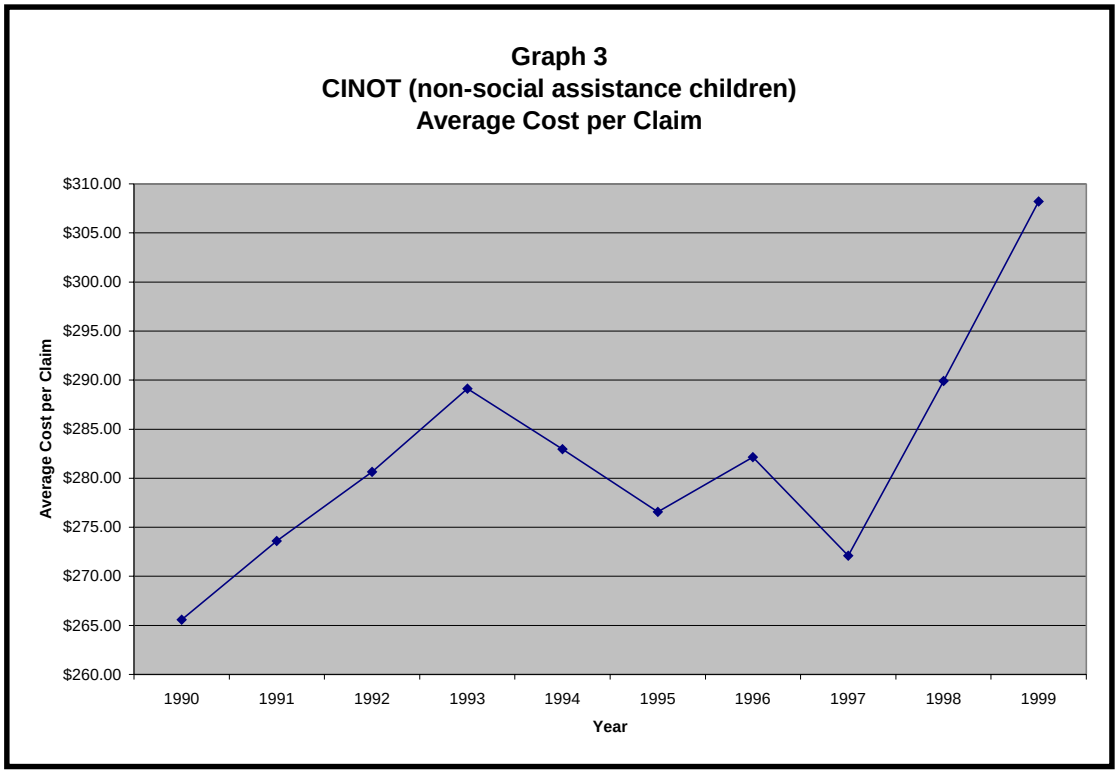
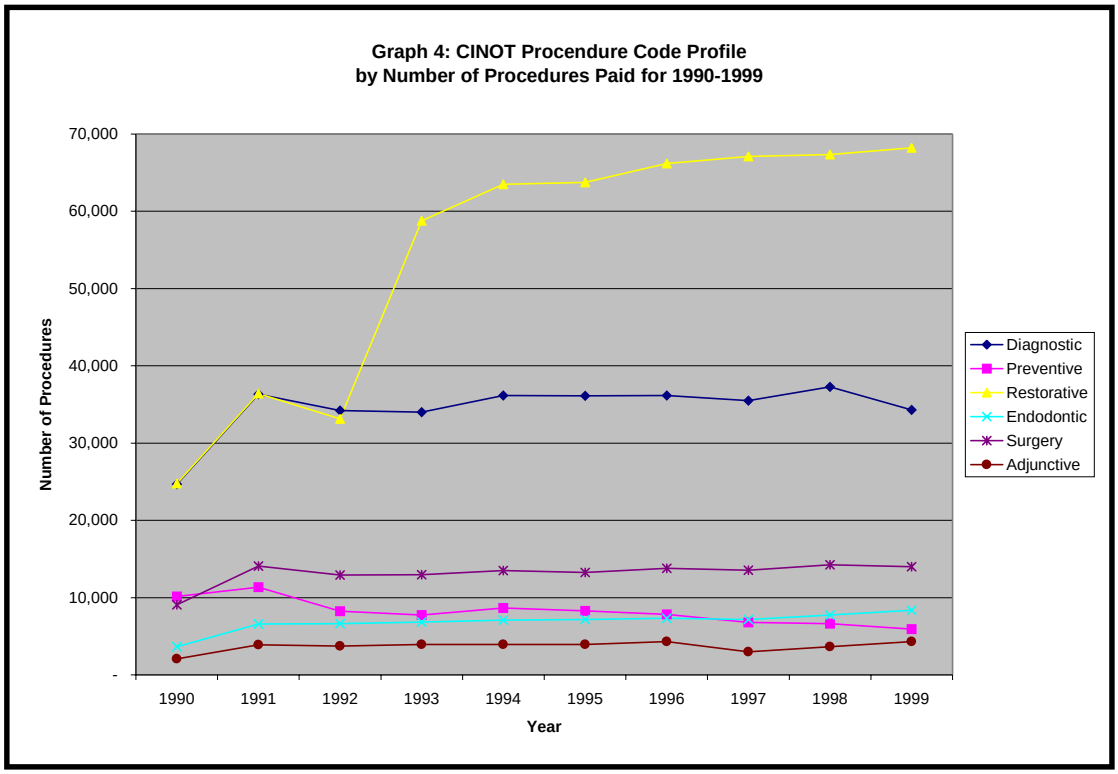
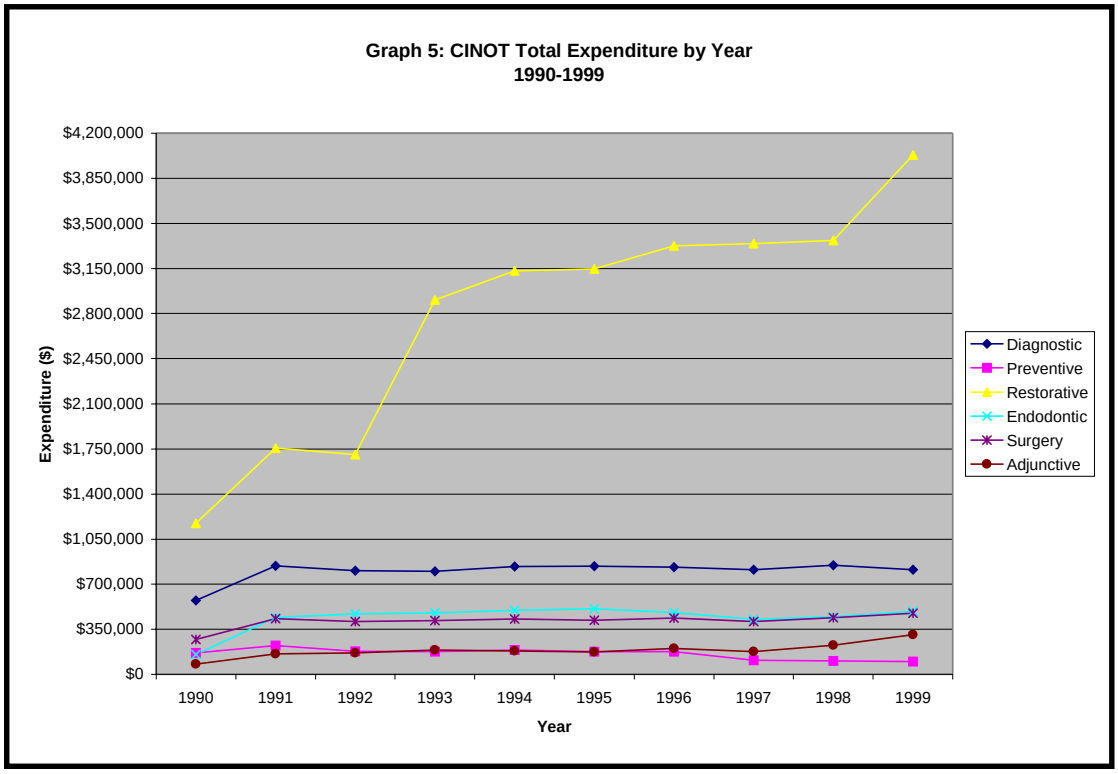
Expenditure
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Year


Graph 3
CINOT (non-social assistance children)
Average Cost per Claim
$310.00
$305.00
$300.00
$295.00
$290.00
$285.00
$280.00
$275.00
$270.00
$265.00
$260.00
Average Cost per Claim
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Year


Graph 4: CINOT Procendure Code Profile
by Number of Procedures Paid for 1990-1999
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
Number of Procedures
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Year
Diagnostic
Preventive
Restorative
Endodontic
Surgery
Adjunctive


Graph 5: CINOT Total Expenditure by Year
1990-1999
$4,200,000
$3,850,000
$3,500,000
$3,150,000
$2,800,000
$2,450,000
$2,100,000
$1,750,000
$1,400,000
$1,050,000
$700,000
$350,000
$0
Expenditure ($)
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Year
Diagnostic
Preventive
Restorative
Endodontic
Surgery
Adjunctive

Communiqué

Public Health Research, Education and Development Program

MIDDLESEX-LONDON HEALTH UNIT

1998-1999 PROVINCIAL PHRED INITIATIVES: PUBLIC HEALTH NEEDS, EFFECTIVE INTERVENTIONS, BENCHMARKING: IMPLICATIONS FOR PUBLIC HEALTH UNITS. AN EVALUATION OF REGIONAL DISSEMINATION

Introduction

In 1998-99, Ontario's six.[a] Public Health Research, Education & Development (PHRED) Programs undertook the following four provincial projects:

- produced a comprehensive provincial health status report.[b] on the residents of Ontario and a companion Francophone report.[c]
- completed systematic reviews of the literature.[d] i.e.Effective Public Health Practice Project (EPHPP)
- determined the relevance of benchmarking to public health and initiated three benchmarking pilots,[e] and
- provided regional library services.

a) Hamilton, Kingston, London, Ottawa, Sudbury, Toronto
b) Report on the Health Status of the Residents of Ontario
c) Rapport sur la santé des francophones de l'Ontario
d) Reviews on the following topics were disseminated to all health units: environmental awareness, emergency response to environmental hazards, use of coalitions, consumption of fruit and vegetables, community-based heart health, day care centre infection control, professionally led parenting groups, peer/paraprofessional interventions, public health home visiting, adolescent pregnancy prevention, adolescent suicide prevention, adolescent STD prevention, school based adolescent risk behaviour prevention
e) Immunization processes, food safety, and STD contact tracing

Eight regional workshops, including two delivered by videoconference that targeted northern health units, were held across the province to disseminate the work of the first three provincial projects. The objectives of the workshop were to:

1. Disseminate the findings from the three provincial PHRED initiatives
2. Illustrate linkages between the initiatives
3. Demonstrate the relevance of project findings to program planning and evaluation in public health units
4. Provide an opportunity to apply findings from the provincial PHRED initiatives to a scenario.

This article describes the workshops and includes an evaluation and recommendations for future regional dissemination activities.

Regional Workshops

The curriculum was developed by the project leads, Ian Johnson (Provincial Health Status Report), Helen Thomas (EPHPP), and Charlene Beynon (Benchmarking). Materials were developed centrally with the understanding that the workshops would be delivered to health units in each region by PHRED Program staff. It was intended that this format would decrease the time and resources required to deliver regional workshops across the province. Workshop materials included introductory remarks, speaker notes, overheads, PowerPoint slides, handouts, facilitator's notes, an evaluation tool and promotional materials to market the event. The package also included a small group exercise which allowed a choice of three scenarios focusing on sexual health, heart health or child health. This small group learning activity was developed by the workshop authors to allow participants an opportunity to apply and integrate the three initiatives. Middlesex-London's PHRED Program coordinated the dissemination of resources to each PHRED Program. A conference call was held with leads from each PHRED site to:

- assist with local preparation
- respond to questions about expectations
- provide additional resources if needed, and
- exchange ideas about planning and delivering the workshop.

Each PHRED site was encouraged to hold a similar planning session with those recruited to facilitate the small group component of the workshop. Sites were encouraged to customize the material to meet the needs of their region and style of local presenters. For the two northern workshops, although the same agenda was used, it was necessary to substantially reduce the content to accommodate a videoconference format.

Workshop Agenda

As previously noted, the daylong event was designed to disseminate findings from these provincial projects and to engage participants in using the project deliverables in the planning, delivery and evaluation of public health programs. The workshop was developed for various public health professionals involved in program planning and decision-making including Medical Officers of Health, senior staff, program managers and front-line staff. Both didactic and interactive learning activities were incorporated.

The morning included an overview of each of the three initiatives and a session that focused on how the projects were interrelated. The afternoon session allowed participants to work in small groups and apply the workshop content from the three provincial projects to a scenario. The workshop concluded with an opportunity to identify key learnings, questions needing follow up and next steps.

Methods

There were a total of 247 workshop participants attending the eight workshops across the five public health regions. Three workshops were held in Central West, and two in the Northern Region, while one workshop was held in each of the other regions. In the Southwest Region there were 22 participants, in Central West 64, in Toronto 29, in the Eastern Region 28, and in the Northern Region 104. A written workshop evaluation tool using a 5-point Likert scale and open-ended questions was distributed at the end of the workshop to all participants. For the videoconferences held in the Northern Region, a second evaluation tool was also distributed that assessed the videoconference format. A summary of this evaluation, conducted by Sudbury's and Middlesex-London's PHRED Programs, appeared in an earlier edition.[1]

A total of 192 participants (78%) completed the workshop evaluation. Toronto's PHRED Program provided each site with a summary of their evaluation results shortly after the event. This paper presents the aggregated results from all five regions. Comparisons across the sites were not done because of the small sample size in some regions. Unless noted, non-respondents to each item are included in the percent calculations. The rate of non-respondents is noted when the item response rate is less than 95%.

