

PHEROPublic Health and
Epidemiology Report OntarioVolume 12, Number 8 http://www.gov.on.ca/health/english/program/pubhealth/phero/phero_mn.htm September 29, 2001**IN THIS ISSUE****The Comparative Efficiency of
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COMMUNIQUE

**An Evaluation of the Middlesex-
London Health Unit's Universal
Influenza Immunization
Community Clinics**

Middlesex-London Health Unit

Statistics

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BULLETINS and NOTICES

*52nd Annual Ontario Public Health Association Conference
(co-hosted by the Waterloo Region Community Health
Department)*

**HARVESTING HEALTH: EMBRACING
TRADITION AND CHANGE**

The conference will take place November 5 - 7, 2001 at the
Sheraton Four Points Hotel in Kitchener.

Around 500 community and public health practitioners
from around the province usually attend the conference.
This year's keynote speakers -- **Stephen Lewis, Elizabeth
May, Nettie Wiebe, and Robin Sharma** - will be sure to
inspire. Plus every possible specific public health interest
is sure to be covered by the thirty-six breakout sessions and
forty-five posters, which will address themes ranging from
healthy public policy to improving antibiotic use to violence
prevention.

The entire Registration Brochure, including registration,
travel, and accommodation information, as well as descriptions
of each of the keynote speakers and concurrent sessions, is
now available online at www.opha.on.ca. Hard copies can
be ordered by calling (519) 883-2004 x.5765 or emailing
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THE COMPARATIVE EFFICIENCY OF PUBLIC HEALTH SEXUAL HEALTH CLINIC SERVICES

Background

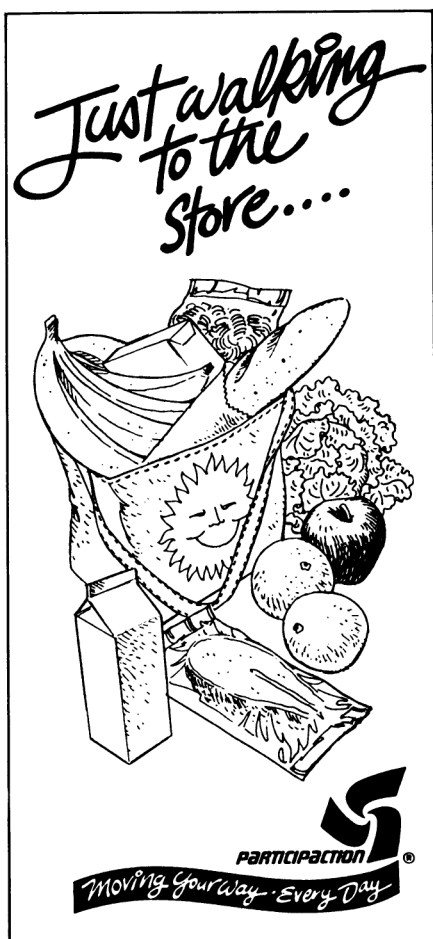
In recent years, there has been increasing interest in ensuring that effective public health services are delivered in an efficient manner. Benchmarking has been defined as the process of identifying, learning, and adapting outstanding practices and processes from any organization, anywhere in the world, to help an organization improve its performance.¹ Through this process, one has the opportunity to improve service delivery, client satisfaction and improve operational effectiveness and efficiency. Benchmarking was identified as one of four priority provincial projects for the Public Health Research and Education Programs (PHRED) in 1998-1999 and a review of its development and initial findings is available.

Ottawa Public Health (OPH) identified a need to compare the efficiency of its sexual health clinic services with those of their peers. Clinic services were anticipated to be more easily comparable than the whole range of sexual health program services. An earlier attempt to benchmark STD case management services² was discontinued due to a lack of standardized data collection.

The Ontario Ministry of Health and Long-Term Care Mandatory Health Programs and Services Guidelines³ (Guidelines) identify the minimum services that are to be provided in sexual health clinics. The manner in which these services are delivered including the mixture of staffing, service volumes achieved, use of medical directives, and other factors could vary allowing opportunities for greater or lesser efficiency. This report will provide a comparison of the costs of providing sexual health clinic services by 7 Ontario and 2 prairie health units.

Methods

A questionnaire was developed in consultation with sexual health staff at OPH to capture the types of clinics used, range of services, sources of costs and revenue, and staffing for the 1999 calendar year. Items were limited to those that were readily available at OPH and to those that were likely captured by other health units. Since the focus of the report was on clinic services, client contacts other than visits such as counseling by



phone were not included unless it was as a direct result of a clinic service (e.g. positive test result, referral). Due to the expected difficulties of estimating and attributing physical space overhead costs (e.g. rent, utilities, etc.), no attempt was made to address these costs. Because third parties contributed staff resources (e.g. hospitals) or money (e.g. OHIP physician payments) to some clinics, costs were calculated from both a health unit and total costs perspective.

The questionnaire was piloted at OPH and one other health unit prior to distribution. The questionnaire was subsequently modified and distributed to 11 sites in Ontario, Alberta, and Saskatchewan, two of which were unable to participate. The nine participants⁴ have primarily urban populations ranging in size from 175,568 to 852,525. Each of the respondents was allocated a label to preserve the confidentiality of their responses.

Results

Differences in collection systems and a lack of standardized data hampered reporting. Estimates were used in some circumstances if a reasonably high level of confidence was possible, (e.g. allocating staff shared between program areas). Challenges in accessing data were also experienced due to changes in program structure or integration, opening of new clinics, introduction of new staff (e.g. nurse practitioner), and absent or new program managers.

Clinic Structure

Clinics were categorized as one of three types: MD/PHN Clinics, Satellite Clinics, and Scheduled PHN Services.⁵ Study participants used a combination of different types of clinics, extent of integration of family planning and STD clinics (Table 1). Two health units offered solely walk-in services while the remainder offered a combination of appointments and walk-in services.

Clinics stated that they provide all of the Guidelines' required services although most did not provide STD diagnosis and treatment or cervical cancer screening outside of the MD/PHN Clinics. The Guidelines require that all of the services are to be available 8 hours/week/150,000 population where clinics are integrated. If separate, the Guidelines require 4 hours/week/150,000 for each of STD and Family Planning and that all services listed in the Guidelines need to be provided. The entire list of services were available primarily at MD/PHN clinics which were provided from 3.9 to 11.3 hours/week/150,000 population. The range was 7.9-55.1 when all clinic hours were used. This measure can be distorted by providing multiple clinics with minimal staffing as compared with more intensively staffed clinics. Its usefulness is limited as a measure of service provision.

Average Cost Per Client Visit

The calculations of the average cost per client visit were calculated from a health unit and a total costs perspective and are shown in Figure 1. The calculation of total costs took into consideration costs that were borne by other parts of the health system such as OHIP and hospitals. The average health unit cost per client visit varies substantially (\$18 to \$71) as did total costs (\$18 to \$83). Six sites provided sufficient data to allow calculation of costs by type of clinic. Supervisor, administrative, and supply costs were allocated based upon the relative distribution of client volumes.

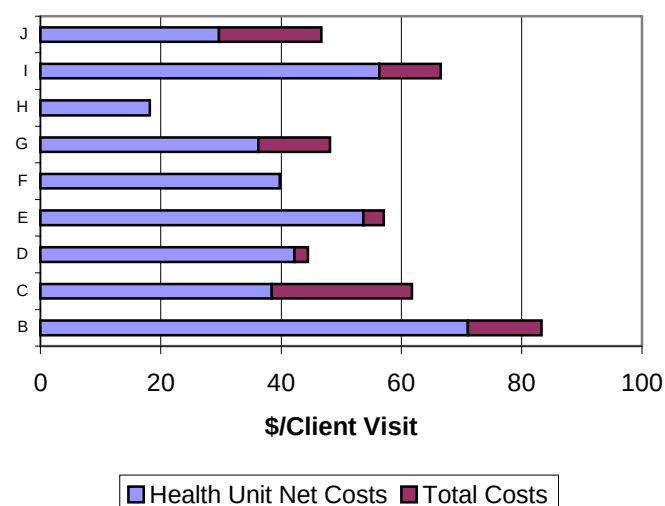
Note that the figures in Table 1 include the three clinic types as a number of health units were not able to separate their costs by clinic type. Satellite Clinics were more expensive than MD/PHN Clinics for some health units. This appeared to be primarily due to lower client volumes at newly established clinics and associated

Table 1 –Structure of Survey Respondents’ Clinics

Types of Clinics*			Family Planning and STD Clinics		
All three types	MD/PHN & Sched. PHN Services	MD/PHN & Satellite	Separate	Integrated	Some integrated some separate
6	2	1	3	2	4

*MD/PHN Clinics; Satellite Clinics; Scheduled PHN Services at Main Site

Figure 1: Average Cost per Client Visit - Health Unit and Total Costs



travel costs.

Analysis of Cost Differences

Using available data, contributing factors to cost differences were assessed. No clear pattern was observed between clinic structure and costing. Most health units had medical directives in place for providing: antibiotics for STDs; ECP; depo-provera; oral contraceptives, and immunizations. Only 3 health units had directives for performing female examinations although the extent to which these are utilized was not assessed. The proportion of staff costs attributed to supervisory and administrative staff varied from 21.5% to 48.4% with data not available from one respondent. There was no clear relationship between the proportion spent and the overall costs per clients. Some health units with a lower proportion of costs tended to be those with the highest costs per client visit.

MD hourly stipends averaged \$65.64 with a range of \$55 to \$75.43. The effective rate of pay was over \$110 an hour in one health unit that uses OHIP to supplement the stipend the MDs receive. In some Ontario health units, OHIP is not utilized to cover any of the costs of MD services whereas in others, it partially covers the cost of the hourly stipends. In one health unit, OHIP billings exceed the total cost of MD stipends and the remainder of the OHIP funds reduced other staff costs by 15%. MD stipends, after OHIP revenue, accounted for 3.2% to 18.9% of all staff costs in the other health units.

Based upon the number of hours worked by MDs and the number of clients they saw, the average number of clients seen per MD-hour ranged from 2.7 to 5. The highest and lowest rates matched with the highest and lowest costs per client visits, however, there was much less of a relationship with intermediate values which tended to cluster at approximately 4 clients per hour.

PHNs are the main staff component of sexual health clinics with rates of pay ranging from \$40,000 to \$58,400 per year with an average of \$48,900. While there was no clear relationship, clinics with the lowest costs per client visit had above average PHN pay rates. Based upon the available information, a range in nursing visit volumes was observed from 0.6 to 3.9 clients per hour with an average of 1.6. The highest and lowest rates correspond to the lowest and highest costs per client visits respectively. No clear pattern was observed with the remaining sites. Most MD/PHN Clinics were staffed with one MD. Those clinics that achieved MD visit rates of 4 clients per hour or more had nurse to MD staff ratios ranging from 4:1 to 2:1. The higher PHN ratios did not necessarily have higher MD or PHN visit rates.

Differences in client populations between health units might be responsible for some of the observed differences. Different types of visits will have different resource requirements. Unfortunately, there are no standardized visit categories to allow easy comparison. Visits solely for the purchase of contraceptives are one of the least intensive types of visits, but few clinics could specifically identify how many visits were solely for this purpose. Two of the three clinics with the lowest costs per client visits, (H and G), did not include pill purchase visits in their visit statistics. While clients can present with a mix of issues, STD clients tend to be older, have a more even sex distribution and can potentially take less time on average to see as compared with female teenage family planning clients. There appeared to be a trend that clinics with a high proportion of STDs had lower proportions of young female clients. The three clinics with the highest proportion of female clients under 25 years of age were over-represented in the clinics with the highest costs.

Comparison of clinical interventions and outcomes was hampered by a lack of data. The number of Pap smears as a proportion of all client visits varied substantially from 5% to 28% with a clear trend observed

between higher numbers of Pap smears performed and lower costs per client visits. It was not possible to determine if this was influenced by whether these were initial visits or annual follow-up exams.

Some difficulties were encountered with capturing visits and staffing. Some health units do not capture visits for clients who walk-in for service outside of clinic hours (e.g. ECP, pregnancy testing). Staff and/or supervisors may work on multiple program components and the proportion of time spent actually doing clinic-related work had to be estimated. In some instances, physicians billed OHIP directly for clinic services and the actual amounts were not available but were estimated based upon the number of clients seen. Any errors would only impact the calculation of the system perspective costs. The non-staff costs tended to be rounded figures which may reflect budgeted versus actual costs.

Discussion

This report has shown that there is substantial variation in the costs to provide sexual health clinic services. While a variety of potential explanatory variables were examined, no single factor was clearly identified although the volume of service provision by MDs and RNs were contributing factors. One of the biggest challenges was attempting to determine to what extent the visits were sufficiently similar to support direct comparisons. Some differences in costing may have occurred if variable proportions of visits were solely for contraceptive sales. There was insufficient data to directly address this issue although two of the lowest cost per client visit clinics excluded this data from their responses so that differences in contraceptive sales alone cannot explain the observed differences.

In the absence of a common system to categorize visit types, an attempt was made to address this issue indirectly by assessing client demographics and the number and distribution of clinical interventions and their outcomes. Absence of common data elements limited this approach although those clinics with greater proportions of female teens tended to have higher costs. Simple age and sex comparisons do not however capture the complexity of presenting cases.

The extent to which Ontario clinics utilize OHIP revenue was quite variable. There was little use of nurse practitioners in the participating clinics in 1999. Despite

skill sets that are well suited for these clinics, the lack of OHIP funding and the higher salaries compared with PHNs make them less economically attractive.

No attempt was made to assess effectiveness of clinical interventions or counseling provided nor was client satisfaction included. The latter item is easily feasible and would only require the creation of a standardized client survey instrument. Various process and outcome measures could be considered for this program such as: repeat STDs, repeat abortions, safer sex practices, use of contraception, discharge planning, etc. Current data systems are not able to accommodate this type of information and developmental work would be required to identify the most appropriate types of indicators. Assessing the proportion of all regional STDs diagnosed at the clinics had been considered as a potential impact indicator. Consultation with study participants however found that not all health units shared this particular objective.

It had been hoped that comparing a relatively "hard service" such as clinical services would be straight forward. However, similar to previous public health benchmarking experiences, efforts are challenged by a lack of consistently collected, standardized and accessible data. This was a recurrent theme during the post-report meeting with study participants and was to be further pursued with the Public Health Branch, Ministry of Health and Long-Term Care. In follow-up to the report, some of the sites were in the process of reviewing their current OHIP billing practices while two health units were particularly concerned about the relative costs of their satellite clinics. One site had made a number of changes in their service delivery from 1999 to 2000 and was in the process of comparing data from the two years. One prairie health unit was in the process of a program review and was contacting other sites to learn more about their practices and experiences. Ideas were also shared regarding how to improve client volumes in certain settings.

If this preliminary work provides encouragement and interest in further comparisons of sexual health services, it will be important to address the issue of program data collection at the outset. This would require the formation of a team comprised of representatives from all participating agencies who would compare business processes, standardization of data, achieve buy-in on most important indicators, implement data collection in

relevant sites, and oversee the analysis of the data. A further monitoring cycle would be required after implementing changes in programs based upon the initial cycle. The extent of staff involvement required for such a process should not be under-estimated. However, it is through such a process that an organization can improve the effectiveness and efficiency of its services. The questionnaire and measures used in this project are a starting point for such an exercise.

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3. Public Health Branch. Mandatory Health Services and Programs Guidelines. Toronto: Queen's Printer for Ontario, 1997
4. Capital Health Authority, Edmonton; Durham Region Health Department; Hamilton-Wentworth Health Department; Kingston, Frontenac, Lexington and Addington Health Unit; Middlesex-London Health Unit; Niagara District Health Department; Ottawa-Carleton Regional Health Department; Peel Regional Health Department; Saskatoon District Health, Public Health Services
5. MD/PHN Clinics: MDs and PHNs working together to provide full range of services; usually main site of service provision; Satellite Clinics: held outside main clinics in other locations (eg. schools, community centers, etc.) where PHNs provide services without MDs on site; Scheduled PHN Services: PHN-delivered services (eg. birth control counseling, STD exams/treatment, pregnancy testing, etc.) at the main clinic site(s) scheduled outside of MD/PHN Clinic hours.
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PRENATAL HEALTH FAIRS MAKE A DIFFERENCE: TELEPHONE SURVEY FINDINGS

Introduction

Prenatal Health Fairs are large free public events with staffed displays promoting reproductive health and related community services and businesses. Presentations, demonstrations, and prizes add to the 'fair' atmosphere. Fairs are provided five times per year, four in a central location of the city and one in the county. Recent outcome evaluation of these London and Middlesex County fairs provided evidence that these events are effective for promoting positive reproductive health choices by women attendees who are pregnant or planning for pregnancy.

