

IN THIS ISSUE**A DESCRIPTIVE ANALYSIS OF
GIARDIASIS CASES REPORTED
IN ONTARIO, 1990-1998**

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8th Floor, 5700 Yonge Street,
Toronto, Ontario, M2M 4K5
Telephone (416) 327-7090
Facsimile (416) 327-2625
Email: Mariam.Pingel@moh.gov.on.ca

Editorial Board: C. D'Cunha, G. Kettel, H. Kassam,
K. Kurji, K. Rottensten, R. Jin

Contact: Mariam Pingel

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BULLETINS and NOTICES**ASSOCIATION OF PUBLIC HEALTH
EPIDEMIOLOGISTS IN ONTARIO (APHEO)
10th ANNUAL CONFERENCE**

Measuring Environmental Impacts on Health

Oakwood Inn Resort & Golf

Grand Bend, Ontario

September 29 - October 1, 2002

Oakwood Inn is located just north of Grand Bend, Ontario, on the beautiful shores of Lake Huron about one hour north west of London. The conference will provide practical information on the key aspects of measuring environmental impacts on public health including critical appraisal of the literature and risk communication. Many knowledgeable and stimulating speakers have already been confirmed to share their ideas and expertise. Attendees will also have opportunities to share their ideas through abstract and poster presentations, an interactive panel discussion and a practical workshop on the investigation of environmental health concerns.

The conference will also offer many opportunities for casual networking with colleagues including a welcoming reception, a best-ball golf tournament on the resort's challenging oak bounded golf course and an evening of sumptuous food and entertainment in the resort's stunning Terrace Room. For more information check out the conference web site at www.cehip.org/apheo and watch for the call for abstracts, conference flyer and registration form coming soon.

Mailing Label Goes Here

A DESCRIPTIVE ANALYSIS OF GIARDIASIS CASES REPORTED IN ONTARIO, 1990-1998

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Judy D. Greig, RN, MSc^{1,2}, Pascal Michel, DVM, PhD^{1,2}, Jeff B. Wilson, DVM, DVSc, PhD^{1,2}, Anna M. Lammerding, PhD², Shannon E. Majowicz, MSc², Julie Stratton, BSc, MHSc^{2,3}, Jeffery J. Aramini, DVM, MSc^{1,2}, Rob K. Meyers, BA², Dean Middleton, DVM, MSc⁴, Scott A. McEwen, DVM, DVSc¹

ABSTRACT

Cases of giardiasis in Ontario were described using notifiable disease data from the Ontario Ministry of Health for the years 1990-1998 inclusive. The mean annual age- and sex-adjusted incidence rate was 25.77 cases per 100,000 population for the 25,289 cases reported. Children under five years of age had the highest incidence of disease. Males had a higher mean annual incidence in all age groups. Four deaths occurred among cases. The most frequently reported symptoms were loose stools or watery diarrhea (50.1%). A seasonal pattern was noted, peaking in late summer and early autumn. The most frequently reported probable risk settings were the home (40.1%) and travel (39.1%). The study findings suggest that a high proportion of cases occur in urban areas and spatial analysis showed the highest incidence around Lake Huron and Georgian Bay. Unfiltered water and person-to-person contact are believed to be important sources of infection.

Introduction

Giardia is the most commonly reported human intestinal parasite in Ontario, and affects millions worldwide (1, 2). Giardiasis was the third leading

¹ Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, Ontario.

² Population and Public Health Branch, Health Canada, Guelph.

³ Field Epidemiology Training Program, Health Canada.

⁴ Disease Control Service, Public Health Branch, Ontario Ministry of Health and Long-Term Care, Toronto, Ontario.

reported enteric disease in Canada and Ontario in 1998, after campylobacteriosis and salmonellosis (3,4). Drinking unfiltered water, direct fecal-oral transmission or ingestion of contaminated food are the most probable sources of infection (1). The microbial quality of Canadian drinking water has been questioned since the Walkerton Ontario outbreak of 2000, when municipal water was contaminated with *Escherichia coli* O157:H7 and *Campylobacter* spp. following heavy spring rains (5). Canadian waterborne giardiasis outbreaks involving municipal water systems using only chlorination treatment have been reported in 100 Mile House, British Columbia (6,7), Edmonton, Alberta (8,9) and Botwood/Peterview, Newfoundland (10). Although infection is usually asymptomatic, manifestations may include abdominal cramps, bloating, frequent loose and/or pale greasy stools, fatigue, weight loss, chronic diarrhea, fever, rash and joint manifestations (11,12). It is important to identify groups at increased risk of infection because of the serious nature of symptoms and the presence of *Giardia* may indicate other pathogens in the water supply.

Routine analyses of surveillance data is useful to identify high risk groups using the geographic distribution of cases to target disease-control resources. Potential risk factors can be identified by examining the relationship between the spatial distribution of disease incidence and reported exposures. This study is part of a larger project to investigate water quality in Ontario. Its purpose is to describe the demographic, temporal and spatial distributions, and reported risk factors and symptoms of giardiasis in Ontario during the years 1990-1998 inclusive using notifiable disease data.

RDIS Field	Number Missing	Number Unspecified	Per cent Missing or Unspecified
Responsible Health Unit	0	0	0
Episode Date	0	0	0
Disease	0	0	0
Date of Birth	87	2	0.3
Gender	32	9	0.2
Organism/Agent	26	0	0.1
Postal Code	710	0	2.8
Outbreak Associated	906	1,135	8.1
Risk Setting	2,799	9,318	47.9
Symptoms	13,864	1,141	59.3
Probable Source	2117	14,825	67.0
Hospitalization	18,305	226	73.3

* Fields in bold are mandatory for submission to the Ontario Ministry of Health

Materials and Methods

Data Sources

The study's database consisted of all records of giardiasis cases reported to the Ontario Ministry of Health between January 1990 and December 1998 through the Reportable Disease Information System (RDIS). RDIS defines a case of giardiasis as an individual with clinically compatible signs and symptoms with either (a) demonstration of trophozoites or cysts in stool or small bowel specimens, or (b) an epidemiologic link to two or more laboratory-confirmed cases. Twelve fields were examined for each case (Table I).

For each case, the reported residential postal code was linked to geographic areas used in the 1996 Census of Population for Canada and to latitude/longitude coordinates using a commercial database (Enhanced Postal Code File, Desktop Mapping Technologies, Inc., Markham, Ontario). This associated each case to a census division and an urban/rural designation. Statistics Canada defines "urban" as an area with a minimum population of 1,000 and a population density of at least 400 per square kilometre. All other areas are considered rural.

The 1991 Canadian census population formed the reference population for the standardization of rates and the Ontario population from the 1996 Canadian census was used to calculate expected population proportions. Annual population estimates calculated by Statistics Canada were used to calculate factor-specific rates.

Data Quality Evaluation

Data completeness and internal consistency were assessed

(13,14). Implausible values, "unknown", and "other" were replaced with "unspecified". Percentages of missing and unspecified values were calculated for each field. Duplication was checked by comparing the date of birth, episode date, sex and postal code of each case.

Descriptive Analysis

Provincial age- and sex-adjusted rates (per 100,000) were calculated for each year using the direct standardization method (15). Data were aggregated by 5 year age groups, and annual age- and sex-adjusted rates were calculated for each census division using population estimates. Calculation of rates and descriptive analyses were performed using ArcView GIS 3.1 (Environmental Systems Research Institute, Incorporated) and Microsoft Excel 97 (Microsoft Corporation). The binomial test with exact p-values was used to test the differences between observed and expected proportions. Differences between medians were tested by the Mann-Whitney-Wilcoxon test (16).

Results

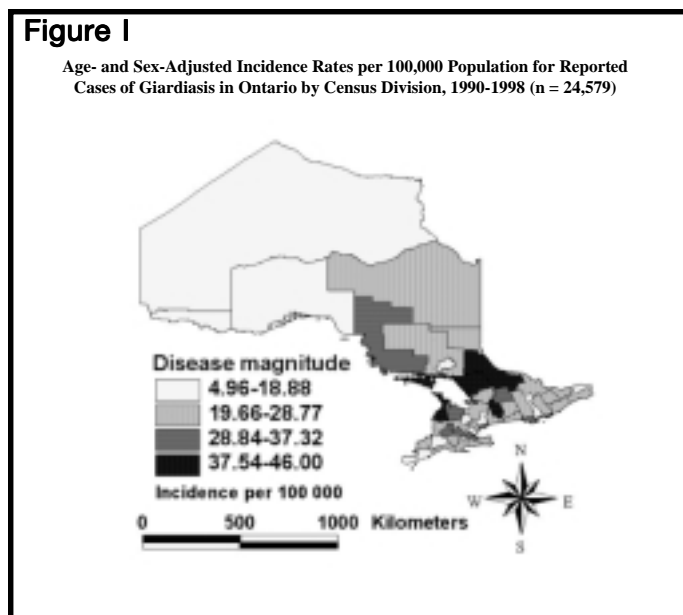
Data Quality Evaluation

Over the study period, 25,289 giardiasis cases were identified in RDIS. Reporting case information by the Health Units to Ontario Ministry of Health is mandatory for 9 of the 12 fields examined. Table I shows the percentage of missing or unspecified values for each field. There was no duplication of cases.