Evaluation Results

Of the 192 persons who completed an evaluation questionnaire, 43% (82) were front line staff, and 50% (95) management (7% [15]) did not answer the question). The majority of participants were involved with programs in either "Chronic Diseases and Injuries" or "Family Health" (Table 1).

Table 1: Workshop Participants' Program Areas

Program Area	# of participants	% of participants
Chronic diseases and injuries	53	28%
Family health	51	27%
Infectious Diseases	22	11%
Program Planning and Evaluation	14	7%
Other*	15	8%
No response	37	19%

* Includes positions such as MOHs, business administrators and those assigned to special projects including policy, access and equity.

Overall, these regional workshops were well received by participants. Of the 138 participants completing this question, the majority of participants (65%) rated the workshop a 4 on a scale of 1 to 5 where 5 is excellent. There were no significant differences between front-line staff and management in the overall rating of the workshop (independent t-test=-1.309, p=.196, df=124).

Participants perceived the morning presentations as the most useful part of the workshop.

> *I found the first part of the workshop to be valuable in assisting me to identify where to look for information (collect data) and how to ensure I am using the most effective information when planning programs (effectiveness reviews and benchmarking).*

For these morning presentations participants were asked to rate the "Provincial Health Status Report," "Effective Public Health Practice Project" and "Benchmarking" presentations on depth of content, clarity and usefulness. The presentation on the "Integration of the Three Projects with Program Planning" was rated on depth of content, usefulness and the opportunity to participate. For all presentations, the majority of the participants rated each variable with scores of 4 or 5 on a scale of 1 to 5 where the maximum was 5.

Provincial Health Status Report

The majority of participants rated the depth of content (47%), usefulness (52%) and clarity (64%) of the "Provincial Health Status Report" presentation as a 4 or 5 on a scale of 1 to 5 where 5 was the maximum (Table 2). Overall, participants rated the depth of content and usefulness of this presentation lower than the other presentations. This trend was reflected in the participants' written comments. Participants' comments identified frustration with the fact that the report was not available at the time of the workshops. *"When is the health status report coming?" "More meaning if it had been released prior to presentation."*

Effective Public Health Practice Project

The majority of participants rated the depth of content (63%), usefulness (66%) and clarity (70%) of the "Effective Public Health Practice" presentation as a 4 or 5 on a scale of 1 to 5 where 5 was the maximum (Table 2). This presentation rated highest of the morning sessions for depth of content, usefulness and clarity. The few comments that were made were positive and showed that participants intended to use the information from the systematic reviews and incorporate it into their program planning. *"Use systematic review data to help in program planning and decision making."*

Benchmarking

The majority of participants rated the depth of content (55%), usefulness (63%) and clarity (59%) of the "Benchmarking" presentation as a 4 or 5 on a scale of 1 to 5 where 5 was the maximum (Table 2). "Benchmarking" received the lowest clarity rating of the three presentations on the PHRED initiatives. This low clarity scoring concurred with the large number of written comments about benchmarking. Most participant comments were about the "Benchmarking" presentation. Participants indicated they needed more time and information to understand the concepts of benchmarking. *"Benchmarking- needed more time to work through this new information."* Similar comments were made in response to the open-ended question asking participants what unanswered questions still

Table 2: Participants' Rating of Three PHRED Initiatives Presentations

Presentation	Depth of Content 4 or 5[a]	Usefulness 4 or 5[b]	Clarity 4 or 5[c]
Provincial Health Status Report	47%	52%	64%
Effective Public Health Practice Project	63%	66%	70%
Benchmarking	55%	63%	59%

[a] *1 = very superficial; 5 = very thorough*
[b] *1 = not useful at all; 5 = very useful*
[c] *1 = not clear at all; 5 = very clear*

remained for them. *"The more that is learned about benchmarking, the more questions arise regarding time required to review best practices or reasonable time that should be allotted for this relevant component to planning."*

A number of participants had questions about the Benchmarking initiative. One respondent asked, *"How far can we go with benchmarking given the current municipal political control, the current revision of Mandatory Health Programs and Services Guidelines and the Mandatory Program compliance exercise?"* Another asked *"how to make benchmarking less threatening to people, and convince them that it is manageable."* A few others wanted to know if there would be provincial leadership. *"Who will take a leadership role in benchmarking provincially?"* Some participants had more general questions, including questions about time and financial resources, and how the information could be applied to public health practice. *"How will we apply this knowledge to practice at our health unit and specifically in my program area?"* Participants appeared to direct these questions more to "Benchmarking" than to the "Provincial Health Status Report" or "Effective Public Health Practice" projects.

Some participants also raised concerns about the Benchmarking initiative. A few suggested that it would be difficult to do benchmarking in Ontario because of the diversity of populations in the province. One participant thought benchmarking *"may lead to less effective programs because tailoring is more limited as you work toward similar indicators."*

Overall, it appeared that participants thought "Benchmarking" was the most complex of the three PHRED initiatives.

> *I think the benchmarking is really the most difficult piece. Experts are producing the data and information on effective practice for us, but we have to do the benchmarking ourselves --- so we need a lot more work and information on this.*

Integration of the Three Projects with Program Planning

In the final presentation of the morning, "Integration of the Three Projects with Program Planning," the majority of participants rated the depth of content (54%), usefulness (61%) and opportunity to participate (56%) as a 4 or 5 on a 5 point scale of 1 to 5 where 5 was the maximum. These questions had a high non response rate, 15%, 15% and 16% respectively, for the measured criteria. This presentation received the most written comments in answer to the question 'Which information did you find most useful?' Generally participants liked how this presentation was able to pull the concepts from the three initiatives together. *"The inter-linked 3 circles graphically described the interrelation of the 3 areas."*

Scenarios

Generally, the workshop participants rated the scenario they attended as offering a lot of opportunity to participate in discussion and ask questions. On a scale of 1 to 5, where 5 was the maximum, 75% of participants rated the opportunity to participate in discussion as a 4 or 5 and 73% of participants rated the opportunity to ask questions a 4 or 5. However, participants rated the opportunity to apply the findings from the three PHRED initiatives much lower. Overall, only 45%, 48%, and 41% of respondents rated the opportunity to apply findings from the "Provincial Health Status Report", the "Effective Public Health Practice Project", and the "Benchmarking" presentations respectively, as 4 or 5 on a scale or 1 to 5 where 5 was the maximum. These trends were observed for all 3 scenarios: sexual health, heart health and child health. Table 3 contains a summary of the results from all scenarios.

Participants' written comments identified the scenarios as the "least useful" part of the workshop. Most of these comments identified that participants needed more time and indicated that group work was difficult because people were at different levels of understanding. Furthermore, many were unclear of the process. *"Some of the direction was not clear. We were bogged down in group work, not able to move ahead."*

Participants' suggestions for changes to the scenarios included developing clearer questions and allotting more time to work through the process. Despite some of the problems with the scenarios, this participant appreciated the opportunity to apply what was learned.

> *Time constraints during the small group discussion created pressure that cut off important collaboration. The questions asked of us were somewhat vague and we spent much time interpreting the task. However, the process of using this information was valuable. It enabled us to practice applying what we learned.*

Table 3: Participants' Rating of Scenarios

Question	Rating[1]			
	1 or 2	3	4 or 5	No Response
ortunity to participate in discussion	3%	12%	75%	10%
ortunity to ask questions	3%	19%	73%	6%
ortunity to apply findings from vincial Health Status Report	17%	31%	45%	7%
ortunity to apply findings from ective Public Health Practice Project	12%	33%	48%	7%
ortunity to apply findings from chmarking	17%	36%	41%	6%

[1]rating scale: *1 = very little; 5 = a great deal*
Note: percentages may not add up to 100 due to rounding

A few participants suggested that they would have liked to review the handout materials prior to the workshop, especially the scenarios. *"It may be useful to send the scenario materials to each group member ahead of time."*

Additional Comments

As part of the open-ended evaluation questions, participants were asked what they planned to do as a result of the workshop. The most frequent response was to apply the information to program planning. *"Incorporate information from all 3 sources into program planning." "Develop a planning structure surrounding some of the key points brought out as a result of this workshop."* Other participants planned to read more information about the three initiatives and to share the information with both management and staff at their health units.

Overall, across all sites, participants were enthusiastic about the workshop. Many had positive things to say. *"Very worthwhile day. Helped to bring all 3 into focus as to incorporate in planning programs." "Excellent workshop. Interesting, useful information. Thought provoking."* Although there were far fewer negative comments, there were some. These ranged from *"I found this to be too much all at once" to "nothing new."* One participant questioned how the three PHRED initiatives apply to daily staff activities. *"Lots of unanswered questions. Where each fits into day to day health unit activity of staff."*

Comparison of videoconference and on-site workshop

These data were further analyzed to determine if participants attending the workshop by videoconference in the Northern Region differed significantly in their responses to the workshop, in comparison to participants attending on-site workshops held at the other six sites. In the Northern Region, where videoconferencing was used there were some "on-site" participants in the studio. Nonetheless, due to the technology and a different presentation style required to accommodate videoconferencing (i.e. fixed location for presenters, more formalized method of inviting and responding to questions and interacting with participants) these on-site participants experienced a different workshop format in comparison to participants in other settings. Hence, these "on-site" participants attending the workshop in the Northern Region were considered videoconference participants for the analysis.

The overall rating of participants who attended the workshop by videoconference was significantly higher than the rating by participants at the on-site workshops (independent t-test, $t=2.288$, $p<.05$, $df=136$). However, participants attending the on-site workshops in the other four regions rated the "Benchmarking Presentation" significantly higher than the videoconference participants on usefulness (independent t-test, $t=-2.050$, $p<.05$, $df=185$) and clarity (independent t-test, $t=-2.326$, $p<.05$, $df=186$). There were no significant differences in the scores between the on-site and videoconference participants in the other three presentations and the scenario exercise.

Discussion

Overall, the workshops were well received in all sites. Participants responded most positively to the morning sessions that offered an overview of the three provincial initiatives. The consistently positive response to the "Integration of the Three Projects" segment highlights the value and need to demonstrate how these three PHRED initiatives are inter-related. It was encouraging that participants indicated that they were planning to use the three initiatives in program planning and intended to share workshop materials with others.

Although the "Provincial Health Status Report" scored the lowest on depth of content and usefulness, it is most likely that these results were due to the fact that the report and the companion Francophone report were not available for the workshops. The consistently high standing of the "Effective Public Health Practice Project" may have been positively influenced by the fact that this initiative offered tangible products that could be immediately applied.

Of the three initiatives, benchmarking was clearly the most challenging. Despite the fact that benchmarking is a relatively straightforward process, it is new to public health in Ontario and it requires certain skill sets and time to operationalize. Hence this response is not surprising.

Although there was interest in benchmarking, some expressed caution or reservation that benchmarking results could negatively impact on a health unit. Overall, these results indicate that there is an ongoing need to demonstrate the value of benchmarking to public health, to share benchmarking experiences and to continue benchmarking investigations at the provincial level. Such provincial leadership is being provided by the Ontario Public Health Benchmarking Partnership, a partnership involving the Association of Local Public Health Agencies (alPHa), the Ontario Council on Community Health Accreditation (OCCHA), and PHRED Programs.

The interactive small group activity, which used scenarios, was consistently less well received than the more formal presentations. The scenarios were predetermined and some participants may have felt hindered by their lack of familiarity with the program area. Benchmarking was addressed in the final segment of the scenario exercise. For some groups, the other two initiatives consumed the majority of the time for the small group exercise leaving limited time for the benchmarking component. This may have contributed to the lower score for "Opportunity to apply findings from Benchmarking". In addition, it is unknown whether or not participants had a preferred learning style, i.e. participatory or didactic which may have influenced satisfaction with the scenario exercise. Nonetheless, two themes emerged: 1) the need for more time to fully maximize the potential of the small group learning, and 2) greater direction and clarity for the exercise.

Results indicated that videoconferencing is an acceptable alternative to the traditional workshop format and in fact, the overall rating by participants who attended the workshop by videoconference was significantly higher than the rating by participants attending on-site. It is challenging to fully explain this observation from these evaluation findings.

Once again differences were noted with the benchmarking material. Videoconference participants ranked the benchmarking segment significantly lower than "on-site" participants did. A number of factors may account for this observation. The fact that the content for all sections of the workshop had to be significantly streamlined to accommodate the videoconference format may have had a greater impact on the benchmarking component in comparison to other sections of the agenda. In addition, although there were scheduled check-ins with each video site, the benchmarking presenter was not as easily accessible via videoconference as when presenting on-site. Videoconferencing may be better suited to sharing

more didactic information than for building skills required to operationalize complex concepts. Despite potential limitations of videoconferencing, it is interesting to note that offering the workshop by videoconference was associated with increased attendance in comparison to other sites that used a traditional workshop format.

Limitations

This project was not without limitations. The strengths and weaknesses of a centrally developed core curriculum and its impact on delivering regional workshops were not formally evaluated. Did this approach reduce costs by saving preparation time? Did it ensure a consistent product across the province? Was the content too prescriptive or not prescriptive enough? Were additional resources still needed? No formal debriefing was held with the workshop sites. This model is worthy of further consideration and evaluation.