One of the objectives of the Prenatal Health Fairs is to promote healthy choices by women planning for pregnancy and during early pregnancy, so that birth outcomes are the best possible for both mother and baby. This article describes the evaluation results and includes and compares findings from evaluation feedback received both at the prenatal health fairs and from a post-fair survey.

Background

The Middlesex-London Health Unit in partnership with the Community Coalition for Healthy Pregnancy initiated Prenatal Health Fairs in December 1997. The Community Coalition members include health professionals, community agencies, small business, media, and the community. The Prenatal Health Fair model was chosen after a community consultation and strategic review of the Middlesex-London Health Unit Education Program for Expectant Parents in 1995-96. This review concluded that an early pregnancy health fair should replace the traditional early pregnancy classes which were not well attended. A health fair strategy was expected to provide easy access to current health information in an open public format that would encourage self-directed learning.

Methodology

Feedback from attendees is requested at each Prenatal Health Fair. However, information was required about behaviour changes after attending a fair to determine the effectiveness of these events. A telephone survey was designed to assess whether or not pregnant women,

and women planning for pregnancy had made any changes in their behaviour or lifestyle as a result of attending or obtaining information from a Prenatal Health Fair.

At each Prenatal Health Fair in 1999 women were asked if they would be interested in participating in a telephone survey following the fair. If interested, they were asked to provide their name and telephone number, and sign a consent form. Only women who were pregnant or planning for pregnancy were eligible to participate.

When attending a Prenatal Health Fair, women were asked to complete an evaluation. One of the questions asked whether or not the women planned to make any changes or decisions as a result of information that they received at the Prenatal Health Fair. Each evaluation was assigned a sequential identification number and this number was also assigned to the consent form. The evaluations and consent forms were separated so as not to have a direct link between the name of the individual and the completed evaluation form. The same identification number was assigned to the post-fair telephone survey; this allowed for a comparison between the evaluation completed at the fair (intent to make changes) and the post-fair interview (changes actually made).

The telephone survey was conducted by a public health nurse who did not have access to the information on the questionnaire that had been completed at the time of the Prenatal Health Fair. Three telephone attempts were made to contact those who had completed a consent form before the person was excluded from the survey.

Four to eight weeks after a Prenatal Health Fair, a public health nurse telephoned the women who consented to participate in the survey. Three telephone attempts were made before they were considered unreachable and removed from the study. Interviews were estimated to be five minutes in length. During the interview women were asked about three areas: their pregnancy status at the time of attending the Prenatal Health Fair, their plans for infant feeding, and their specific behaviours that could contribute to having a healthier pregnancy and/or a healthier baby. For the purpose of this survey these included improving nutrition, taking folic acid/vitamins, decreasing/quitting smoking, decreasing/ceasing alcohol consumption, improving/modifying physical activity, using learned coping skills, deciding to breastfeed, and registering for prenatal classes.

Results

Four hundred and sixty-two pregnant women and women planning a pregnancy completed consent forms at the Prenatal Health Fairs between January and November 1999. One hundred and twenty-one women were not reached on the telephone, 23 numbers were invalid, two people did not speak English, five women refused to participate (this includes three women who had miscarried and decided not to participate). Three hundred and eleven women completed the telephone interview. A true response rate was not determined because there were 83 women who completed a consent form at the time of the Prenatal Health Fair but did not complete the evaluation form. Results of the telephone survey will be presented as percentages with the number of respondents for each question included as (n=#).

Half of the women interviewed indicated that they were pregnant 16 weeks or less at the time of attending the Prenatal Health Fair. The average age of respondents was 27 years. See Table 1 for summary of the demographic findings.

Intention to Make Changes

Sixty-seven percent of the women who completed evaluations at the Prenatal Health Fair (144 of 216) indicated that they intended to make certain choices during and following pregnancy, as a result of attending

Table 1
Demographic Characteristics at the time of the Prenatal Health Fair

	Percent
Pregnancy Status (n=310)	
Planning a pregnancy	7.2%
Pregnant 16 weeks or less	50.8%
Pregnant more than 16 weeks	35.0%
Age (n=307)	
19 and under	5.2%
20 - 24	23.8%
25 - 29	41.0%
30 - 34	21.5%
35 - 39	7.8%
40 +	0.7%
Parity (n=193)	
First child	78.2%
More than one child	21.8%

the Prenatal Health Fair. Half of the women indicated that they planned to improve their nutrition, 44.3% planned to improve or modify their physical activity, and 43.6% planned to register for prenatal classes as a result of the information they obtained from the Prenatal Health Fair. The number and percentage of women who indicated each type of change is shown in Table 2.

Changes Made

Seventy-nine percent of the women (247 of 311) who participated in the follow-up telephone survey indicated that they had made healthier choices for themselves and their baby as a result of attending a Prenatal Health Fair.

Women *planning a pregnancy* (n=37) most frequently indicated that they improved their nutrition (73.0%), started taking folic acid (40.5%), started taking vitamins (37.8%) and improved or modified their physical activity (40.5%).

Women who were *pregnant 16 weeks or less* (n=128), frequently reported that they had improved their nutrition (69.5%), improved or modified their physical activity (46.9%), and registered for prenatal classes (42.2%).

Similarly, women who were *more than 16 weeks pregnant* (n=86), reported improving their nutrition

(59.3%), improving or modifying their physical activity (45.3%), signing up for prenatal classes (32.6%), using the coping skills that they learned at the Prenatal Health Fair (41.9%), and deciding to breastfeed (40.7%).

Table 3 contains a breakdown of what additional changes were made based on whether the *women were planning a pregnancy, were pregnant 16 weeks or less, or were pregnant more than 16 weeks* when they attended the Prenatal Health Fair.

Some women indicated that as a result of attending the Prenatal Health Fair they had made some other decisions surrounding their pregnancy or the subsequent birth of their baby. A number of women indicated that they had decided to use a midwife or Doula, use cloth diapers, as well as learning information about car seat safety. Additionally, some women mentioned that their partners were going to take the Dad Classes that had been advertised at the Prenatal Health Fair, and the information about second hand smoke had prompted a few partners to smoke outside rather than in the home.

Intent vs. Actual Change

In order to determine if women, who indicated at the Prenatal Health Fair that they intended to make certain behaviour changes, followed through with their intentions, responses from the Prenatal Health Fair questionnaire were compared to the responses from the telephone interview. Therefore, only women who completed both a fair and a telephone interview were analyzed. Eighty-three women had completed only the post fair survey, resulting in 228 questionnaires available for a complete analysis. Additionally, there were some women who did not answer the question on the Prenatal Health Fair Questionnaire relating to intentions to make change.

The results indicated that women generally reported that they followed through with their intentions of whether or not they planned to make changes as a result of the information they obtained at the Prenatal Health Fair. Seventy percent of women indicated that they intended to make or not make changes and followed through with their intentions. Of interest were the women who intended to make changes and did not follow through with these changes, and conversely, those who had not intended to make changes but actually did. Twenty percent of women indicated at the Prenatal Health Fair that they did **not** intend to make

Table 2

Distribution of Intended Changes

Intended Changes	Percent
Improve Nutritiona	50.4%
Take Folic Acida	4.4%
Take Vitamins	10.7%
Decrease smoking	6.4%
Quit Smoking	7.9%
Decrease alcohol	0.0%
Quit drinking alcohol	6.4%
Improve/Modify Physical Activity	44.3%
Use coping skills learned	14.3%
Decided to breastfeed	16.4%
Sign up for Prenatal Classes	43.6%

Note: More than one change may have been indicated.

* These change options were accidentally excluded from the Prenatal Health Fair evaluation at two of the fairs, therefore 27 respondents would not have had this as an option, n = 113. For the remainder of the options (n = 144).

Table 3**Changes that were Made as a Result of Attending the Prenatal Health Fair**

Actual Changes	Planning (n=37) Percent	≤ 16 weeks (n=128) Percent	> 16 weeks (n=86) Percent
Improved Nutrition	73.0%	69.5%	59.3%
Taking Folic Acid	40.5%	13.3%	8.1%
Taking Vitamins	37.8%	18.0%	7.0%
Decreasing smoking	2.7%	7.0%	12.8%
Quit Smoking	0.0%	3.9%	4.7%
Decrease alcohol	13.5%	2.3%	2.3%
Quit alcohol	10.8%	6.3%	2.3%
Improved/modified physical activity	40.5%	46.9%	45.3%
Using coping skills	18.9%	22.7%	41.9%
Decided to Breastfeed	21.6%	26.6%	40.7%
Signed up for Prenatal Classes	2.9%	42.2%	32.6%

Note: More than one change may have been made.

any changes but when interviewed indicated that they had made some changes. As well, 9% of women who intended to make changes indicated that they had **not** followed through with their intentions. Table 4 displays a breakdown of the specific changes and the percentage of women who did not follow their intentions. A statistical analysis was done using the McNemar test to determine significant differences between the two groups. The number of women who made changes that they had not intended to make was significantly greater ($p < .01$) than the number of women who had expressed intention to make changes but did not actually follow through with them. Specifically, these changes included improving nutrition ($p < .001$), taking folic acid ($p < .001$), reducing alcohol ($p < .05$), using coping skills ($p < .01$), and deciding to breastfeed ($p < .05$).

Factors Thought to Effect Change

Several factors were believed to contribute to the decision to make positive health choices. These factors included parity (primiparous or multiparous), gestation (pregnant 16 weeks or less, or more than 16 weeks), maternal age, income, and educational status. Logistic regression was used to determine whether these factors were associated with making changes. Only women who completed both the Prenatal Health Fair Evaluation

and the Telephone Survey were used for analyses. As a result, 189 questionnaires were included in the analyses. Each of the variables was entered using a forward stepwise approach. Significant variables (Wald statistic, $p \leq 0.10$) were retained for subsequent steps. The final model contained only parity. Women who were primiparous were twice as likely to have made changes as women who were multiparous ($p < .05$).

Infant Feeding Decisions

Eighty-eight percent ($n=272$) of the women interviewed indicated that they planned to breastfeed their baby, 4.2% planned to bottle feed, 1.9% planned to both breast and bottle feed, and 5.8% were unsure of the feeding method they would use (two women did not answer the question). Infant feeding decisions had been made prior to attending the Prenatal Health Fair by 80.8% of the women and 67.8% indicated that they had gained additional information about infant feeding at the Prenatal Health Fair.

Discussion

Seventy-nine percent of the women interviewed indicated that they had made positive decisions or choices that would contribute to a healthier pregnancy and healthier baby as a result of the information that they obtained attending a Prenatal Health Fair. Women

Table 4**Breakdown of Intentions That Were Not Carried Out**

Types of Changes	% Who intended to make changes but did not (n=113 for nutrition & folic acid) (n=121 for all other types of changes)	% Who did not intend to make changes but did
Improve Nutrition	7.8%	32.0%
Take Folic Acid	2.0%	15.7%
Take Vitamins	6.6%	14.9%
Decrease smoking	3.3%	4.1%
Quit Smoking	5.8%	4.1%
Decrease alcohol	0%	5.8%
Quit drinking alcohol	6.6%	4.1%
Improve/modify physical activity	18.2%	24.0%
Use coping skills	9.1%	26.4%
Decided to breastfeed	9.1%	22.3%
Sign up for Prenatal Classes	25.4%	20.3%

expressed that attending a Prenatal Health Fair was beneficial and that the information provided to them was valuable.

One of the limitations of this study is that it is not known how many women were already engaging in healthy behaviours, and therefore did not need to make any changes. Similarly, it is not known how many women should have been making changes. Despite these challenges, a comparison between the Prenatal Health Fair evaluation results and the post-fair interview results gives some indication about the intention to make healthier decisions.

This study demonstrates the importance of outcome evaluation to determine the impact of a program. By measuring only the intention to change behaviour as opposed to determining actual behaviour change, one would miss those who did not initially intend to make changes but eventually did. Also, since some women intended to change their behaviour and did not, outcome estimates based on intention to change may not provide adequate measures. Further, it is not known how many women had made changes when planning for pregnancy or once they became pregnant, or if changes were initiated following the telephone interview. Thus, a longitudinal study would be needed to assess the long-term impact of attending a Prenatal Health Fair.

Summary

In conclusion, seventy-nine percent of the women who participated in the follow-up telephone survey indicated that they had made healthier choices for themselves and their baby as a result of attending a Prenatal Health Fair. These evaluation findings support the effectiveness of Prenatal Health Fairs for women who are pregnant or planning for pregnancy to assist them in making healthy choices that will contribute to the best possible birth outcomes for both mother and baby.

It is also of interest to note that the larger number of women completing the telephone survey were ≤ 16 weeks pregnant (n=128) versus women who are ≥ 16 weeks pregnant (n=86) which supports Prenatal Health Fairs as an effective educational initiative for expectant couples in early pregnancy.

This study demonstrates the importance of outcome evaluation to determine the impact of a program. By measuring only the intention to change behaviour as opposed to determining actual behaviour change, one would miss those who did not initially intend to make changes but eventually did. Also, since some women intended to change their behaviour and did not, outcome estimates based on intention to change may not provide adequate measures. Further research is needed to determine if changes were made later in the pregnancy

as a result of attending a Prenatal Health Fair. It would also be beneficial to determine if Prenatal Health Fairs, as a preconception and early pregnancy educational initiative have an impact on the health of the newborn.

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COST OF A NUTRITIOUS FOOD BASKET, ONTARIO 1999 AND 2000

Introduction

This paper summarizes the method to calculate the average weekly cost of a nutritious food basket for a hypothetical family of four (one boy age 13-15, one girl age 7-9, one man and one woman both age 25-29) in health units throughout Ontario. It also identifies options for calculating the average costs for Ontario based on data collected by health units for years 1999 and 2000.

Method i ⁽¹⁾

The calculation of average cost of a nutritious food basket is based on the answers to two questions: 1. What foods do people like to eat? 2. How much do these foods cost?

1. What foods do people like to eat?

The nutritious food basket generally starts with foods that people like to eat. However, up-to-date data from food consumption surveys, which provide the most accurate information on individual food preferences, is not currently available at the national or provincial levels, therefore information on average quantities of food purchased is used as a starting point to determine the popular food choices. The latter is available from Statistics Canada's *Food Expenditure Survey*,ⁱⁱ⁽²⁾ which is conducted on a periodic basis.

For Ontario's food basket, nutrient value, cost and availability of foods in supermarkets across season, as well as industry advice concerning the most representative food products were also considered in choosing items.

Foods purchased in very small quantities were not included in the food basket. However, an additional 5% is automatically added to the cost of the food basket to cover the cost of miscellaneous foods (spices, coffee, tea, etc.) For the most part, the food basket excluded processed convenience foods, snack food and foods of little nutritional value, regardless of popularity. In addition, the food basket does not include food dollars spent away from home and foods received as gifts or those obtained from growing, fishing, etc.

The 1990 *Recommended Nutrient Intakes for Canadians, Canada's Guidelines for Healthy Eating*

and *Canada's Food Guide to Healthy Eating* were all used so that nutrient needs for each age and gender would be met.

Food is organized into 11 groups based on similar nutrient content. The number of units of each food group considered appropriate for individuals of a given gender and age group is also identified.ⁱⁱⁱ

1. milk products
2. meat, poultry and fish
3. grain products
4. other fruit
5. other vegetables
6. sugar and sweets
7. eggs
8. meat alternative
9. citrus fruit
10. potatoes
11. fats and oils

For example, on a weekly basis, a man aged 19 to 24 needs 3.5 litres of milk products, 3 eggs, 1.65 kilogram of meat, poultry and fish, 0.25 kilogram of meat alternative, 2.5 kilogram of grain products, 0.8 kilogram of citrus fruit, 1.75 kilogram of other fruit, 2.1 kilogram of potato, 1.5 kilogram of other vegetables, 0.35 kilogram of fats and oils, and 0.35 kilogram of sweets on a weekly basis. (Appendix 1 shows the quantities of food groups required for the various sex and age groups).

The relative proportion or "weight" assigned to each item within a food group was derived from the consumption patterns from the Food Expenditure Survey 1996.^{iv(3)}

2. How much do these foods cost?

Answers to this question are based on findings of a standard pricing survey conducted by all health units within their boundaries. The pricing survey was developed with a contractor, advisory committee and expert reviewers. Health units are required to conduct pricing surveys on a list of 66 food items from a minimum of six stores selected with the purposive sampling technique^{v(4)} within their boundaries.

