

IN THIS ISSUE**INVASIVE MENINGOCOCCAL DISEASE IN
ONTARIO, JANUARY 1, 2002 TO
DECEMBER 31, 2003**Disease Control Service
Public Health Division**COMMUNIQUÉ****DETERMINANTS OF CHILD HEALTH IN
NORTHERN ONTARIO**Sudbury & District Health Unit
PHRED Program**Statistics - Reportable Diseases**

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- Enteric 2002-2003

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**Invasive Meningococcal Disease in
Ontario, January 1, 2002 to December
31, 2003**

The following report compares the epidemiology of invasive meningococcal disease (IMD) in Ontario for 2002 and 2003. The data presented are current as of January 14, 2004, but may not reflect the final number of IMD cases in 2003 due to delayed reporting.

Methodology

In Ontario, cases of IMD are reportable if they meet the following surveillance case definition for IMD¹:

1. isolation of *Neisseria meningitidis* from a normally sterile site;
or
2. signs and symptoms of meningococemia (purpura fulminans) without culture confirmation;
or
3. signs and symptoms of meningitis with one of the following:
(a) antigen detection from the CSF or serum
(b) Gram negative diplococci in CSF, blood or skin lesions.

Mailing Label Goes Here

Provincial local public health units provide data, for the surveillance of IMD, to the Ministry of Health and Long Term Care (MOHLTC). Cases are routinely entered in the Reportable Disease Information System (RDIS) by health unit staff and transmitted to the MOHLTC on a weekly basis. The quality of the data depends on the complete and accurate reporting and recording of disease, and the timely transmission through the RDIS.²

Incidence

The total number of cases and incidence rates for 2002 and 2003 are presented in Table 1. A slight decrease in the number of cases and incidence rate was seen between 2002 and 2003.

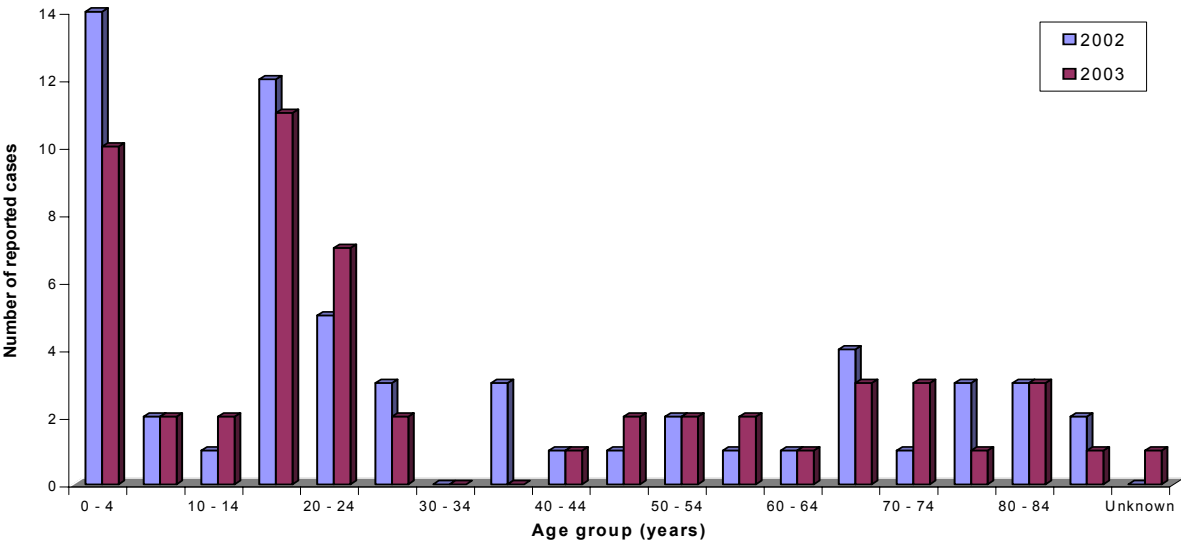
Table 1: Total number of cases and incidence rates for IMD (per 100,000) Ontario: 2002-2003

	2002	2003
Incidence rate per 100,000 population	0.49	0.48
Total Number of Cases	59	57

Age and Gender Distribution

A comparison of the IMD case age distribution for 2002 and 2003 is depicted in Figure 1. In 2002, the majority of cases occurred in children aged 0 to 4 (n=14), with a second peak in the number of reported cases occurring in the 15 to 19 year age group (n=12). In 2003, IMD cases occurred most frequently in 15 to 19 year olds (n=11), followed by the 0 to 4 year age group (n=10). The number of cases remained stable in the 5 to 9, 40 to 44, 50 to 54, 60 to 64, and 80 to 84 year age groups. There was an increase in the number of cases reported in 2003 for the following age groups: 10 to 14, 20 to 24, 45 to 49, 55 to 59 and 70 to 74. A decreased number of reported cases in 2003 was seen in the remaining age groups. In 2002, 55.9% (n=33) cases occurred in males and 44.1% (n=26) occurred in females. IMD occurred more often in females (52.6%, n=30) than in males (47.4%, n=27) in 2003.

Figure 1: Invasive meningococcal disease cases, Ontario, Age distribution by year

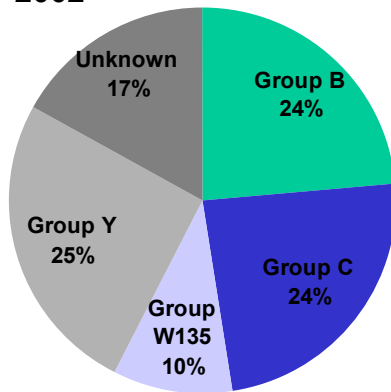


* Source: Reportable Disease Information System (RDIS)
Note: The total number of cases for 2003 may be underestimated due to late reporting

Figure 2: Invasive meningococcal disease by serogroup

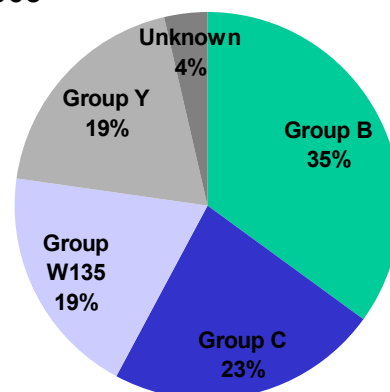
* includes cases with unknown serogroups

2002



Total number of cases 59
Total number serogroup known 49

2003



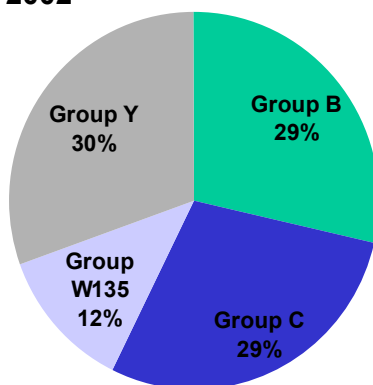
Total number of cases 57
Total number serogroup known 55

* Source: Reportable Disease Information System (RDIS)

Note: The total number of cases for 2003 may be underestimated due to late reporting

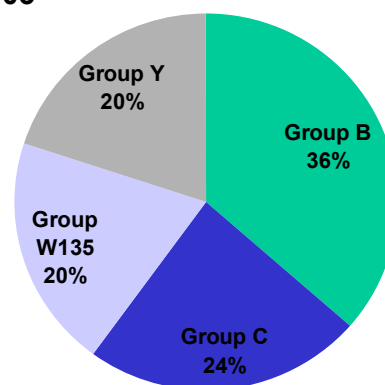
Figure 3: Invasive meningococcal disease by known serogroup

2002



Total number with known serogroup:
49 of 59 cases

2003



Total number with known serogroup:
55 of 57 cases

* Source: Reportable Disease Information System (RDIS)

Note: The total number of cases for 2003 may be underestimated due to late reporting

Distribution by Serogroup

The availability of laboratory identification for specific serogroups increased from 2002 to 2003. Serogroup information was available for 83% of cases in 2002, and rose to 96% in 2003. The distribution of all reported IMD cases by serogroup is presented in Figure 2.

Figure 3 displays the distribution in cases with known serogroups. Differences in the number of cases distributed across the serogroups were noted between the two years. In 2002, serogroup-known IMD cases were most frequently identified as group Y (30%). Serogroups C and B each accounted for 29% of serogroup-known reported cases, and 12% of the serogroup-known cases were found to be in serogroup W-135. The majority of serogroup-known IMD cases in 2003 were identified as serogroup B (36%), followed by group C (24%), and groups Y and W-135 (20%). No cases having serogroup A were reported for either year.

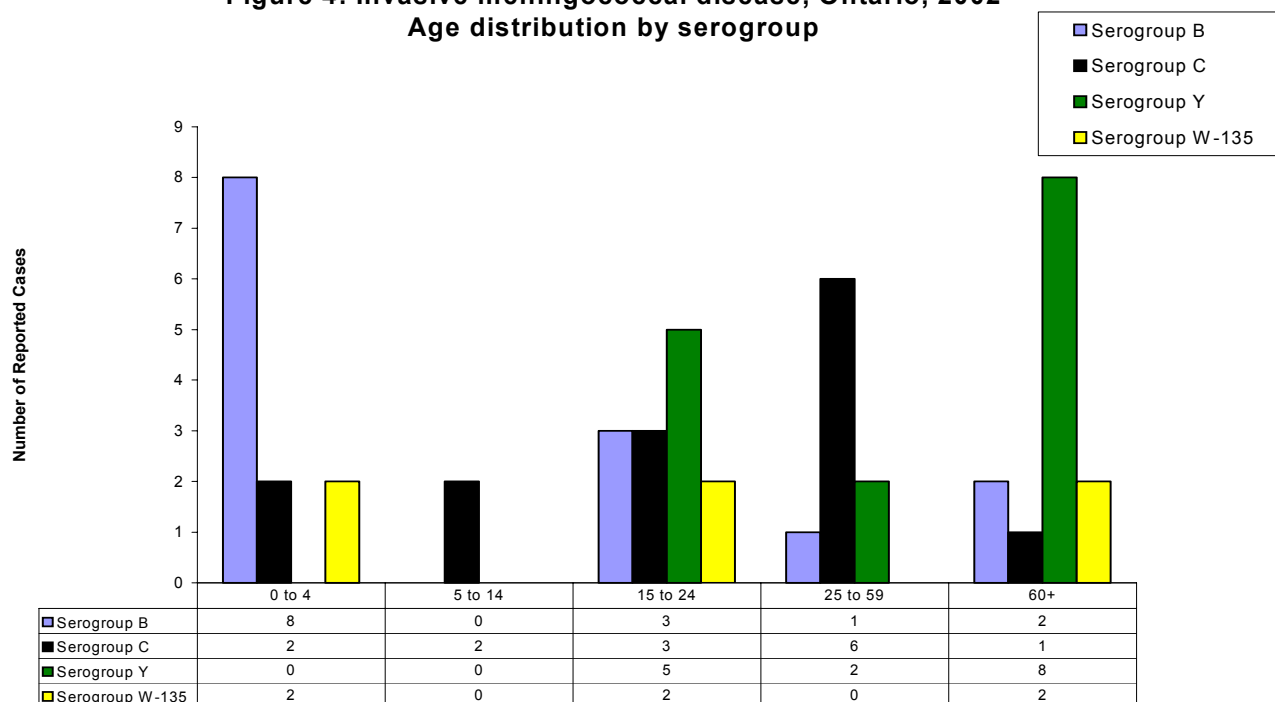
Among the reported cases for which the serogroup was known, the distribution by agegroup for serogroup C IMD varied between 2002 and 2003 (Figures 4 and 5). In 2002, most cases were found in 25 to 59 year age group, while in 2003, the majority of serogroup C cases were found in persons aged 15 to 24. Reported serogroup Y cases occurred most