Surprisingly, 54 people (28%) who completed the evaluation form failed to answer the first question on the overall rating of the workshop. This may be due to how the evaluation tool was formatted. In addition, there were a high number of non-respondents to the final presentation on the integration of the three PHRED initiatives. Unfortunately, this may have been caused by a discrepancy with how this presentation was titled on the brochure in comparison to how it was labeled on the presentation slides and the evaluation tool. Another potential limitation of the evaluation tool was that it did not specifically address the presentation/facilitation skills of the presenters or small group facilitators.

Despite significant marketing of the workshops, attendance was less than expected in all regions, with the exception of the Northern Region where the workshop was provided by videoconference. The small numbers precluded making comparisons across regions. Nonetheless, since the use of a core curriculum and the presenters were not evaluated, understanding and explaining such comparisons would have been problematic. Furthermore, although a number of participants indicated that they intended to integrate the workshop resources into their program planning and to share materials with others, no follow-up was planned by the workshop organizers.

Recommendations

Based on the lessons learned from this experience the following recommendations were identified:

1. Evaluate the strengths and limitations of developing resources and a curriculum centrally for regional workshops that are delivered locally.
2. Continue to use alternatives such as videoconferencing provided the objectives and content are amenable to the medium.
3. Ensure that facilitators for small group activities have the necessary knowledge, skills, resources and support to fulfil role expectations.
4. Allow sufficient time and provide clear direction for small group activities to maximize the opportunities to apply and integrate workshop materials.
5. Consider using examples for small group activities that emphasize process and principles rather than specific content areas.
6. Be cognizant of the amount of material that can be addressed effectively in one day and adjust the agenda accordingly.
7. Provide support and follow-up to participants in integrating workshop content into program planning and decision making.

Summary

In conclusion, participants indicated a high level of satisfaction with the sessions and commitment to use the workshop materials in their day to day work. Providing the workshop regionally through the PHRED Programs by using either traditional on-site sessions or through videoconferencing offered an acceptable dissemination medium to showcase three of the 98-99 provincial PHRED initiatives. Nonetheless, attendance, with the exception of the Northern Region where videoconferencing was used, was less than anticipated.

Although many months have passed since these workshops occurred, the value of using the provincial health status reports, incorporating systematic reviews and benchmarking into program planning and decision making remains. In addition, the need to provide support to facilitate the uptake of these initiatives is noted. These findings reinforce the need to continue to use these PHRED initiatives in planning and evaluating public health programs and services.

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❑

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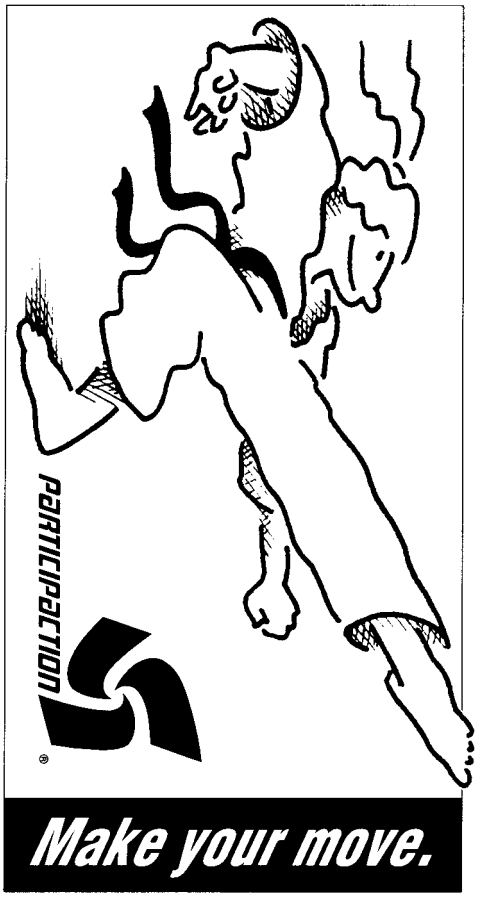

Summary of Reportable Diseases in January, 2001

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	123,953		2		22		2	1
North Bay	93,841		1	32	13		2	
Northwestern	80,235				12			
Porcupine	97,437			2	3			
Sudbury	201,154				19	1	2	
Thunder Bay	161,187		1		21			1
Timiskaming	38,847		1		8			
Total - Northern	**796,654**		**5**	**34**	**98**	**1**	**6**	**2**
Eastern Ontario	185,314		2	1	7			
Hastings-Prince Edward	143,790		2	2	3			
Kingston-Frontenac	175,568				28	1	1	1
Leeds-Grenville	156,129			25	15		1	
Ottawa-Carleton	721,136		19	108	104	2	1	14
Renfrew	97,634		1		6		1	
Total- Eastern	**1,479,571**		**24**	**136**	**163**	**3**	**4**	**15**
Durham Region	458,616		8	180	63	1	1	7
Haliburton-Kawartha	165,039		2		5		1	
Muskoka-Parry Sound	78,675			8	1			
Peel Region	852,526		29		99	1	3	22
Peterborough	123,448		1	6	11	1	1	
Simcoe County	329,865		1	60	29	1	1	5
Toronto City - total	2,385,421		59	375	428	1	5	135
North	*589,653*		*10*	*29*	*90*			*18*
South	*653,734*		*21*	*329*	*131*		*3*	*65*
West	*475,252*		*17*	*17*	*55*		*2*	*13*
East	*666,782*		*11*		*152*	*1*		*39*
York Region	592,445		16		1	1		1
Total - Central East	**4,986,035**		**116**	**629**	**637**	**6**	**12**	**170**
Bruce, Grey-Owen Sound	153,312		3	3	8			
Elgin-St. Thomas	79,159							
Huron	60,220			12	2			
Chatham-Kent	109,650		3	8	3			
Lambton	128,975		1					
Middlesex-London	389,616		3		44		6	6
Oxford	97,142				1		1	
Perth	72,106		1	21	1			
Windsor-Essex	350,329		6		40	4	1	4
Total - Southwest	**1,440,509**		**17**	**44**	**99**	**4**	**8**	**10**
Brant	114,564			7	21			3
Haldimand-Norfolk Region	102,575		1	3	7			
Halton Region	339,875		7	41	3	3		
Hamilton-Wentworth	467,799		9	10	61		2	7
Niagara Region	403,504		9		30		2	11
Waterloo Region	405,435		9	49	39			4
Wellington-Dufferin	217,052		5	10	10			1
Total - Central West	**2,050,804**		**40**	**120**	**171**	**3**	**4**	**26**
January 2001	**10,753,573**		**202**	**963**	**1,168**	**17**	**34**	**223**
*** Total YTD 2001**	**-**		**202**	**963**	**1,168**	**17**	**34**	**223**
*** Total YTD 2000**	**-**	**4**	**212**	**2,277**	**1,135**	**17**	**40**	**256**

The Toronto City regions above are now defined as: North - former North York; South - former City of Toronto; West - former Etobicoke and City of York; East - and East York.

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in January, 2001

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	123,953		1		1				
North Bay	93,841				5				
Northwestern	80,235				2		4		
Porcupine	97,437				2				
Sudbury	201,154			2	7		1		
Thunder Bay	161,187				2				
Timiskaming	38,847								
Total - Northern	**796,654**		**1**	**2**	**19**		**5**		
Eastern Ontario	185,314				4		1		
Hastings-Prince Edward	143,790								
Kingston-Frontenac	175,568				23		5		
Leeds-Grenville	156,129				1		1		
Ottawa-Carleton	721,136	4	1	1	42		19		1
Renfrew	97,634				1				
Total- Eastern	**1,479,571**	**4**	**1**	**1**	**71**		**26**		**1**
Durham Region	458,616						13		
Haliburton-Kawartha	165,039		1	2	14		1		
Muskoka-Parry Sound	78,675				2				
Peel Region	852,526		2		36		3		
Peterborough	123,448				6		2		
Simcoe County	329,865						3		
Toronto City - total	2,385,421	8	3	1	79		17	1	3
North	*589,653*		*1*		*22*		*2*		*1*
South	*653,734*	*5*		*1*	*31*		*7*		*1*
West	*475,252*		*2*		*8*		*1*		
East	*666,782*	*3*			*18*		*7*	*1*	*1*
York Region	592,445		1				11		
Total - Central East	**4,986,035**	**8**	**7**	**3**	**137**		**50**	**1**	**3**
Bruce, Grey-Owen Sound	153,312			1	5				1
Elgin-St. Thomas	79,159								
Huron	60,220				1				
Chatham-Kent	109,650				1				
Lambton	128,975								1
Middlesex-London	389,616	1			14		3		
Oxford	97,142						4		
Perth	72,106				3		2		1
Windsor-Essex	350,329				7		2		
Total - Southwest	**1,440,509**	**1**		**1**	**31**		**11**		**3**
Brant	114,564				1				
Haldimand-Norfolk Region	102,575				1		2		
Halton Region	339,875				1		10		2
Hamilton-Wentworth	467,799	1	2		23	1	6		1
Niagara Region	403,504				24		5		1
Waterloo Region	405,435				25		9		
Wellington-Dufferin	217,052				3		1		
Total - Central West	**2,050,804**	**1**	**2**		**78**	**1**	**33**		**4**
January 2001	**10,753,573**	**14**	**11**	**7**	**336**	**1**	**125**	**1**	**11**
*** Total YTD 2001**	**-**	**14**	**11**	**7**	**336**	**1**	**125**	**1**	**11**
*** Total YTD 2000**	**-**	**28**	**12**	**14**	**532**		**1,175**		**16**

The Toronto City regions above are now defined as: North - former North York; South - former City of Toronto; West - former Etobicoke and City of York; East - forr and East York.

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in January, 2001

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953				2			
North Bay	93,841				1			
Northwestern	80,235		1		3			
Porcupine	97,437							
Sudbury	201,154				2			
Thunder Bay	161,187				4			
Timiskaming	38,847				1			
Total - Northern	**796,654**		**1**		**13**			
Eastern Ontario	185,314		2		1			
Hastings-Prince Edward	143,790				6	1		
Kingston-Frontenac	175,568		4					
Leeds-Grenville	156,129		1		2			
Ottawa-Carleton	721,136		2		14	4		
Renfrew	97,634				1			
Total- Eastern	**1,479,571**		**9**		**24**	**5**		
Durham Region	458,616		7		4			
Haliburton-Kawartha	165,039				6			
Muskoka-Parry Sound	78,675				1			
Peel Region	852,526		1		19	1		1
Peterborough	123,448		1					
Simcoe County	329,865				2			
Toronto City - total	2,385,421		4	1	39	9		3
North	*589,653*		*3*		*9*	*1*		*1*
South	*653,734*		*1*	*1*	*12*	*4*		
West	*475,252*				*6*	*1*		
East	*666,782*				*12*	*3*		*2*
York Region	592,445		3		12	2		1
Total - Central East	**4,986,035**		**16**	**1**	**83**	**12**		**5**
Bruce, Grey-Owen Sound	153,312				2			
Elgin-St. Thomas	79,159							
Huron	60,220							
Chatham-Kent	109,650		1					
Lambton	128,975		1		1			
Middlesex-London	389,616				1			
Oxford	97,142							1
Perth	72,106							
Windsor-Essex	350,329		4		7			
Total - Southwest	**1,440,509**		**6**		**11**			**1**
Brant	114,564				1			
Haldimand-Norfolk Region	102,575				1			
Halton Region	339,875		1		3			
Hamilton-Wentworth	467,799		1		2	1		2
Niagara Region	403,504		1	1	6	2		
Waterloo Region	405,435		4		4			
Wellington-Dufferin	217,052				1			
Total - Central West	**2,050,804**		**7**	**1**	**18**	**3**		**2**
January 2001	**10,753,573**		**39**	**2**	**149**	**20**		**8**
*** Total YTD 2001**	**-**		**39**	**2**	**149**	**20**		**8**
*** Total YTD 2000**	**-**	**1**	**57**		**110**	**20**	**1**	**21**

The Toronto City regions above are now defined as: North - former North York; South - former City of Toronto; West - former Etobicoke and City of York; East - and East York.

* Adjusted for deletions and late reports.