The 66 food items are not listed here in accordance with the recommendation of the *Monitoring the Cost of a Nutritious Food Basket Protocol*. The 11 food groups include various numbers of food items. For example, there are six food items under the milk products food

group, only one under the eggs food group, and ten under the meats, poultry, and fish food group.

Calculation of Cost of Nutritious Food Basket at health unit level

Each health unit takes the prices from the survey and inserts them in a calculation template provided by the Public Health Branch, Ministry of Health and Long-Term Care (MOHLTC). This template (an Excel spreadsheet) calculates the average cost for the foods included in a nutritious food basket for a family of four for one week, based on appropriate food group consumption patterns developed by nutritional consultants. Results are forwarded to the Public Health Branch (MOHLTC) for summarizing provincial values.

The spreadsheet performs a set of calculations that transform the purchase cost data (collected by health units in the pricing survey) into the cost for a nutritious food basket per person per week. Costs for each food group were produced for each age and gender group. The designation of "family of four" includes: a man and a woman each aged 25-49 years; a boy aged 13-15 years; and a girl aged 7-9 years.

The spreadsheet permits the calculation of the average cost of each item at all the survey stores. The average cost of each of the items designated in the food pricing survey is transformed from its purchase unit into a standardized unit, as necessary, using a "scalar". The scalar is generally an inverse of the purchase unit; multiplying it by the purchase price produces a cost per kilogram, per litre, or, for eggs, per unit.^{vi} On the spreadsheet, this is referred to as the "scaled price".

Recalling the response for question 1 above: A. Food items are grouped; B. The relative proportion or "weight" assigned to each item within the group was derived from the Food Expenditure survey 1996. For each item, this "weight" was multiplied by the "scaled" price to yield the "weighted price" for each item. The price for each food group is the sum of these individual items' "weighted prices". The number of units in each food group is multiplied by the total of the weighted price for that food group.

Options for calculating provincial average

Three possible approaches were considered to calculate an average cost of the nutritious food basket for one week in Ontario, 1999. Each of the approaches is based on the same cost data and template (described above).

These approaches differ only by the mathematical weights (not the food item weights described above) assigned to the food basket costs to arrive at the provincial average:

1. Calculate a simple average of the food basket cost provided by each health unit. This approach involves "averaging the average".
2. Apply a population weight to each health unit's average cost. That means multiplying the average cost for each health unit by the population for that health unit.
3. Use the number of stores surveyed as the weight for each health unit's average food basket cost.

Results

For the year 1999, of the 37 health units in Ontario, 35 participated and surveyed 265 stores. The health units completed the pricing survey and calculated the average weekly cost of a nutritious food basket for a family of four by entering their data into an Excel spreadsheet provided by the Public Health Branch (MOHLTC). Based on the returned data, the weekly average cost of a nutritious food basket for a family of four in Ontario, 1999 was calculated using the three approaches described above. The results are set out in Table 1, which shows the differences are very small (2.2%). The values range from a low of \$110.82, based on population weights, to a high of \$113.28, based on equal weights for each health unit (simple average of the 35 averages). Similarly, for the year 2000, 31 health units surveyed 248 stores. The results are also shown in Table 1, which shows the differences among the three averages are very small (1.9%). The values range from a low of \$109.00, based on population weights, to a high of \$111.07, based on equal weights for each health unit.

Caution

The selection of stores within a health unit is based on the purposive sampling method, which does not yield a probability sample and is not necessarily representative. Selection of stores is guided by MOHLTC directive, but the identity and number of stores included in the survey is to some extent at the discretion of the health units. Therefore, caution is urged in drawing conclusions about possible differences across health units.

The concern about Option 2 was that it suggests a level of precision that is misleading. Using population as a weight implies that the collection and analysis that took place were far more detailed and extensive than actually occurred. It could also incorrectly imply that the values could be considered the cost for an average Ontario resident. This concern also raises another option; that is, weighting of stores could be based on the volume of sales that the store achieved. Data of this type were not available to us. In either case, weighting by population or by volume of sales, the real problem is that they suggest a level of precision that is not true.

Choice

The choice of which Option to use for calculating average cost for the province is ultimately a matter of judgment. Within the Public Health Branch, (MOHLTC) we chose to present the options so that any discussions on these matters were well informed. Following our discussions, Option 1 was chosen as the value that would be circulated. Option 1, the average of the health units' averages, is considered to be an easily understood Option. We think it will be transparent particularly for the health units, because each of them contributes equal weight (i.e. a single average value) to the provincial average.

Table 1.
Average weekly cost of a nutritious food basket for a family of four for Ontario, Year 1999 and 2000

Based on:	Year 1999 Cost
1. Simple average of 35 Health units cost	\$113.28
2. Average weighted by HU Population (1996 Census)	\$110.82
3. Average of all Stores surveyed (265 stores)	\$112.96
Based on:	Year 2000 Cost
1. Simple average of 31 Health units cost	\$111.07
2. Average weighted by HU Population (1996 Census)	\$109.00
3. Average of all Stores surveyed (248 stores)	\$110.62

Ontario average Cost of a Nutritious Food Basket by Sex and Age Group

Based on Option 1 above, the average cost of a nutritious food basket for individuals in 19 different sex and age groups are calculated for the year 1999 and 2000 and shown in Table 2.

The comparison shows that the average cost of a nutritious food basket for a family of four in Ontario dropped from \$113.28 to \$111.07 (2.0% drop) between 1999 and 2000. Decreases were observed in all 19 sex and age groups.

Table 2.
Average weekly cost of a nutritious food basket for individuals in 19 different sex and age groups for Ontario, Year 1999 and 2000

Age/sex groups	Total Weekly Cost			
	Ontario Average Year 1999	Number of health units included	Ontario Average Year 2000	Number of health units included
CHILD				
1 YEAR	\$13.32	35	\$13.06	31
2-3 YEARS	\$14.02	35	\$13.74	31
4-6 YEARS	\$18.57	35	\$18.17	31
BOY				
7-9 YEARS	\$22.20	35	\$21.78	31
10-12 YEARS	\$27.55	35	\$26.99	31
13-15 YEARS	\$32.19	35	\$31.66	31
16-18 YEARS	\$37.23	35	\$36.66	31
GIRL				
7-9 YEARS	\$21.48	35	\$20.99	31
10-12 YEARS	\$25.51	35	\$24.92	31
13-15 YEARS	\$27.92	35	\$26.68	31
16-18 YEARS	\$25.95	35	\$25.35	31
MAN				
19-24 YEARS	\$35.34	35	\$34.74	31
25-49 YEARS	\$34.29	35	\$33.70	31
50-74 YEARS	\$31.16	35	\$30.56	31
75 + YEARS	\$28.31	35	\$27.69	31
WOMAN				
19-24 YEARS	\$26.53	35	\$25.93	31
25-49 YEARS	\$25.32	35	\$24.73	31
50-74 YEARS	\$24.87	35	\$24.29	31
75 + YEARS	\$24.18	35	\$23.60	31
FAMILY OF FOUR	\$113.28	35	\$111.07	31

Note: A family of four includes one boy age 13-15, and girl age 7-9, a man age 25-49, and a woman age 25-49.

This decrease does not correspond with the movement of the Consumer Price Index (CPI) compiled for Ontario.^{vii} The Consumer Price Index, food section for Ontario (where 1992 is accorded a value of 100) in 1999 and 2000, was 110.4 and 112.0 respectively, showing an increase of 1.4%. The direction of change for the CPI and the Nutritious Food Basket is opposite. One possible reason for this difference is that the two measures use different methods and include different items.^{viii} This may need further investigation.

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NOTES

- I. A more detailed background and description is available in Monitoring the Cost of a Nutritious Food Basket Protocol: Chronic Disease Prevention Program. In accordance with the Mandatory Health Programs and Services Guidelines, Ministry of Health Public Health Branch, June 1, 1998.
- II. The Food Expenditure Survey is described in the Statistics Canada Integrated Meta Data Base at <http://www.stat.ca/english/sdds/3503.htm>
- III. Additional categories for lactation were also provided.
- IV. "Average Weekly Food Expenditures and Quantities per Person, Ontario - all households" were derived from the Food Expenditure Survey, Statistics Canada (<http://www.stat.ca/english/sdds/3503.htm>).
- V. Purposive sampling allows enumerators to pick typical or representative specimens, units, or portions to collect data based on their judgement or expert choice. (Leslie Kish, p.19)
- VI. For example, the purchase unit of 4 litres of milk is multiplied by a scalar of 0.25, to yield the price per litre.
- VII. Consumer Price Index information is available on the Statistics Canada website <http://www.statcan.ca/english/Pgdb/Economy/Economic/econ09g.htm>
- VIII. Your Guide to the Consumer Price Index, 1996 Catalogue Number 62-557-XPB is available free on the Statistics Canada website <http://www..statcan.ca/english/freepub/62-557-XIB/english.pdf>



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Appendix 1 The At Purchase Quantities of food groups required for the various sex and age groups

On next page

Appendix 1 The At Purchase Quantities of Food Groups Required by the Various Sex and Age Group
Ontario Nutritious Food Basket 2000

AGE/SEX GROUP	MILK PRODUCTS (L)	EGGS (UNIT)	MEAT, POULTRY & FISH (KG)	MEAT ALT. (KG)	GRAIN PRODUCTS (KG)	CITRUS FRUIT (KG)	OTHER FRUIT (KG)	POTATOES (KG)	OTHER VEG. (KG)	FATS & OILS (KG)	SUGAR & SWEETS (KG)
CHILD											
1 YEAR	3.50	2.00	0.20	0.05	0.75	0.19	0.90	0.80	0.50	0.10	0.10
2-3 YEARS	3.00	2.00	0.25	0.05	1.10	0.20	0.90	0.80	0.50	0.15	0.10
4-6 YEARS	3.75	3.00	0.30	0.10	1.60	0.50	1.00	1.10	0.55	0.20	0.25
BOY											
7-9 YEARS	3.00	3.00	0.55	0.10	2.00	0.50	1.10	1.40	1.10	0.30	0.25
10-12 YEARS	4.50	3.00	0.75	0.10	2.20	0.75	1.45	1.45	1.10	0.30	0.35
13-15 YEARS	5.50	3.00	1.00	0.20	2.30	0.75	1.45	1.80	1.50	0.30	0.35
16-18 YEARS	4.75	3.00	1.60	0.20	2.80	0.75	1.75	2.10	1.50	0.35	0.35
GIRL											
7-9 YEARS	3.50	3.00	0.50	0.20	1.50	0.70	1.10	1.20	1.10	0.20	0.25
10-12 YEARS	5.20	3.00	0.50	0.20	1.75	0.75	1.50	1.20	1.10	0.20	0.25
13-15 YEARS	5.00	3.00	0.60	0.20	1.90	0.80	1.50	1.30	1.50	0.20	0.25
16-18 YEARS	3.50	3.00	0.80	0.20	1.70	0.80	1.50	1.30	1.50	0.20	0.25
MAN											
19-24 YEARS	3.50	3.00	1.65	0.25	2.50	0.80	1.75	2.10	1.50	0.35	0.35
25-49 YEARS	3.50	3.00	1.65	0.20	2.15	0.80	1.75	2.10	1.65	0.30	0.25
50-74 YEARS	3.50	3.00	1.45	0.20	1.70	0.80	1.75	1.75	1.65	0.20	0.20
75+ YEARS	3.50	3.00	1.20	0.20	1.50	0.80	1.75	1.00	1.65	0.15	0.20
WOMAN											
19-24 YEARS	3.50	3.00	0.90	0.20	1.65	0.80	1.50	1.50	1.50	0.20	0.20
25-49 YEARS	3.50	3.00	0.85	0.20	1.40	0.80	1.50	1.00	1.65	0.15	0.20
50-74 YEARS	3.50	3.00	0.85	0.20	1.25	0.80	1.50	1.00	1.65	0.15	0.15
75+ YEARS	3.50	3.00	0.85	0.15	1.20	0.80	1.50	1.00	1.50	0.15	0.10
FAMILY OF FOUR	16.00	12.00	4.00	0.80	7.35	3.05	5.80	6.10	5.90	0.95	1.05

Communiqué

Public Health Research, Education and Development Program



AN EVALUATION OF THE MIDDLESEX-LONDON HEALTH UNIT'S UNIVERSAL INFLUENZA IMMUNIZATION COMMUNITY CLINICS

Background

On July 25, 2000, the Minister of Health and Long Term Care (MOHLTC) announced the inauguration of the Ontario Universal Influenza Immunization Program (OUIIP) program for the 2000/01 season, making Ontario the first jurisdiction in North America to do so. Through this program, approximately 11.5 million people became eligible to receive the influenza vaccine annually free of charge. The ministry purchased sufficient vaccine to immunize up to 90% of high priority persons and 60% of low priority groups (also referred to as the "general population"). The high priority category includes those 65 and older, those with chronic medical conditions, health care workers and emergency services workers. Low priority ("general population") includes everyone else. The program also included a large provincial communications campaign.

Locally, it was assumed that, as in previous years, physicians would immunize their high priority patients and staff in their offices as would long term care facilities, hospitals, and community health centres. In addition, it was anticipated that many workplaces, including emergency services, would organize their own employee clinics. Community clinics were organized and offered by the Middlesex-London Health Unit (MLHU). These clinics were held throughout the catchment area in schools, community centres and MLHU offices. It was unknown how many people would choose to attend.

This study is an evaluation of the local implementation of OUIIP in Middlesex-London. The purpose of this study is to review key characteristics and perceptions of clinic attendees to assist in planning for future clinics in the area. Characteristics included age, priority level and influenza immunization history. Perceptions studied included reasons for getting immunized, why they chose a MLHU clinic and how they heard about the MLHU clinics. The key characteristic of interest was previous immunization history, i.e. whether clients had been immunized or not, and the relationship to other characteristics and perceptions.

Local Evaluation

The present study was undertaken by MLHU's Public Health Research Education Development (PHRED) Program based on data obtained from the individuals who chose to attend the community clinics offered by MLHU. The evaluation questions were:

1. How does the age profile of a sample of clinic attendees selected by means of their completed consents compare to the age profile of the general population of Middlesex-London?
2. How does the age profile of a sample of clinic attendees who completed an evaluation questionnaire compare to the age profile of a sample of clinic attendees selected by means of their completed consents?
3. What are the most frequently stated reasons for attendees getting immunized against influenza? Was there a difference in stated reasons between previously immunized attendees and first time attendees?
4. What were the most frequent reasons given by attendees for choosing an MLHU clinic? Was there a difference in stated reasons between previously immunized attendees and first time attendees?
5. How did attendees say they heard about the MLHU clinics? Was there a difference in between previously immunized attendees and first time attendees?
6. What is the relationship between attendees' home addresses and the location of the clinic they attended?

Methods

Instruments. A consent form was developed by the Communicable Disease Division (CDD) of the MLHU that was consistent with the legal and informational requirements for informed consent as required for all immunizations. Attendees were required to indicate their birth date and which, if any, factors categorized them as high priority clients.

A 19-item evaluation questionnaire for MLHU clinic attendees was developed and face validated by MLHU staff, expert in immunization and/or research. Items were structured so that attendees could check or circle a multiple-choice answer wherever possible, keeping the completion time to less than 15 minutes.

Data Collection. All clinics operated by the CDD in the Middlesex-London catchment area had consents and evaluation questionnaires available. Consents were completed for each attendee regardless of age before immunization was given. Volunteers were asked to hand out the evaluation questionnaires to all attendees over 16 years of age and ask them to complete the survey during the required waiting period after the immunization was administered. No training was given to volunteers or clinic staff regarding the data collection processes.

The consents and evaluation questionnaires were treated as two separate databases. Each consent and evaluation questionnaire was sequentially numbered by hand and recounted for accuracy. The Principal Investigator and two Research Assistants entered all data from each form into two separate databases using code books to ensure their consistency and accuracy. Data entry was validated

by checking a random selection of cases in both databases as well as by computer for errant entries.

Sample Selection. Because this was a post hoc design, sample selection occurred after data collection. There were 10,764 consents and 4,941 evaluation questionnaires completed by December 31, 2000. By stopping data collection at that point, double counting was avoided for clients requiring two immunizations. A sample size of 400 in the smallest subgroup was calculated to be sufficient for analysis with 0.05 confidence limits and a power level of 0.801. For the evaluation questionnaires, SPSS generated 2,500 random numbers. Cases were randomly selected until 450 with previous influenza immunization were entered for a total of 1,445 cases. The extra cases allowed for the potential elimination of cases for unknown reasons, i.e. missing data, during analysis. For the consents, a computer-generated list randomly selected 800 numbers, twice the minimum number of cases required for a representative sample.