frequently in the 60 years or older age group for both years. However, in 2002 the age group with the second highest frequency of serogroup Y cases was the 15 to 24 age group, compared to the 25 to 59 age group in 2003. Serogroup B occurred mainly in children 0 to 4 years of age in 2002. In 2003, the age distribution among serogroup B cases shifted slightly, where IMD was reported most frequently in 15 to 24 year olds. In 2002, serogroup W-135 cases were evenly distributed among the 0 to 4, 15 to 24 and 60 years or older age categories. Serogroup W-135 IMD occurred most often in the 0 to 4 year age group followed by the 60 year or older age group for 2003.

Case-Fatality Rates

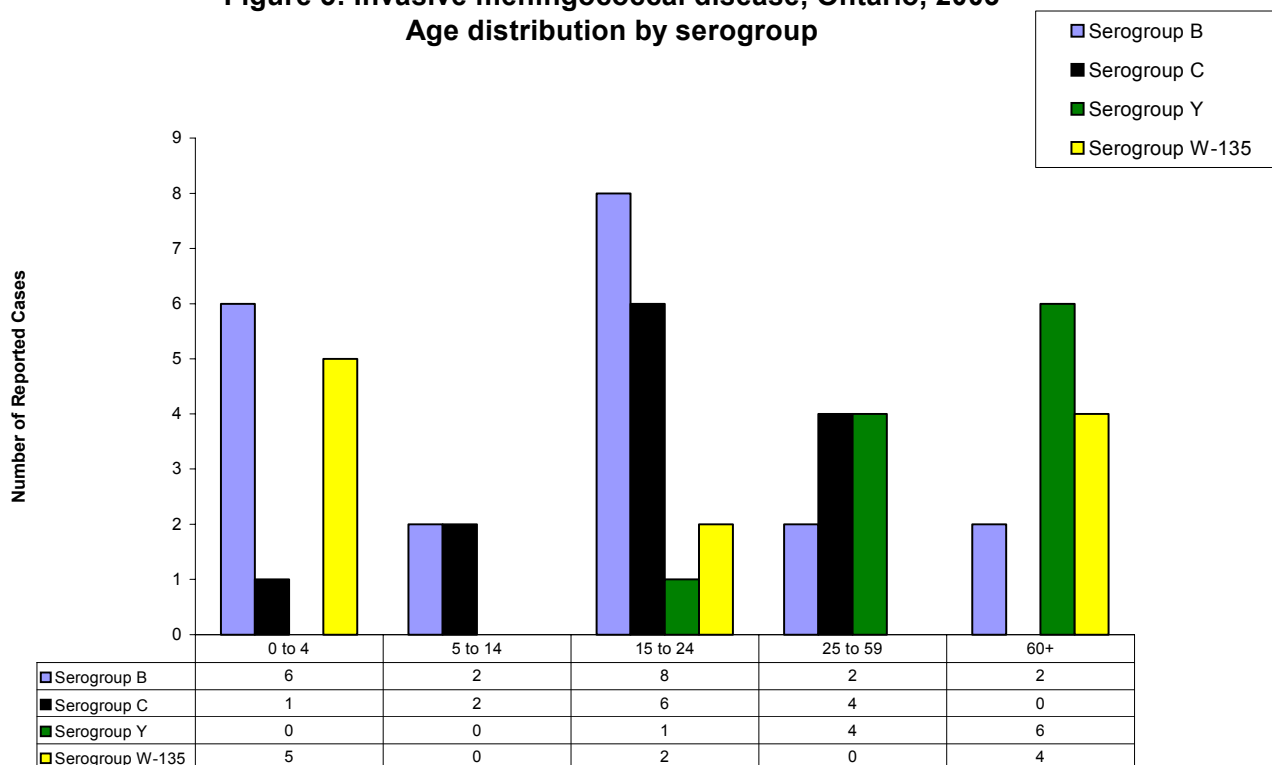
The number of IMD deaths and case fatality rates (CFR) are presented in Table 2. A slight decrease in CFR was seen between 2002 and 2003. The combined CFR for all IMD cases over the 2-year period in Ontario was 19.8% (23 deaths among 116 cases). Table 3 displays the case fatality rate by year and serogroup. A higher CFR was found in serogroup C cases as compared to cases in the other serogroups over the two-year period. The combined CFR for known serogroup C was 39.3%, and 20.5% for known serogroup B. These rates were higher than the previously published overall CFR for serogroups B and C from 1998 to 2002, which were 18.5%

**Figure 4: Invasive meningococcal disease, Ontario, 2002
Age distribution by serogroup**



* Source: Reportable Disease Information System (RDIS)

Figure 5: Invasive meningococcal disease, Ontario, 2003
Age distribution by serogroup



* Source: Reportable Disease Information System (RDIS)

and 8.9% respectively.² Serogroup W-135 had a combined CFR of 23.5%. For cases with known serogroup Y, the overall case fatality rate was 0.0% for 2002/2003, as no deaths occurred in this group during this time period; however, a CFR of 13.6% was found between 1998 and 2002.² Caution should be used when interpreting the 2002/2003 results, due to the small number of cases over the two year time frame, and missing serogroup information for 12 cases. The CFR for 1998 to 2003 for all cases (including those with unknown serogroups) was 13.8% (60/434). It should be noted that serogroup information was incomplete for many cases prior to 2002, therefore, the ability to determine each serogroup's contribution to the overall CFR during this time period is compromised.

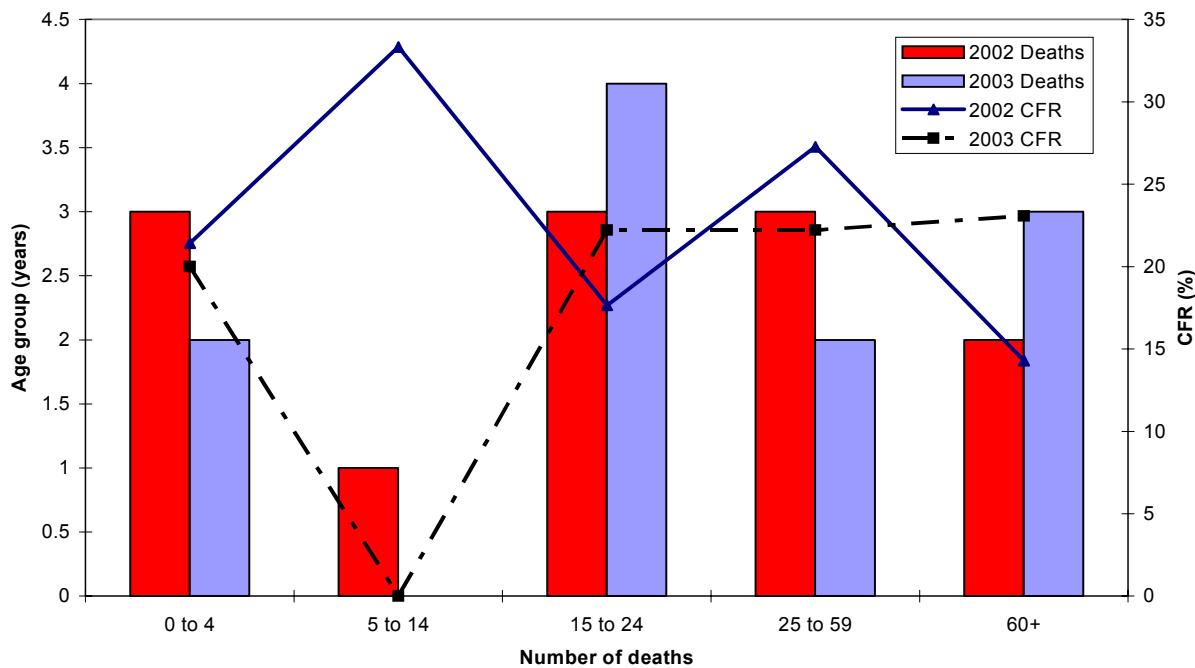
Table 2: IMD Case-fatality rates, Ontario: 2002-2003

	2002	2003
Number of Deaths	12	11
Number of Cases	59	57
Case Fatality Rate	20.3%	19.3%

Table 3: IMD Case-fatality rates by selected known serogroup, Ontario: 2002-2003

Serogroup	2002	2003	2002/2003 CFR	Overall CFR* (1998-2003)
B	3/14 (21.4%)	4/20 (20.0%)	7/34 (20.6%)	11/100 (11.0%)
C	6/15 (40.0%)	5/13 (38.5%)	11/28 (39.3%)	26/119 (21.8%)
W-135	2/6 (33.3%)	2/11 (18.1%)	4/17 (23.5%)	5/30 (16.7%)
Y	0/15 (0.0%)	0/11 (0.0%)	0/26 (0.0%)	6/58 (10.3%)

Figure 6: Invasive meningococcal disease, Ontario, 2002 to 2003, Deaths and CFR by age group



* Source: Reportable Disease Information System (RDIS)
 Note: The total number of cases for 2003 may be underestimated due to late reporting

Figure 6 displays the CFR by age group. In 2002, the highest CFR was found in the 5 to 14 year age group (33.3%), whereas in 2003, the CFR was lowest in persons aged 5 to 14, and similar in the other age groups.