Descriptive Analysis

The Ontario provincial mean annual age- and sex-adjusted incidence of giardiasis was 25.8 cases per 100,000 population, for the study period. Figure I shows the mean annual age- and sex-adjusted giardiasis incidence rates per 100,000 population for Ontario's 49 census divisions. Areas of highest incidence were around Lake Huron and Georgian Bay, including Manitoulin District, Bruce county, Parry Sound, Nipissing District and Victoria county. Overall, 3,353 cases (13.9%) were classified as rural, which was significantly lower than expected (17%) based on the Ontario population ($p < 0.01$; 95% CI 0.13, 0.14). The proportion of males among urban cases was 54.7%, significantly greater than the expected 49.3% ($p < 0.01$) based on the Ontario population. The proportion of males among rural cases was 52.1%, again, significantly greater than the expected 49.3% ($p < 0.01$).

Reported cases under 5 and over 59 years of age represented 20.9% and 5.5% of cases, respectively



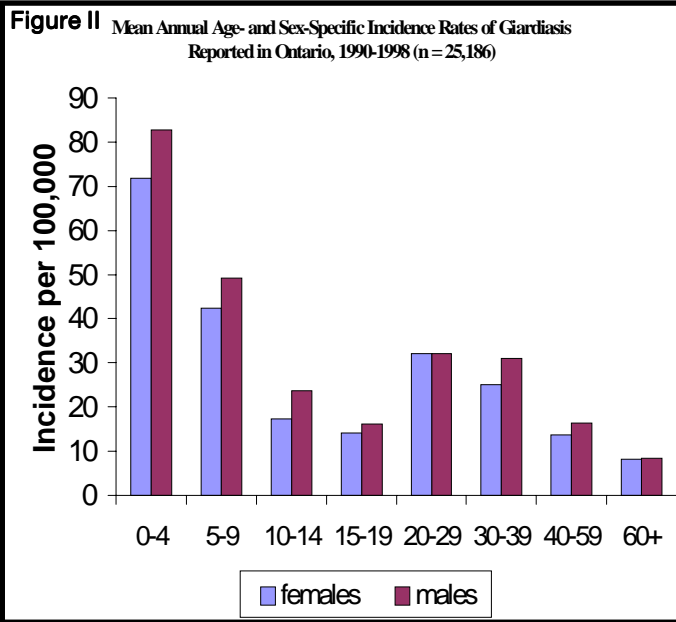


TABLE II
Frequency Distribution of Reported Symptoms Associated with Giardiasis Cases Reported in Ontario, 1990-1998 (n=15,828) up to three symptoms were allowed per case

Symptom	Number	Per cent
Loose Stools	5736	36.2
Cramps	2241	14.2
Watery Diarrhea	2186	13.8
Abdominal Pain	2091	13.2
Nausea and/or Vomiting	1478	9.3
Fever	446	2.8
Weight Loss	410	2.6
Fatigue	315	2.0
Bloody Diarrhea	247	1.6
Malaise	223	1.4
Anorexia	112	0.7
Other	343	2.1

(Figure II). Children under the age of 5 years had the highest mean annual incidence for both males and females (82.7 cases and 71.9 cases per 100,000, respectively). There were 65 reported cases (0.3%) under six months, 324 cases (1.3%) under 12 months and 1,876 cases (7.4%) under 24 months of age.

The proportion of male cases observed (54.2%) was significantly higher than expected (49.3%) based on the Ontario population ($p < 0.01$; 95% CI 0.54, 0.55). Males had a higher mean annual incidence than females for all age groups (Figure II). Cases reporting male homosexual activity (n=107) represented 8.1% of male cases in the 15 to 59 age groups for whom there was a specific source of infection

reported. The median age of these individuals was 34 years (range 19 -51 years).

The most frequently reported symptoms were loose stools (36.2%), cramps (14.2%) and watery diarrhea (13.8%) (Table II). Of the 25,289 cases examined, 310 (1.2%) were hospitalized as in-patients. Of those hospitalized, 27.8% were under 5 years of age, 17.7% between 5 and 25 years of age and 53.5% were over 25 years of age. Four deaths, (0.02%), ranging in age from 54 to 80 years, were reported among cases.

RDIS defines “risk setting” as the place/environment in which the client may have acquired the infection. The most frequently reported risk settings (Table III) were the home

TABLE III
Frequency Distribution of Reported Risk Settings for Giardiasis Cases Reported in Ontario, 1990-1998 (n=13,158)

Risk Setting	Number	Per cent
Home	5279	40.1
Travel	5142	39.1
Camping	733	5.6
School	486	3.7
Day Care	443	3.4
Workplace	404	3.1
Other	671	5.1

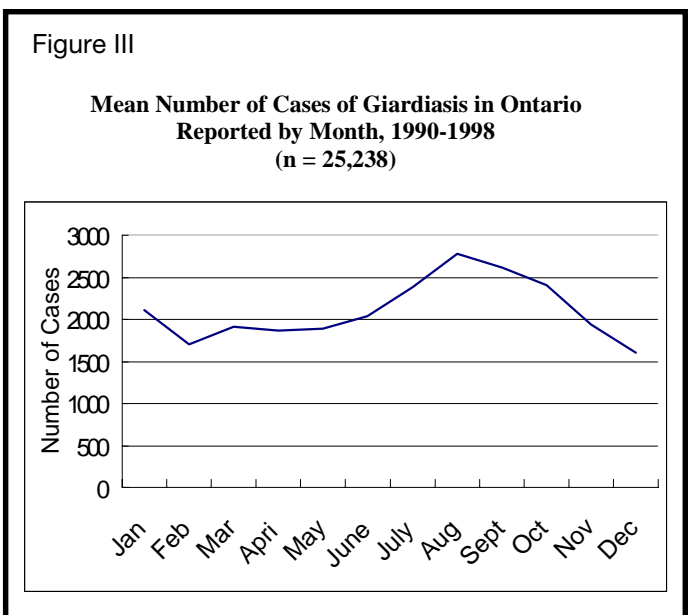


Figure IV

Number of Cases and Incidence per 100,000, of Giardiasis in Ontario by Year, 1990-1998 (25,289)

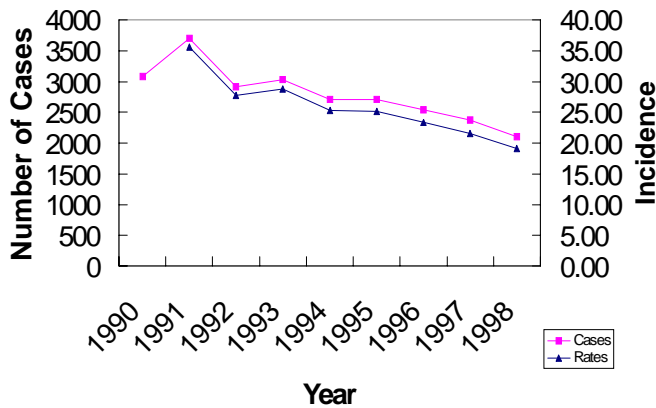


TABLE IV

Frequency Distribution of Reported Probable Sources of Infection for Giardiasis Cases Reported in Ontario, 1990-1998 (n=8,347)

Probable Source	Number	Per cent
Water	5182	62.1
Person-to-person	2211	26.5
Food	854	10.2
Animal Contact	74	0.9
Sexual Contact	26	0.3

(40.1%), travel (39.1%), camping (5.6%), school (3.7%) and day care (3.4%).

The most often reported probable sources of infection, (how the client most likely acquired the infection), (Table IV) were water (62.1%), person-to-person transmission (26.5%) and food (10.2%). Of the 5,182 records reporting water as the probable source, untreated water was implicated in 324 cases (6.2%), well water in 288 cases (5.6%) and bottled water in 6 cases (0.1%). Association with an outbreak was reported for 493 (1.9%) cases but only 343 cases specified a source: water (162 cases, 47.2%), person-to-person (146 cases, 42.6%), food (14 cases, 4.1%), and animal contact (1 case, 0.3%).

The number of cases occurring between July and October inclusive (40.3%) was significantly higher than expected (33.0%) assuming no seasonal variation (p= 0.01; 95% CI 0.40, 0.41). During the study period, August had the largest number of cases reported, followed by September. The total number of cases per month for the study period is shown in Figure III.

A least squares analysis showed the incidence of infection decreased by 1.94 cases per 100,000 per year during the study (p-value = <0.01). Figure IV shows a declining incidence over time from 1991 to 1998.