Findings

The age profile of attendees compared to the age profile of the general population in Middlesex-London is shown in Table 1. The age profiles of the two study samples are shown in Table 2.

Priority levels and the factors defining those levels were calculated for the two samples. All consent cases that indicated "yes" to any of the four factors on the consent form (See Table 3) were considered "high priority" for analysis purposes. If the response was "no" to all factors, the case was considered "low

Table 1
Age Profile Comparison of MLHU Clinic Attendees
with General Population of Middlesex-London

<i>Age groups (yrs)</i>	<i>Middlesex- London²</i>	<i>Consents (N=800)</i>
0-8	11.5%	11.2%
9-15	9.8%	15.7%
16-19	5.4%	9.2%
20-29	14.4%	8.2%
30-39	15.5%	12.9%
40-64	30.8%	38.3%
65-74	6.8%	3.5%
75 and over	5.9%	1.1%

Table 2
Age Profile Comparison of Two Samples of Clinic Attendees

	<i>Consents</i> (N=583)	<i>Evaluation Questionnaire</i> (N=1392)
16-19	12.5%	8.4%
20-29	11.1%	10.6%
30-39	17.7%	19.0%
40-64	52.3%	49.1%
65-74	4.8%	3.1%
75 and over	1.5%	9.8%

Chi-Square: 49.722, P=.000

priority". Any factor left blank was considered "uncertain". Evaluation questionnaire cases had only age and medical conditions available (See Tables 3 and 4). Due to limitations in the data, a proxy variable for "priority level" had to be created for the evaluation questionnaire sample, based on age and medical condition only. This proxy variable was used throughout the analysis.

A cross tabulation was done on the evaluation questionnaire sample comparing immunization history with priority level and age group as shown in Tables 5 and 6. One of the assumptions made in organizing the clinics was that most high priority clients were already being immunized at their physicians' offices. Yet, a surprising number of attendees who had no previous immunization history (53.4%) were in fact high priority.

Table 3
Comparison of Priority Factors Between the Two Samples

<i>Priority Factors</i>	<i>Consents</i> (N=800)	<i>Evaluation Questionnaire</i> (N=1445)
	Percent	Percent
65 Years of Age and Over	4.8%	12.4%
Has Long Term Medical Condition(s)	7.9%	11.6%
Is a Health Care Worker	2.1%	Not available
Is an Emergency Worker	0.5%	Not available

Table 4
Comparison of Priority Levels Between the Two Samples

<i>Priority Level</i>	<i>Consent</i> (N=800)	<i>Evaluation Questionnaire</i> (N=1445)
	Percent	Percent
High Priority	12.9%	22.4%
Low Priority	78.6%	76.1%
Uncertain	8.5%	1.5%
Total	100 %	100 %

Table 5
Priority Level Compared with Influenza Immunization
History in the Evaluation Questionnaire Sample

<i>Immunization History</i>	<i>High Priority (N=324)</i>	<i>Low Priority (N=1100)</i>	<i>Uncertain (N=21)</i>
First Immunization	53.4%	67.5%	66.7%
Previous Immunization	42.3%	27.4%	28.6%
Unsure	4.0%	4.9%	4.8%
No Response	0.3%	0.3%	0%

Chi-square: 26.378. p = 0.000

Table 6
Age Profile Compared with Influenza Immunization History in the Evaluation Questionnaire

<i>Immunization History</i>	<i>Ages 16-19 (N=117)</i>	<i>20-29 (N=148)</i>	<i>30-39 (N=264)</i>	<i>40-64 (N=684)</i>	<i>65-74 (N=43)</i>	<i>75&up (N=136)</i>
First Immunization	60.7%	63.5%	68.6%	66.4%	46.5%	51.5%
Previous Immunization	19.7%	27.0%	28.0%	31.3%	51.2%	44.9%
Unsure	18.8%	9.5%	3.0%	2.3%	2.3%	2.9%
No Response	0.9%	0%	0.4%	0.1%	0%	0.7%

Chi-square: 98.947, p = 0.000)

Table 7:
Reasons For Getting Immunization Indicated by
Evaluation Questionnaire Sample

<i>Reason</i>	<i>Percent</i>
To help keep myself healthy this winter	90.0%
To avoid giving the flu to others this winter	65.8%
My doctor suggested it	7.8%
I need it for work	7.5%
Other	9.3%

For items displayed in Tables 7-9, respondents could check more than one answer. Frequencies were calculated for the reasons why attendees chose to get immunized during the 2000/2001 influenza season. As

shown in Table 7, keeping oneself and others healthy was by far the most common reason. There was no statistically significant difference between those who had been previously immunized and those who had not.

Table 8
Reasons for Choosing an MLHU Clinic as
Indicated by the Evaluation Questionnaire Sample

<i>Reason</i>	<i>Percent</i>
Did Not Need an Appointment	55.3%
More Convenient Location Than Doctor	44.7%
More Convenient Time Than Doctor	44.5%
Do Not Have a Doctor	6.4%
Doctor Was Not Giving Flu Shot	3.8%
Do Not Have a Health Card	1.3%
Other	8.6%

To contribute to efficient planning for next year's clinics, frequencies were calculated for the reasons stated for choosing an MLHU clinic and how attendees heard about these clinics as shown in Tables 8 and 9. The overwhelming majority reported reasons related to time, including "no appointment necessary", and location convenience. The largest number of those who indicated "other" reasons specified that their doctor had run out of vaccine. Some "other" comments implied "convenience" but were listed under "other". The researchers did not recode such responses. There were no statistically significant differences between those who were receiving influenza immunization for the first time and those who had received immunization in previous years.

Chi-square analysis revealed that those getting immunized for the first time were more likely to have received information about the clinics from a health unit brochure sent home from school than those who had been previously immunized ($p = 0.01$). Further, those who had previous immunization were more likely to have called the health unit for information ($p = 0.008$). No other statistically significant differences were found in comparing those getting immunizations for the first time with those who had an immunization history, in terms of sources of information.

Mapping software was used to plot the six digit alphanumeric postal codes for cases from the consent sample. In relation to the clinic actually attended, the

Table 9
Frequencies of Sources of Information About
MLHU Clinics as Reported on the Evaluation
Questionnaires

	<i>Percent</i>
Newspaper	32.1%
Brochure From School	29.6%
Friend, Relative or Co-worker	23.3%
Brochure From Other Place (specify)	13.1%
Television	10.4%
Radio	9.7%
Other Source (specify)	8.9%
Called the Health Unit	5.7%
Brochure From Day Care	1.8%
Called a 1-800 Number	1.8%

visual majority of attendees chose a clinic close to their residence with one exception. One clinic offered in the west end of the city drew from a broader area, particularly since no other MLHU clinic was offered further south or west. These areas are heavily residential.

Discussion

Consent data gave a more reliable indication of the proportion of clinic attendees in the high priority category because it was representative of all clinic attendees.

There were more high priority cases in the evaluation questionnaire sample compared to the consent sample. This could indicate that high priority people had more time or interest or both in filling out the evaluation questionnaire. The age profile of the consent sample demonstrated a higher percentage of 9 to 16 year olds and fewer 20-29 year olds and those 65 and older compared to the general population. This could be due to the advertising by brochure done through schools. It also may confirm the assumption that most seniors go to their own physicians for immunization.

People turning 65 this year could have accounted for the 65 and older clients getting immunized for the first time since they would not have qualified as high priority last year. In order to test this effect, the observed proportion of attendees age 66 and older with a previous influenza immunization in the evaluation questionnaire sample, i.e. 48% (95% CI, 40.6% - 55.4%), was determined. This was compared to the proportion in this age group that were expected to have received a previous flu shot, based on the Ontario Health Survey (OHS), 1996/97 for the Middlesex/London area. Among OHS respondents age 65 and over, 62% (95% CI, 56%-68%), said they had been immunized against influenza in year prior to the survey. It appears that a significantly lower proportion of seniors with a previous immunization history attended MLHU clinics than might be expected when compared to the OHS 1996/97 figures. However, the clinics did attract more seniors without an immunization history than expected. While the number of clients aged 65 and older were a minority of the clients served, it is important that servicing this high priority group be included in planning for next year.

Just under 80% of clinic attendees were low priority clients and 67.5% of those got immunized for the first time. MLHU clinics did attract the clients who had never before had a compelling reason to be immunized

against influenza. More than half of the MLHU attendees in each age group were getting immunized for the first time except in the 65-74 group (46.5%). Without a well-advertised public service, these clients may not have chosen to be immunized.

Clearly, people who chose to come to an MLHU clinic did so for the convenience of time and location, i.e. not having to make an appointment (55.3%), not having to travel far (44.5%), at a convenient time of the day or evening (44.7%). To increase attendance, it would be important to be located close to individual neighbourhoods during convenient times such as after school, after work or after dinner.

By far the most frequently stated reason for getting immunized was "to keep myself healthy" (90%) followed by keeping others healthy (65.8%) as well. This would be in keeping with the messages delivered through advertising venues both provincially and locally. It may also reflect the health care consumer's increasing focus on prevention and fitness.

Print media, i.e. newspapers and brochures sent home through schools are the most memorable sources of information. However, if all three sources of brochures were combined, they would be the most frequently reported source. Since attendees were asked to report all sources that apply, there is no way to ascertain if some individuals got brochures from many sources or all attendees got them from different sources.

It is possible that mass media campaigns, while not reported as frequently, actually contributed to people's awareness more than is obvious. It could be speculated that exposure to television and radio advertisements generated the personal, friend-to-friend discussion that was remembered and reported by this sample.

Limitations

Because of the short time frame between the announcement of the program, the start of the immunizations and the competing priorities for evaluators' time in between, a post hoc design was the only feasible choice.

In the clinics, where an unknown, large number of people would be attending, client flow through the clinic had to be fast and smooth. It was not possible to retain clients to complete lengthy questionnaires. Data collection tools did not include the socioeconomic data

necessary to determine how the characteristics of attendees to MLHU clinics were similar to or different from those of the population in the Middlesex-London area. Therefore, the results cannot be generalized to the whole population but only to the sub-population from which the samples were drawn.

The persuasiveness of the volunteers, availability of forms in some clinics, literacy of the attendees and time pressures from high volumes of client traffic may have affected the number of evaluation questionnaires completed. As well, there was no way of determining the characteristics of those attendees who declined to complete an evaluation questionnaire. Therefore, it is unknown how representative the evaluation questionnaire sample is of the total population of attendees.

The two data collection instruments were not designed in a complementary process, ensuring that the same information was available on each form. Therefore, some questions could be answered for one sample or the other but not both. It was decided to treat the two databases separately to preserve the representativeness of the consent database

Conclusions

1. Because fewer 20-29 year olds attended clinics, MLHU should investigate why this age group did not respond as well as others.
2. Because more 65 and older high priority clients had not previously been immunized, seniors living independently are still a target group for immunization.
3. Because the low priority, first immunization group was 67.5% of the evaluation sample, this local campaign successfully targeted new clients for immunization.
4. There was no evidence to suggest any different arguments or reasons could be used to convince people to get their first immunization against influenza. Keeping themselves and others healthy appears to be equally as effective for all constituents.
5. Many individuals got their vaccination close to home. Therefore, clinics need to be offered throughout all areas or neighbourhoods throughout the city.

6. Brochures, particularly those sent home through school-aged children, are an effective advertising strategy along with the local newspaper.
7. The data collection instruments and processes should be improved to:
 - facilitate more accurate between groups comparisons by having a single database,
 - identify a means to compare the study sample and the general population,
 - provide better training for data collectors to improve their consistency,
 - ensure equal opportunity of attendees to participate in the survey, and
 - incorporate rank ordering so the multiple response options, e.g. for source of information, could be weighted by the attendee. This would allow for conclusions to be drawn regarding "better" or "less likely" options.

Recommendations/Implications for Planning

- Canvas 20-29 year olds for attitudes towards immunization and continue to attract the 65 and older population with no immunization history
- Messages could focus on maintaining one's own health and that of others since it was the main motivation for most people.
- Emphasizing that no appointment is necessary in advertising health unit clinics would be an effective attractor.
- More clinic opportunities should be provided further west in the city to ease the large numbers attending the one clinic in that area.
- Local advertising dollars should be concentrated on brochures, particularly those sent home through school.
- The evaluation should be repeated to assess the impact of any changes made to service delivery.

ACKNOWLEDGEMENTS

Bryna Warshawsky, Associate Medical Officer of Health and Director of CDD, and Mary Ann Simpson, Manager of Vaccine Preventable Diseases, assisted with the definition of the research questions and provided access to the data. Sally Bonaldo and Becky Porter, as Research Assistants, entered and validated all the data from both the consent

forms and the evaluation questionnaires. Bernie Lueske, Data Analyst, produced the mapping and assisted with software and data storage. Ruth Sanderson, Epidemiologist, assisted with project conceptualization and data analysis. Charlene Beynon, Director of Research, Education & Evaluation Development (REED) Services provided valuable feedback and editing.



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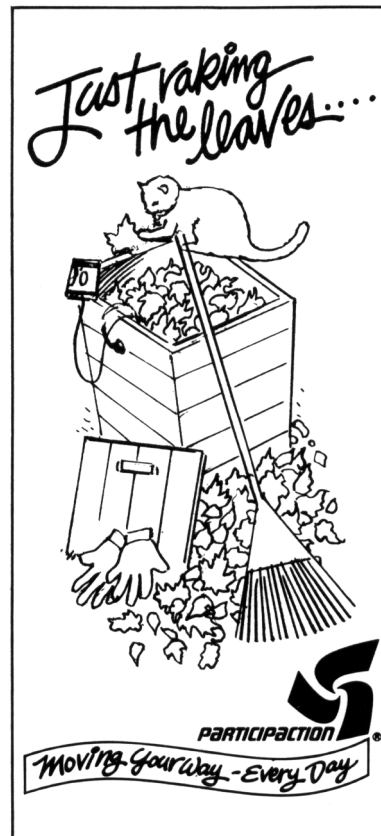
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2. Ministry of Health and Long Term Care. Provincial Health Planning Database. 2000. Ontario.