Summary

In summary, a slight decrease in the IMD incidence rate in Ontario occurred between 2002 and 2003. The age distribution among cases differed somewhat between years. In 2002, the majority of IMD cases were aged 0 to 4, whereas in 2003, IMD was reported most frequently in persons aged 15 to 19. A higher percentage of known serogroups was available in 2003, enabling a more accurate description of the epidemiology of IMD in Ontario. A shift in the number of cases found in selected serogroups was demonstrated over the two years. The percentage of cases in serogroups Y and C decreased, whereas the percentage of cases in serogroups B and W-135 increased from 2002 to 2003. This trend was consistent when comparing all cases to the known-serogroup cases.

IMD case fatality rates remain high for serogroups C, B and W-135. However, there appears to be an increase in

the CFR for serogroup B and C cases over the past six years. Case fatality rates were somewhat higher than previously reported provincial² and national³ findings. Recent IMD clusters in Ontario have been associated with serogroup C.

Laboratory identification of specific serogroups increased between the two years, possibly due to the availability of publicly funded vaccines for household and intimate social contacts of cases. Timely identification of serogroups among cases facilitates the vaccination of close contacts of cases due to vaccine preventable strains of IMD (serogroups A, C, Y and W-135), which may potentially reduce the risk of development of disease in this group.

Acknowledgement

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Ministry of Health and Long-Term Care

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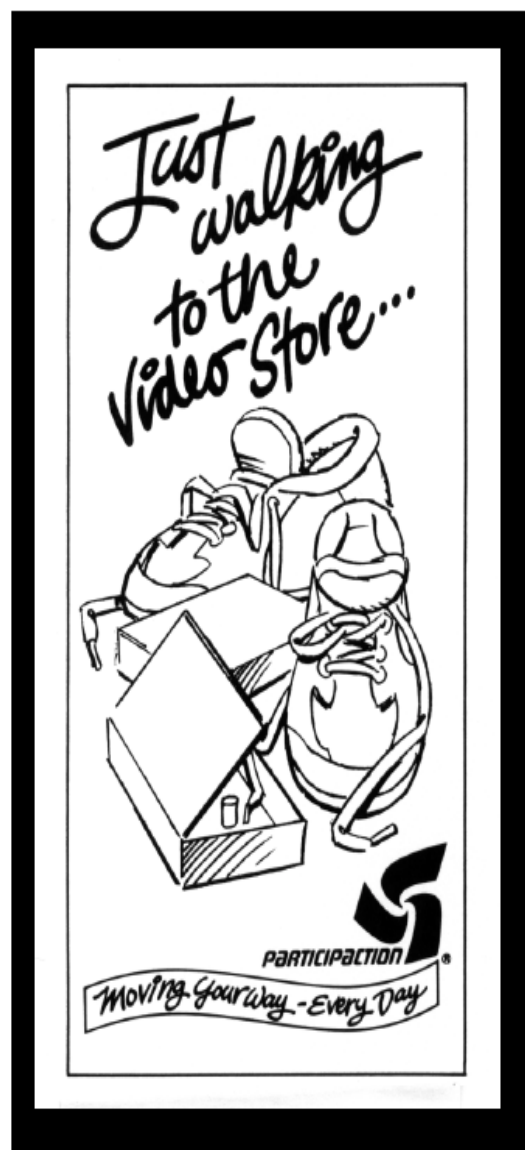
Vaccine Preventable Diseases and TB Control Unit

Disease Control Service, Public Health Division

Ministry of Health and Long-Term Care

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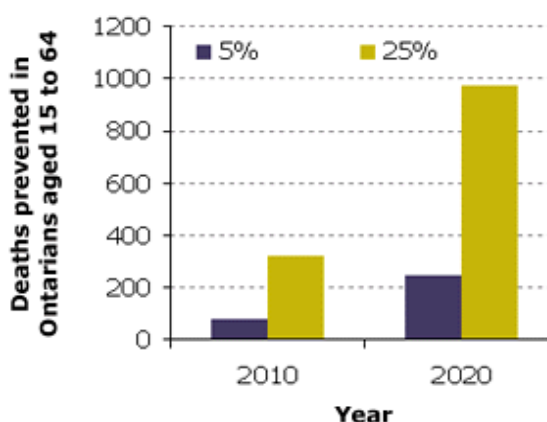
Increasing the tobacco tax saves lives

Surveillance Unit, Division of Preventive Oncology, Cancer Care Ontario

When cigarette prices go up, people smoke less. This is especially true for teenagers and young adults. The recent 5% price increase for a carton of cigarettes in Ontario is expected to prevent about 80 deaths by the year 2010 in people aged 15 to 64, and almost 250 deaths by the year 2020 in that age group.

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Predicted number of lives saved in Ontario by cigarette tax increases



For more information, see:

[Tobacco or Health in Ontario](http://www.cancercare.on.ca/pdf/tobaccommon.pdf). Cancer Care Ontario. 2002 (<http://www.cancercare.on.ca/pdf/tobaccommon.pdf>)
[Investing in Tobacco Control](http://www.oma.org/phealth/tobaccocontrol.pdf). Ontario Medical Association. 2003.
(<http://www.oma.org/phealth/tobaccocontrol.pdf>)

To view this cancer fact and other cancer statistics visit: http://www.cancercare.on.ca/reports_cancerFacts.htm

Determinants of Child Health in Northern Ontario

Introduction

A recent report by the Northern Ontario Perinatal and Child Health Survey (NOPCHS) Consortium provided a picture of the health of Northern Ontario children beyond disease rates and indicators. The **Determinants of Child Health in Northern Ontario**¹ report examines the relationship between socio-economic indicators and health indicators such as access, awareness, and utilization of child health services in Northern Ontario communities. The report, released in December 2003, is one of five focused reports by the Consortium with the goal of producing quality data to guide northern child health program and policy decisions. In addition to the Determinants of Child Health, four other focused reports were released: Access to Parenting Resources; Breastfeeding Practices; Unintentional Injuries and Safety; and Nutrition.

In 2002, the Consortium released two reports: **The Northern Ontario Perinatal and Child Health Survey Highlights Report: A First Look**² and the **Northern Ontario Baseline Child Health Information: Analysis of Secondary Data**.³ The “Highlights Report” presented initial findings from the Consortium’s 2002 telephone survey of 3413 mothers with children aged 0-6 years. The “Baseline Report” presented existing data from secondary sources on the health of Northern Ontario children aged 0-6, and provided a compendium of information to supplement the survey findings. Previous PHERO articles in May and June 2003 detailed the partnership and process aspects of the Consortium’s work and the findings and implications of the 2002 reports.

Determinants of Health Perspective

Health Canada’s Report on the Health of Canadians presented a model of the “determinants of health.” The determinants of health are categorized as twelve broad variables: income and social status, social support networks, education and literacy, employment/working conditions, social environments, physical environments, personal health practices and coping skills, healthy child development, biology and genetic endowment, health services, gender, and culture.⁴ The Determinants of Child Health in Northern Ontario report focused its examination on income, education, social support networks, and language.

There is strong evidence that investing energy and resources in child health is a way to improve population health.⁵ The Determinants of Child Health in Northern Ontario report examined the relationship between measures of socio-economic status (SES) and the following health conditions and behaviours: 1) awareness, access, and utilization of community and health care services, 2) family nutrition and household food security, 3) breastfeeding practices, and 4) frequency and treatment of childhood injuries.

Data Source

The data source for this report is the Northern Ontario Perinatal and Child Health Survey (NOPCHS). The telephone survey targeted Northern Ontario mothers with children aged 0-6 across the eight northern health unit areas. The total sample for this survey was 3413 participants. Data were collected by telephone survey between March and June 2002. Interviews were conducted in both English and French. For more information on the methodology and data source for the report, refer to the article “The Northern Ontario Perinatal and Child Health Survey: Findings and Implications,” published in PHERO, Volume 14, Number 6 in June 2003.

Results and Implications

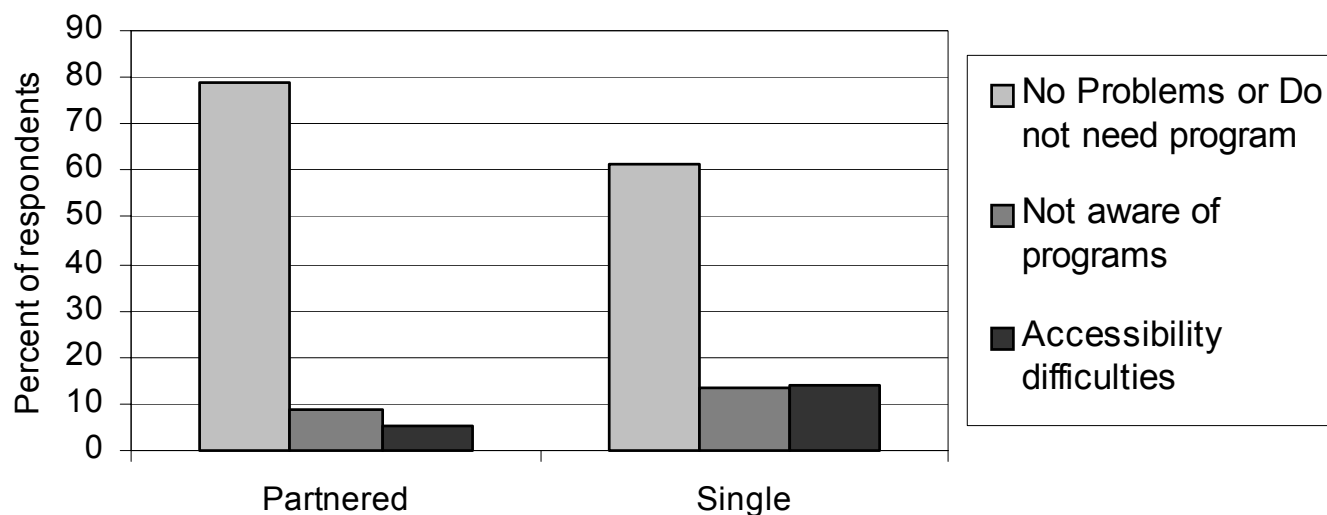
Community Support

The NOPCHS data revealed that the education level of a mother and her partner had an impact on whether or not the mother knew where to go for help. More mothers who completed a post secondary education stated that they knew where to get help in their communities, as compared to those who had completed all or some high school. Regardless of income level, most mothers in northern health unit areas (between 85% and 90%) said that they were aware of community supports.