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Summary of Reportable Diseases
4th Quarter, 2000

Ministry of Health

Ontario

Summary of Reportable Diseases in Ontario - 4th Quarter 2000

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	123,953		4	70	48		2	
North Bay	93,841		4	50	32	1		1
Northwestern	80,235		4	5	45		1	1
Porcupine	97,437		2	23	44			
Sudbury	201,154		3		63	3		1
Thunder Bay	161,187		8	19	79	1	1	
Timiskaming	38,847		1		5			
Total - Northern	**796,654**		**26**	**167**	**316**	**5**	**4**	**3**
Eastern Ontario	185,314		17	6	21	2	2	2
Hastings-Prince Edward	143,790		1	5	7	1	2	
Kingston-Frontenac	175,568		5		62	7	1	6
Leeds-Grenville	156,129		10	53	25			
Ottawa-Carleton	721,136	1	55	437	251	16	5	19
Renfrew	97,634		3		7		1	
Total- Eastern	**1,479,571**	**1**	**91**	**501**	**373**	**26**	**11**	**27**
Durham Region	458,616		20	384	122	5	1	12
East York	107,822		16	66	38	1	1	10
Etobicoke	328,718		31	31	120	4		28
Haliburton-Kawartha	165,039		9		15			
Muskoka-Parry Sound	78,675		2	58	6			
North York	589,653		77	177	286	3	1	84
Peel Region	852,526		81	511	225	11	5	46
Peterborough	123,448		6	33	27	1	1	2
Scarborough	558,960		63	311	371	1	4	88
Simcoe County	329,865	1	3	91	82	4	1	14
Toronto City	653,734	2	115	257	377	3	4	183
York City	146,534	1	16		86			31
York Region	592,445		80		20	3	4	1
Total - Central East	**4,986,035**	**4**	**519**	**1,919**	**1,775**	**36**	**22**	**499**
Bruce, Grey-Owen Sound	153,312		14	34	16	3		1
Elgin-St. Thomas	79,159		8	123	4			
Huron	60,220			2	12	1		1
Chatham-Kent	109,650		2	34	28			1
Lambton	128,975		8					
Middlesex-London	389,616		21		76	12	4	22
Oxford	97,142		3		6	1	3	
Perth	72,106		10	51	7	1		
Windsor-Essex	350,329		36	251	126	3		13
Total - Southwest	**1,440,509**		**102**	**495**	**275**	**21**	**7**	**38**
Brant	114,564		6	31	42	3	5	2
Haldimand-Norfolk Region	102,575		5	45	20			2
Halton Region	339,875		19	4	66	5	1	6
Hamilton-Wentworth	467,799		32	30	176	3	4	23
Niagara Region	403,504		30	398	78	3	4	6
Waterloo Region	405,435		29	112	116	2	2	17
Wellington-Dufferin	217,052		24	21	47	3	3	
Total - Central West	**2,050,804**		**145**	**641**	**545**	**19**	**19**	**56**
4th Quarter 2000	**10,753,573**	**5**	**883**	**3,723**	**3,284**	**107**	**63**	**623**
*** Total YTD 2000**	**-**	**62**	**4,791**	**25,365**	**14,027**	**375**	**384**	**2,703**
*** Total YTD 1999**	**-**	**126**	**4,082**	**15,657**	**13,386**	**439**	**298**	**2,255**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - 4th Quarter 2000

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	123,953		3		13		1		1
North Bay	93,841			1	11				
Northwestern	80,235				5		1		
Porcupine	97,437				9				
Sudbury	201,154			2	23	1	1		1
Thunder Bay	161,187		1		30				
Timiskaming	38,847				2				
Total - Northern	**796,654**		**4**	**3**	**93**	**1**	**3**		**2**
Eastern Ontario	185,314		2		12				
Hastings-Prince Edward	143,790				6				
Kingston-Frontenac	175,568			2	68		1		
Leeds-Grenville	156,129			1	1				
Ottawa-Carleton	721,136	2	10	1	125		1		
Renfrew	97,634			3	2				1
Total- Eastern	**1,479,571**	**2**	**12**	**7**	**214**		**2**		**1**
Durham Region	458,616						1		
East York	107,822				24				
Etobicoke	328,718			1	42	1	1		1
Haliburton-Kawartha	165,039			1	19				
Muskoka-Parry Sound	78,675				11		1		1
North York	589,653	5	5		90		2		1
Peel Region	852,526	3	1		42	1	1		2
Peterborough	123,448				27				
Scarborough	558,960	4	7		65		1	1	1
Simcoe County	329,865	1			2		1		
Toronto City	653,734	20	2	12	126		3		1
York City	146,534				23		1		
York Region	592,445		1		61		1		1
Total - Central East	**4,986,035**	**33**	**16**	**14**	**532**	**2**	**13**		**8**
Bruce, Grey-Owen Sound	153,312	1		1	23		1		
Elgin-St. Thomas	79,159				3				
Huron	60,220				4				
Chatham-Kent	109,650				12				
Lambton	128,975				8				
Middlesex-London	389,616	2	2	1	34				
Oxford	97,142				5				
Perth	72,106		1		2				
Windsor-Essex	350,329			1	41				1
Total - Southwest	**1,440,509**	**3**	**3**	**3**	**132**		**1**		**1**
Brant	114,564	1							1
Haldimand-Norfolk Region	102,575			2	11		5		
Halton Region	339,875				6				1
Hamilton-Wentworth	467,799	6	2		71		1		2
Niagara Region	403,504		3		59				
Waterloo Region	405,435		4		57				1
Wellington-Dufferin	217,052		2	1	6		1		
Total - Central West	**2,050,804**	**7**	**11**	**3**	**210**		**7**		**5**
4th Quarter 2000	**10,753,573**	**45**	**46**	**30**	**1,181**	**3**	**26**	**1**	**17**
*** Total YTD 2000**	**-**	**174**	**143**	**145**	**5,525**	**8**	**1,546**	**9**	**80**
*** Total YTD 1999**	**-**	**130**	**249**	**141**	**6,622**	**5**	**3,588**	**2**	**81**

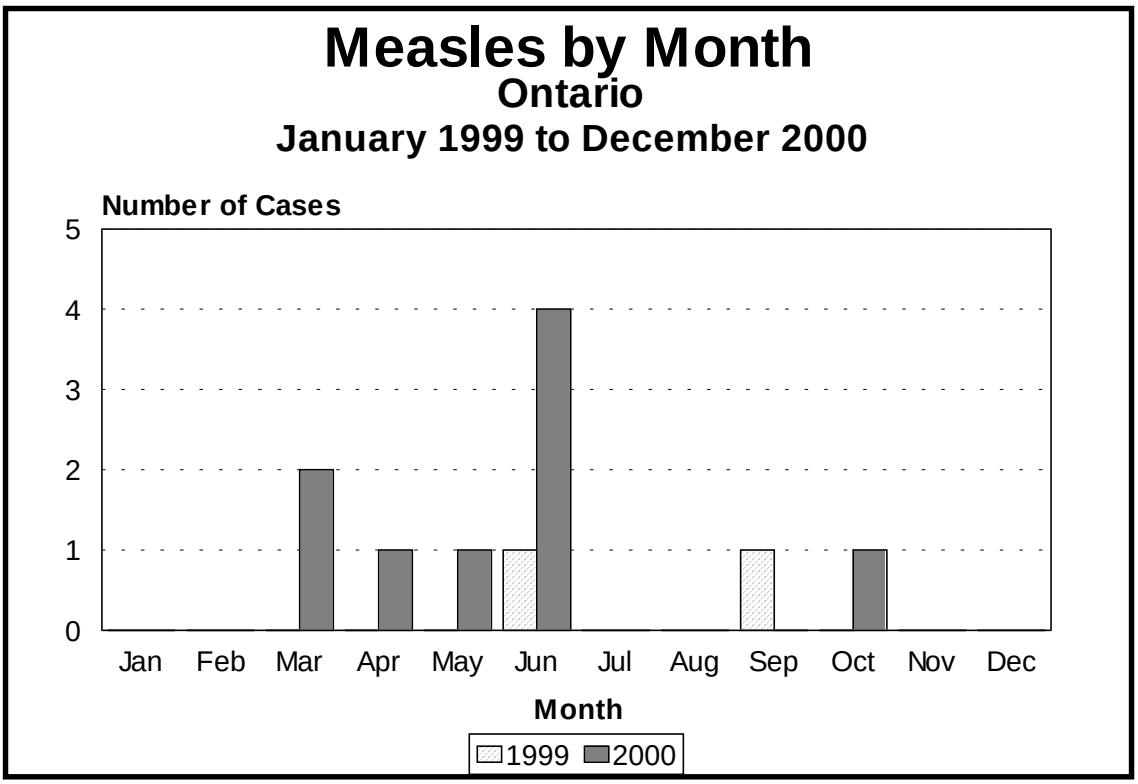
* Adjusted for deletions and late reports.

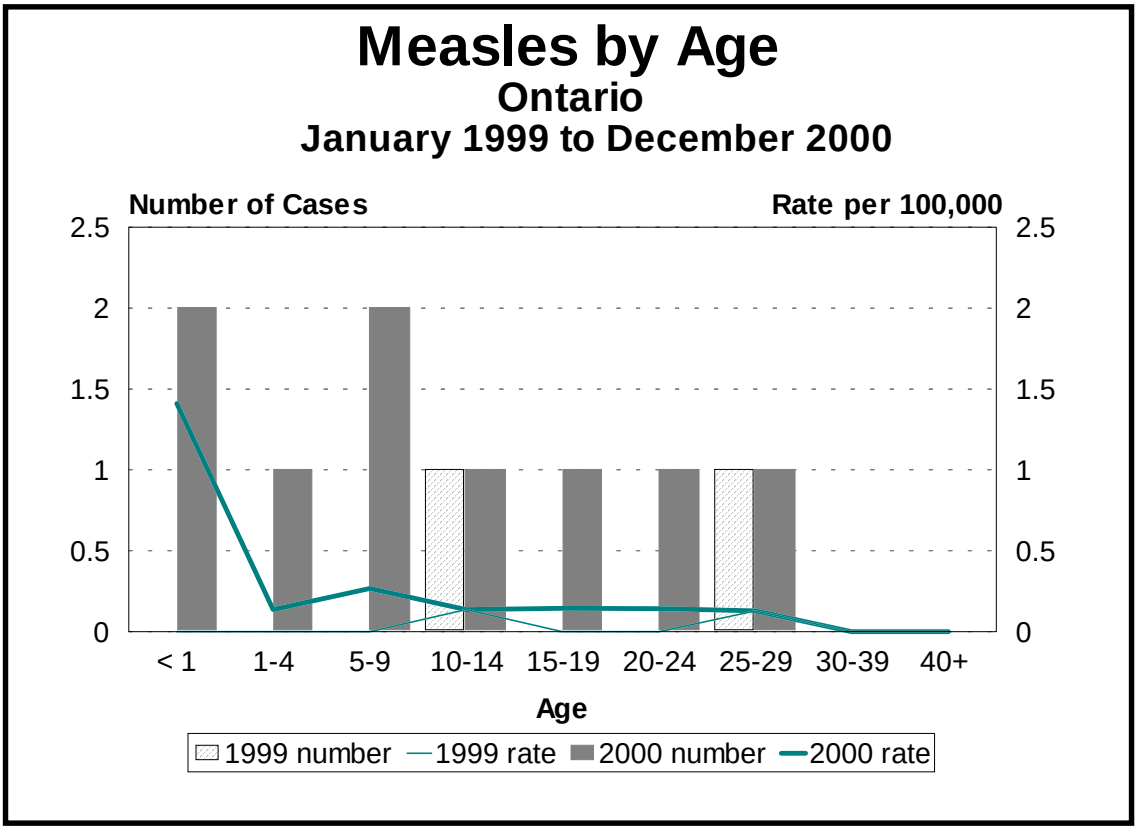
Summary of Reportable Diseases in Ontario - 4th Quarter 2000

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953				5	1		
North Bay	93,841				1			3
Northwestern	80,235		7		2			
Porcupine	97,437		1		2			1
Sudbury	201,154				2			
Thunder Bay	161,187				3			3
Timiskaming	38,847				1	1		
Total - Northern	**796,654**		**8**		**16**	**2**		**7**
Eastern Ontario	185,314				7			1
Hastings-Prince Edward	143,790				10			
Kingston-Frontenac	175,568		4		2			
Leeds-Grenville	156,129				5			
Ottawa-Carleton	721,136		15		23	4	1	5
Renfrew	97,634	1			2			1
Total- Eastern	**1,479,571**	**1**	**19**		**49**	**4**	**1**	**7**
Durham Region	458,616		9		9			
East York	107,822		4		6			
Etobicoke	328,718		5		12	2		4
Haliburton-Kawartha	165,039				7			1
Muskoka-Parry Sound	78,675				1			
North York	589,653		13		38	4		1
Peel Region	852,526	1	7		45	3	1	3
Peterborough	123,448		18		7			1
Scarborough	558,960		14		26	1		1
Simcoe County	329,865		3		3	1		1
Toronto City	653,734		16		35	7	1	
York City	146,534		1		9	5		1
York Region	592,445		11		35			4
Total - Central East	**4,986,035**	**1**	**101**		**233**	**23**	**2**	**17**
Bruce, Grey-Owen Sound	153,312		4		12	2		
Elgin-St. Thomas	79,159				2			
Huron	60,220		1					1
Chatham-Kent	109,650							
Lambton	128,975		2		4			1
Middlesex-London	389,616	1	8		5	2		1
Oxford	97,142	1			2			
Perth	72,106	1	9		3	1		2
Windsor-Essex	350,329		4		9	5		1
Total - Southwest	**1,440,509**	**3**	**28**		**37**	**10**		**6**
Brant	114,564	1	5		2	1		
Haldimand-Norfolk Region	102,575				5			1
Halton Region	339,875		7		9	1		4
Hamilton-Wentworth	467,799		3	1	9	1		1
Niagara Region	403,504		11		11	2		4
Waterloo Region	405,435		11		24			3
Wellington-Dufferin	217,052		10		11	1		
Total - Central West	**2,050,804**	**1**	**47**	**1**	**71**	**6**		**13**
4th Quarter 2000	**10,753,573**	**6**	**203**	**1**	**406**	**45**	**3**	**50**
*** Total YTD 2000**	**-**	**33**	**683**	**9**	**2,282**	**268**	**15**	**570**
*** Total YTD 1999**	**-**	**43**	**1,204**	**3**	**2,310**	**267**	**34**	**370**