Summary of Reportable Diseases in July, 2001

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken- pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	123,953				10			
North Bay	93,841	1		95	13			
Northwestern	80,235		4	43	17			
Porcupine	97,437		1		15			1
Sudbury	201,154		6		8			
Thunder Bay	161,187		3		26			2
Timiskaming	38,847		1		2			
Total - Northern	796,654	1	15	138	91			3
Eastern Ontario	185,314		7	1	5			
Hastings-Prince Edward	143,790		3	4				
Kingston-Frontenac	175,568	1	5		11	1		
Leeds-Grenville and Lanark	156,129		1	14	7			
Ottawa-Carleton	721,136		32		73	2	1	20
Renfrew	97,634		2		1			
Total - Eastern	1,479,571	1	50		97	3	1	20
Durham Region	458,616		7	47	42	2	1	3
Haliburton-Kawartha	165,039		10		1			
Muskoka-Parry Sound	78,675		1		1	1	1	
Peel Region	852,526		46		85	2	1	19
Peterborough	123,448		4		13	1		
Simcoe County	329,865				22	3	1	6
Toronto City - total	2,385,421		157	52	458	10	6	158
<i>North</i>	589,653		37	10	91	1	2	21
<i>South</i>	653,734		45	12	195	5	1	82
<i>West</i>	475,252		41	7	105	4	2	35
<i>East</i>	666,782		34	23	67		1	20
York Region	592,445		22			1	4	
Total - Central East	4,986,035		247	99	622	20	14	186
Grey-Bruce	153,312		7	1	3	2		
Elgin-St. Thomas	79,159		1	2	3	1		
Huron	60,220		8	5	4	1	1	
Chatham-Kent	109,650		5	4	13			
Lambton	128,975		3		5			
Middlesex-London	389,616		7		23	5		3
Oxford	97,142				1			
Perth	72,106		9	3	1			
Windsor-Essex	350,329		24		36			1
Total - Southwest	1,440,509		64	15	89	9	1	4
Brant	114,564		4	1	22			5
Haldimand-Norfolk Region	102,575		3	1	3		1	
Halton Region	339,875		20		13	3		1
Hamilton-Wentworth	467,799		24	8	55	1		10
Niagara Region	403,504		24	253	26	3	2	4
Waterloo Region	405,435		24		36	1		4
Wellington-Dufferin-Guelph	217,052		19		21	2	1	
Total - Central West	2,050,804		118	263	176	10	4	24
July 2001	10,753,573	2	494	534	1,075	42	20	237
* Total YTD 2001	-	38	2,274	7,680	8,852	271	224	1,657
* Total YTD 2000	-	61	2,800	21,519	8,413	188	300	1,649

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 - former Scarborough and East York

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in July, 2001

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	123,953				6				
North Bay	93,841		1						
Northw estern	80,235				4				
Porcupine	97,437				1				
Sudbury	201,154				9				
Thunder Bay	161,187				5				
Timiskaming	38,847								
Total - Northern	796,654		1		25				
Eastern Ontario	185,314				2				
Hastings-Prince Edw ard	143,790								
Kingston-Frontenac	175,568				1				
Leeds-Grenville and Lanark	156,129				1				
Ottaw a-Carleton	721,136				29				
Renfrew	97,634				2				
Total- Eastern	1,479,571				35				
Durham Region	458,616								
Haliburton-Kaw artha	165,039				5				
Muskoka-Parry Sound	78,675								
Peel Region	852,526	1			28				1
Peterborough	123,448				7				
Simcoe County	329,865	1			1				
Toronto City - total	2,385,421	14	12	2	107				3
North	589,653	2	2		25				2
South	653,734	8	4	2	45				1
West	475,252	2	2		27				
East	666,782	2	4		10				
York Region	592,445				11				
Total - Central East	4,986,035	16	12	2	159				4
Grey-Bruce	153,312				2				
Egin-St. Thomas	79,159								1
Huron	60,220								
Chatham-Kent	109,650				2				
Lambton	128,975				2				
Middlesex-London	389,616				8				
Oxford	97,142								
Perth	72,106								
Windsor-Essex	350,329				5				
Total - Southwest	1,440,509				19				1
Brant	114,564	1							
Haldimand-Norfolk Region	102,575								
Halton Region	339,875				4				
Hamilton-Wentw orth	467,799		1		23				1
Niagara Region	403,504				28				1
Waterloo Region	405,435				17				1
Wellington-Dufferin-Guelph	217,052				3				
Total - Central West	2,050,804	1	1		75				3
July 2001	10,753,573	17	14	2	313				8
* Total YTD 2001	-	118	94	87	2,788	4	752	6	76
* Total YTD 2000	-	107	76	99	3,493	5	1,521	8	57

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* Adjusted for deletions and late reports.

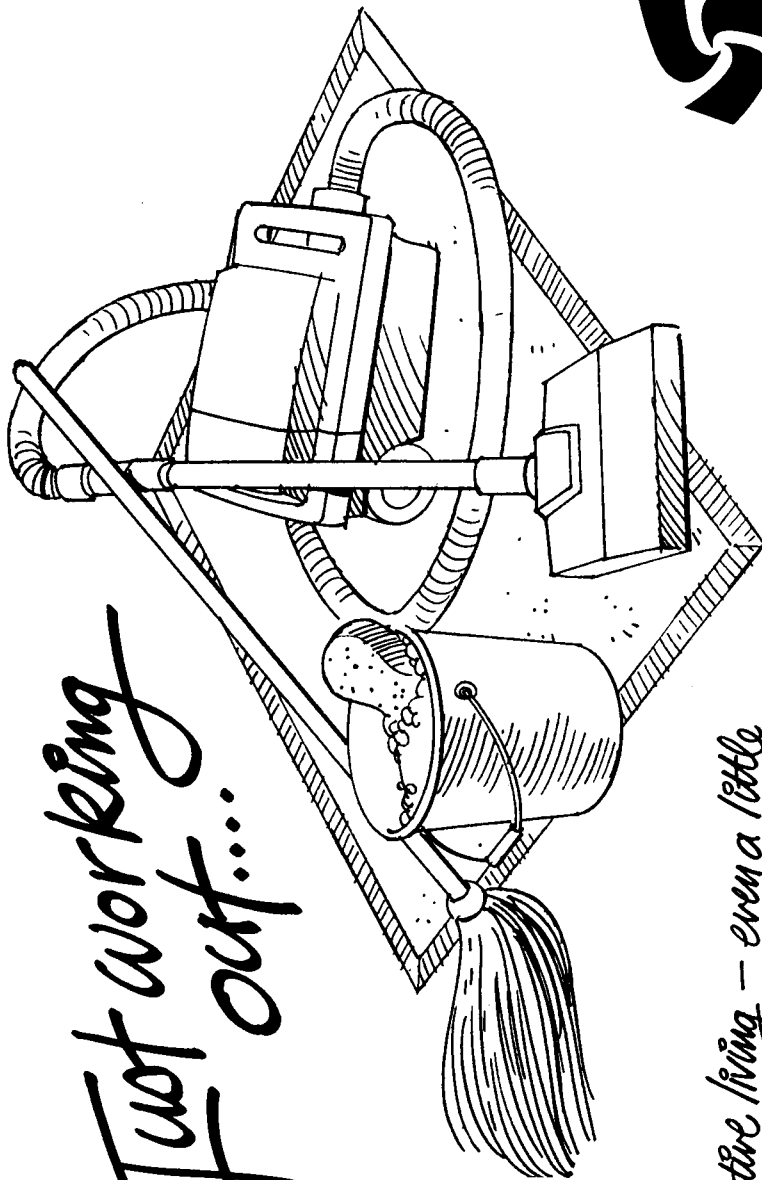
Summary of Reportable Diseases in July, 2001

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953							
North Bay	93,841		1		1			2
Northwestern	80,235	1	2		1			
Porcupine	97,437				1			
Sudbury	201,154							
Thunder Bay	161,187				3			
Timiskaming	38,847				2			
Total - Northern	796,654	1	3		8			2
Eastern Ontario	185,314				1			1
Hastings-Prince Edward	143,790				3			1
Kingston-Frontenac	175,568				1			
Leeds-Grenville and Lanark	156,129				3			
Ottawa-Carleton	721,136		2		22	1		3
Renfrew	97,634							
Total - Eastern	1,479,571		2		30	1		5
Durham Region	458,616		1		4			
Haliburton-Kawartha	165,039				1	1		1
Muskoka-Parry Sound	78,675				1			
Peel Region	852,526				29	1		3
Peterborough	123,448							
Simcoe County	329,865							
Toronto City - total	2,385,421		3		69	13		7
North	589,653		2		9	1		1
South	653,734				17	7		2
West	475,252		1		31	3		1
East	666,782				12	2		3
York Region	592,445		1		8	1		5
Total - Central East	4,986,035		5		112	16		16
Grey-Bruce	153,312				6			
Elgin-St. Thomas	79,159				1			
Huron	60,220				4			1
Chatham-Kent	109,650				2			
Lambton	128,975				2			
Middlesex-London	389,616				4			1
Oxford	97,142							
Perth	72,106				2	1		
Windsor-Essex	350,329		2		9	1		
Total - Southwest	1,440,509		2		30	2		2
Brant	114,564				2			
Haldimand-Norfolk Region	102,575				1			1
Halton Region	339,875		1		3	1		1
Hamilton-Wentworth	467,799		1		7	1		5
Niagara Region	403,504		6		4			
Waterloo Region	405,435				5			3
Wellington-Dufferin-Guelph	217,052				7			5
Total - Central West	2,050,804		8		29	2		15
July 2001	10,753,573	1	20		209	21		40
* Total YTD 2001	-	2	238	15	1,359	140	4	164
* Total YTD 2000	-	24	325	6	1,313	176	12	415

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 - former Scarborough and East York

* Adjusted for deletions and late reports.

*Just working
out...*



*...active living – even a little
regular physical activity makes
a healthy difference!*



Summary of Reportable Diseases

2nd Quarter, 2001

Ministry of Health and Long-Term Care



Summary of Reportable Diseases in Ontario - 2nd Quarter 2001

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken- pox	Chlamydia	Enceph/ Meningitis	GAS	Gonorrhea
Algoma	123,953		1	52	40	1	1	
North Bay	93,841		1	67	28			3
Northwestern	80,235		5	61	57	1		1
Porcupine	97,437			5	45			
Sudbury	201,154		5		61	1	1	1
Thunder Bay	161,187		10	7	98	1		10
Timiskaming	38,847		1		6			
Total - Northern	796,654		23	192	335	4	2	15
Eastern Ontario	185,314		13		24	1		
Hastings-Prince Edward	143,790		8	56	18			1
Kingston-Frontenac	175,568		14		51	2	1	
Leeds-Grenville and Lanark	156,129		7	80	15	2	1	
Ottawa-Carleton	721,136		43	156	233	6	5	25
Renfrew	97,634		5		16			
Total - Eastern	1,479,571		90	292	357	11	7	26
Durham Region	458,616		19	487	145	8	2	23
Haliburton-Kawartha	165,039		10		26	1	1	
Muskoka-Parry Sound	78,675			8	2			
Peel Region	852,526	1	103	598	331	10	9	75
Peterborough	123,448		14	45	37	2		1
Simcoe County	329,865	1	6	78	77	4	2	6
Toronto City - total	2,385,421	11	344	820	1,408	16	25	448
North	589,653		87	145	297	3	3	87
South	653,734	10	126	152	513	6	14	214
West	475,252		68	133	385	5	6	81
East	666,782	1	63	390	213	2	2	66
York Region	592,445		81	166	55	5	3	2
Total - Central East	4,986,035	13	577	2,202	2,081	46	42	555
Grey-Bruce	153,312		16	3	18	2		2
Elgin-St. Thomas	79,159		6	100	27	2		1
Huron	60,220		8	73	5	1		
Chatham-Kent	109,650		10	35	29			
Lambton	128,975	1	5		14			1
Middlesex-London	389,616		29		82	7	3	10
Oxford	97,142		7		17	1		
Perth	72,106		12	56	8	2		
Windsor-Essex	350,329	1	50	50	138	7		17
Total - Southwest	1,440,509	2	143	317	338	22	3	31
Brant	114,564		8	53	61	1	3	7
Haldimand-Norfolk Region	102,575		5	95	24			
Halton Region	339,875		33		65	49	2	10
Hamilton-Wentworth	467,799		28	29	185	1	6	28
Niagara Region	403,504		47		116		9	13
Waterloo Region	405,435		42		152	4	11	17
Wellington-Dufferin-Guelph	217,052		31	75	40		3	
Total - Central West	2,050,804		194	252	643	55	34	75
2nd Quarter 2001	10,753,573	15	1,027	3,255	3,754	138	88	702
* Total YTD 2001	-	36	1,780	7,146	7,777	229	204	1,420
* Total YTD 2000	-	47	2,040	20,451	7,279	154	269	1,438

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Summary of Reportable Diseases in Ontario - 2nd Quarter 2001

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo- coccal
Algoma	123,953		1		22		1		
North Bay	93,841			1	7		4		
Northwestern	80,235				6				
Porcupine	97,437				8		2		
Sudbury	201,154				25		8		1
Thunder Bay	161,187		1	1	24				
Timiskaming	38,847				5				
Total - Northern	796,654		2	2	97		15		1
Eastern Ontario	185,314				22		1		
Hastings-Prince Edward	143,790		2		7		1		
Kingston-Frontenac	175,568				26		1		
Leeds-Grenville and Lanark	156,129			3	25		2		1
Ottawa-Carleton	721,136	1	2		107		6		
Renfrew	97,634								
Total - Eastern	1,479,571	1	4	3	187		11		1
Durham Region	458,616	1					5		1
Haliburton-Kawartha	165,039			2	18		2		
Muskoka-Parry Sound	78,675				4				1
Peel Region	852,526	3	9	1	90		4		
Peterborough	123,448				19				
Simcoe County	329,865	1	1				2		1
Toronto City - total	2,385,421	33	22	22	362	2	7		9
<i>North</i>	589,653	7	8	3	87		2		2
<i>South</i>	653,734	22	5	17	163	1	1		3
<i>West</i>	475,252	2	8	1	64	1	1		3
<i>East</i>	666,782	2	1	1	48		3		1
York Region	592,445	1	2	1	54		3		
Total - Central East	4,986,035	39	34	26	547	2	23		12
Grey-Bruce	153,312				7				
Elgin-St. Thomas	79,159	1			11				
Huron	60,220				3				
Chatham-Kent	109,650			1	9		3		
Lambton	128,975	1	2		10				
Middlesex-London	389,616	2			31		1		5
Oxford	97,142				7				1
Perth	72,106			1	4				
Windsor-Essex	350,329		1		43				
Total - Southwest	1,440,509	4	3	2	125		4		6
Brant	114,564	3					3		1
Haldimand-Norfolk Region	102,575		1	2	3		1		
Halton Region	339,875		1	1	17				2
Hamilton-Wentworth	467,799	11			86		6		1
Niagara Region	403,504		2	2	66		3		1
Waterloo Region	405,435		2	1	60		2		1
Wellington-Dufferin-Guelph	217,052			1	13		1		1
Total - Central West	2,050,804	14	6	7	245		16		7
2nd Quarter 2001	10,753,573	58	49	40	1,201	2	69		27
* Total YTD 2001	-	101	80	85	2,475	4	752	6	68
* Total YTD 2000	-	95	59	85	3,008	4	1,521	8	49

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* Adjusted for deletions and late reports.

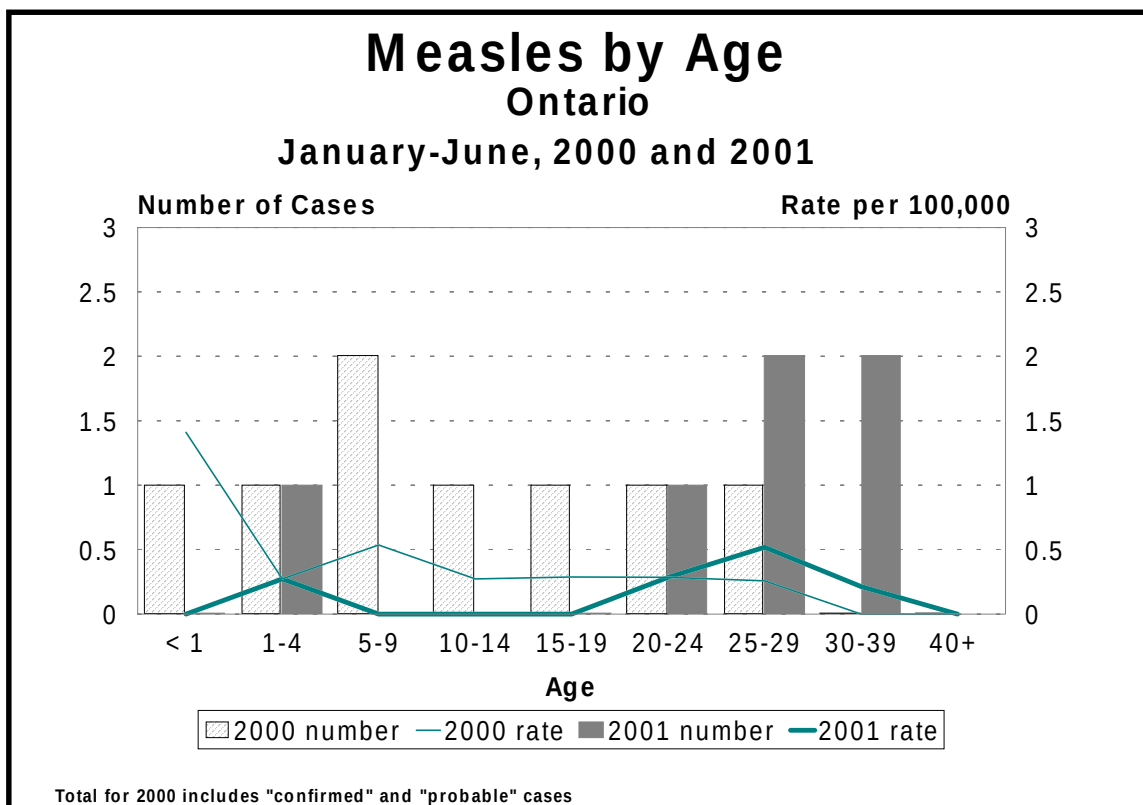
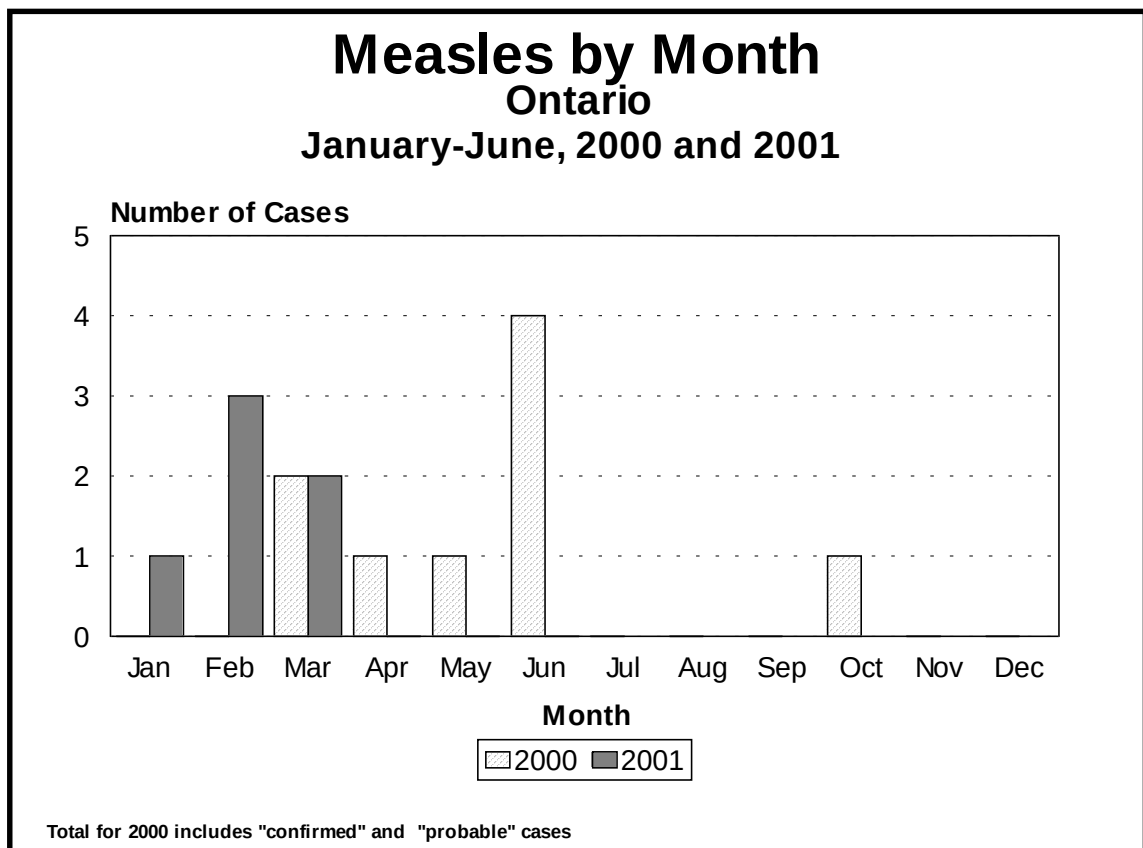
Summary of Reportable Diseases in Ontario - 2nd Quarter 2001