Discussion

This study confirms that giardiasis is a significant disease in Ontario, however, the incidence appears to have been declining since 1991 (Figure IV). Of the nine mandatory reporting fields in RDIS, 7 had less than 3% of data missing. Outbreak association information was missing 8% of the

time. The risk setting, missing 48% of the time, is a subjective investigator estimation of the possible setting for *Giardia* contact. The significance of some findings must be carefully weighed due to the subjective assignment of some criteria. Further studies are necessary to identify specific risk factors.

Reported incidence rates are probably substantial underestimates of the actual incidence of giardiasis in Ontario due to under-reporting and asymptomatic infection (1,17). If, like *Salmonella*, the reporting rates are one to five per cent of the actual number of cases (18), there may be as many as 297,927 *Giardia* cases annually in Ontario. True incidence of *Giardia* infection and morbidity in Ontario is impossible to calculate due to the absence of routine testing, non-specific symptoms and poor sensitivity of laboratory diagnostic techniques (7,19).

Differences noted in disease incidence among Ontario's 49 census divisions may be due to environmental factors (Figure 1). Overall, the greatest proportion of cases were in urban areas but spatial analysis demonstrated the highest incidence rates were around Lake Huron and Georgian Bay. The increased rates in these rural areas may represent increased child contact with young farm animals, contaminated well water or increased use of recreational water sources compared to urban residents. Increased awareness, reporting and access to health services in urban areas may account for larger numbers of cases reported in those areas.

The observed age distribution (Figure 1) is typical of an organism spread via the fecal-oral route (7,20,21). The

large proportion of cases under the age of five likely results from person-to-person contact and from lack of immunity. Elevated rates of infection were observed for both sexes in the 20-39 year age group.

The higher infection rate for male children is unexplained but has been noted in studies of *Giardia* and *Campylobacter* (20). Males had higher incidence rates in all age groups. Being male may be a surrogate measure for an unidentified host- or environment-related risk factor.

The frequency of reported symptoms (Table II) was consistent with the literature (1,7).

The home was the most frequently reported risk setting. Risks at home could include contaminated water, person-to-person contact or a common exposure to an unidentified source. Travel was reported for 39.1% of cases with risk settings recorded. Analysis shows camping and day care situations appear to be less important risk settings for giardiasis in Ontario.

Probable sources of infection identified in Ontario reflect those known for giardiasis in North America (20,22). Although water was the most frequently reported probable source of infection (62.1%), it was impossible to determine the specific water source from the data. Person-to-person transmission was reported in 26.5% of cases. A study of verocytotoxigenic *E. coli* cases reported person-to-person contact as the second most common source of infection (13). Oro-anal sexual contact is an important identified risk factor for giardiasis (23). Homosexual activity was reported for 8.1% of male cases 15-59 years of age for whom the specific source of infection was listed as person-to-person. Food was identified as the probable source of infection in 10.2% of cases reporting a specific source.

There was a statistically significant seasonal pattern in reported giardiasis cases in Ontario (Figure 3) agreeing with other studies (7,24). This could result from increased use of recreational water or increased contact with infected small children during summer holidays (19,21).

Differential reporting, differences in methods of data collection among Health Units, missing values, and reporting of known risk factors, may have been sources of potential bias in this study.

The results of this study suggest that the incidence of giardiasis is comparable to that for salmonellosis in Ontario and the incidence rate appears to be declining. GIS demonstrated that areas with the highest incidence of infection were around Lake Huron and Georgian Bay. There

is increased risk of giardiasis among males, those under five years of age, and urban residents. A seasonal pattern of infection was observed, peaking in mid-summer and early fall. The sources of *Giardia* infection most often identified were contaminated water and person-to-person transmission. This study is the first to use spatial analysis to report the distribution of giardiasis in Ontario and is a precursor to the demonstration of the usefulness of GIS to clarify the importance of water as a risk factor for giardiasis as well as other enteric infections.



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The authors gratefully acknowledge Dr. Chuck Leber of the Ontario Ministry of Health for his assistance in facilitating access to the data used in this study and Cameron Clark of the Wellington-Dufferin-Guelph Health Unit for providing information regarding the collection of notifiable disease data at the local level in Ontario. Funding for this project was provided by Health Canada.

SOURCE and CONTACT

Dean Middleton, BSc, DVM, MSc
Veterinary Consultant
Disease Control Service
Public Health Branch

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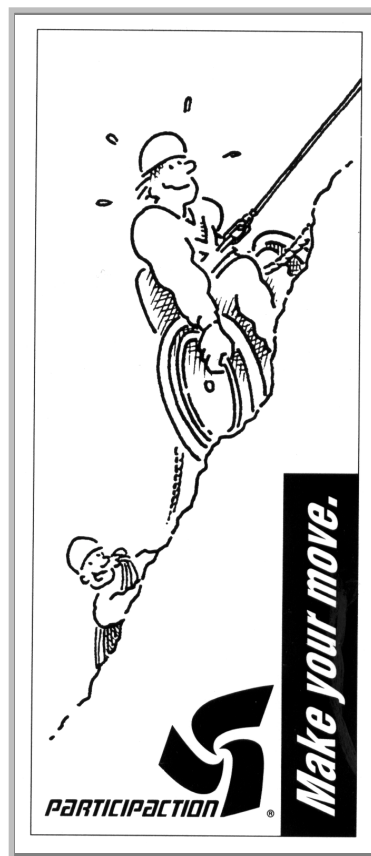
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DISEASE CONTROL SERVICE COMMENT

This article is the third recently published article in PHERO concerning waterborne diseases in Ontario. "Reportable Waterborne Enteric Disease in Ontario, 1996 to 2000" was published in the July and August 2001 edition of PHERO. "Descriptive Analysis of Endemic Cryptosporidiosis Cases Reported in Ontario, 1996-1997" was published in May 2001. □

SOURCE and CONTACT

Dean Middleton, BSc, DVM, MSc
 Veterinary Consultant
 Disease Control Service
 Public Health Branch



Summary of Reportable Diseases in Ontario - March, 2002

Health Units by Region	Population 2000	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph/Meningitis	GAS	Gonorrhoea
Algoma	125,109			47	9		1	
North Bay	93,505		1	76	7			
Northwestern	91,920			13	15		1	2
Porcupine	93,680				12			
Sudbury	199,619		3		17			
Thunder Bay	158,698		1		28	2		1
Timiskaming	37,721			43	2			
Total - Northern	800,252		5	179	90	2	2	3
Eastern Ontario	194,945		1	5	13			1
Hastings & Prince Edward	159,088			12	16			
Kingston, Frontenac & Lennox	180,225			19	23	1	1	1
Leeds, Grenville & Lanark	163,143			53				
Ottawa	779,274		16	71	68	1		17
Renfrew	101,131		2		1		2	
Total- Eastern	1,577,806		19	160	121	2	3	19
Durham	512,271		5		34		4	1
Haliburton-Kawartha	168,120				6		1	
Muskoka-Parry Sound	86,218			7			1	
Peel	1,008,163		18		80	1	3	14
Peterborough	128,881		3		16	1		
Simcoe	377,405		1	99	21	2	1	1
Toronto - total	2,542,844		85	226	490	5	10	125
<i>North</i>	<i>627,021</i>		<i>30</i>	<i>62</i>	<i>91</i>	<i>3</i>	<i>2</i>	<i>18</i>
<i>South</i>	<i>688,584</i>		<i>30</i>	<i>40</i>	<i>193</i>		<i>2</i>	<i>65</i>
<i>West</i>	<i>509,302</i>		<i>16</i>	<i>19</i>	<i>137</i>	<i>2</i>	<i>5</i>	<i>24</i>
<i>East</i>	<i>717,937</i>		<i>9</i>	<i>105</i>	<i>69</i>		<i>1</i>	<i>18</i>
York	724,969			42				
Total - Central East	5,548,871		112	374	647	9	20	141
Grey Bruce	157,664		1		9			
Elgin-St. Thomas	84,182			12	10			
Huron	61,097		1	13				
Chatham-Kent	112,897		2	12	8			
Lambton	131,643				1			
Middlesex-London	412,976		7		21	3	2	2
Oxford	102,561				2			1
Perth	75,238		2	27	8		2	
Windsor-Essex	381,672							
Total - Southwest	1,519,930		13	64	59	3	4	3
Brant	126,481		1	116	20			2
Haldimand-Norfolk	109,536		2	37	3			
Halton	375,705		3				2	
Hamilton	498,553		5	198	80		2	17
Niagara	423,600		9	189	34			1
Waterloo	446,833		4		61	2	2	7
Wellington-Dufferin-Guelph	241,777		5	58	10	3		1
Total - Central West	2,222,485	1	29	598	208	5	6	28
March 2002	11,669,344	1	178	1,375	1,125	21	35	194
* Total YTD 2002	-	10	593	3,639	3,895	71	118	690
* Total YTD 2001	-	31	772	3,976	4,111	91	119	727