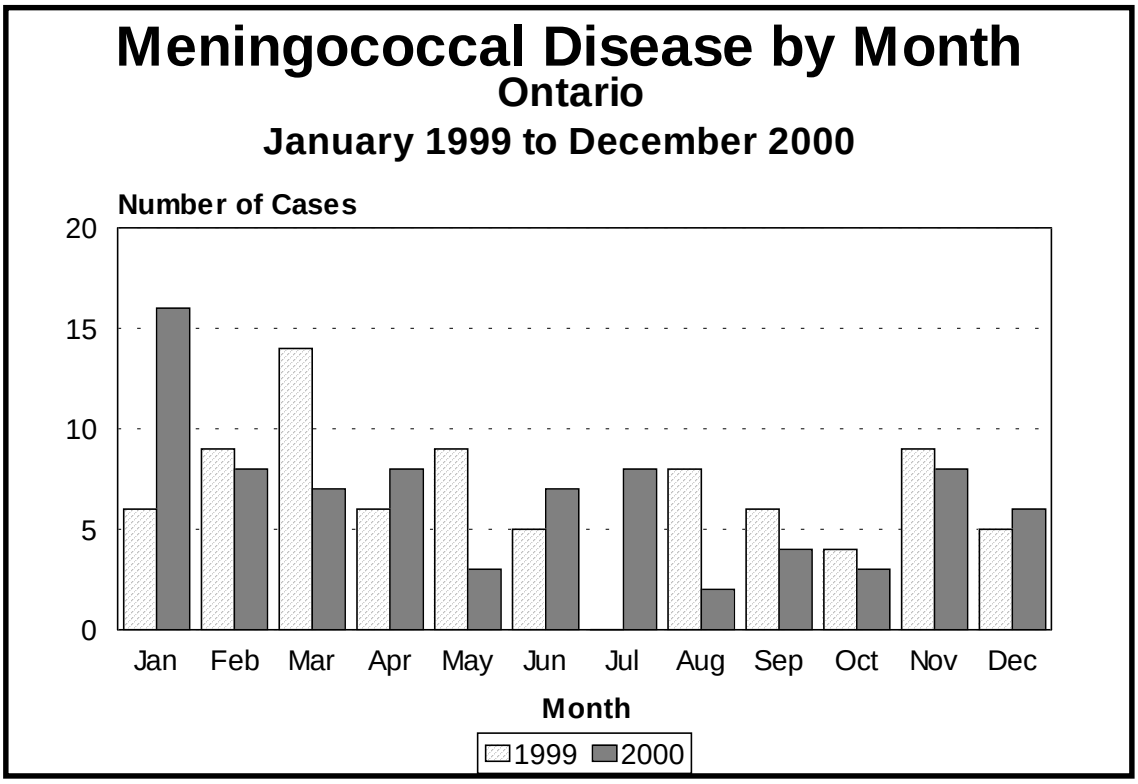
* Adjusted for deletions and late reports.