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953				3			2
North Bay	93,841				5			
Northw estern	80,235		1		2			1
Porcupine	97,437							
Sudbury	201,154		2		5			1
Thunder Bay	161,187				6			1
Timiskaming	38,847							1
Total - Northern	796,654		3		21			6
Eastern Ontario	185,314		1		7	1		4
Hastings-Prince Edw ard	143,790		1		21	1		
Kingston-Frontenac	175,568		1		8	2		
Leeds-Grenville and Lanark	156,129		2		1			1
Ottaw a-Carleton	721,136		10		43	9		11
Renfrew	97,634				4	1		
Total- Eastern	1,479,571		15		84	14		16
Durham Region	458,616		5		13			
Haliburton-Kaw artha	165,039		1	1	11			1
Muskoka-Parry Sound	78,675				2			2
Peel Region	852,526		2		70	12	1	5
Peterborough	123,448		18		9			
Simcoe County	329,865				6	1		
Toronto City - total	2,385,421		11	5	173	11	2	12
<i>North</i>	589,653		2	3	38	1		3
<i>South</i>	653,734		5		58	8	2	5
<i>West</i>	475,252		2	1	42			3
<i>East</i>	666,782		2	1	35	2		1
York Region	592,445		10		59	5		5
Total - Central East	4,986,035		47	6	343	29	3	25
Grey-Bruce	153,312		1		3	1		1
Elgin-St. Thomas	79,159				2			
Huron	60,220				1			3
Chatham-Kent	109,650		1		1			
Lambton	128,975		1		3			1
Middlesex-London	389,616	1			13	1		3
Oxford	97,142		1		2			1
Perth	72,106				4	6		2
Windsor-Essex	350,329		21		16	1		3
Total - Southwest	1,440,509	1	25		45	9		14
Brant	114,564				4			
Haldimand-Norfolk Region	102,575				3			
Halton Region	339,875		3		12	2		1
Hamilton-Wentw orth	467,799			1	21			5
Niagara Region	403,504		4		17	2		1
Waterloo Region	405,435		1		24			5
Wellington-Dufferin-Guelph	217,052		3		17			6
Total - Central West	2,050,804		11	1	98	4		18
2nd Quarter 2001	10,753,573	1	101	7	591	56	3	79
* Total YTD 2001	-	1	218	15	1,150	119	4	124
* Total YTD 2000	-	23	242	6	1,071	153	12	336

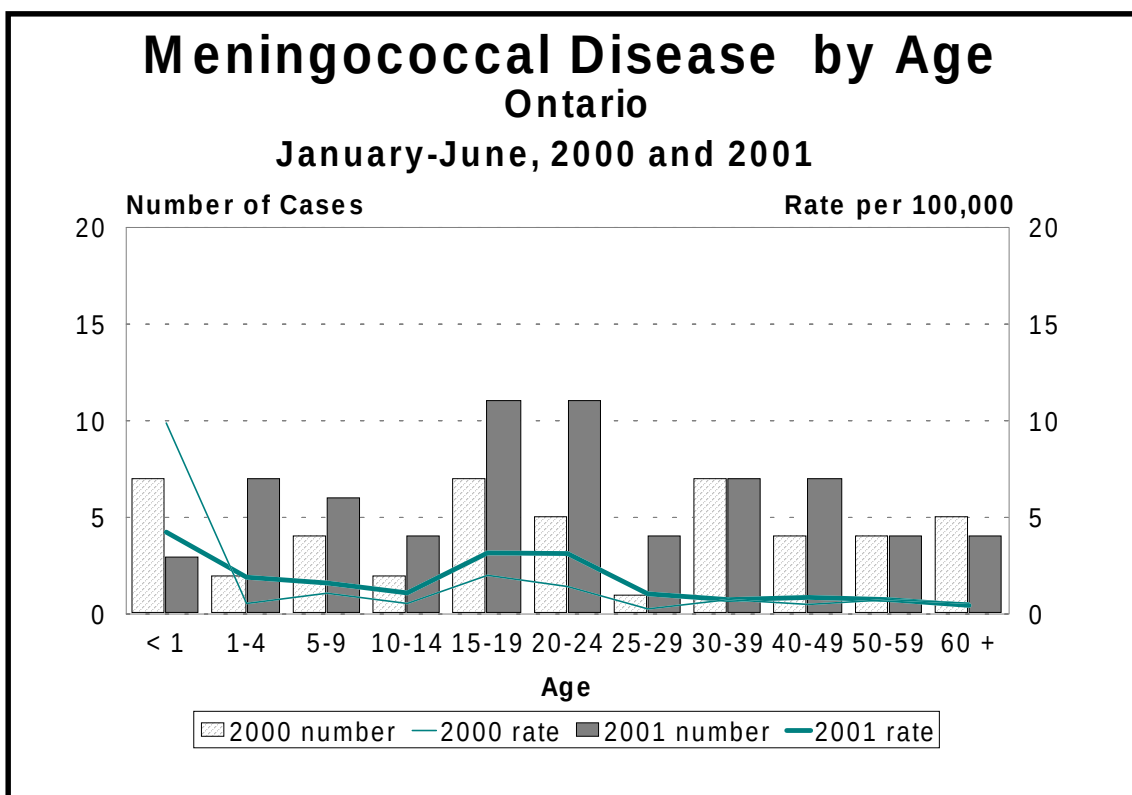
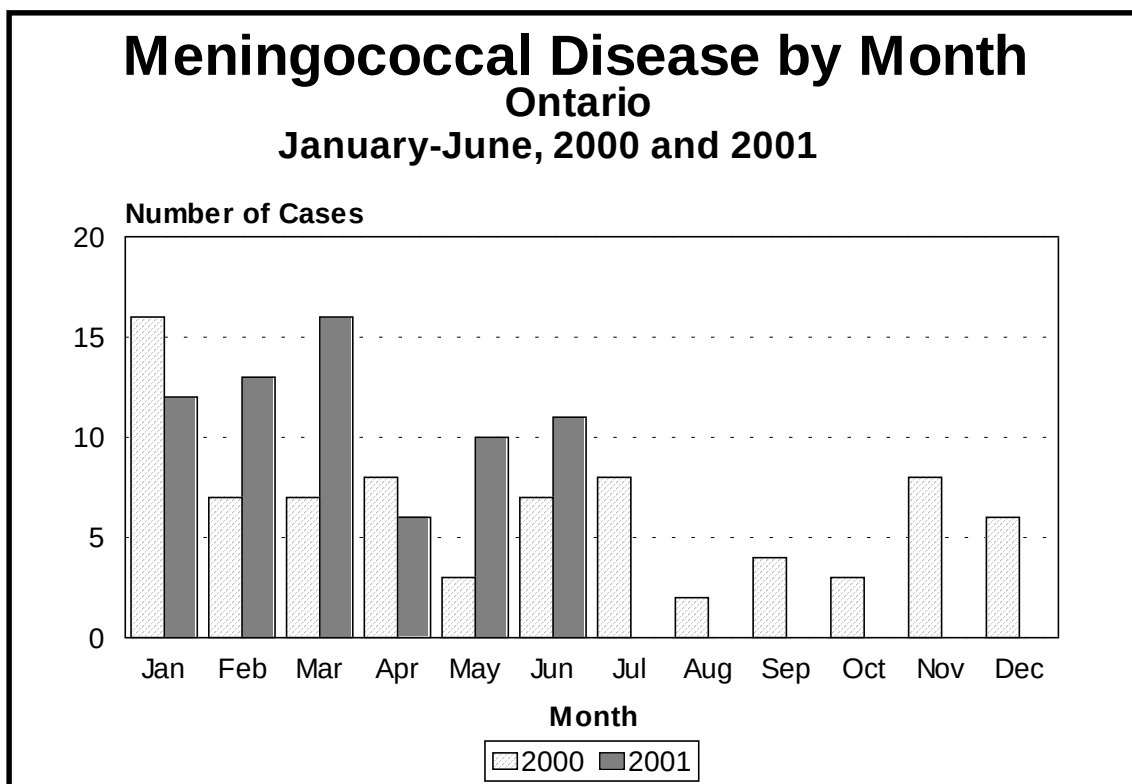
The Toronto City regions above are now defined as: North - former North York; South - former City of Toronto;
West - former Etobicoke and City of York; East - former Scarborough and East York

* Adjusted for deletions and late reports.

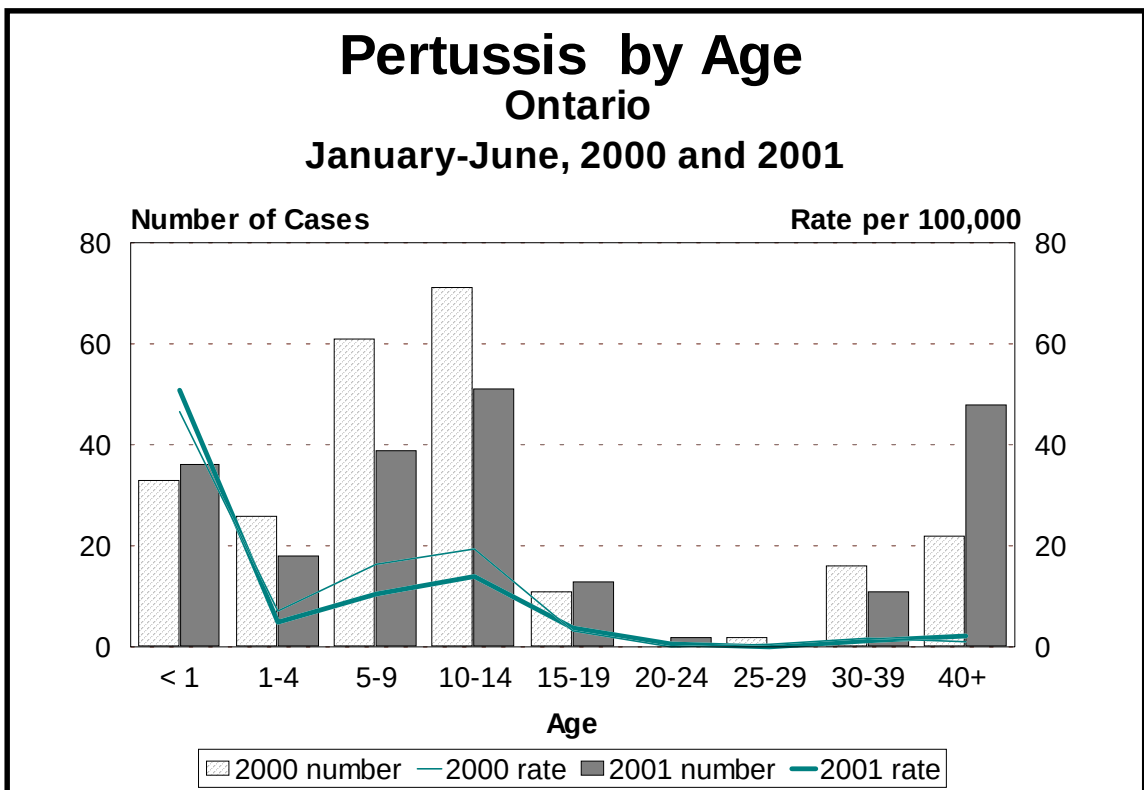
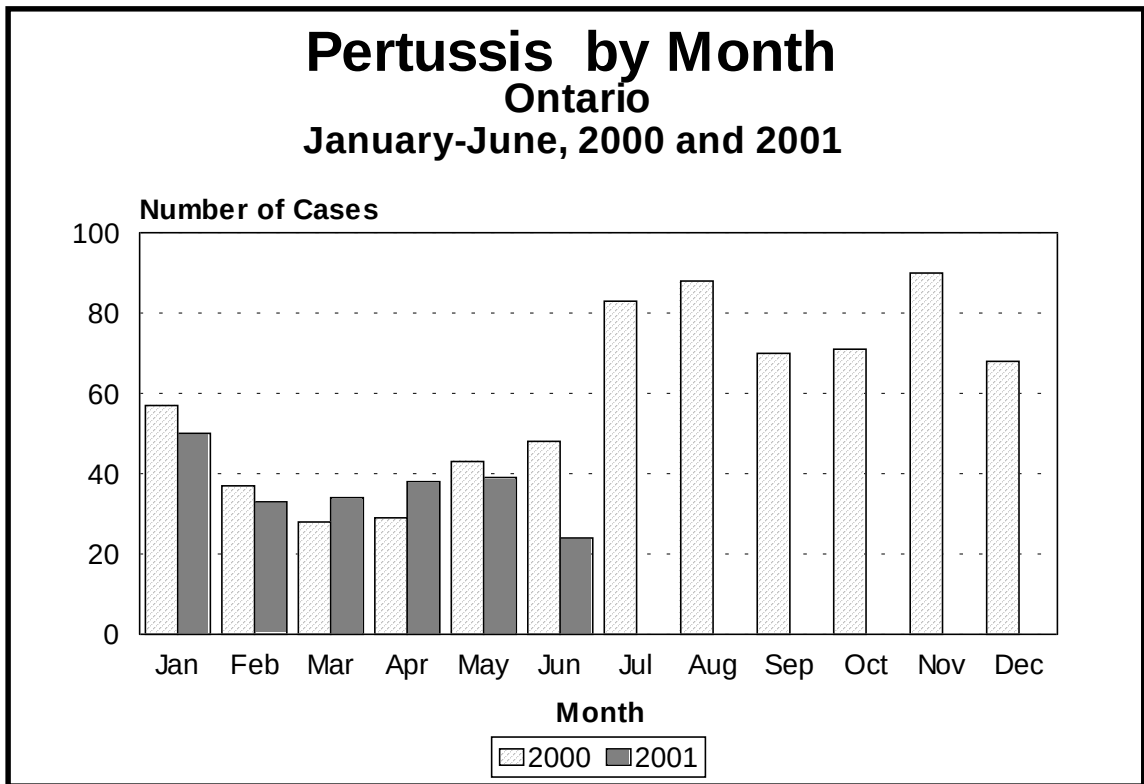
Vaccine Preventable and Other Diseases