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 Ontario - March, 2002

Health Units by Region	Population 2000	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningococcal
Algoma	125,109				6		38		
North Bay	93,505						58		1
Northwestern	91,920				1		1		
Porcupine	93,680						25		
Sudbury	199,619				7		16		
Thunder Bay	158,698	1			7		25		
Timiskaming	37,721						7		
Total - Northern	800,252	1			21		170		1
Eastern Ontario	194,945				2		9		
Hastings & Prince Edward	159,088						7		
Kingston, Frontenac & Lennox	180,225				10		51		
Leeds, Grenville & Lanark	163,143						11		1
Ottawa	779,274		1		26		66		
Renfrew	101,131						23		
Total - Eastern	1,577,806		1		38		167		1
Durham	512,271		2				17		
Haliburton-Kawartha	168,120				12		4		
Muskoka-Parry Sound	86,218				1		7		
Peel	1,008,163	1	1		23		52		
Peterborough	128,881				6		4		
Simcoe	377,405				10		9		
Toronto - total	2,542,844	8	3	4	110		86		
<i>North</i>	<i>627,021</i>		<i>1</i>		<i>31</i>		<i>22</i>		
<i>South</i>	<i>688,584</i>	<i>7</i>	<i>1</i>	<i>2</i>	<i>44</i>		<i>34</i>		
<i>West</i>	<i>509,302</i>	<i>1</i>			<i>22</i>		<i>14</i>		
<i>East</i>	<i>717,937</i>		<i>1</i>	<i>2</i>	<i>13</i>		<i>16</i>		
York	724,969						0		
Total - Central East	5,548,871	9	6	4	162		179		
Grey Bruce	157,664				5		9		
Elgin-St. Thomas	84,182				2		6		
Huron	61,097						12		
Chatham-Kent	112,897						2		
Lambton	131,643				1		0		
Middlesex-London	412,976				14		24		
Oxford	102,561						6		1
Perth	75,238						14		
Windsor-Essex	381,672								
Total - Southwest	1,519,930				22		73		1
Brant	126,481	1					3		
Haldimand-Norfolk	109,536						4		
Halton	375,705				18		19		1
Hamilton	498,553	2			23		40		
Niagara	423,600				16		39		
Waterloo	446,833						9		
Wellington-Dufferin-Guelph	241,777				1		29		
Total - Central West	2,222,485	3			58		143		1
March 2002	11,669,344	13	7	4	301		732		4
* Total YTD 2002	-	63	27	27	1,092	2	1,821		13
* Total YTD 2001	-	39	31	50	1,383	2	693	6	41

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 Ontario - March, 2002

Health Units by Region	Population 2000	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	125,109		1		2			
North Bay	93,505				1			
Northwestern	91,920							
Porcupine	93,680				1			
Sudbury	199,619				1			
Thunder Bay	158,698				2			
Timiskaming	37,721							
Total - Northern	800,252		1		7			
Eastern Ontario	194,945		1		4	1		
Hastings & Prince Edward	159,088				2			
Kingston, Frontenac & Lennox	180,225		4		3			
Leeds, Grenville & Lanark	163,143				3			
Ottawa	779,274		2		12	4	1	
Renfrew	101,131				1			
Total - Eastern	1,577,806		7		25	5	1	1
Durham	512,271		1		6			
Haliburton-Kawartha	168,120							
Muskoka-Parry Sound	86,218							
Peel	1,008,163				13	1		
Peterborough	128,881		1		2			
Simcoe	377,405				3	1		
Toronto - total	2,542,844	1	1	1	27	5		1
<i>North</i>	627,021			1	4	1		
<i>South</i>	688,584	1			9			
<i>West</i>	509,302		1		9	4		
<i>East</i>	717,937				5			1
York	724,969							
Total - Central East	5,548,871	1	3	1	51	7		1
Grey Bruce	157,664				1			
Elgin-St. Thomas	84,182							
Huron	61,097				3			
Chatham-Kent	112,897				1			
Lambton	131,643							
Middlesex-London	412,976				6			
Oxford	102,561				1			
Perth	75,238				2			
Windsor-Essex	381,672							
Total - Southwest	1,519,930				14			
Brant	126,481							
Haldimand-Norfolk	109,536							
Halton	375,705				9			
Hamilton	498,553				10			1
Niagara	423,600		1		12	1		1
Waterloo	446,833				4			
Wellington-Dufferin-Guelph	241,777				1	2		
Total - Central West	2,222,485		1		36	3		2
March 2002	11,669,344	1	12	1	133	15	1	4
* Total YTD 2002	-	5	79	1	441	49	11	21
* Total YTD 2001	-		116	8	552	65	1	48

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 Ontario - February, 2002

Health Units by Region	Population 2000	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	125,109			15	17			
North Bay	93,505			69	12			
Northwestern	91,920		2	2	21			
Porcupine	93,680				8			
Sudbury	199,619		1	1	28			
Thunder Bay	158,698				39			3
Timiskaming	37,721			103	1			
Total - Northern	800,252		3	190	126			3
Eastern Ontario	194,945		3	6	6		1	
Hastings & Prince Edward	159,088		1	2	15	1	1	
Kingston, Frontenac & Lennox	180,225		2	4	28			1
Leeds, Grenville & Lanark	163,143		1	33	4		1	
Ottawa	779,274		22	67	92	1	3	13
Renfrew	101,131		2		8		1	
Total - Eastern	1,577,806		31	112	153	2	7	14
Durham	512,271		5		35		5	2
Haliburton-Kawartha	168,120		3		9			
Muskoka-Parry Sound	86,218		1		1			
Peel	1,008,163		14	209	111	2	5	22
Peterborough	128,881		1	0	14	1		1
Simcoe	377,405		5	64	35	1	2	7
Toronto - total	2,542,844	4	64	121	501	1	9	127
<i>North</i>	627,021		14	51	111		2	17
<i>South</i>	688,584	3	23	22	183	1	2	62
<i>West</i>	509,302	1	17	20	133		1	26
<i>East</i>	717,937		10	28	74		4	22
York	724,969		5	92	4	2	2	2
Total - Central East	5,548,871	4	98	486	710	7	23	161
Grey Bruce	157,664		2	9	6			
Elgin-St. Thomas	84,182		2	16	6			
Huron	61,097			40		2		
Chatham-Kent	112,897		3	21	16		1	
Lambton	131,643				3			
Middlesex-London	412,976		3		37	2	3	4
Oxford	102,561		3		7			2
Perth	75,238		2	10	4			
Windsor-Essex	381,672				17			1
Total - Southwest	1,519,930		15	96	96	4	4	7
Brant	126,481		1	80	21		1	1
Haldimand-Norfolk	109,536			49	5			
Halton	375,705		2	5				
Hamilton	498,553		3	61	86	4		7
Niagara	423,600		8		40	1		6
Waterloo	446,833		10		52	3	2	8
Wellington-Dufferin-Guelph	241,777		3	29	14		1	
Total - Central West	2,222,485		27	224	218	8	4	22
February 2002	11,669,344	4	174	1,108	1,303	21	38	207
* Total YTD 2002	-	9	415	2,264	2,770	50	83	496
* Total YTD 2001	-	20	504	2,324	2,720	59	74	496

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 Ontario - February, 2002

Health Units by Region	Population 2000	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	125,109				7		1		
North Bay	93,505				5		47		
Northwestern	91,920				2				
Porcupine	93,680				1		16		
Sudbury	199,619				12		1		
Thunder Bay	158,698				13		3		
Timiskaming	37,721								
Total - Northern	800,252		1	0	40		68		
Eastern Ontario	194,945				6		39		
Hastings & Prince Edward	159,088						7		
Kingston, Frontenac & Lennox	180,225		1		21		13		
Leeds, Grenville & Lanark	163,143				2		30		
Ottawa	779,274				41	1	168		1
Renfrew	101,131				1		1		
Total - Eastern	1,577,806		1		71	1	258		1
Durham	512,271						26		
Haliburton-Kawartha	168,120				9		2		
Muskoka-Parry Sound	86,218				3		4		
Peel	1,008,163	3	3	1	30		63		
Peterborough	128,881			1	9		7		
Simcoe	377,405	5			13		24		
Toronto - total	2,542,844	16	3	6	111		111		3
<i>North</i>	627,021	0	2	1	18		33		
<i>South</i>	688,584	12		4	43		31		1
<i>West</i>	509,302	2		1	29		24		1
<i>East</i>	717,937	2	1		21		23		1
York	724,969				0		13		
Total - Central East	5,548,871	24	6	8	175		250		3
Grey Bruce	157,664			1	4		10		
Elgin-St. Thomas	84,182								
Huron	61,097						10		
Chatham-Kent	112,897								
Lambton	131,643								
Middlesex-London	412,976				9		10		
Oxford	102,561						2		
Perth	75,238				1		31		
Windsor-Essex	381,672								
Total - Southwest	1,519,930			1	14		63		
Brant	126,481						2		
Haldimand-Norfolk	109,536				1		2		
Halton	375,705				9		14		
Hamilton	498,553	1	1		16		51		
Niagara	423,600	2			29		68		
Waterloo	446,833				6		18		
Wellington-Dufferin-Guelph	241,777				5		28		1
Total - Central West	2,222,485	3	1		66		183		1
February 2002	11,669,344	27	9	9	366	1	822		5
* Total YTD 2002	-	50	20	23	791	2	1,089		9
* Total YTD 2001	-	28	19	28	878	1	465	4	25