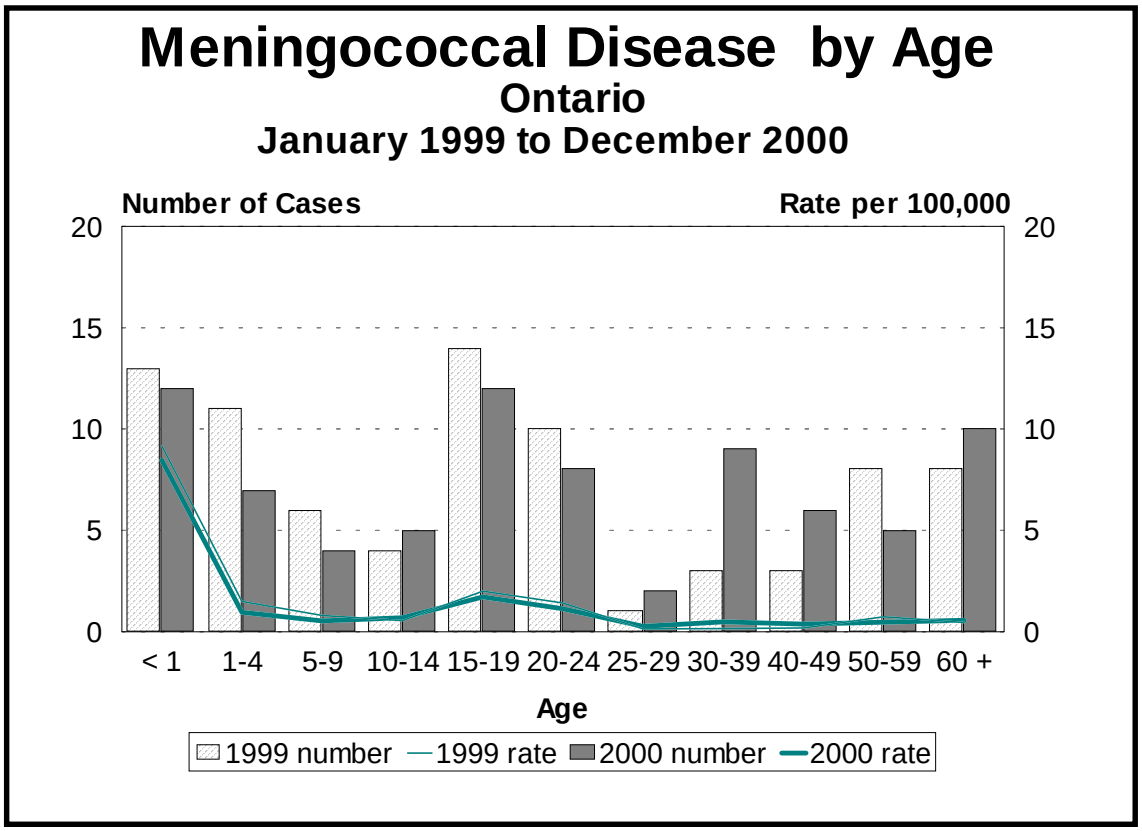
Vaccine Preventable and Other Diseases



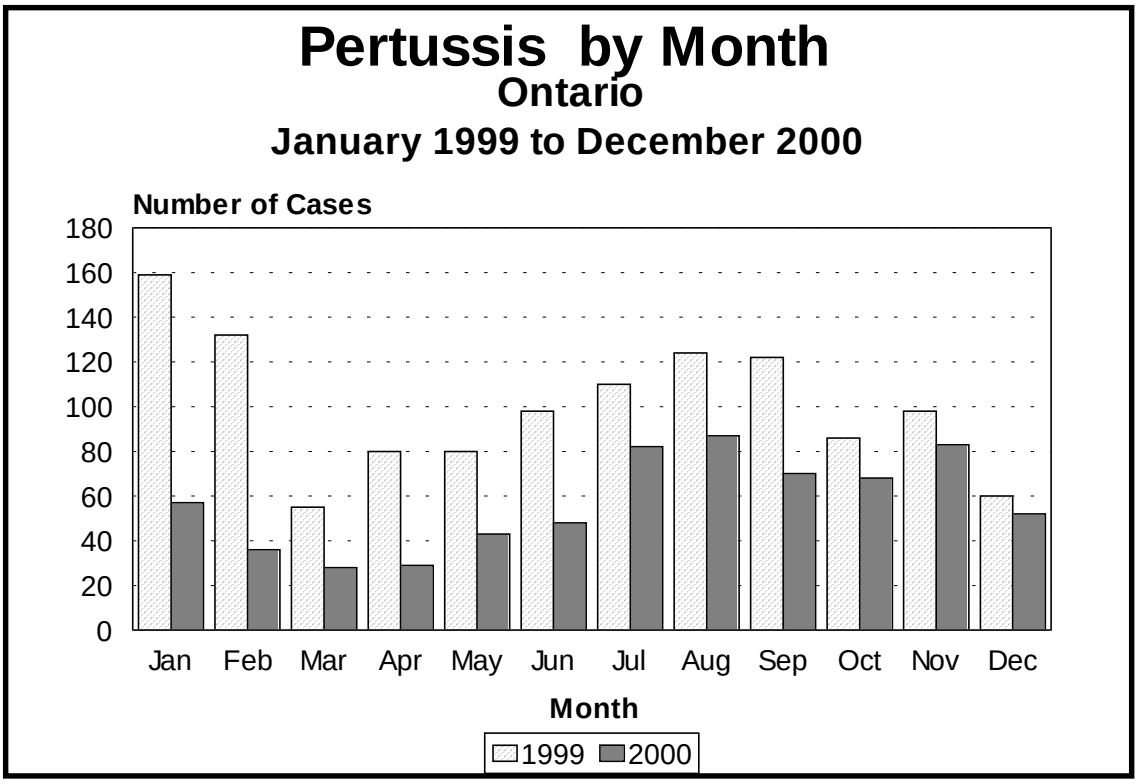


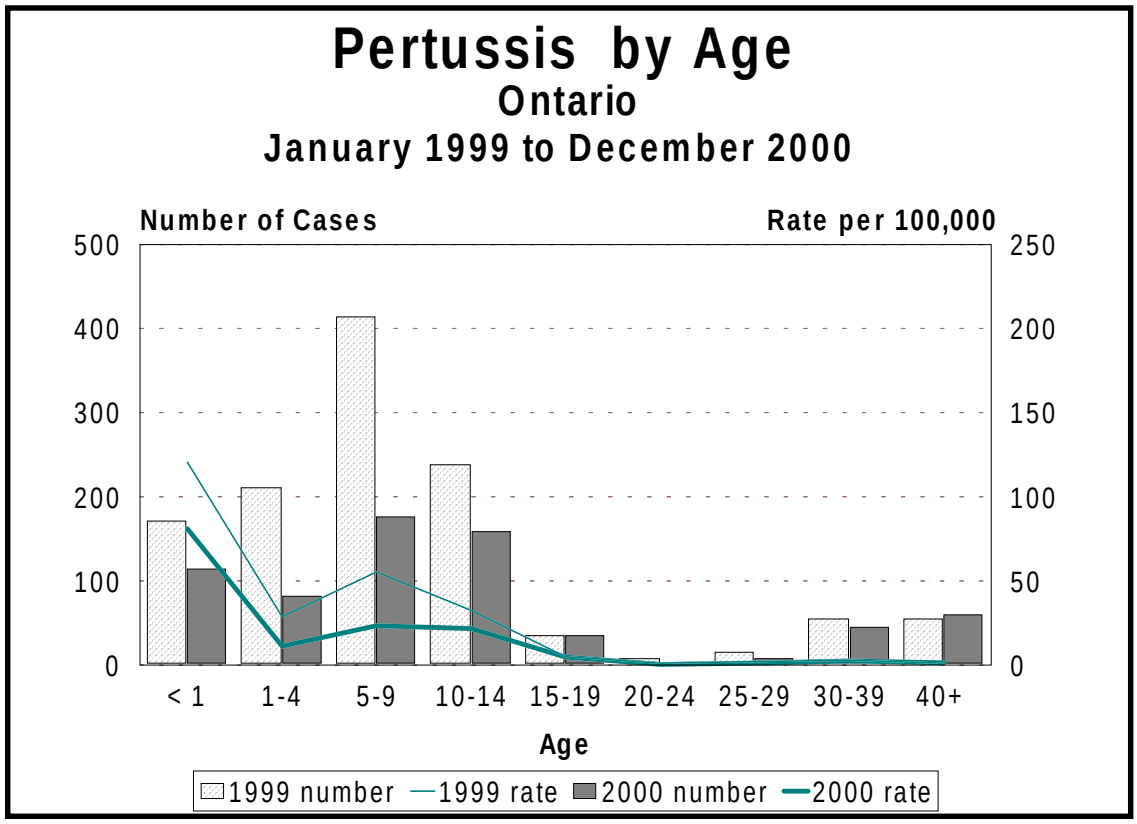
Vaccine Preventable and Other Diseases



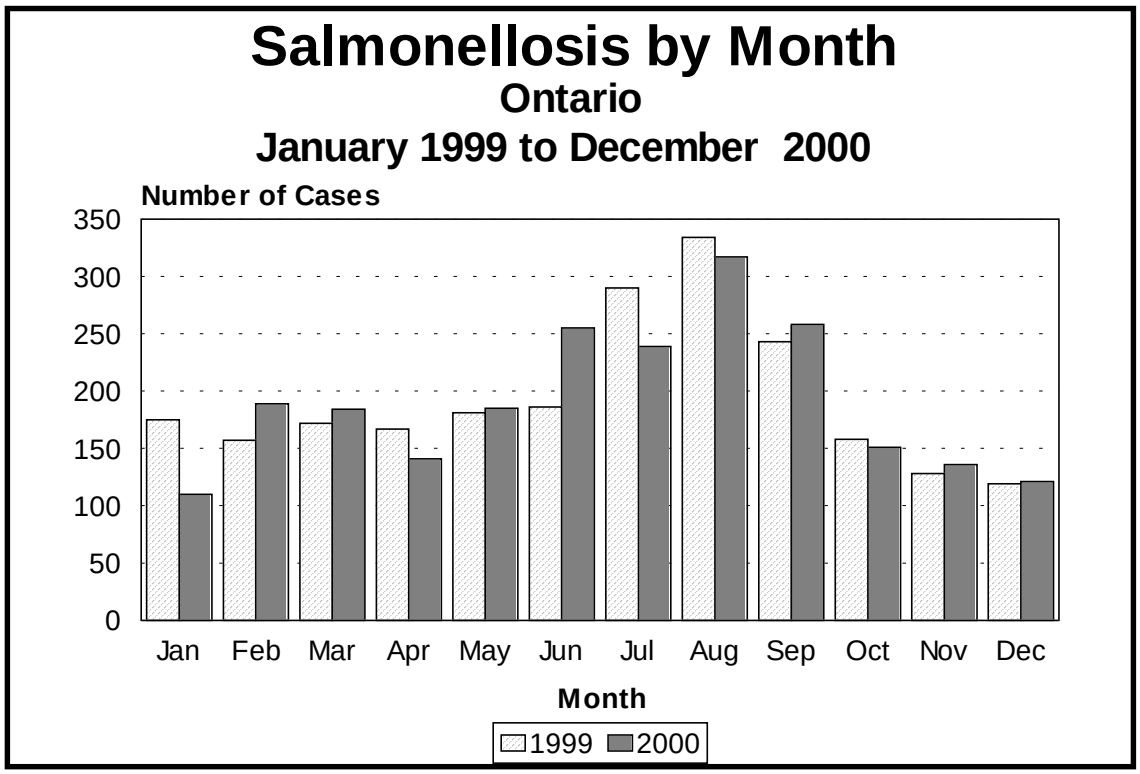


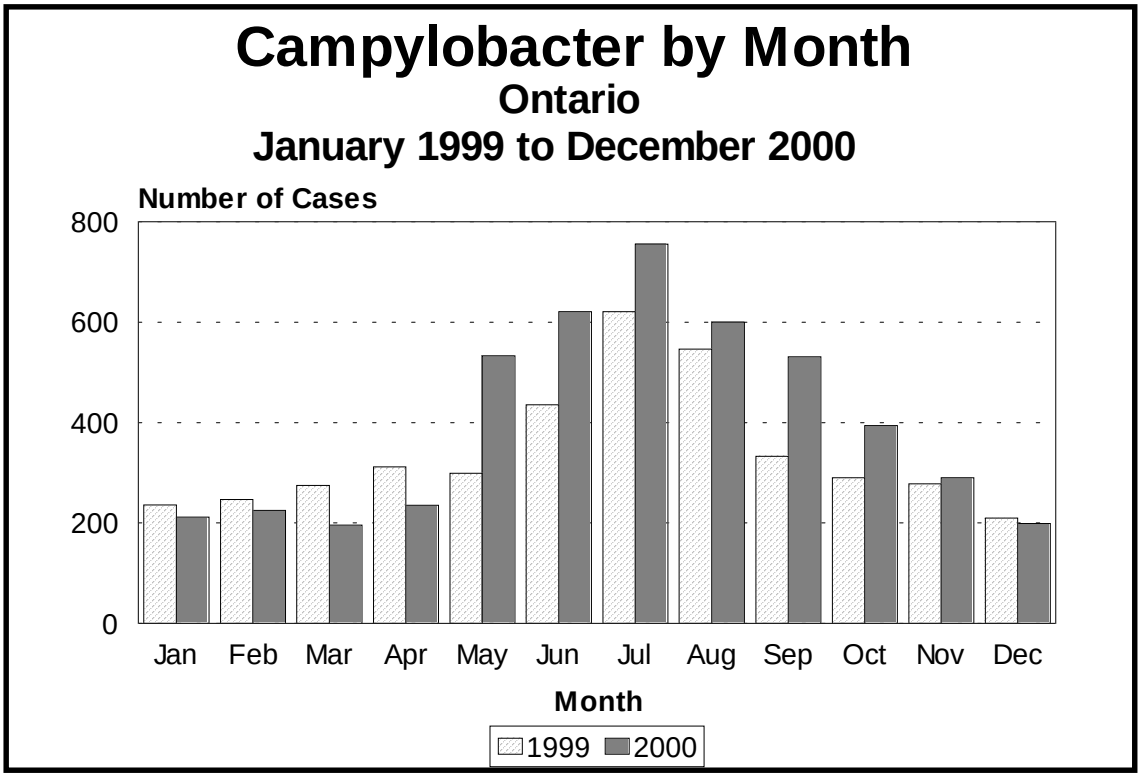
Vaccine Preventable and Other Diseases



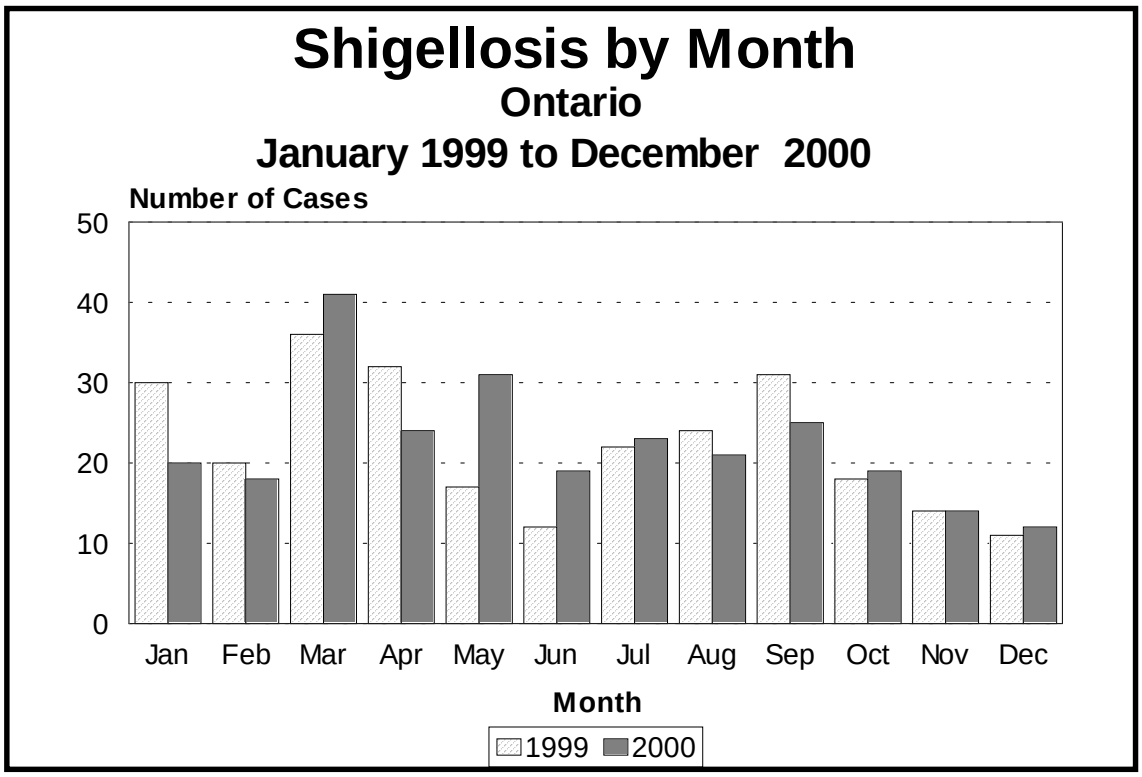


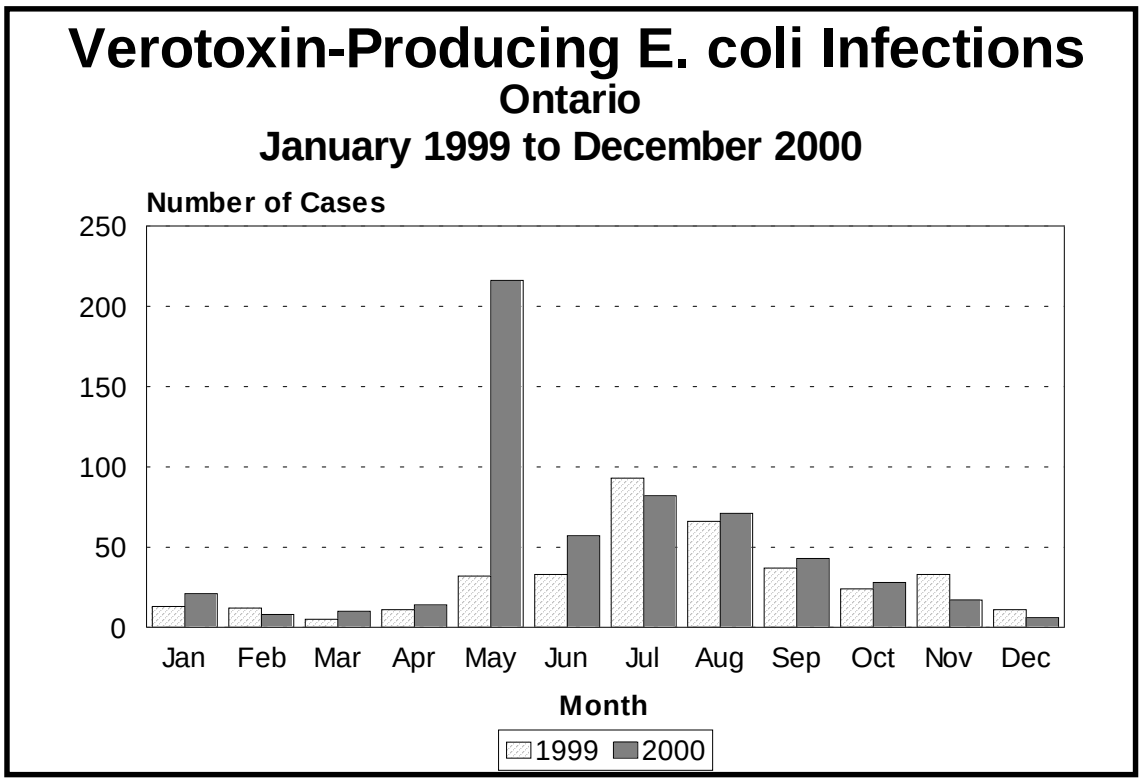
Enteric Diseases



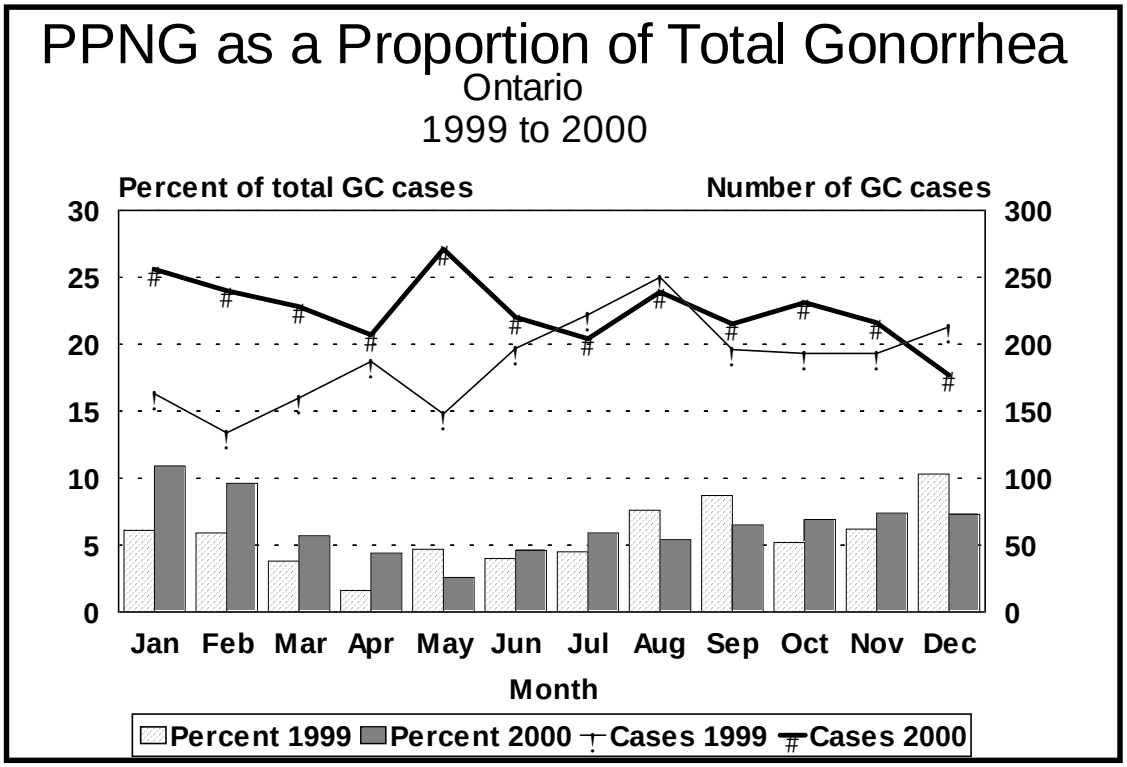


Enteric Diseases



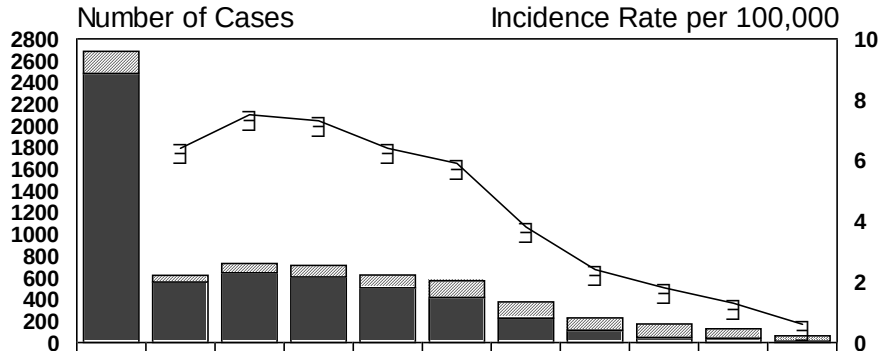


Sexually Transmitted Diseases



Sexually Transmitted Diseases

AIDS in Ontario
Incidence by Year of Diagnosis



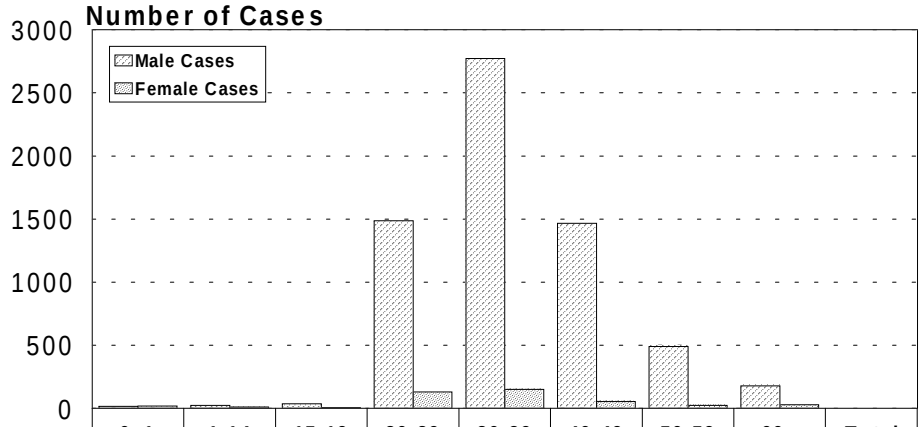
	81-90	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Incidence Rate	N/A	6.4	7.5	7.3	6.4	5.9	3.8	2.4	1.8	1.3	0.6	**Total**
Alive/Status Unk	203	61	85	107	119	155	149	116	126	88	49	**1258**
Known Deaths	2480	558	643	605	504	416	225	113	47	38	13	**5642**
Number of Cases	2683	619	728	712	623	571	374	229	173	126	62	**6900**