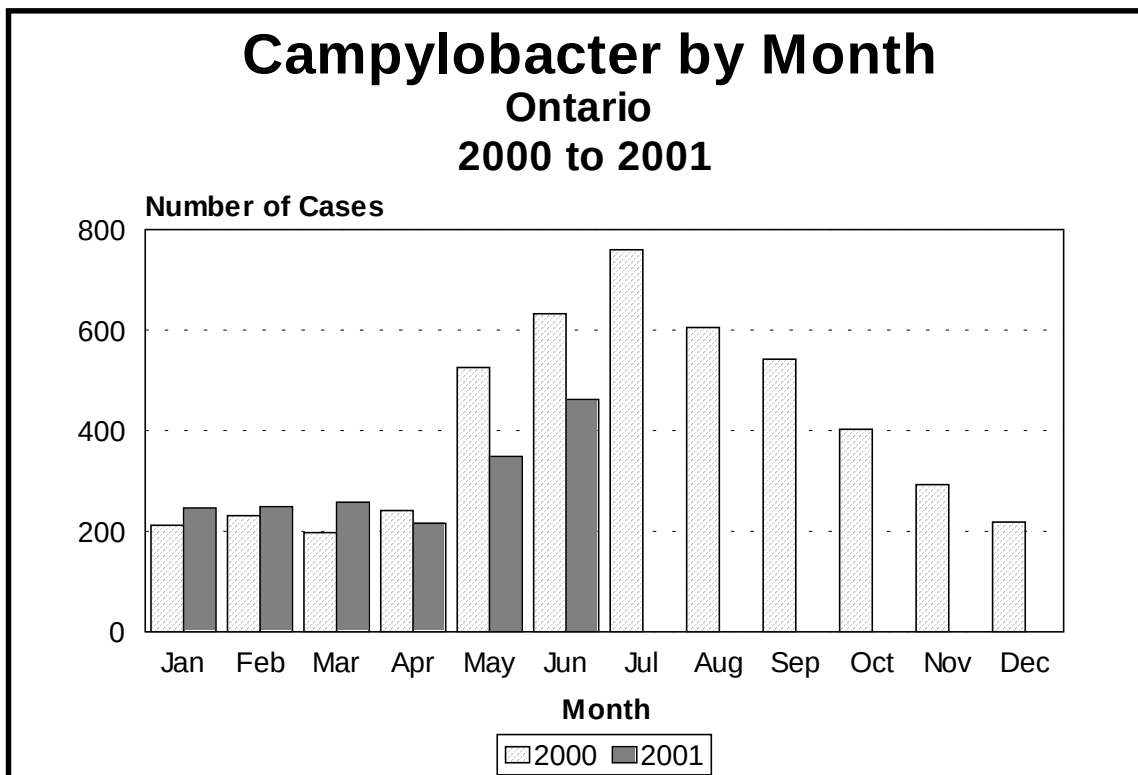
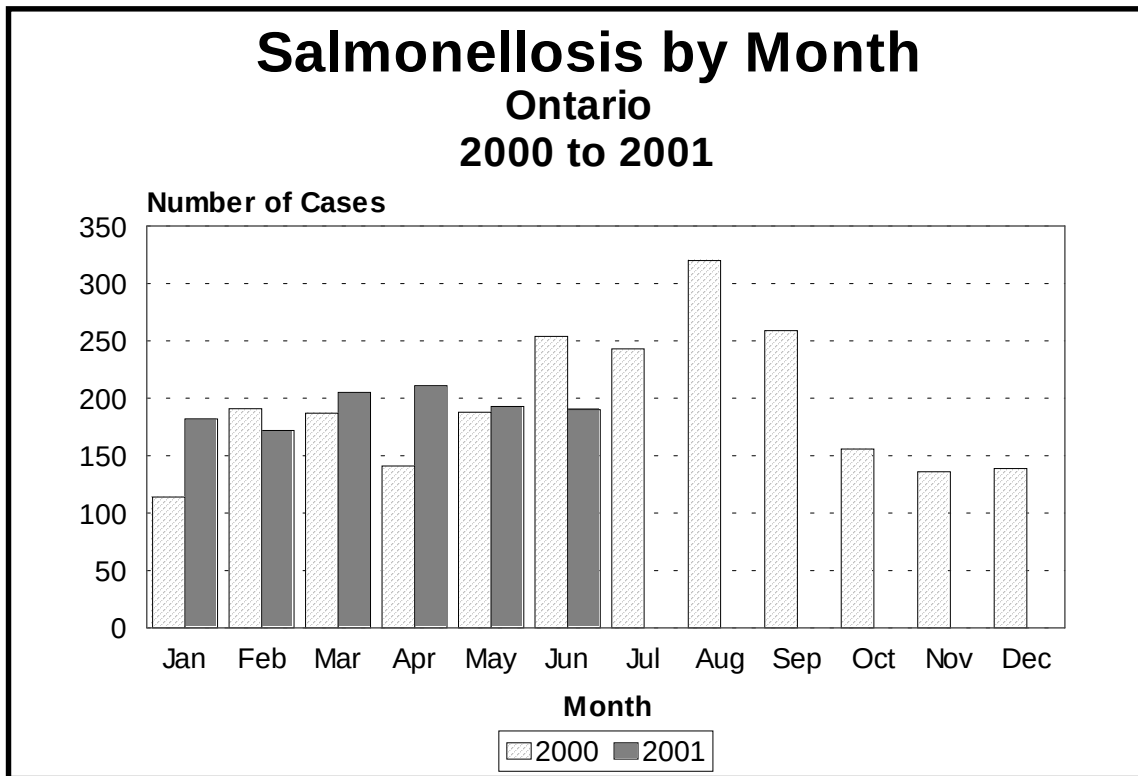
Vaccine Preventable and Other Diseases



Vaccine Preventable and Other Diseases



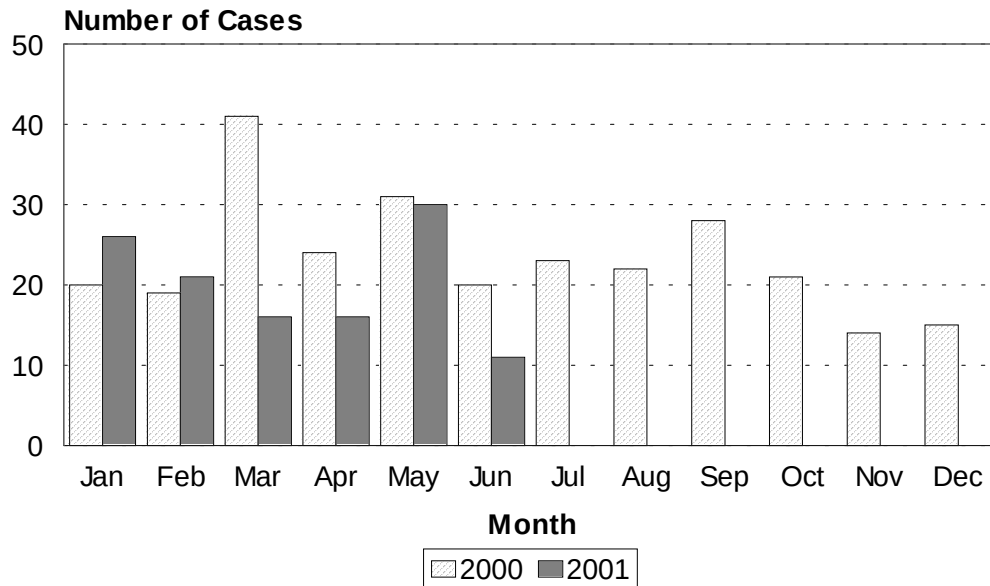
Enteric Diseases



Enteric Diseases

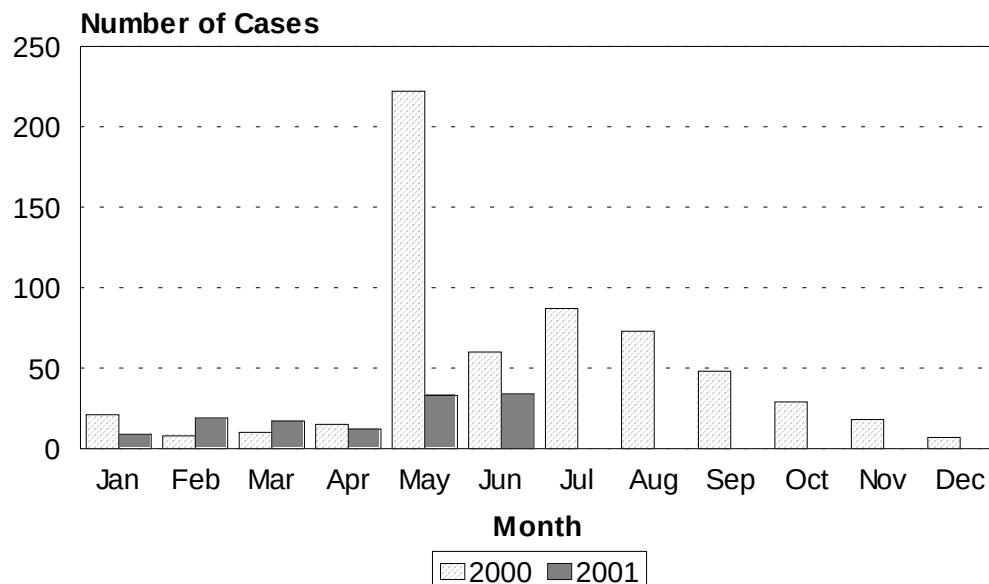
Shigellosis by Month

Ontario
2000 to 2001



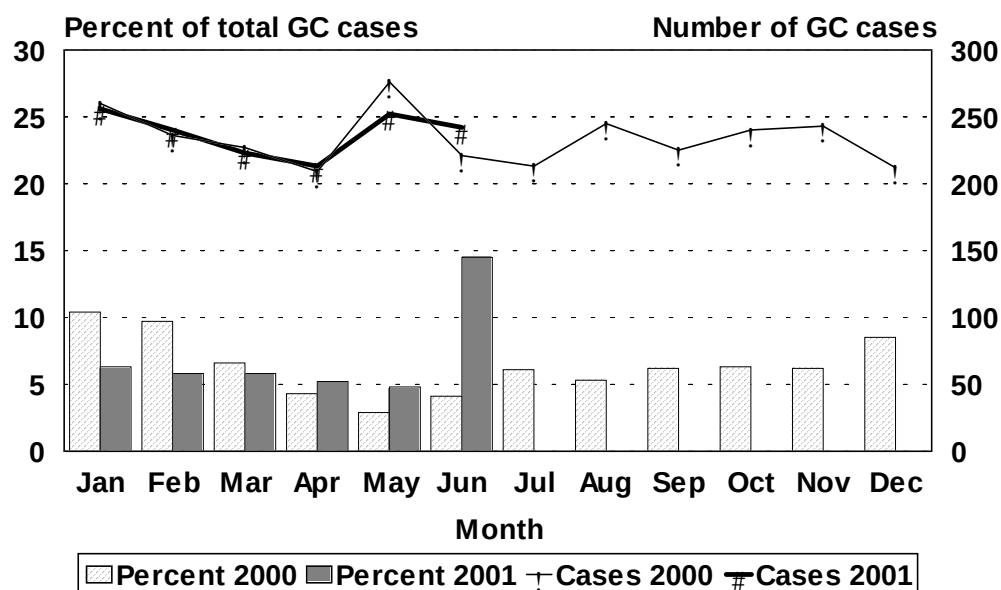
Verotoxin-Producing E. coli Infections

Ontario
2000 to 2001



Sexually Transmitted Diseases

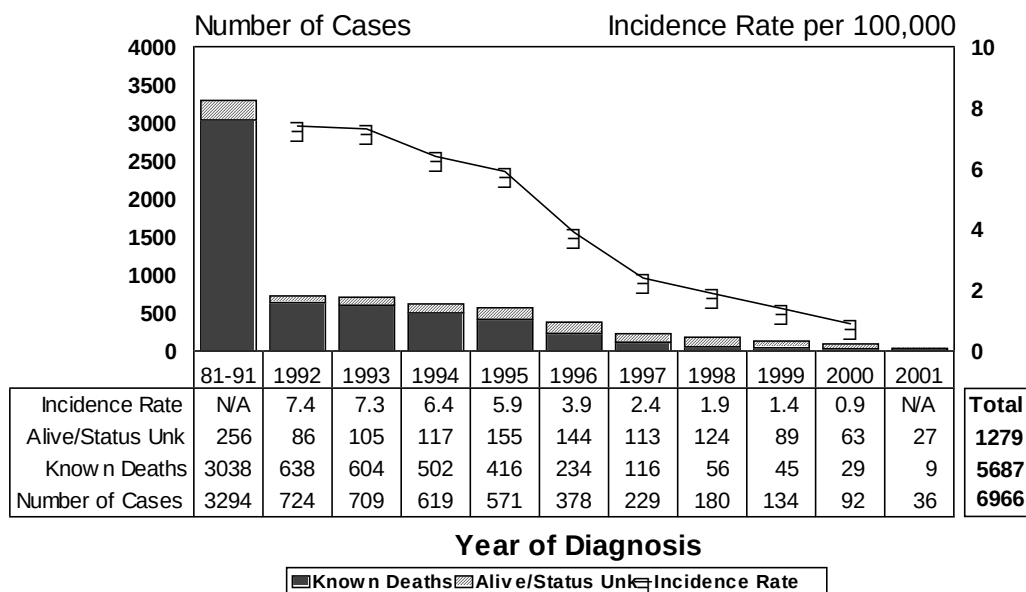
PPNG as a Proportion of Total Gonorrhea Ontario 2000 to 2001