Barriers to Accessing Programs

Mothers in higher income categories report less of a need for child and family programs than mothers with family incomes of less than \$27,000. Barriers to accessing programs, such as cost, transportation, or inconvenient location, are more likely to be faced by lower income mothers. In fact, mothers with family incomes of less than \$27,000 are 3 to 4 times more likely to report these barriers (15%) than those in the two highest income categories (4%). Mothers who had completed a post-secondary education were more likely to report not needing health unit and community programs, and were less likely to have faced barriers to participation than mothers with less than a high school education. Single mothers were less aware of programs and had more trouble

Figure 1. Barriers to program participation by mother's partner status, all Northern Health Units; 2002



accessing programs than those with partners. As illustrated in Figure 1, a higher percentage of mothers with partners (79%) reported having no problems or not needing services compared to those without partners (61%).

Satisfaction with Services

A Low Income Cut-Off (LICO) variable was derived based on the number of people supported by family income and approximate family income. Families with higher income and those living above the LICO had increased satisfaction rates with services: 47% of respondents living below LICO were very satisfied with supports and services, while 56% of respondents above LICO were very satisfied. Mothers without a partner had lower satisfaction rates. The lower satisfaction felt by the single parents may be a result of their perceived barriers to accessibility, which were higher among mothers with no partner.

Access to Programs

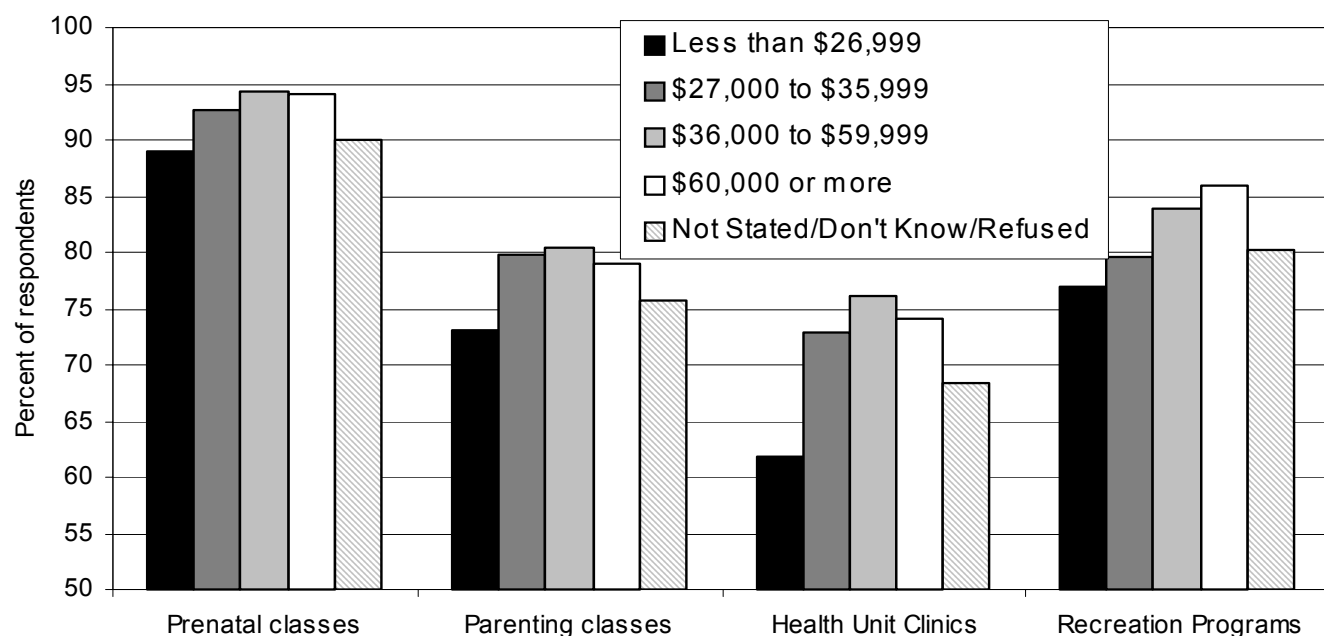
Accessibility to available programs was influenced by income, LICO, education level of the partner, as well as language. Those families with lower incomes and living below LICO reported fewer services close to their homes. Prenatal classes, parenting classes, health unit clinics for child services, recreation programs, and toy libraries were reported to be available close to where they live more often by mothers

with higher incomes. A lower percentage of mothers with a high school education felt that prenatal classes, parenting classes, family resource centres, and recreation services and programs were available near them compared to mothers who held college, university, or graduate degrees. In addition, access to recreation programs, family resource centres and toy libraries also increased as partner's education increased. The percentage of mothers who reported that parenting classes and health unit clinics for children were available close to their homes was greater for English or French-speaking mothers than for those whose first language was not English or French. Almost ten percent more respondents first speaking English reported a family resource centre close to their homes (55%) than mothers who speak a language other than English or French (46%).

Prenatal Service Utilization

Roughly half of the mothers attended prenatal classes; however, attendance varied according to some measures of socio-economic status. A lower percentage of mothers below the LICO (36%) went to prenatal classes than mothers above the LICO (51%). Both mother's and partner's education level had an impact on attending prenatal classes. Lower education levels of both the mother and partner resulted in approximately a 10% decrease in attending prenatal classes.

Figure 2. Access to child and perinatal programs by income, all Northern Health Units; 2002



Mother's income level also appears to be associated with the length of time in pregnancy before she first sought prenatal care. A higher proportion of low-income mothers (12%) waited until between 4 and 6 months of pregnancy before seeking prenatal care than higher income mothers (8%). Education levels of the mothers and partners also affected how long mothers waited before first seeking prenatal care. A higher percentage of mothers with a higher education (90%) sought prenatal care within the first 3 months of pregnancy compared to mothers with a lower education (85%). An examination of partners' education revealed similar trends. Single mothers were more likely to wait until between month 4 and 6 of pregnancy before seeking prenatal care (15%) than those who had a partner (9%).

Program Utilization

Utilization of services such as parent support groups, recreational programs, and food banks were examined according to six measures of SES: income, LICO, mother's education, partner's education, language, and partner status. Income influenced program utilization for the majority of the listed programs and services. Utilization of parent support groups, visit programs (Healthy Babies, Healthy Children), and food banks were reported most

used by families in the lowest income level compared to higher income categories. On the other hand, there was a trend for increased use of recreational services and programs for children as income category increased. Library services and toy libraries were also reportedly used more by families with incomes of \$60,000 or more than by families with less than \$27,000 in family income (Figure 2).

Not surprisingly, home visits (Healthy Babies Healthy Children) and food banks were used less by families above the LICO than families below the LICO. Recreational services and programs for children and library services for mothers and children were used more by above the LICO families than below the LICO families. Taken together, these findings suggest that lower income families, or families living below the LICO, will more often use basic services for help and survival, while higher income families and families living above the LICO utilize programs more often for leisure and education.

Food Security and Food Bank Use

Families were considered food secure when they reportedly had "access by all people at all times to enough food for an active, healthy life." Families who had "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways"²⁶

Table 1. Child nutrition indicators by low-income cut off, all Northern Health Units; 2002		LICO		
		Above LICO	Below LICO	Not Stated/Don't know or Refused
My child usually has 3 main meals – breakfast, lunch and supper as well as 2-3 between-meal snacks.				
5-6 times a week or more	% of sample (Lower and Upper C.L.)	93.5 (92.3 – 94.7)	84.5 (80.7 – 88.3)	91.7 (89.1 – 94.3)
3-4 times a week or less	% of sample (Lower and Upper C.L.)	6.5 (5.3 – 7.7)	15.5 (11.75 – 19.3)	--*
My child enjoys a variety of foods.				
Always or Almost Always	% of sample (Lower and Upper C.L.)	76.0 (74.0 – 78.0)	73.6 (69.0 – 78.2)	80.0 (76.2 – 83.8)
Sometimes/ Hardly ever/ Never	% of sample (Lower and Upper C.L.)	24.0 (22.0 – 26.0)	26.4 (21.8 – 31.0)	20.0 (16.2 – 23.8)
* estimates based on sample size less than 30 are suppressed and represented by a dash (--)				

were deemed food insecure. The NOPCHS revealed that income, LICO, the educational level of both the mother and partner, and having a partner affected food security.

The fact that 6 to 9% of young children in Northern Ontario face food insecurity is a serious concern. Not unexpectedly, it was noted that families with lower incomes and those living below LICO had lower food security levels. Income has a positive impact on food security. Only three out of four families with less than \$27,000 were food secure. Not surprisingly, there was also a trend for food bank use to drop as income increased. Single mothers had decreased food security and increased food bank use as compared to mothers with partners. Food bank use was almost five times higher for mothers without a partner than for mothers with a partner.

Eating Frequency and Variety of Foods

This report also demonstrated that there are many factors influencing the nutritional status of children in Northern

Ontario. Income, LICO and the education level of the mother affected eating patterns. Children in families with lower income levels and living below LICO were shown to eat three meals plus snacks less often than children in higher income levels or above the LICO. A higher percentage of children from families with over \$36,000 had 3 main meals plus snacks 5 to 7 days a week than those from families with less than \$36,000 (Table 1). The survey revealed that the children living with mothers with a partner enjoyed eating a variety of food, whereas children in single parent homes enjoyed a more limited variety of foods. Interventions should be considered to address these various factors and to assist in eliminating the nutritional challenges faced by the children of Northern Ontario.

Breastfeeding

Our research shows that Northern Ontario mothers at higher income levels and mothers with higher education levels are

more likely to initiate breastfeeding than mothers with less income and education. Breastfeeding was initiated more often by women living above the LICO (75%) than women living below (64%). Having a partner was also positively associated with breastfeeding initiation during the first 48 hours after birth. Income, LICO, mother's education level, and partner status did not appear to affect duration of breastfeeding for Northern Ontario mothers.

Unintentional Injuries

Children of single mothers had greater rates of falls requiring medical attention in the previous year (15%) than children of mothers with partners (8%). This finding could indicate a need to pay special attention to single parent families when designing childhood injury prevention programs in Northern Ontario.

Discussion

It is apparent that the SES variables of income, LICO, education, language, as well as partner status need to be addressed when considering families' access, awareness and ultimately the utilization of health services and community programs. Ongoing efforts should be made to tailor programs and services to meet the needs identified, since families most in need often face more barriers. Although most NOPCHS respondents stated that they indeed felt satisfied by the services provided, suggestions were made to create more play centres, recreational services and daycares. There was also a call to increase awareness of and accessibility to these services.