Year of Diagnosis

Known Deaths Alive/Status Unk Incidence Rate

Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

AIDS in Ontario
Cases by Age and Sex



	0<1	1-14	15-19	20-29	30-39	40-49	50-59	60+	Total
Male Cases	16	23	37	1488	2772	1466	490	179	6471
Female Cases	20	12	6	131	151	56	24	29	429
Total Cases	36	35	43	1619	2923	1522	514	208	6900

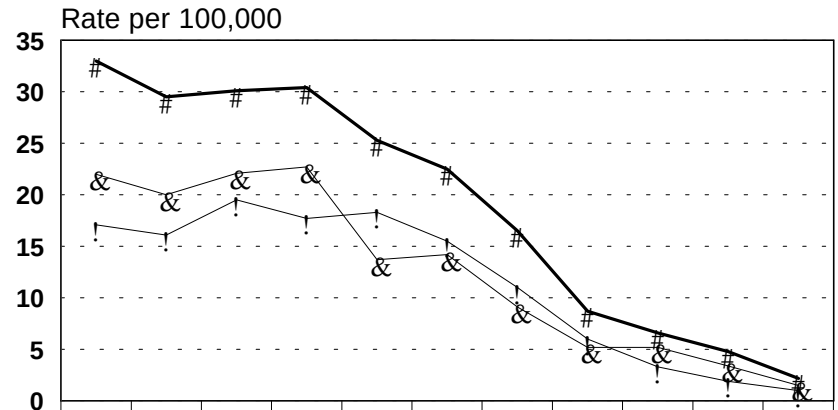
Age Group

Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

Sexually Transmitted Diseases

Males Rates for Selected Age Group

Ontario, 1990-2000



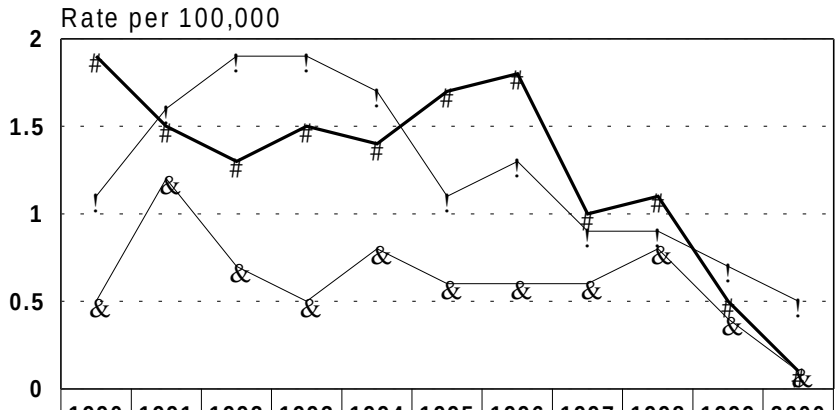
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
20-29 Age Group	17.1	16.1	19.5	17.7	18.3	15.5	11	6	3.3	1.9	1
30-39 Age Group	33	29.5	30.1	30.4	25.3	22.5	16.5	8.7	6.6	4.8	2.2
40-49 Age Group	22	20	22.1	22.7	13.7	14.2	9.1	5.2	5.2	3.4	1.5

Year of Diagnosis

Ontario Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

Females Rates for Selected Age Group

Ontario, 1990-2000



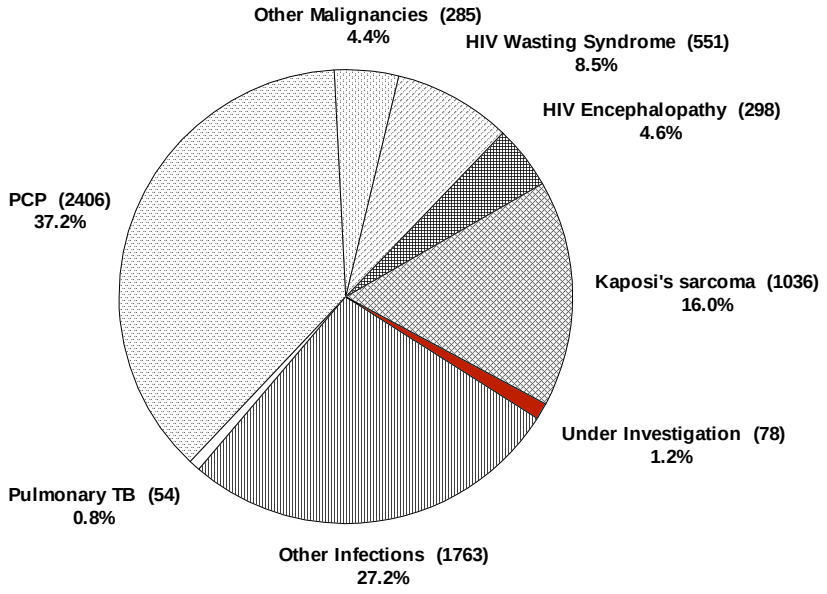
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
20-29 Age Group	1.1	1.6	1.9	1.9	1.7	1.1	1.3	0.9	0.9	0.7	0.5
30-39 Age Group	1.9	1.5	1.3	1.5	1.4	1.7	1.8	1	1.1	0.5	0.1
40-49 Age Group	0.5	1.2	0.7	0.5	0.8	0.6	0.6	0.6	0.8	0.4	0.1

Year of Diagnosis

Ontario Ministry of Health
Public Health Branch
Cumulative cases diagnosed toDecember 31, 2000

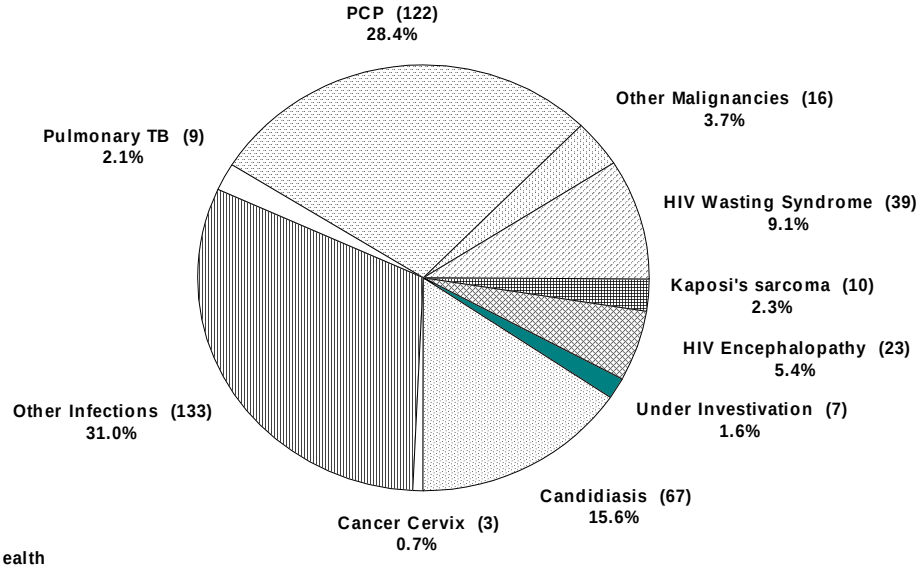
Sexually Transmitted Diseases

AIDS in Ontario
Primary Disease for Males



n= 6471
Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

AIDS in Ontario
Primary Disease for Females



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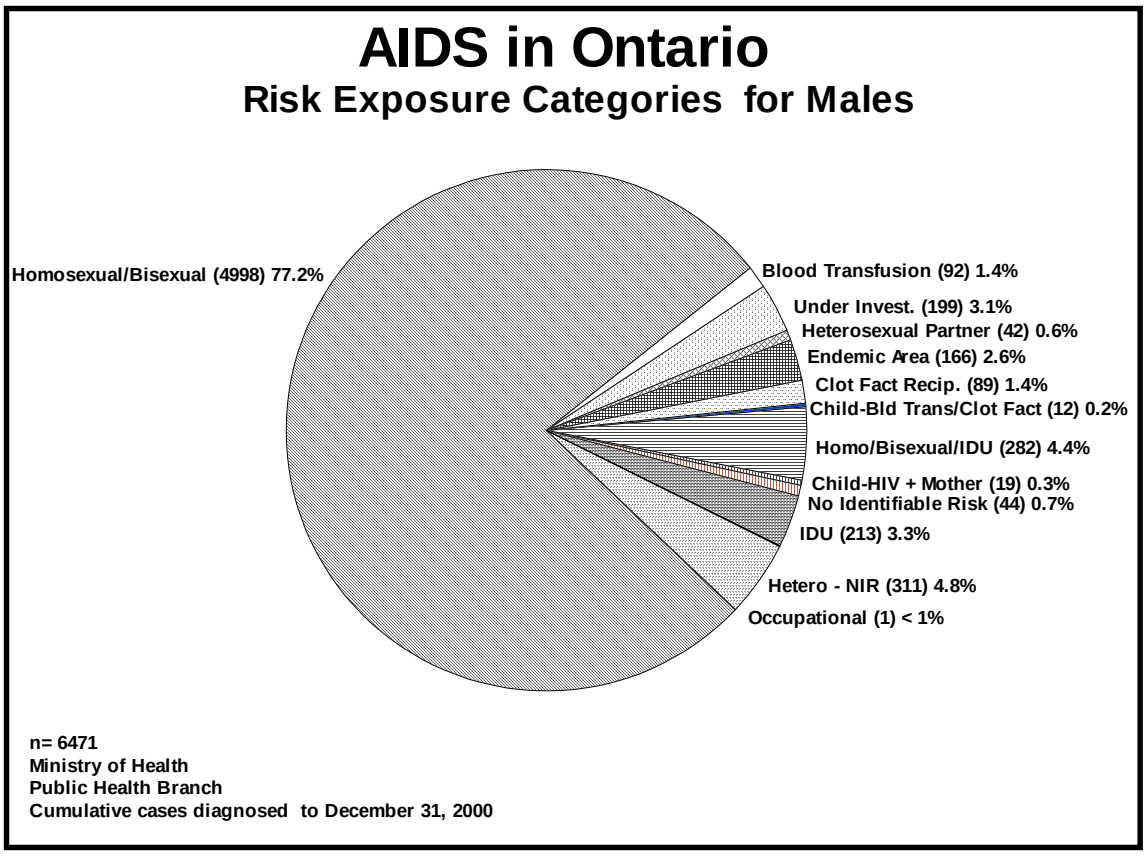
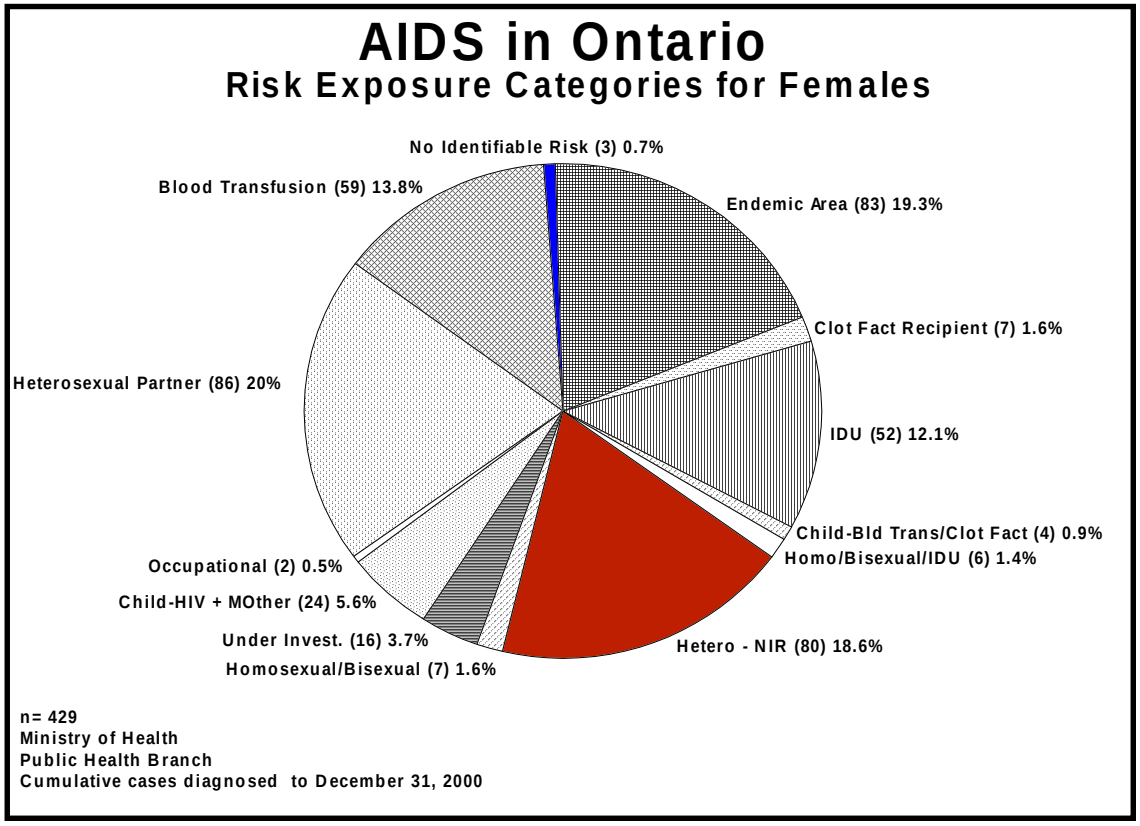
Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