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 Ontario - February, 2002

Health Units by Region	Population 2000	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	125,109							
North Bay	93,505				3			
Northwestern	91,920		2		1			
Porcupine	93,680							
Sudbury	199,619				1			
Thunder Bay	158,698							
Timiskaming	37,721							
Total - Northern	800,252		2		5			
Eastern Ontario	194,945				1			1
Hastings & Prince Edward	159,088							
Kingston, Frontenac & Lennox	180,225		4		1			
Leeds, Grenville & Lanark	163,143							
Ottawa	779,274		3		12	1	1	
Renfrew	101,131		2					
Total - Eastern	1,577,806		9		14	1	1	1
Durham	512,271	1	2		5			
Haliburton-Kawartha	168,120				3			
Muskoka-Parry Sound	86,218							
Peel	1,008,163	1	1		16	1		
Peterborough	128,881		1		2			
Simcoe	377,405		1					
Toronto - total	2,542,844		3		29	7	2	5
<i>North</i>	627,021		1		6			2
<i>South</i>	688,584				13	4	2	2
<i>West</i>	509,302		2		9	1		1
<i>East</i>	717,937				1	2		
York	724,969					2		
Total - Central East	5,548,871	2	8		55	10	2	5
Grey Bruce	157,664				2		1	
Elgin-St. Thomas	84,182							
Huron	61,097				2			
Chatham-Kent	112,897				1			
Lambton	131,643							
Middlesex-London	412,976				7			
Oxford	102,561				2			
Perth	75,238							1
Windsor-Essex	381,672				1			
Total - Southwest	1,519,930				15		1	1
Brant	126,481							
Haldimand-Norfolk	109,536				4			
Halton	375,705		1		5			
Hamilton	498,553				10			
Niagara	423,600		1		7			
Waterloo	446,833				7		1	
Wellington-Dufferin-Guelph	241,777				3			
Total - Central West	2,222,485		2		36		1	
February 2002	11,669,344	2	21		125	11	5	7
* Total YTD 2002	-	4	67		308	34	10	17
* Total YTD 2001	-		82	3	354	47	1	30

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 Ontario - January, 2002

Health Units by Region	Population 2000	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph/Meningitis	GAS	Gonorrhoea
Algoma	125,109		1	64	11			
North Bay	93,505			100	15			
Northwestern	91,920			9	27		1	4
Porcupine	93,680		1	29	12			
Sudbury	199,619		2	2	24			
Thunder Bay	158,698		1		37			3
Timiskaming	37,721				5			
Total - Northern	800,252		5	204	131		1	7
Eastern Ontario	194,945		1	37	15			
Hastings & Prince Edward	159,088		5	2	14		1	1
Kingston, Frontenac & Lennox	180,225		4	6	37	2	1	
Leeds, Grenville & Lanark	163,143			60	4	1	3	1
Ottawa	779,274		13	80	101	5	2	14
Renfrew	101,131		1		5			
Total- Eastern	1,577,806		24	185	176	8	7	16
Durham	512,271		3		43	1	3	4
Haliburton-Kawartha	168,120		1		6		1	1
Muskoka-Parry Sound	86,218			4	4			
Peel	1,008,163	1	40	99	121	1	4	25
Peterborough	128,881		2		19			1
Simcoe	377,405		5	84	31		3	1
Toronto - total	2,542,844	3	87	201	544	4	11	196
<i>North</i>	627,021		24	62	113		1	28
<i>South</i>	688,584	2	29	29	209	1	5	98
<i>West</i>	509,302		21	11	129	2	2	38
<i>East</i>	717,937	1	13	99	93	1	3	32
York	724,969		11	60	29	3	6	6
Total - Central East	5,548,871	4	149	448	797	9	28	234
Grey Bruce	157,664		8	20	7		1	
Elgin-St. Thomas	84,182			7	13			1
Huron	61,097		1	31	1			
Chatham-Kent	112,897		1	9	15	1		
Lambton	131,643				3			
Middlesex-London	412,976		11		48	2		9
Oxford	102,561				6			
Perth	75,238		1	29	9			
Windsor-Essex	381,672		6		28		1	2
Total - Southwest	1,519,930		28	96	130	3	2	12
Brant	126,481		1	5	21			2
Haldimand-Norfolk	109,536		1	30	11			
Halton	375,705		6	14		1	2	
Hamilton	498,553		5	15	74	6	5	5
Niagara	423,600	1	7	132	46			2
Waterloo	446,833		9		60	2		11
Wellington-Dufferin-Guelph	241,777		6	27	21			
Total - Central West	2,222,485	1	35	223	233	9	7	20
January 2002	11,669,344	5	241	1,156	1,467	29	45	289
* Total YTD 2002	-	5	241	1,156	1,467	29	45	289
* Total YTD 2001	-	11	252	1,249	1,496	26	43	256

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

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - January, 2002

Health Units by Region	Population 2000	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	125,109				3				
North Bay	93,505				1		49		
Northwestern	91,920				3				
Porcupine	93,680		2		1				
Sudbury	199,619			1	8				
Thunder Bay	158,698	1		1	4				
Timiskaming	37,721								1
Total - Northern	800,252	1	2	2	20		49		1
Eastern Ontario	194,945			1	5		3		
Hastings & Prince Edward	159,088				2				
Kingston, Frontenac & Lennox	180,225				11		8		
Leeds, Grenville & Lanark	163,143			2	14	1	8		
Ottawa	779,274				38		46		1
Renfrew	101,131				3		1		
Total - Eastern	1,577,806			3	73	1	66	0	1
Durham	512,271						12		
Haliburton-Kawartha	168,120			1	12				
Muskoka-Parry Sound	86,218				8				
Peel	1,008,163			1	30		19		
Peterborough	128,881				9		2		
Simcoe	377,405				14		3		
Toronto - total	2,542,844	15	4	3	142		47		1
<i>North</i>	627,021	1	1	1	19		16		
<i>South</i>	688,584	12		2	53		5		1
<i>West</i>	509,302	1	2		29		11		
<i>East</i>	717,937	1	1		41		15		
York	724,969	3	1		4		10		
Total - Central East	5,548,871	18	5	5	219		93		1
Grey Bruce	157,664			1	4		2		
Elgin-St. Thomas	84,182								
Huron	61,097						1		
Chatham-Kent	112,897				2				
Lambton	131,643						1		
Middlesex-London	412,976				15				
Oxford	102,561								
Perth	75,238						2		
Windsor-Essex	381,672	1			7				
Total - Southwest	1,519,930	1		1	28		6		
Brant	126,481	1			2				
Haldimand-Norfolk	109,536				6				
Halton	375,705				4		12		
Hamilton	498,553	1	4	1	24		21		
Niagara	423,600			1	27		2		
Waterloo	446,833	1			15		10		1
Wellington-Dufferin-Guelph	241,777			1	7		8		
Total - Central West	2,222,485	3	4	3	85		53		1
January 2002	11,669,344	23	11	14	425	1	267		4
* Total YTD 2002	-	23	11	14	425	1	267		4
* Total YTD 2001	-	14	12	13	460	1	145	1	12

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 Ontario - January, 2002

Health Units by Region	Population 2000	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	125,109		1		2			
North Bay	93,505				1			
Northwestern	91,920							
Porcupine	93,680				1			
Sudbury	199,619				1			
Thunder Bay	158,698				2			
Timiskaming	37,721							
Total - Northern	800,252		1		7			
Eastern Ontario	194,945		1		4	1		
Hastings & Prince Edward	159,088				2			
Kingston, Frontenac & Lennox	180,225		4		3			
Leeds, Grenville & Lanark	163,143				3			
Ottawa	779,274		2		12	4	1	
Renfrew	101,131				1			
Total- Eastern	1,577,806		7		25	5	1	1
Durham	512,271		1		6			
Haliburton-Kawartha	168,120							
Muskoka-Parry Sound	86,218							
Peel	1,008,163				13	1		
Peterborough	128,881		1		2			
Simcoe	377,405				3	1		
Toronto - total	2,542,844	1	1	1	27	5		1
<i>North</i>	627,021			1	4	1		
<i>South</i>	688,584	1			9			
<i>West</i>	509,302		1		9	4		
<i>East</i>	717,937				5			1
York	724,969							
Total - Central East	5,548,871	1	3	1	51	7		1
Grey Bruce	157,664				1			
Elgin-St. Thomas	84,182							
Huron	61,097				3			
Chatham-Kent	112,897				1			
Lambton	131,643							
Middlesex-London	412,976				6			
Oxford	102,561				1			
Perth	75,238				2			
Windsor-Essex	381,672							
Total - Southwest	1,519,930				14			
Brant	126,481							
Haldimand-Norfolk	109,536							
Halton	375,705				9			
Hamilton	498,553				10			1
Niagara	423,600		1		12	1		1
Waterloo	446,833				4			
Wellington-Dufferin-Guelph	241,777				1	2		
Total - Central West	2,222,485		1		36	3		2
March 2002	11,669,344	1	12	1	133	15	1	4
* Total YTD 2002	-	5	79	1	441	49	11	21
* Total YTD 2001	-		116	8	552	65	1	48