Lower education levels of mothers and their partners appeared to influence the health conditions and behaviours of their children. Health promotion campaigns and programs must make special efforts to make their campaigns and programs suitable to parents with lower education levels (eg. level of literacy).

Single mothers reported facing more barriers, lower satisfaction with community supports, less (and later), use of prenatal services, less food security, less variety in the child's diet, and less breastfeeding initiation rates. Single mothers used parent support groups and food banks more often than those mothers with a partner. Their children also experienced more falls requiring medical attention. Based on these findings, it is important to address needs of single parents and the unique challenges they face.

First language did not appear to have a major influence on program utilization. It was noted that children of mothers first learning French used recreational programs less often than children of mothers first learning English or other languages. This may indicate a lack of French language recreational programs.

The results of this report bring to light important implications for social and economic planning. This report shows that income disparity in Northern Ontario is potentially having an adverse effect on the health conditions and behaviours of residents, and most importantly, children. Agencies and governments at municipal, provincial and federal levels need to take income levels and disparities into account when designing and evaluating policies and programs. At the local level, attempts to alleviate burden and increase accessibility to health services will help reduce some of the barriers faced by low-income families, families with lower education levels, and single parent families. Programs that make special attempts and are successful in reaching these populations should be evaluated for approaches that can be applied to other programs.

The Determinants of Child Health in Northern Ontario report will soon be available online at:

http://www.sdhu.com/english/statistics/htmlfiles/Statistics_Health_Status_Profiles.html

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Summary of Reportable Diseases in Ontario - October 2003

Health Units by Region	Population 2001	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	117,200		1	5	24	1		
North Bay	92,950		4	44	19			
Northwestern	75,085		1	15	18			2
Porcupine	84,755		1	17	12			
Sudbury	188,365		2	1	30			3
Thunder Bay	152,800		4		50	5	1	6
Timiskaming	35,335				7			
Total - Northern	746,490		13	82	160	6	1	11
Eastern Ontario	185,975				19		1	2
Hastings & Prince Edward	150,805		5		14			
Kingston, Frontenac & Lennox	178,065	1	4		19	2		
Leeds, Grenville & Lanark	159,100		2					
Ottawa	774,070	1	30	19	130	4	1	19
Renfrew	96,465		3	14	3			
Total - Eastern	1,544,480	2	44	33	185	6	2	21
Durham	506,900		15	22	106	2		11
Haliburton-Kawartha	161,770		3		9			
Muskoka-Parry Sound	80,500		2	1	6	1		
Peel	988,950		47	51	153	4	1	28
Peterborough	125,860		1	1	31	1		3
Simcoe	377,030		9	72	39	3	1	2
Toronto - total	2,481,495	2	108	115	571	2	4	178
<i>North</i>			21	55	109		1	29
<i>South</i>		2	34	24	188			91
<i>East</i>			31	10	170		2	25
<i>West</i>			22	26	104	2	1	33
York	728,980		34	16	68	4	4	8
Total - Central East	5,451,485	2	219	278	983	17	10	230
Grey Bruce	152,380		10		15	1		
Elgin-St. Thomas	81,560			1	12		2	2
Huron	59,695		6	1	3	1		
Chatham-Kent	107,705		4		14		1	
Lambton	124,295							
Middlesex-London	403,180		8		46	2		8
Oxford	99,265		2		12			2
Perth	73,680		3	2	4	1		
Windsor-Essex	374,985		15		53	3	1	3
Total - Southwest	1,476,745		48	4	159	8	4	15
Brant	118,085		3	4	20			1
Haldimand-Norfolk	104,580		3		9			1
Halton	375,230		15		11	1		
Hamilton	490,270		15		86	1	2	16
Niagara	410,570	1	16	7	50	1	1	11
Waterloo	438,515		13		59			5
Wellington-Dufferin-Guelph	238,315		10		27			5
Total - Central West	2,175,565	1	75	11	262	3	3	39
October 2003	11,394,765	5	399	419	1,749	40	20	316
* Total YTD 2003	-	79	3,530	10,846	15,474	356	338	2,748
* Total YTD 2002	-	76	3,985	12,908	15,275	761	305	2,574

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - October 2003

Health Units by Region	Population 2001	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	117,200		1	5				
North Bay	92,950			1				
Northwestern	75,085			3				
Porcupine	84,755	1				1		
Sudbury	188,365			5				2
Thunder Bay	152,800		1	8				
Timiskaming	35,335							
Total - Northern	746,490	1	2	22		1		2
Eastern Ontario	185,975		1	3				
Hastings & Prince Edward	150,805					1		
Kingston, Frontenac & Lennox	178,065			25				
Leeds, Grenville & Lanark	159,100			3				1
Ottawa	774,070	2	1	37				
Renfrew	96,465							
Total - Eastern	1,544,480	2	2	68		1		1
Durham	506,900					1		
Haliburton-Kawartha	161,770			7				
Muskoka-Parry Sound	80,500							
Peel	988,950	3		5		1		
Peterborough	125,860		1	6				
Simcoe	377,030			27				
Toronto - total	2,481,495	5	8	109		3	1	1
North		4	3	27				
South			3	40		3	1	1
East		1		24				
West			2	18				
York	728,980			15		1		
Total - Central East	5,451,485	8	9	169		6	1	1
Grey Bruce	152,380	1		7				
Elgin-St. Thomas	81,560			4				
Huron	59,695							
Chatham-Kent	107,705			3				
Lambton	124,295							
Middlesex-London	403,180	1		13	1			
Oxford	99,265			1				
Perth	73,680		1					
Windsor-Essex	374,985			13				
Total - Southwest	1,476,745	2	1	41	1			
Brant	118,085			5				
Haldimand-Norfolk	104,580							
Halton	375,230			11		1		
Hamilton	490,270		1	22		3		
Niagara	410,570	1		23				
Waterloo	438,515			5				
Wellington-Dufferin-Guelph	238,315							
Total - Central West	2,175,565	1	1	66		4		
October 2003	11,394,765	14	15	366	1	12	1	4
* Total YTD 2003	-	127	115	4,089	10	467	10	43
* Total YTD 2002	-	133	108	4,362	4	2,177	0	49

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - October 2003

Health Units by Region	Population 2001	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis Infectious**	TB	VTEC
Algoma	117,200								
North Bay	92,950		4		1				
Northwestern	75,085				1				
Porcupine	84,755								
Sudbury	188,365				1				
Thunder Bay	152,800				1				
Timiskaming	35,335								
Total - Northern	746,490		4		4				
Eastern Ontario	185,975								
Hastings & Prince Edward	150,805				4				1
Kingston, Frontenac & Lennox	178,065		1			1			
Leeds, Grenville & Lanark	159,100								
Ottawa	774,070		6		12	1	2	2	2
Renfrew	96,465				2				
Total - Eastern	1,544,480		7		18	2	2	2	3
Durham	506,900		2		8			1	
Haliburton-Kawartha	161,770				2				
Muskoka-Parry Sound	80,500		2		1				
Peel	988,950	1		1	24	2		6	5
Peterborough	125,860		5		3		1		
Simcoe	377,030		1		3			1	
Toronto - total	2,481,495	1	7		34	16	20		2
<i>North</i>		1	2		9	2	1	2	1
<i>South</i>			2		11	10	19	4	
<i>East</i>			3		6	1		4	
<i>West</i>					8	3		10	1
York	728,980				9		2	1	1
Total - Central East	5,451,485	2	17	1	84	18	23	29	8
Grey Bruce	152,380				4			1	
Elgin-St. Thomas	81,560				2				
Huron	59,695				1				2
Chatham-Kent	107,705								
Lambton	124,295								
Middlesex-London	403,180		2		2				
Oxford	99,265				1				
Perth	73,680								
Windsor-Essex	374,985				2	1			
Total - Southwest	1,476,745		2		12	1		1	2
Brant	118,085		1						1
Haldimand-Norfolk	104,580		2		1				
Halton	375,230				10				
Hamilton	490,270				6		1		
Niagara	410,570				1			1	1
Waterloo	438,515				2				4
Wellington-Dufferin-Guelph	238,315				4	1			3
Total - Central West	2,175,565		3		24	1	1	1	9
October 2003	11,394,765	2	33	1	142	22	27	33	22
* Total YTD 2003	-	13	267	9	1,737	229	274	487	417
* Total YTD 2002	-	12	440	2	2,138	789	154	592	335

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - November 2003

Health Units by Region	Population 2001	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./Meningitis	GAS	Gonorrhea
Algoma	117,200			3	21			1
North Bay	92,950			52	11			
Northwestern	75,085		2	68	9		1	2
Porcupine	84,755		3		17			
Sudbury	188,365		2	1	27		1	
Thunder Bay	152,800		3		32	1	1	5
Timiskaming	35,335							
Total - Northern	746,490		10	124	117	1	3	8
Eastern Ontario	185,975	1	3	21	12		1	
Hastings & Prince Edward	150,805		4		19			
Kingston, Frontenac & Lennox	178,065		3	42	32			
Leeds, Grenville & Lanark	159,100		1					
Ottawa	774,070		11	114	96	2	1	12
Renfrew	96,465		2	2	2			1
Total - Eastern	1,544,480	1	24	179	161	2	2	13
Durham	506,900	1	11	38	71			9
Haliburton-Kawartha	161,770		7		13		1	
Muskoka-Parry Sound	80,500		2	2	2			
Peel	988,950		34	133	91	3	1	24
Peterborough	125,860		6	8	29		1	1
Simcoe	377,030		8	83	46	4	1	
Toronto - total	2,481,495	1	53	161	489	5	2	141
<i>North</i>			11	26	124	1	1	29
<i>South</i>		1	13	22	162	2		73
<i>East</i>			13	45	136		1	24
<i>West</i>			16	68	67	2		15
York	728,980		27		43	7	3	3
Total - Central East	5,451,485	2	148	425	784	19	9	178
Grey Bruce	152,380		7	10	13	1		1
Elgin-St. Thomas	81,560		2		9	1		2
Huron	59,695		3	16	2			
Chatham-Kent	107,705	1		7	10	1		
Lambton	124,295							
Middlesex-London	403,180		8		33	1		13
Oxford	99,265		1		9			
Perth	73,680		2	10	4	2		
Windsor-Essex	374,985		7		54		1	8
Total - Southwest	1,476,745	1	30	43	134	6	1	24
Brant	118,085			19	16			
Haldimand-Norfolk	104,580		2	1	3			
Halton	375,230		6		3	1	1	1
Hamilton	490,270	3	7	78	66	3	1	9
Niagara	410,570		12		50			6
Waterloo	438,515	1	8		82	1	1	8
Wellington-Dufferin-Guelph	238,315		5	12	23			1
Total - Central West	2,175,565	4	40	110	243	5	3	25
November 2003	11,394,765	8	252	881	1,439	33	18	248
* Total YTD 2003	-	87	3,782	11,727	16,913	389	356	2,996
* Total YTD 2002	-	81	4,333	14,168	16,757	801	332	2,831