Sexually Transmitted Diseases

AIDS in Ontario

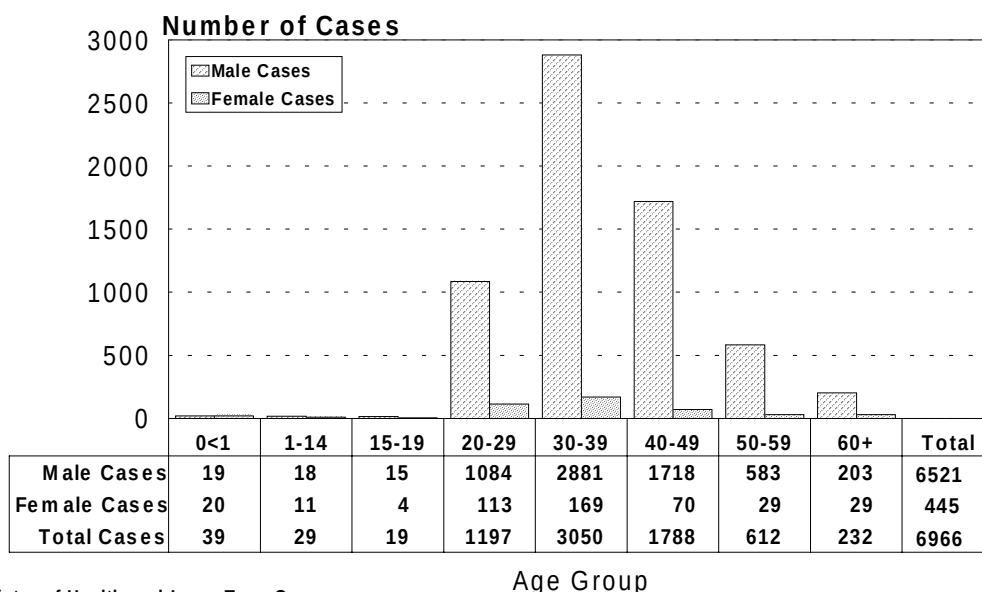
Incidence by Year of Diagnosis



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

AIDS in Ontario

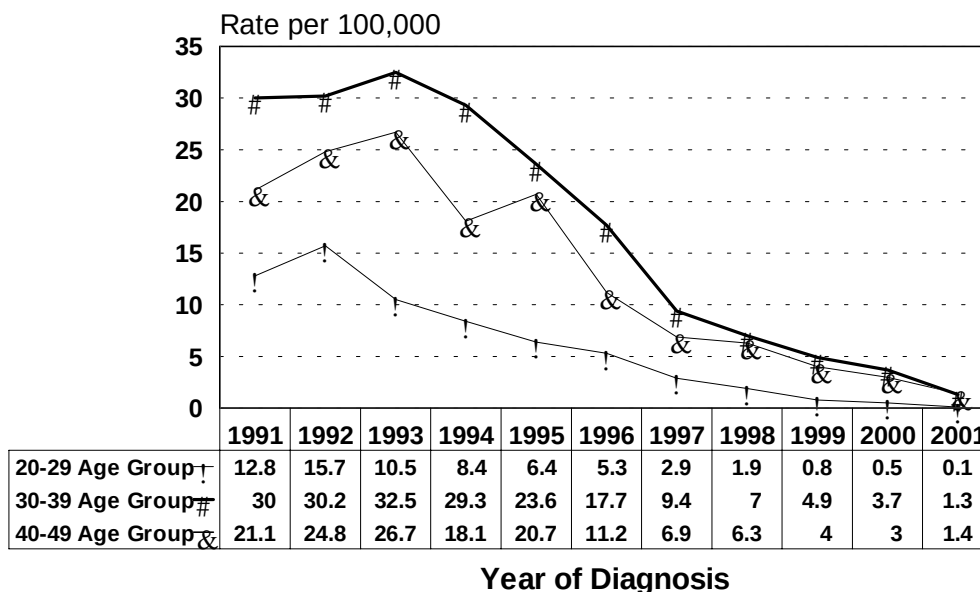
Cases by Age and Sex



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

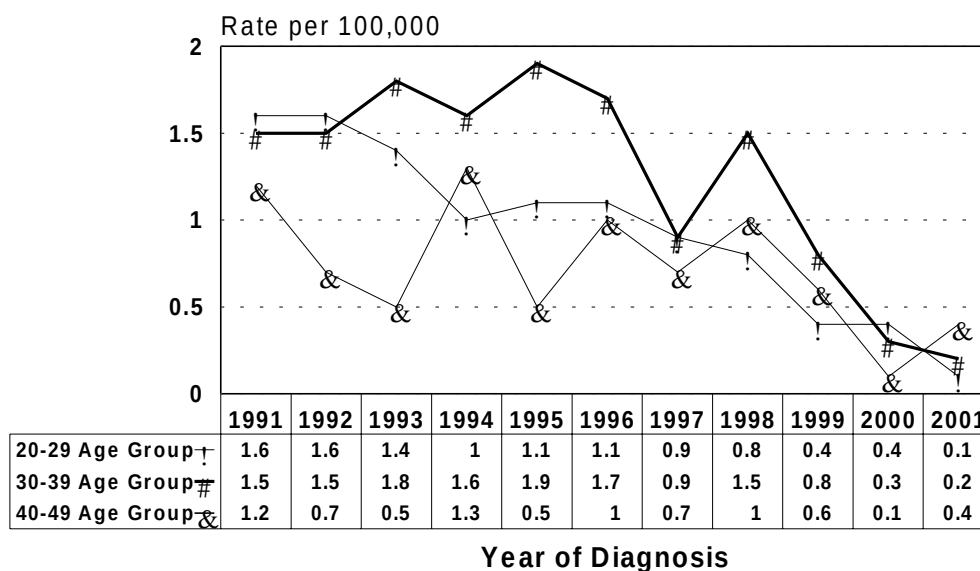
Sexually Transmitted Diseases

Males Rates for Selected Age Group Ontario, 1991-2001



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

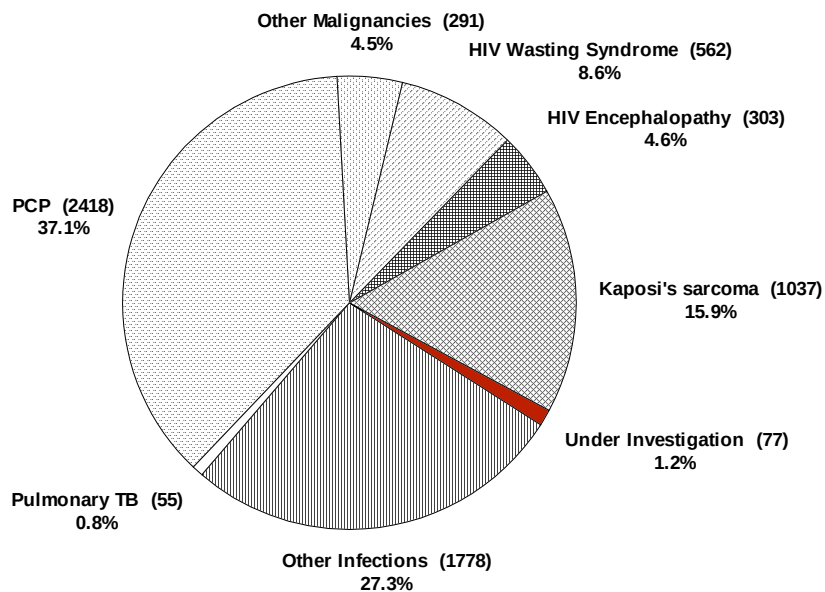
Females Rates for Selected Age Group Ontario, 1991-2001



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

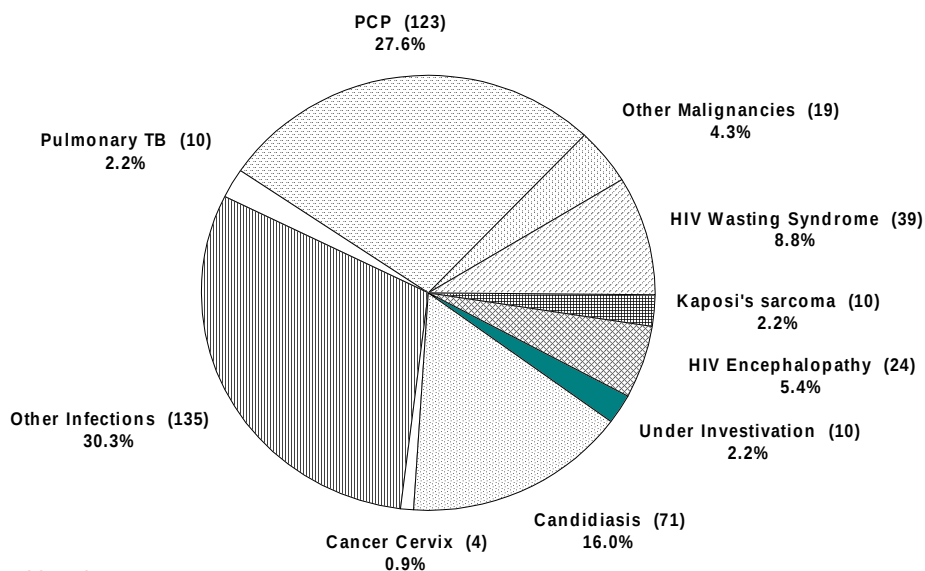
Sexually Transmitted Diseases

AIDS in Ontario Primary Disease for Males



n= 6521
Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

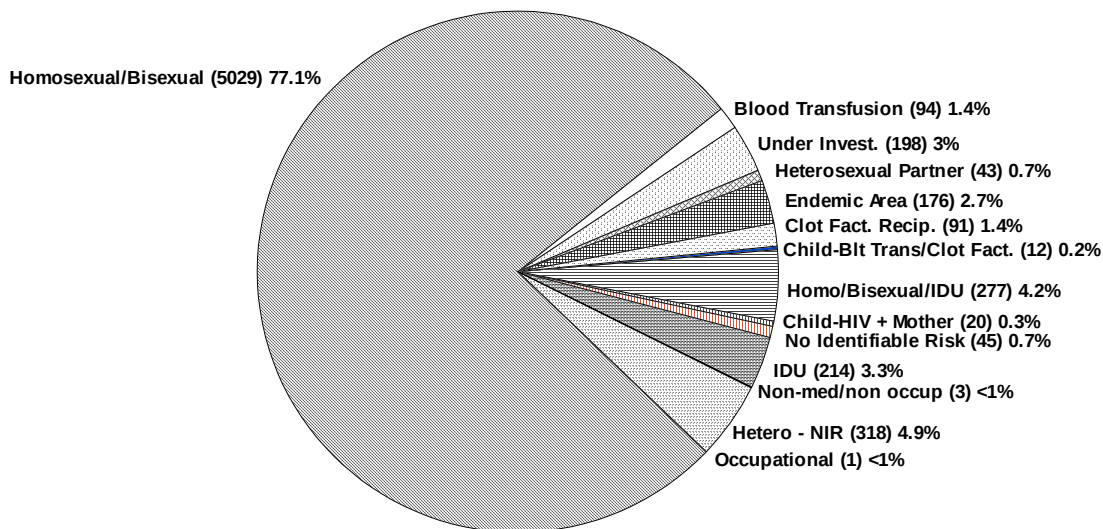
AIDS in Ontario Primary Disease for Females



n= 445
Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

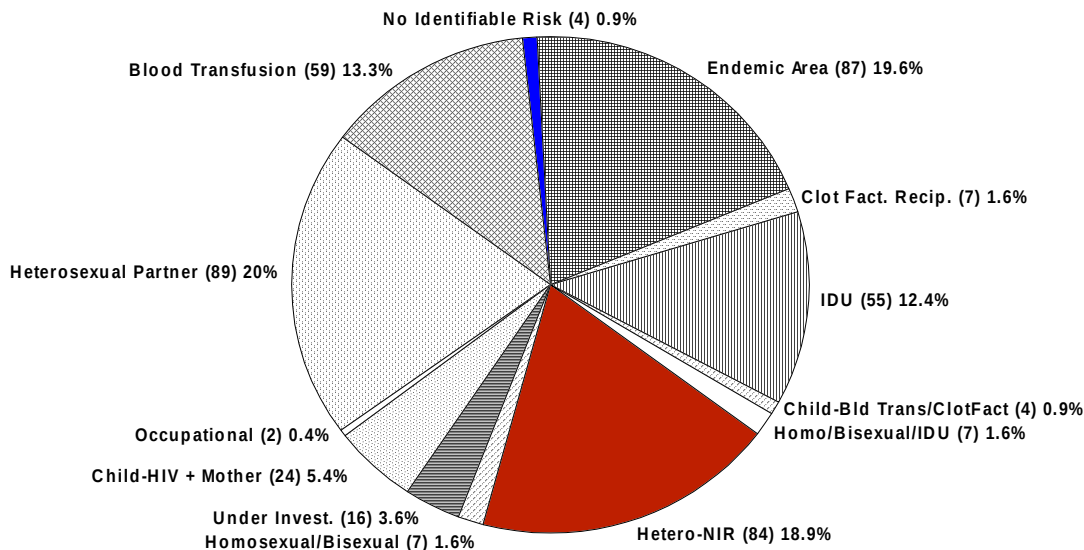
Sexually Transmitted Diseases

AIDS in Ontario Risk Exposure Categories for Males



n= 6521
Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

AIDS in Ontario Risk Exposure Categories for Females



n= 445
Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

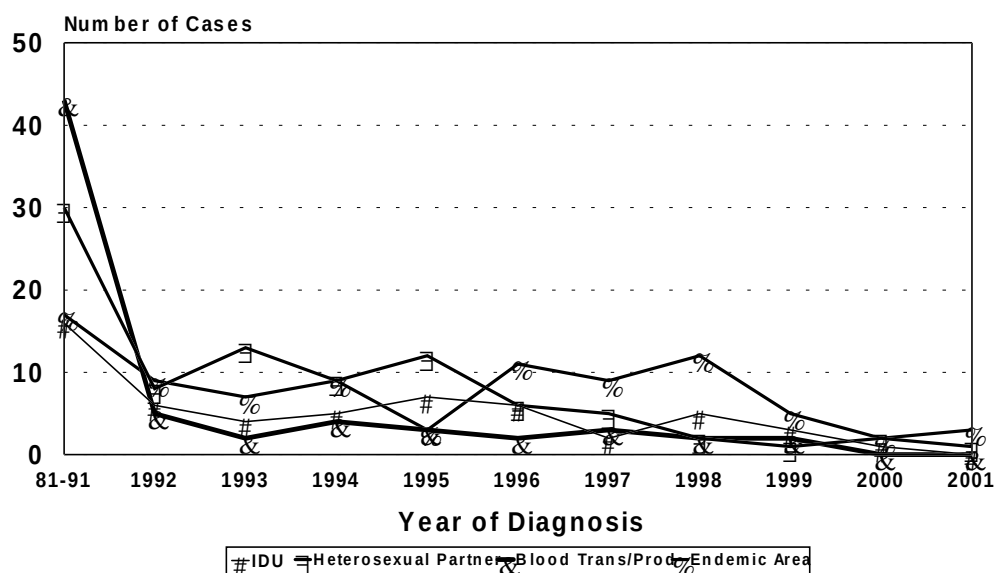
Sexually Transmitted Diseases

Risk Exposure by Year in Males Ontario, 1981- 2001

Risk Exposure	81-91	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Totals
Homosexual/Bisexual	2578	519	513	448	383	238	132	96	60	46	16	5029
IDU	67	29	22	16	20	20	9	9	13	6	3	214
Homo/Bisexual/IDU	120	31	33	31	29	17	8	4	2	2	0	277
Clot Fact Recip	59	8	7	2	7	3	2	3	0	0	0	91
Endemic Area	46	15	16	8	18	20	15	11	13	8	6	176
Heterosexual Partner	15	3	8	5	2	1	3	3	1	1	1	43
Blood Transfusion	58	8	4	4	6	3	4	3	2	2	0	94
Occupational (possible)	1	0	0	0	0	0	0	0	0	0	0	1
Child-HIV + Mother	5	3	2	1	4	2	3	0	0	0	0	20
Child-Bld Trans/Clot Fact	6	3	0	1	0	0	1	0	1	0	0	12
Hetero-NIR	87	37	38	32	40	27	16	12	14	13	2	318
No Identifiable Risk	30	5	1	3	3	1	0	1	1	0	0	45
Under Investigation	76	25	25	24	17	10	9	3	6	2	1	198
Non-med/non occup	0	0	0	0	0	0	2	1	0	0	0	3

Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

AIDS in Ontario Selected Risk Factors for Females



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to June 30, 2001

AIDS in Ontario

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

Responsible Health Unit	Number	Per cent
Algoma	13	0.2%
Brant County	30	0.4%
Grey-Bruce	26	0.4%
Durham Region	105	1.5%
Eastern Ontario	29	0.4%
Elgin-St. Thomas	13	0.2%
Haldimand-Norfolk	18	0.3%
Haliburton, Kawartha	18	0.3%
Halton Region	91	1.3%
Hamilton-Wentworth	197	2.8%
Hastings & Prince Edward	48	0.7%
Huron County	20	0.3%
Kent-Chatham	20	0.3%
Kingston, Frontenac	67	1.0%
Lambton	25	0.4%
Leeds, Grenville & Lanark	28	0.4%
Middlesex-London	230	3.3%
Muskoka-Parry Sound	14	0.2%
Niagara Region	130	1.9%
North Bay & District	28	0.4%
Northwestern	9	0.1%
Ottawa-Carleton Region	589	8.5%
Oxford County	20	0.3%
Peel Region	257	3.7%
Perth District	18	0.3%
Peterborough	32	0.5%
Porcupine	11	0.2%
Renfrew County & District	16	0.2%
Simcoe	78	1.1%
Sudbury and District	63	0.9%
Thunder Bay District	34	0.5%
Timiskaming	9	0.1%
Toronto City - total	4233	60.8%
North	266	3.8%
South	3308	47.5%
East	367	5.3%
West	292	4.2%
Waterloo Region	82	1.2%
Wellington-Dufferin-Guelph	50	0.7%
Windsor-Essex County	198	2.8%
York Region	126	1.8%
Totals	6,966	100.0%

Ministry of Health and Long-Term Care
Public Health Branch

Cumulative cases diagnosed to June 30, 2001

Reportable Disease Summary for First Nations and Inuit Health Branch Ontario Region, April 1 - June 30, 2001

DISEASE	0 - 4		5 - 9		10 - 14		15 - 19		20 - 24		25 - 29		30 - 39		40 - 49		50 - 59		Over 60		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Chickenpox (Varicella)	3	5		3	1																13
Chlamydia trachomatis infections							7	31	12	12	14	7	11	2	4						124
Giardiasis											1								1		2
Gonorrhea							1		1	1											3
Group A Strep	1		1	1																	3
Salmonellosis					1																1
Tuberculosis											1				1				1	1	4

On-Reserve Population for First Nations & Inuit Health Branch - Ontario Region = 66,857

*Just walking to
the grocery store...*



*Even a little
regular physical
activity makes a
healthy difference!*