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

4th Quarter, 2001

Ministry of Health and Long-Term Care



Ontario

Summary of Reportable Diseases in Ontario - 4th Quarter 2001

Health Units by Region	Population 2000	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph/Meningitis	GAS	Gonorrhoea
Algoma	125,109		3	48	51			2
North Bay	93,505		6	170	42		2	2
Northwestern	91,920		2	84	53		1	3
Porcupine	93,680			31	58			
Sudbury	199,619		9	65	59		5	
Thunder Bay	158,698		4		86	1	1	13
Timiskaming	37,721		1		6			
Total - Northern	800,252		25	398	355	1	9	20
Eastern Ontario	194,945		12		25	1		1
Hastings & Prince Edward	159,088		15	9	29			1
Kingston, Frontenac & Lennox	180,225		8	6	75		3	2
Leeds, Grenville & Lanark	163,143		6	1	16		1	1
Ottawa	779,274	2	51	311	258	9	3	23
Renfrew	101,131		5		17			
Total - Eastern	1,577,806	2	97	327	420	10	7	28
Durham	512,271		38	338	167	7	2	17
Haliburton-Kawartha	168,120		19		15		2	
Muskoka-Parry Sound	86,218		3	89	12	2		
Peel	1,008,163	1	105	218	344	18	9	61
Peterborough	128,881		4		52	1		1
Simcoe	377,405	1	29	220	94	9	3	10
Toronto - total	2,542,844	12	394	370	1,415	22	12	430
<i>North</i>	<i>627,021</i>	<i>1</i>	<i>92</i>	<i>146</i>	<i>281</i>	<i>3</i>	<i>2</i>	<i>62</i>
<i>South</i>	<i>688,584</i>	<i>11</i>	<i>154</i>	<i>77</i>	<i>504</i>	<i>7</i>	<i>6</i>	<i>198</i>
<i>West</i>	<i>509,302</i>		<i>97</i>	<i>46</i>	<i>405</i>	<i>8</i>	<i>4</i>	<i>103</i>
<i>East</i>	<i>717,937</i>		<i>51</i>	<i>101</i>	<i>225</i>	<i>4</i>		<i>67</i>
York	724,969	1	121	105	139	13	2	18
Total - Central East	5,548,871	15	713	1,340	2,238	72	30	537
Grey Bruce	157,664		12	21	22	1		1
Elgin-St. Thomas	84,182		2	8	6	1		
Huron	61,097		9	67	4	1		2
Chatham-Kent	112,897	1	2	2	23	4		4
Lambton	131,643		1		5			
Middlesex-London	412,976		35		139	6	3	12
Oxford	102,561		15		12	4		
Perth	75,238		15	15	12	5		1
Windsor-Essex	381,672	1	32		145	7		9
Total - Southwest	1,519,930	2	123	113	368	29	3	29
Brant	126,481		11	14	71		3	3
Haldimand-Norfolk	109,536		4	141	22		1	3
Halton	375,705		32	19	23	4	4	4
Hamilton	498,553	1	23	113	207	14	9	24
Niagara	423,600		34	191	90	6	1	18
Waterloo	446,833		44		162	7	5	21
Wellington-Dufferin-Guelph	241,777		21	25	46	1		2
Total - Central West	2,222,485	1	169	503	621	32	23	75
4th Quarter 2001	11,669,344	20	1,127	2,681	4,002	144	72	689
* Total YTD 2001	-	108	4,909	11,489	16,206	534	324	2,907
* Total YTD 2000	-	115	4,877	26,836	14,638	389	400	2,799

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 Ontario - 4th Quarter 2001

Health Units by Region	Population 2000	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	125,109		1		21				
North Bay	93,505			3	9				
Northwestern	91,920				5				
Porcupine	93,680				2				
Sudbury	199,619				17				2
Thunder Bay	158,698	2		1	23				
Timiskaming	37,721				1				1
Total - Northern	800,252	2	1	4	78				3
Eastern Ontario	194,945				16				1
Hastings & Prince Edward	159,088				8				
Kingston, Frontenac & Lennox	180,225				30		3		
Leeds, Grenville & Lanark	163,143				7		4		1
Ottawa	779,274		3	2	135		3		
Renfrew	101,131				7				
Total- Eastern	1,577,806		3	2	203		10		2
Durham	512,271								3
Haliburton-Kawartha	168,120			2	20				
Muskoka-Parry Sound	86,218				6				
Peel	1,008,163	4	5	1	67	1	2		3
Peterborough	128,881				25	1			
Simcoe	377,405	1	1		41		1		
Toronto - total	2,542,844	19	9	21	375		9		
<i>North</i>	<i>627,021</i>	<i>4</i>	<i>1</i>	<i>3</i>	<i>86</i>		<i>3</i>		
<i>South</i>	<i>688,584</i>	<i>11</i>	<i>2</i>	<i>16</i>	<i>143</i>		<i>2</i>		
<i>West</i>	<i>509,302</i>	<i>1</i>	<i>3</i>	<i>1</i>	<i>76</i>		<i>4</i>		
<i>East</i>	<i>717,937</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>70</i>				
York	724,969	3	1	1	42		1		1
Total - Central East	5,548,871	27	16	25	576	2	13		7
Grey Bruce	157,664			1	8				
Elgin-St. Thomas	84,182				5				
Huron	61,097				2				
Chatham-Kent	112,897				5				
Lambton	131,643				8				
Middlesex-London	412,976				31				
Oxford	102,561		1		5				
Perth	75,238	1			6				
Windsor-Essex	381,672	1	1		42				1
Total - Southwest	1,519,930	2	2	1	112				1
Brant	126,481	2			1				
Haldimand-Norfolk	109,536			2	6				
Halton	375,705		3	1	15				1
Hamilton	498,553	2	6	1	61				1
Niagara	423,600	2	6	4	57		1		
Waterloo	446,833				30				
Wellington-Dufferin-Guelph	241,777		1	3	12				
Total - Central West	2,222,485	6	16	11	182		1		2
4th Quarter 2001	11,669,344	37	38	43	1,151	2	24		15
* Total YTD 2001	-	185	173	178	5,267	6	786	6	107
* Total YTD 2000	-	183	154	151	5,755	11	1,545	9	80

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* Adjusted for deletions and late reports.