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - November 2003

Health Units by Region	Population 2001	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo- coccal
Algoma	117,200			5				
North Bay	92,950			2				
Northwestern	75,085							
Porcupine	84,755					11		
Sudbury	188,365		1	7		1		
Thunder Bay	152,800			7	1	1		
Timiskaming	35,335							
Total - Northern	746,490		1	21	1	13		
Eastern Ontario	185,975		1	2				
Hastings & Prince Edward	150,805					16		
Kingston, Frontenac & Lennox	178,065			13		35		
Leeds, Grenville & Lanark	159,100			1		1		
Ottawa	774,070	3		26		3		
Renfrew	96,465							
Total - Eastern	1,544,480	3	1	42		55		
Durham	506,900	2				33		
Haliburton-Kawartha	161,770			13		43		
Muskoka-Parry Sound	80,500					1		
Peel	988,950			4		68		
Peterborough	125,860			7		69		
Simcoe	377,030			8		20		
Toronto - total	2,481,495		4	116		49		1
<i>North</i>			2	34		7		1
<i>South</i>			2	37		11		
<i>East</i>				22		20		
<i>West</i>				23		11		
York	728,980	1		3		10		
Total - Central East	5,451,485	3	4	151		293		1
Grey Bruce	152,380			13		15		
Elgin-St. Thomas	81,560		1	1		1		
Huron	59,695			1		2		
Chatham-Kent	107,705		1	2		1		
Lambton	124,295							
Middlesex-London	403,180			9		10		2
Oxford	99,265					5		
Perth	73,680				1	3		
Windsor-Essex	374,985			6				
Total - Southwest	1,476,745		2	32	1	37		2
Brant	118,085			9				
Haldimand-Norfolk	104,580			1		3		1
Halton	375,230			6		14		
Hamilton	490,270			26		90		1
Niagara	410,570		1	16		32		
Waterloo	438,515	1		1		5		
Wellington-Dufferin-Guelph	238,315		1	1		6		
Total - Central West	2,175,565	1	2	60		150		2
November 2003	11,394,765	7	10	306	2	548	0	5
* Total YTD 2003	-	134	125	4,395	12	1,015	10	48
* Total YTD 2002	-	143	118	4,846	5	2,210	0	52

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - November 2003

Health Units by Region	Population 2001	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis Infectious**	TB	VTEC
Algoma	117,200								
North Bay	92,950								
Northwestern	75,085								
Porcupine	84,755								
Sudbury	188,365		1						2
Thunder Bay	152,800				3	1			
Timiskaming	35,335								
Total - Northern	746,490		1		4	1			2
Eastern Ontario	185,975				1	1			
Hastings & Prince Edward	150,805		1		1				
Kingston, Frontenac & Lennox	178,065								
Leeds, Grenville & Lanark	159,100				3				
Ottawa	774,070		4		9	2	3		2
Renfrew	96,465		1						
Total - Eastern	1,544,480		6		14	3	3		2
Durham	506,900		1		3	1			
Haliburton-Kawartha	161,770				1				
Muskoka-Parry Sound	80,500		8						
Peel	988,950				13	5	1	4	2
Peterborough	125,860		3		1				
Simcoe	377,030		1		1		1		
Toronto - total	2,481,495		1		26	6	13	12	
<i>North</i>					6		1	3	
<i>South</i>			1		8	5	10	3	
<i>East</i>					7		2	4	
<i>West</i>					5	1		2	
York	728,980		1		16	4		3	1
Total - Central East	5,451,485		15		61	16	15	19	3
Grey Bruce	152,380				1			1	
Elgin-St. Thomas	81,560								
Huron	59,695								
Chatham-Kent	107,705		1						
Lambton	124,295								
Middlesex-London	403,180		1						1
Oxford	99,265		1						
Perth	73,680								
Windsor-Essex	374,985				1	1			
Total - Southwest	1,476,745		3		2	1		1	1
Brant	118,085								
Haldimand-Norfolk	104,580								
Halton	375,230		2		2	3			
Hamilton	490,270					1	1	2	1
Niagara	410,570				3			1	
Waterloo	438,515		1		11				
Wellington-Dufferin-Guelph	238,315		1		2	1			1
Total - Central West	2,175,565		4		18	5	1	3	2
November 2003	11,394,765		29		99	26	19	23	10
* Total YTD 2003	-	13	296	9	1,836	255	293	510	427
* Total YTD 2002	-	13	485	2	2,286	826	191	647	361

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Reportable Disease Summary for First Nations and Inuit Health Branch Ontario Region, July 1 - September 30, 2003

DISEASE	0 - 4		5 - 9		10 - 14		15 - 19		20 - 24		25 - 29		30 - 39		40 - 49		50 - 59		Over 60		UNK	Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Campylobacter Enteritis																						1
Chickenpox (Varicella)	6	2																				8
Chlamydia Trachomatis Infections							1	11	33	11	34	6	15		6	1	8					126
Giardiasis																			1			1
Gonorrhea								1	2	2	7	1		1								15
GAS											1											1
Salmonellosis																	1					2
Tuberculosis																		1				1

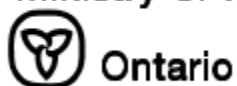
On-Reserve Population for MSB - Ontario Region = 69,257

Reportable Disease Summary for First Nations and Inuit Health Branch

Summary of Reportable Diseases

3rd Quarter, 2003

Ministry of Health and Long-Term Care



Summary of Reportable Diseases in Ontario - 3rd Quarter 2003

Health Units by Region	Population 2001	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./Meningitis	GAS	Gonorrhea
Algoma	117,200		2	5	62	2	1	4
North Bay	92,950	2	8	102	41			2
Northwestern	75,085		5	12	58	1	1	2
Porcupine	84,755			13	58			
Sudbury	188,365	1	11	40	73	4	1	4
Thunder Bay	152,800		9		87	7	1	10
Timiskaming	35,335		1		21			
Total - Northern	746,490	3	36	172	400	14	4	22
Eastern Ontario	185,975		22	1	35			5
Hastings & Prince Edward	150,805		14	3	51	3		3
Kingston, Frontenac & Lennox	178,065		11		78	11	2	2
Leeds, Grenville & Lanark	159,100		4			1	1	
Ottawa	774,070	1	111	122	281	16	3	65
Renfrew	96,465		10	8	10	1		
Total - Eastern	1,544,480	1	172	134	455	32	6	75
Durham	506,900	1	68	50	190	7	2	31
Haliburton-Kawartha	161,770		24		34		2	3
Muskoka-Parry Sound	80,500		5	2	14	1		1
Peel	988,950		143	155	450	5	4	96
Peterborough	125,860		28	8	49	3	1	1
Simcoe	377,030		13	43	92	4		5
Toronto - total	2,481,495	11	467	181	1,697	30	13	535
<i>North</i>		1	97	38	356	5	2	95
<i>South</i>		10	181	51	640	10	6	284
<i>East</i>			113	27	435	6	4	83
<i>West</i>			76	65	266	9	1	73
York	728,980		188	38	198	8	6	22
Total - Central East	5,451,485	12	936	477	2,724	58	28	694
Grey Bruce	152,380		28	21	27	5	3	1
Elgin-St. Thomas	81,560		9	8	27	2		5
Huron	59,695		14	1	12	1		1
Chatham-Kent	107,705		6	20	25			1
Lambton	124,295		3			1		
Middlesex-London	403,180		45		144	4	1	38
Oxford	99,265		23		31	1		6
Perth	73,680		20	3	21			
Windsor-Essex	374,985		64	12	118	9	2	8
Total - Southwest	1,476,745		212	65	405	23	6	60
Brant	118,085	1	18	21	46		2	3
Haldimand-Norfolk	104,580		21	4	19			6
Halton	375,230		61		81	4		7
Hamilton	490,270	3	42	22	236	1		45
Niagara	410,570		63	34	162	2	1	30
Waterloo	438,515		79		173	8		16
Wellington-Dufferin-Guelph	238,315		47	31	57	1	3	5
Total - Central West	2,175,565	4	331	112	774	16	6	112
3rd Quarter 2003	11,394,765	20	1,687	960	4,758	143	50	963
* Total YTD 2003	-	74	3,131	10,427	13,725	316	318	2,432
* Total YTD 2002	-	73	3,619	12,271	13,566	721	276	2,279

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

** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - 3rd Quarter 2003

Health Units by Region	Population 2001	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo- coccal
Algoma	117,200		1	16				
North Bay	92,950		1	6				
Northwestern	75,085			5				
Porcupine	84,755			5				
Sudbury	188,365		2	17				1
Thunder Bay	152,800	1	2	23				1
Timiskaming	35,335			1				
Total - Northern	746,490	1	6	73				2
Eastern Ontario	185,975		1	15	1			
Hastings & Prince Edward	150,805	2	1	3				
Kingston, Frontenac & Lennox	178,065		1	63				
Leeds, Grenville & Lanark	159,100			7				2
Ottawa	774,070		1	76				2
Renfrew	96,465			3				
Total - Eastern	1,544,480	2	4	167	1			4
Durham	506,900							
Haliburton-Kawartha	161,770			26				
Muskoka-Parry Sound	80,500			3				
Peel	988,950	6	4	20				
Peterborough	125,860		5	22	1			
Simcoe	377,030			38				
Toronto - total	2,481,495	11	8	314	2	3		2
<i>North</i>			3	70	1	2		
<i>South</i>		6	1	126	1	1		1
<i>East</i>		4	2	72				1
<i>West</i>		1	2	46				
York	728,980	6	3	42		2		1
Total - Central East	5,451,485	23	20	465	3	5		3
Grey Bruce	152,380		1	15		1		
Elgin-St. Thomas	81,560		2	6				
Huron	59,695			1				
Chatham-Kent	107,705			8				
Lambton	124,295							
Middlesex-London	403,180	2	1	55				
Oxford	99,265			7				
Perth	73,680			3				
Windsor-Essex	374,985	4		33				
Total - Southwest	1,476,745	6	4	128		1		
Brant	118,085	2		10				
Haldimand-Norfolk	104,580		3	3				
Halton	375,230			28				
Hamilton	490,270	11	1	59				
Niagara	410,570	4		67				1
Waterloo	438,515	1	1	25				2
Wellington-Dufferin-Guelph	238,315	2		6				
Total - Central West	2,175,565	20	5	198				3
3rd Quarter 2003	11,394,765	52	39	1,031	4	6		12
* Total YTD 2003	-	113	100	3,723	9	455	9	39
* Total YTD 2002	-	115	101	3,899	3	2,177	0	44