Sexually Transmitted Diseases





Sexually Transmitted Diseases

Risk Exposure by Year in Males

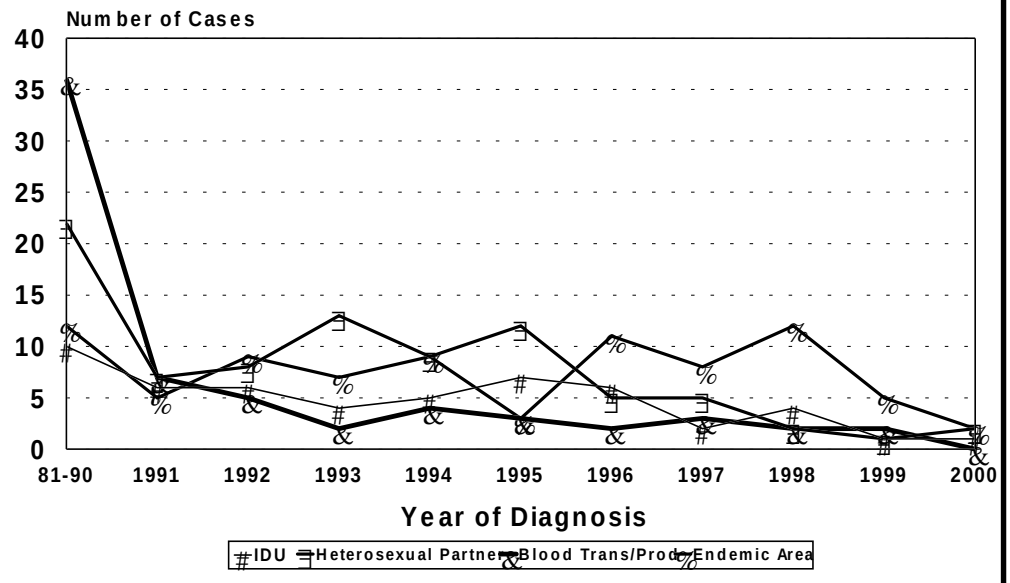
Ontario, 1981- 2000

Risk Exposure	81-90	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Totals
Homosexual/Bisexual	2114	469	521	515	448	384	235	131	93	57	31	4998
IDU	52	15	28	22	18	20	22	8	9	14	5	213
Homo/Bisexual/IDU	100	20	33	34	31	30	17	9	4	2	2	282
Clot Fact Recip	47	12	7	7	2	6	3	2	3	0	0	89
Endemic Area	39	7	15	16	9	18	19	16	11	12	4	166
Heterosexual Partner	14	1	3	8	5	2	1	3	3	1	1	42
Blood Transfusion	53	5	8	4	4	6	3	4	2	2	1	92
Occupational (possible)	1	0	0	0	0	0	0	0	0	0	0	1
Child-HIV + Mother	4	1	3	2	1	3	2	3	0	0	0	19
Child-Bld Trans/Clot Fact	6	0	3	0	1	0	0	1	0	1	0	12
Hetero-NIR	68	22	39	38	33	40	25	17	11	12	6	311
No Identifiable Risk	24	6	5	0	3	3	1	0	1	1	0	44
Under Investigation	54	22	25	26	24	16	11	11	4	6	3	202

Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

AIDS in Ontario

Selected Risk Factors for Females



Ministry of Health
Public Health Branch
Cumulative cases diagnosed to December 31, 2000

Cumulative Number of Cases per Health Unit Area of Residence at time of Onset/Diagnosis

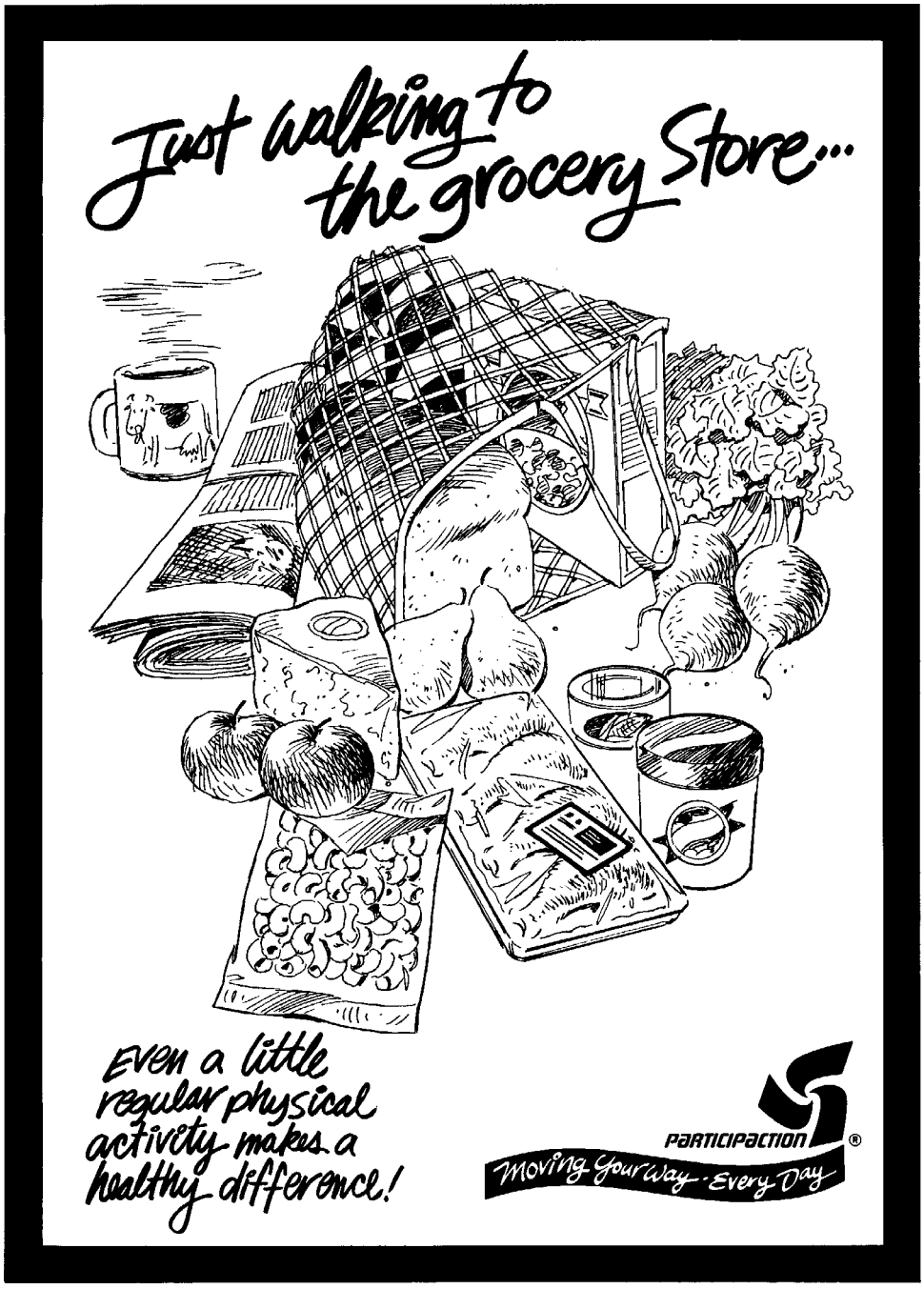
Responsible Health Unit	Number	Percent
Algoma	13	0.2%
Brant County	31	0.5%
Bruce-Grey-Owen Sound	27	0.4%
Durham Region	104	1.5%
East York	133	1.9%
Eastern Ontario	29	0.4%
Elgin-St. Thomas	13	0.2%
Etobicoke	165	2.4%
Haldimand-Norfolk	18	0.3%
Haliburton, Kawartha	18	0.3%
Halton Region	94	1.4%
Hamilton-Wentworth	194	2.8%
Hastings & Prince Edward	47	0.7%
Huron County	11	0.2%
Chatham-Kent	20	0.3%
Kingston, Frontenac	66	1.0%
Lambton	24	0.3%
Leeds, Grenville & Lanark	28	0.4%
Middlesex-London	227	3.3%
Muskoka-Parry Sound	14	0.2%
Niagara Region	126	1.8%
North Bay & District	29	0.4%
North York	266	3.9%
Northwestern	7	0.1%
Ottawa-Carleton Region	583	8.5%
Oxford County	18	0.3%
Peel Region	250	3.6%
Perth District	18	0.3%
Peterborough	32	0.5%
Porcupine	11	0.2%
Renfrew County & District	14	0.2%
Scarborough	230	3.3%
Simcoe	76	1.1%
Sudbury and District	62	0.9%
Thunder Bay District	31	0.5%
Timiskaming	9	0.1%
Toronto	3,283	47.6%
Waterloo Region	82	1.2%
Wellington-Dufferin-Guelph	50	0.7%
Windsor-Essex County	193	2.8%
York City	132	1.9%
York Region	122	1.8%
Totals	6,900	100.0%

Ministry of Health
Public Health Branch
Cumulative cases Diagnosed to December 31, 2000

Reportable Disease Summary for First Nations and Inuit Health Branch
Ontario Region, October 1 - December 31, 2000

DISEASE	0 - 4		5 - 9		10 - 14		15 - 19		20 - 24		25 - 29		30 - 39		40 - 49		50 - 59		Over 60	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Campylobacter Enteritis														1						
Chickenpox (Varicella)	11	10		4	1															
Chlamydia Trachomatis Infections						1	8	34	11	27	7	16	5	4	2	1				
Gonorrhoea							1		2	1	1									
Hepatitis C												1		1						
Pertussis (Whooping Cough)	1	1																		
Salmonellosis	1	1			1					1										1
Tuberculosis								1												
Verotoxin -Producing E.Coli Infection							1													

On-Reserve Population for First Nations & Inuit Health Branch - Ontario Region = 66,369


Just walking to the grocery Store...
Even a little regular physical activity makes a healthy difference!
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Animal Rabies Report
3rd Quarter, 2000

Ministry of Health

Ontario

Animal Rabies Report: July to September 2000

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99
Eastern																											
Stormont, Dundas & Glengarry													1	1											1	1	0
Prescott																									0	0	0
Russell																									0	0	0
Ottawa-Carleton													3	6	5										3	6	5
Renfrew						1																			0	0	1
Lanark																									0	0	0
Leeds and Grenville				6	31	3							3	3	2										9	34	5
Frontenac					4								1	3											1	7	0
Lennox & Addington															1										0	0	1
Central																											
Hastings													2	2	1										2	2	1
Prince Edward															1										0	0	1
Northumberland													1	1											1	1	0
Victoria									1																0	0	1
Haliburton																									0	0	0
Peterborough						1	1	1																	1	1	1
Durham													1	1	1										1	1	1
York Region																									0	0	0
Toronto																									0	0	0
Simcoe													2	2	1										2	2	1

Animal Rabies Report: July to September 2000

Animal Type / County or Region	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99
Western																											
Peel													1	1											1	1	0
Halton														1	1										0	1	1
Dufferin			1					4	3														1	3	0	5	7
Wellington	1	2	5				1	2	6				1	1	2			1					1	3	3	6	17
Waterloo			3				1	1	3																1	1	6
Perth	1	1					1	2	2																2	3	2
Grey							1	12	10							1	1						1	4	2	14	14
Bruce	4	4	1				1	6	2							1	1						2	1	6	13	4
Huron							2	5	1																2	5	1
Southern																											
Wentworth																									0	0	0
Haldimand-Norfolk															1										0	0	1
Brant														1											0	1	0
Niagara													1	1											1	1	0
Elgin																									0	0	0
Oxford																									0	0	0
Middlesex									1				4	4											4	4	1
Lambton																									0	0	0
Kent													2	2											2	2	0
Essex																									0	0	0

Animal Rabies Report: July to September 2000

Animal Type / County or Region	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99		00	99
Northern																											
Muskoka																									0	0	0
Parry Sound																									0	0	0
Nipissing																									0	0	0
Cochrane	8	14					1	1								2	3								11	18	0
Timiskaming																									0	0	0
Algoma																									0	0	0
Thunder Bay																									0	0	0
Rainy River																									0	0	0
Kenora																									0	0	0
Regional Totals																											
Eastern				**6**	**35**	**4**							8	13	8										**14**	**48**	**12**
Central						1	1	1	1				6	6	4										**7**	**7**	**6**
Western	6	7	10				7	32	27				2	3	3	2	2	1					5	11	**17**	**49**	**52**
Southern									1				7	8	1										**7**	**8**	**2**
Northern	8	14					1	1								2	3								**11**	**18**	**0**
TOTALS	**14**	**21**	**10**	**6**	**35**	**5**	**9**	**34**	**29**	**0**	**0**	**0**	**23**	**30**	**16**	**4**	**5**	**1**	**0**	**0**	**0**	**0**	**5**	**11**	**56**	**130**	**72**

Notes for this quarter:

Bats were 2 little brown (Wellington and Durham), 1 silver-haired (Niagara), and the remainder big brown bats.
The raccoon in Central region in 1999 was infected with arctic fox strain rabies.