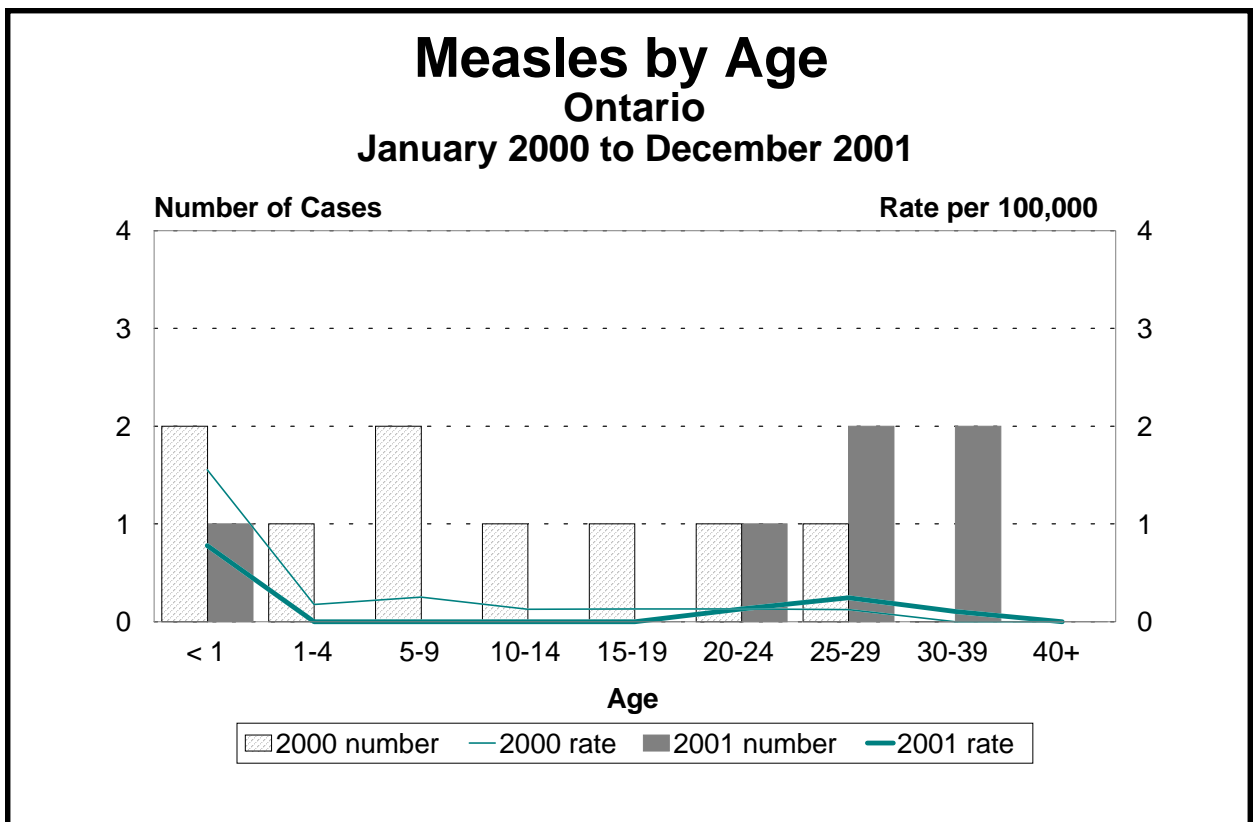
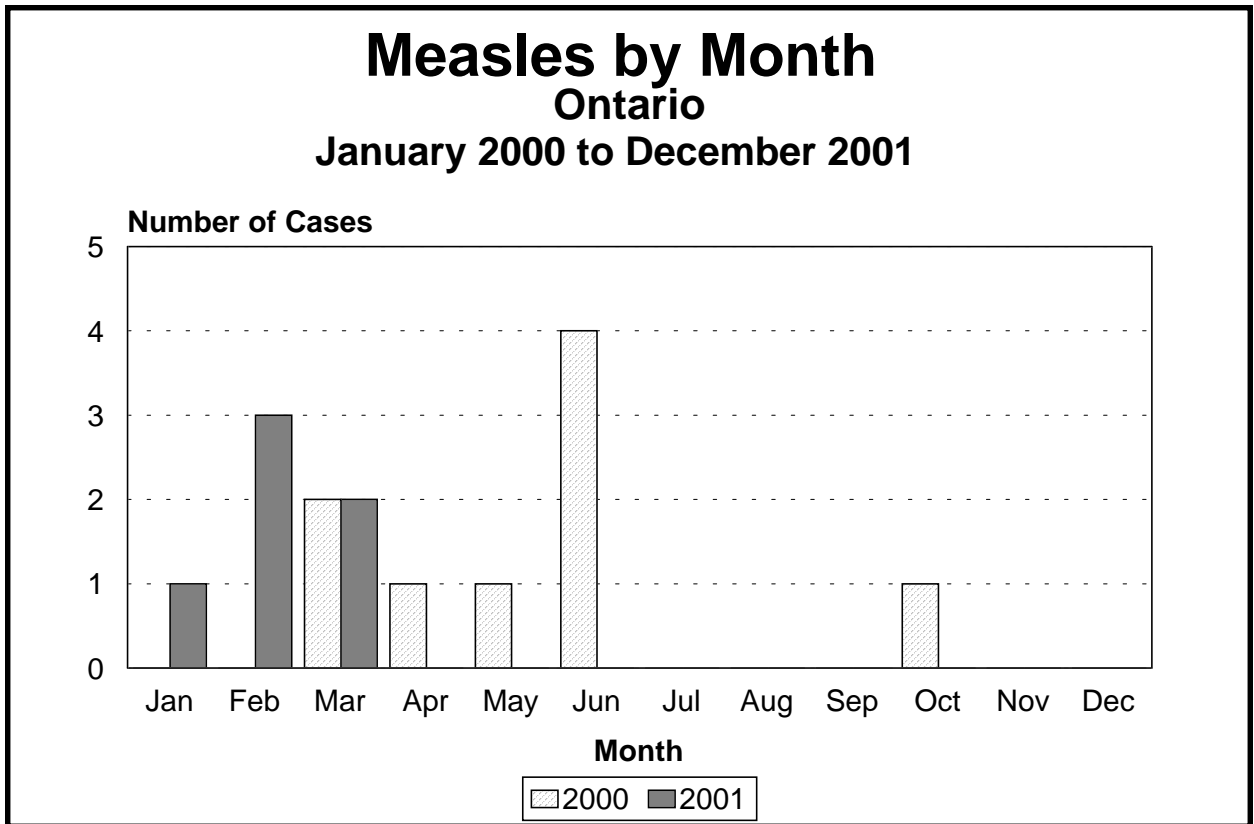
Summary of Reportable Diseases in Ontario - 4th Quarter 2001

Health Units by Region	Population 2000	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	125,109		9		1			
North Bay	93,505				8			
Northwestern	91,920		3		2	1		1
Porcupine	93,680		1		1			
Sudbury	199,619		1		6			1
Thunder Bay	158,698		2		4		1	
Timiskaming	37,721							
Total - Northern	800,252		16		22	1	1	2
Eastern Ontario	194,945		4		1			1
Hastings & Prince Edward	159,088		1		6			
Kingston, Frontenac & Lennox	180,225		8		5	1		1
Leeds, Grenville & Lanark	163,143		1		4			2
Ottawa	779,274		8		23	7	4	4
Renfrew	101,131		3		4			2
Total - Eastern	1,577,806		25		43	8	4	10
Durham	512,271	3	6		16	1		1
Haliburton-Kawartha	168,120		2		9			
Muskoka-Parry Sound	86,218				3			
Peel	1,008,163	1	6		39	3		6
Peterborough	128,881		4		6			2
Simcoe	377,405		2		4		1	3
Toronto - total	2,542,844	1	16		166	25	7	19
<i>North</i>	627,021		7		38	8		10
<i>South</i>	688,584	1	2		37	10	4	4
<i>West</i>	509,302		6		51	5	1	4
<i>East</i>	717,937		1		40	2	2	1
York	724,969		8		42	1		5
Total - Central East	5,548,871	5	44		285	30	8	36
Grey Bruce	157,664	1	1		6			3
Elgin-St. Thomas	84,182		4		1			
Huron	61,097		2		2			2
Chatham-Kent	112,897	2	1		3			2
Lambton	131,643							
Middlesex-London	412,976				14	1		3
Oxford	102,561				1			1
Perth	75,238		2		3			2
Windsor-Essex	381,672		2		14			1
Total - Southwest	1,519,930	3	12		44	1		14
Brant	126,481		1		4			3
Haldimand-Norfolk	109,536				4		1	2
Halton	375,705		3		12	1		
Hamilton	498,553		6		35	3		1
Niagara	423,600	1	3		17	3		4
Waterloo	446,833				17	2		1
Wellington-Dufferin-Guelph	241,777	1	1		7			1
Total - Central West	2,222,485	2	14		96	9	1	12
4th Quarter 2001	11,669,344	10	111		490	49	14	74
* Total YTD 2001	-	17	454	15	2,485	231	26	351
* Total YTD 2000	-	33	712	9	2,324	282	21	1,216

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* Adjusted for deletions and late reports.