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** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - 3rd Quarter 2003

Health Units by Region	Population 2001	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis Infectious**	TB	VTEC
Algoma	117,200		4		2				
North Bay	92,950		2		5				
Northwestern	75,085				6				1
Porcupine	84,755				1				
Sudbury	188,365		9		7				
Thunder Bay	152,800		1		5			1	
Timiskaming	35,335				1				
Total - Northern	746,490		16		27			1	1
Eastern Ontario	185,975		2		8	1			1
Hastings & Prince Edward	150,805				19	1			1
Kingston, Frontenac & Lennox	178,065		1		5		1	1	2
Leeds, Grenville & Lanark	159,100		2		4				
Ottawa	774,070		22		29	6	3	3	13
Renfrew	96,465				8				2
Total - Eastern	1,544,480		27		73	8	4	4	19
Durham	506,900		13		30	2			5
Haliburton-Kawartha	161,770		1		10			1	1
Muskoka-Parry Sound	80,500				6			1	
Peel	988,950		1		78	9	2	13	10
Peterborough	125,860		5		5		1		1
Simcoe	377,030			1	3		1		
Toronto - total	2,481,495	1	8	2	229	21	73	71	26
<i>North</i>					66	4	5	16	2
<i>South</i>		1	4		70	14	64	27	11
<i>East</i>			4	2	50	3	2	9	3
<i>West</i>					43		2	19	10
York	728,980	0	5		80	4		6	18
Total - Central East	5,451,485	1	33	3	441	36	78	92	61
Grey Bruce	152,380				12			1	5
Elgin-St. Thomas	81,560		1		3	1			1
Huron	59,695		1		3				5
Chatham-Kent	107,705				4	1			
Lambton	124,295				1				
Middlesex-London	403,180		3		13	1	1		1
Oxford	99,265				6				1
Perth	73,680				8	1		1	6
Windsor-Essex	374,985		2		18	1			4
Total - Southwest	1,476,745		7		68	5	1	2	23
Brant	118,085				7				1
Haldimand-Norfolk	104,580		2		1	1			5
Halton	375,230		4		23	4		2	17
Hamilton	490,270		1		25	4		3	3
Niagara	410,570				28	3		1	2
Waterloo	438,515		1		26	5		5	6
Wellington-Dufferin-Guelph	238,315				9				5
Total - Central West	2,175,565		8		119	17		11	39
3rd Quarter 2003	11,394,765	1	91	3	728	66	83	110	143
* Total YTD 2003	-	11	234	8	1,595	207	248	454	395
* Total YTD 2002	-	11	383	2	1,891	772	126	544	302

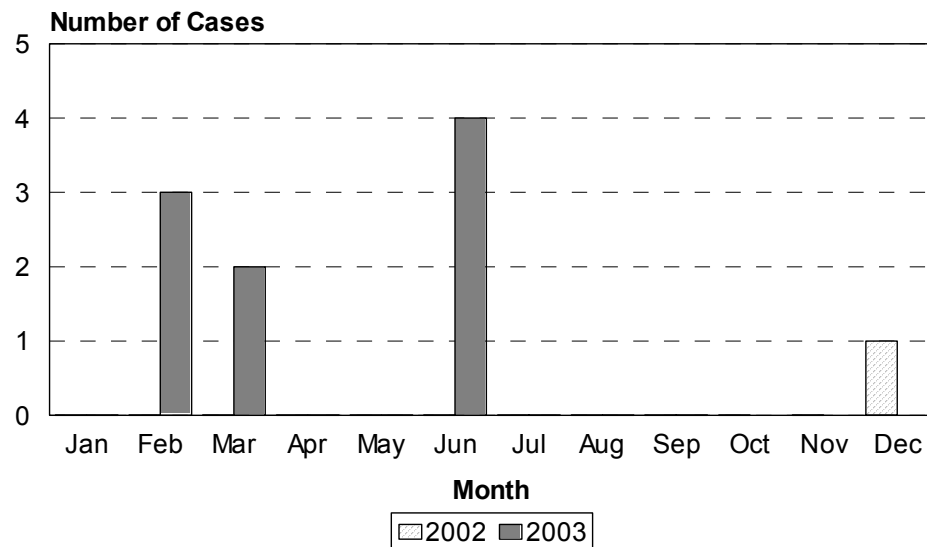
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** Infectious Syphilis cases include 'Primary, Secondary and Early Latent' staging effective January 1, 2003

* Adjusted for deletions and late reports.

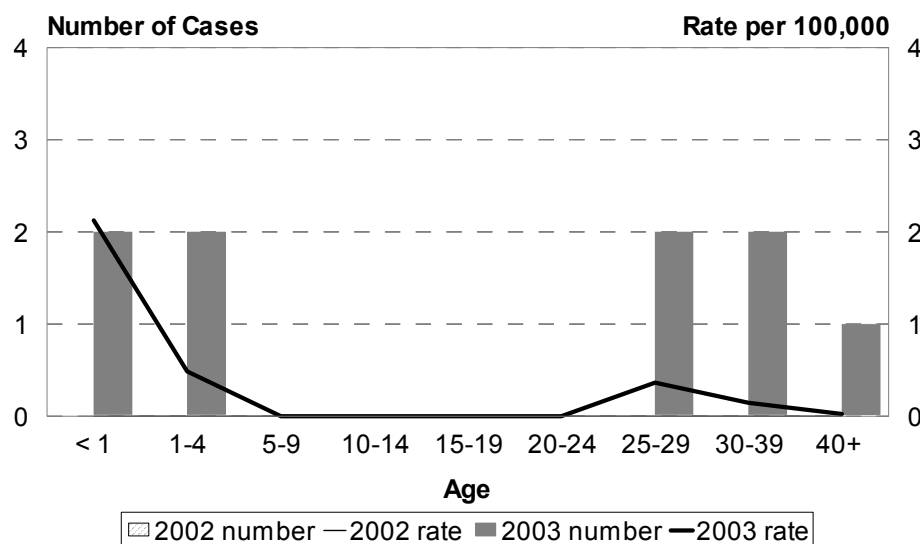
Vaccine Preventable and Other Diseases

Measles by Month Ontario January-September, 2002 and 2003



Total for 2002 includes "confirmed" and "probable" cases

Measles by Age Ontario January-September, 2002 and 2003



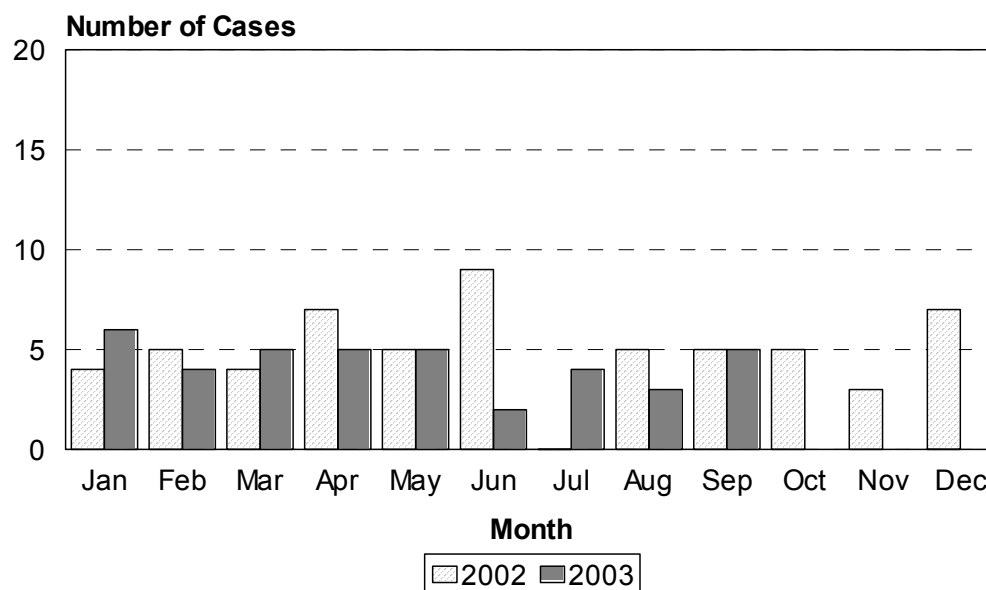
Total for 2002 includes "confirmed" and "probable" cases

Vaccine Preventable and Other Diseases

Meningococcal Disease by Month

Ontario

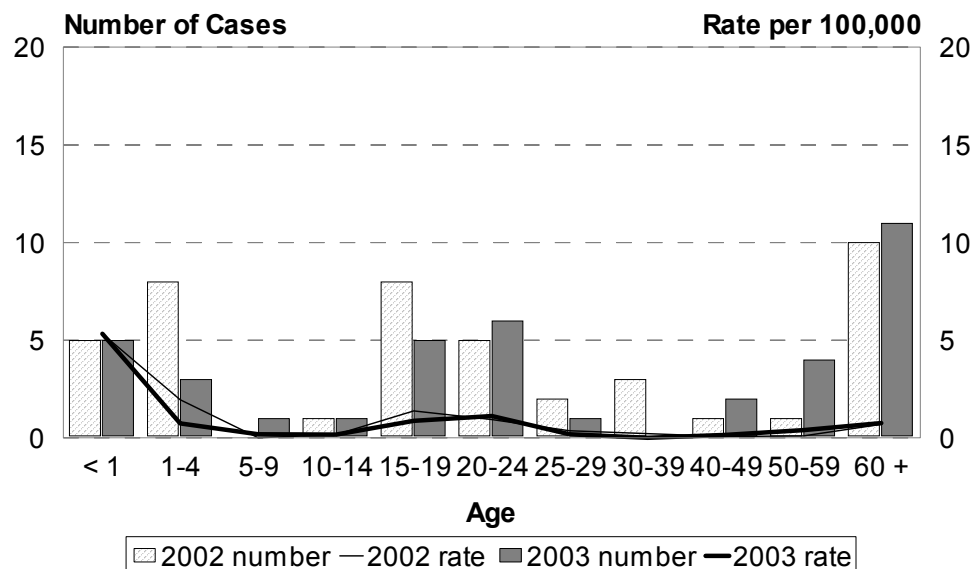
January-September, 2002 and 2003



Meningococcal Disease by Age

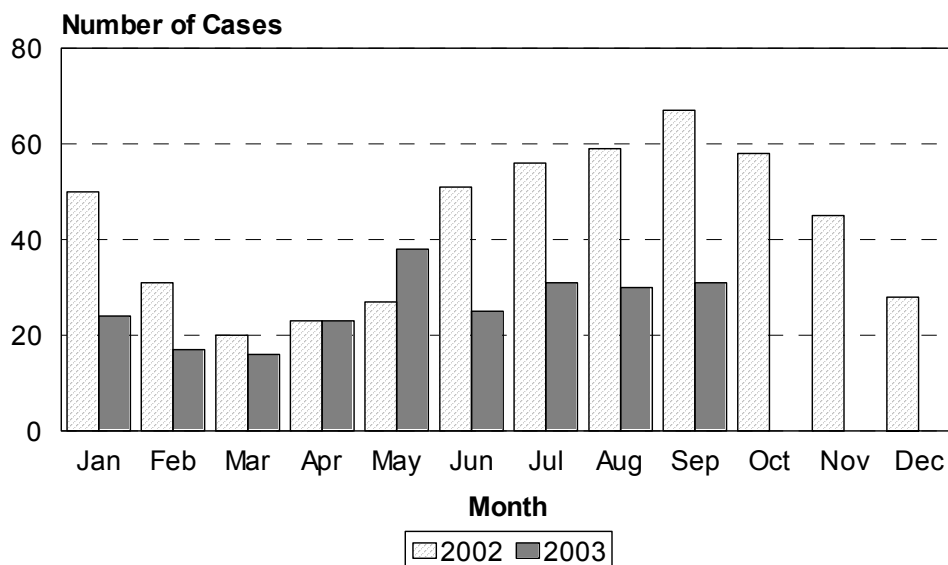
Ontario

January-September, 2002 and 2003

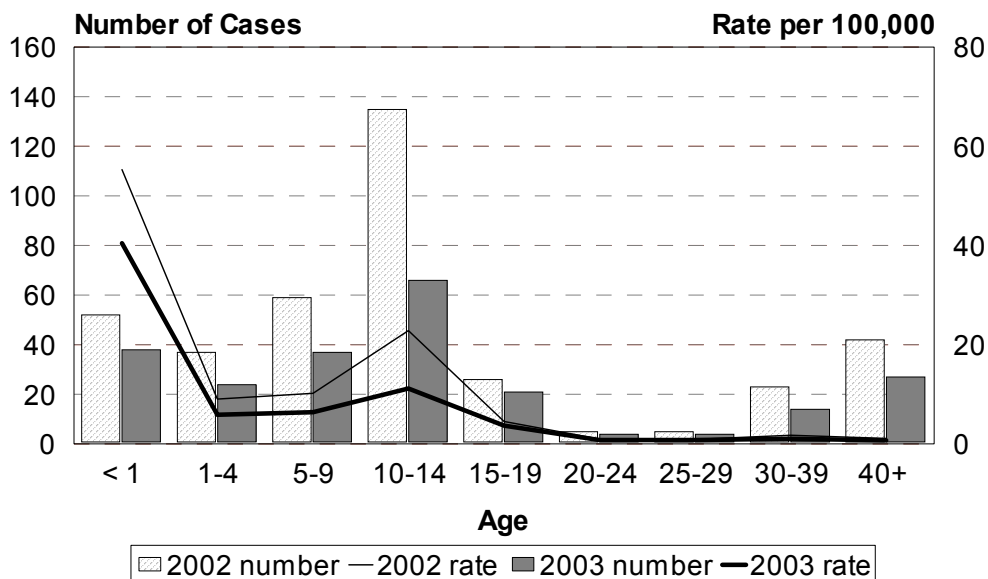


Vaccine Preventable and Other Diseases

Pertussis by Month Ontario January-September, 2002 and 2003



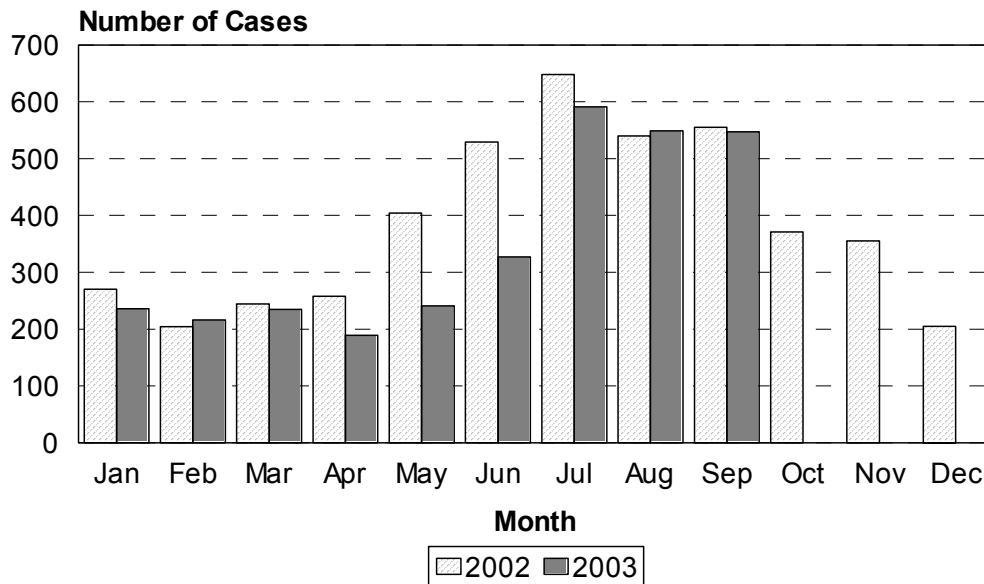
Pertussis by Age Ontario January-September, 2002 and 2003



Enteric Diseases

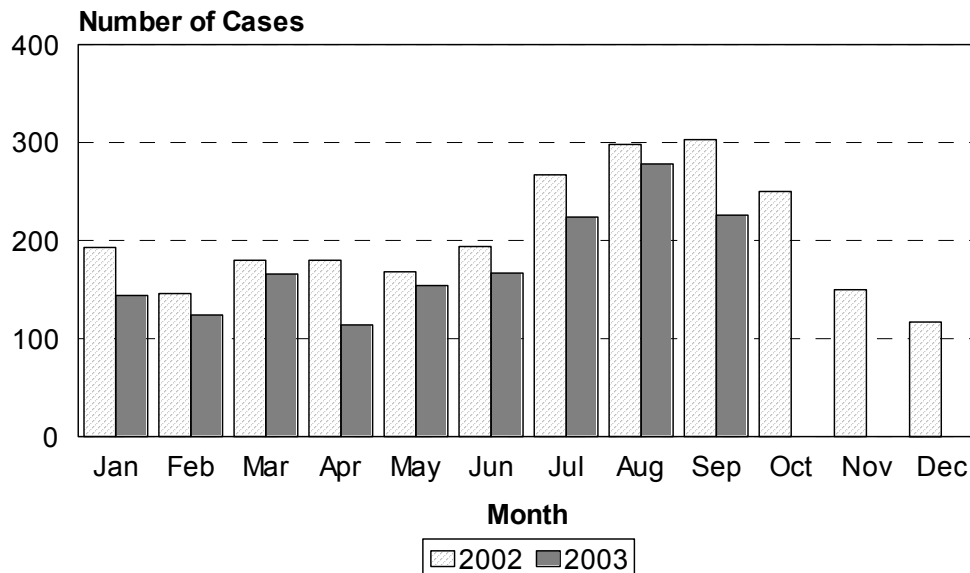
Campylobacter by Month

Ontario
2002 to 2003



Salmonellosis by Month

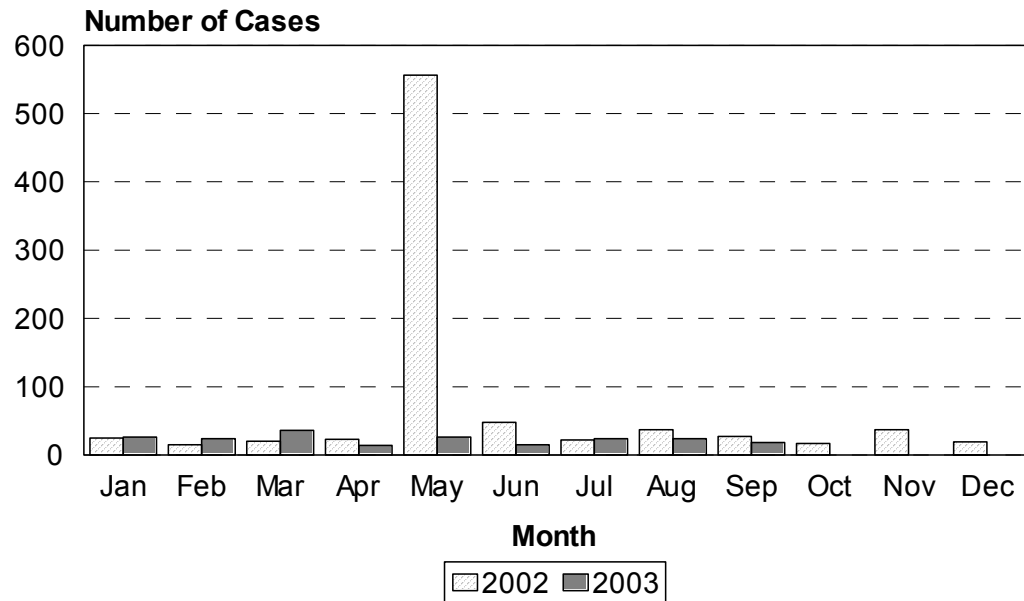
Ontario
2002 to 2003



Enteric Diseases

Shigellosis by Month

Ontario
2002 to 2003



Verotoxin-Producing E. coli Infections

Ontario
2002 to 2003