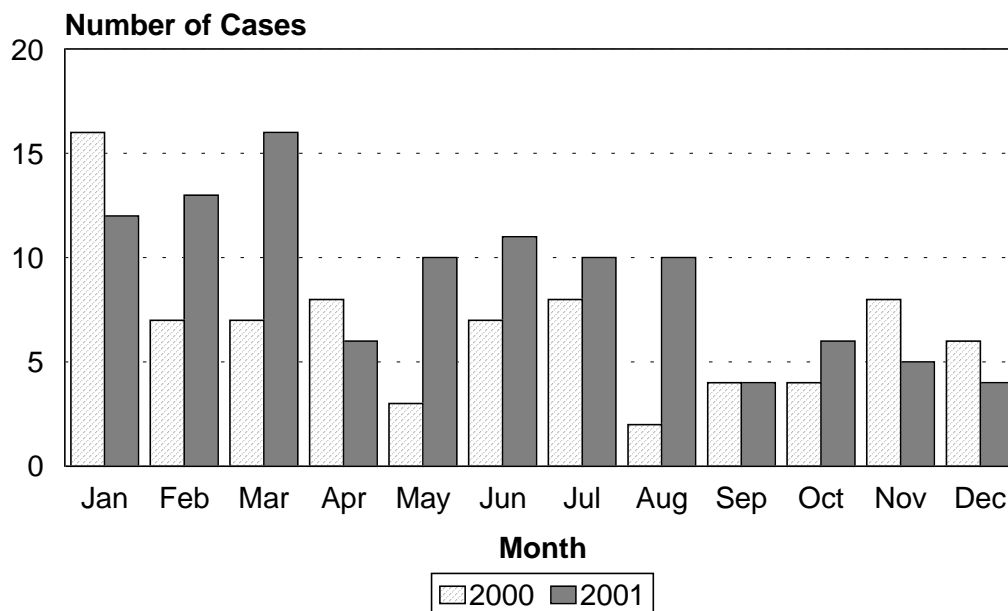
Vaccine Preventable and Other Diseases



Vaccine Preventable and Other Diseases

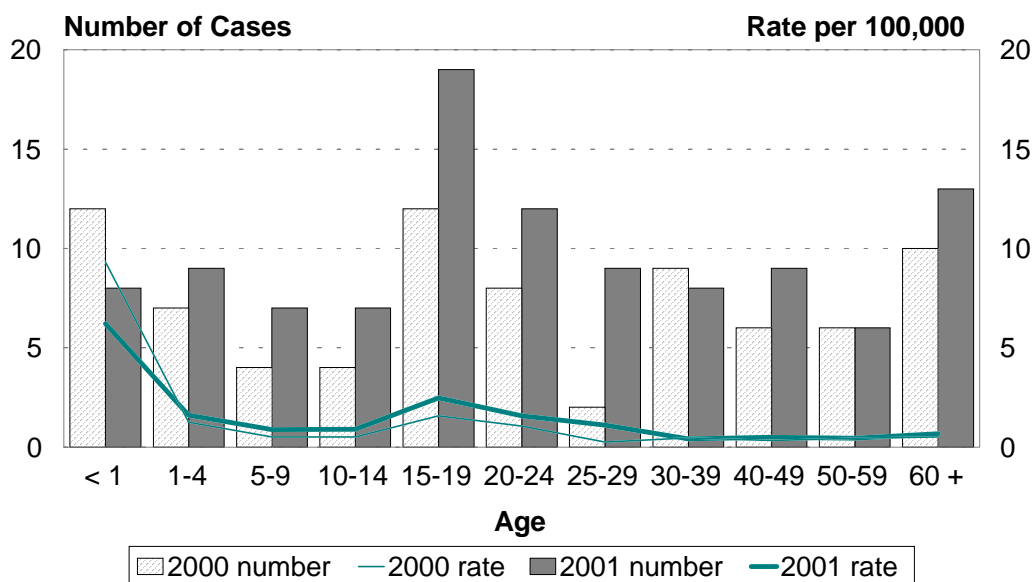
Meningococcal Disease by Month Ontario

January 2000 to December 2001

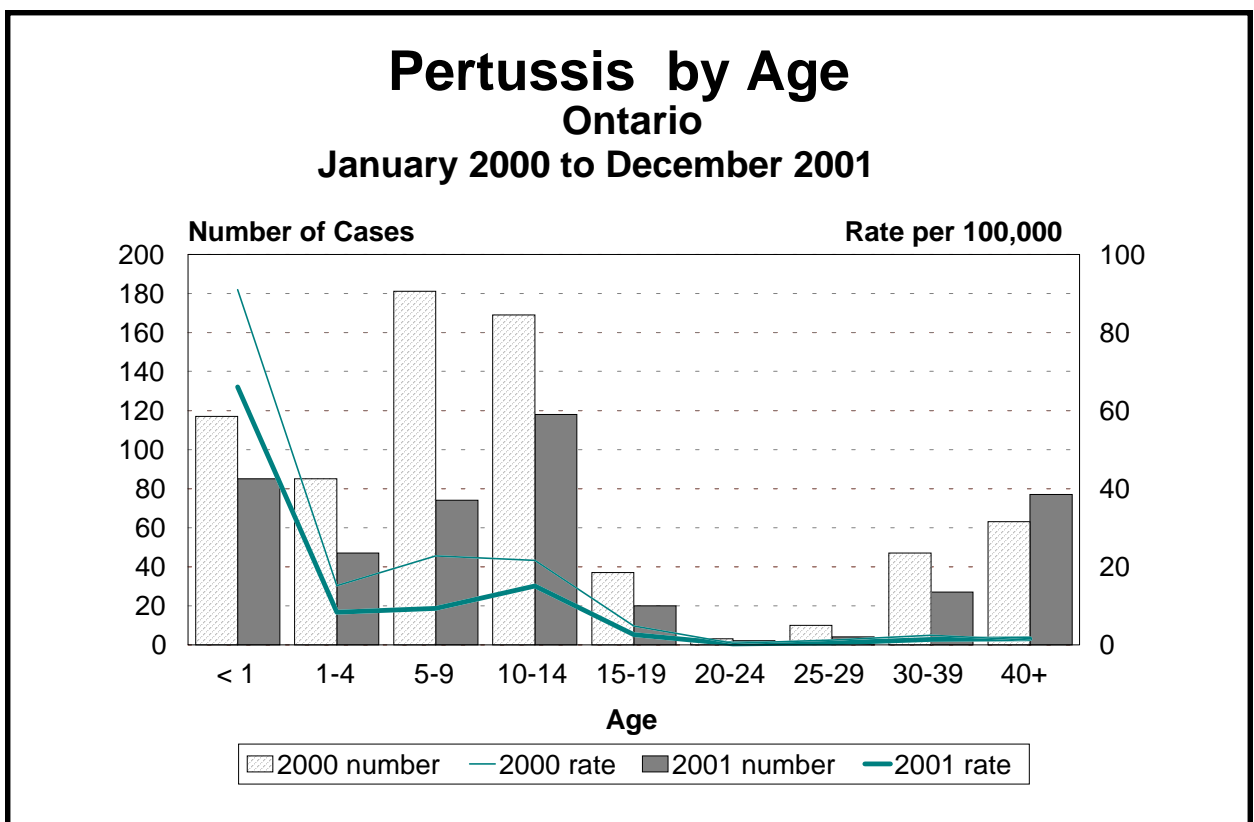
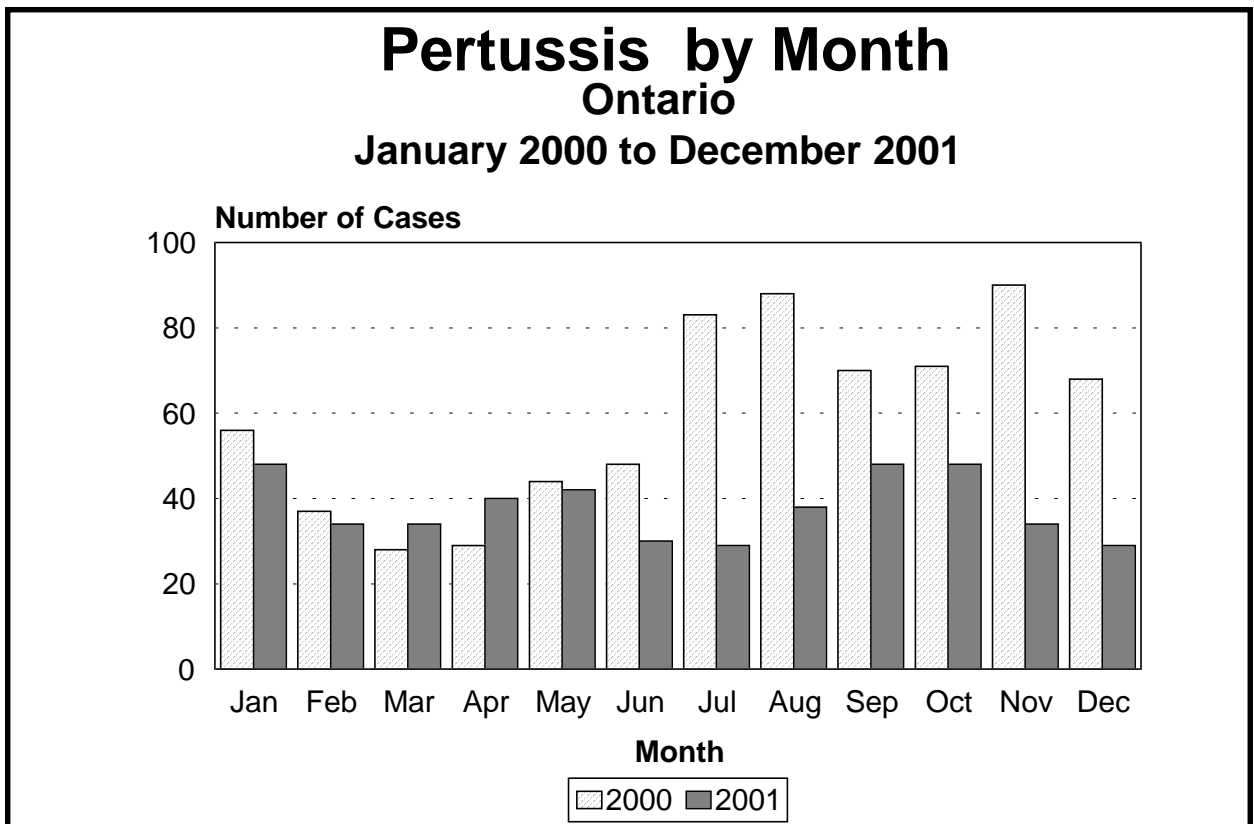


Meningococcal Disease by Age Ontario

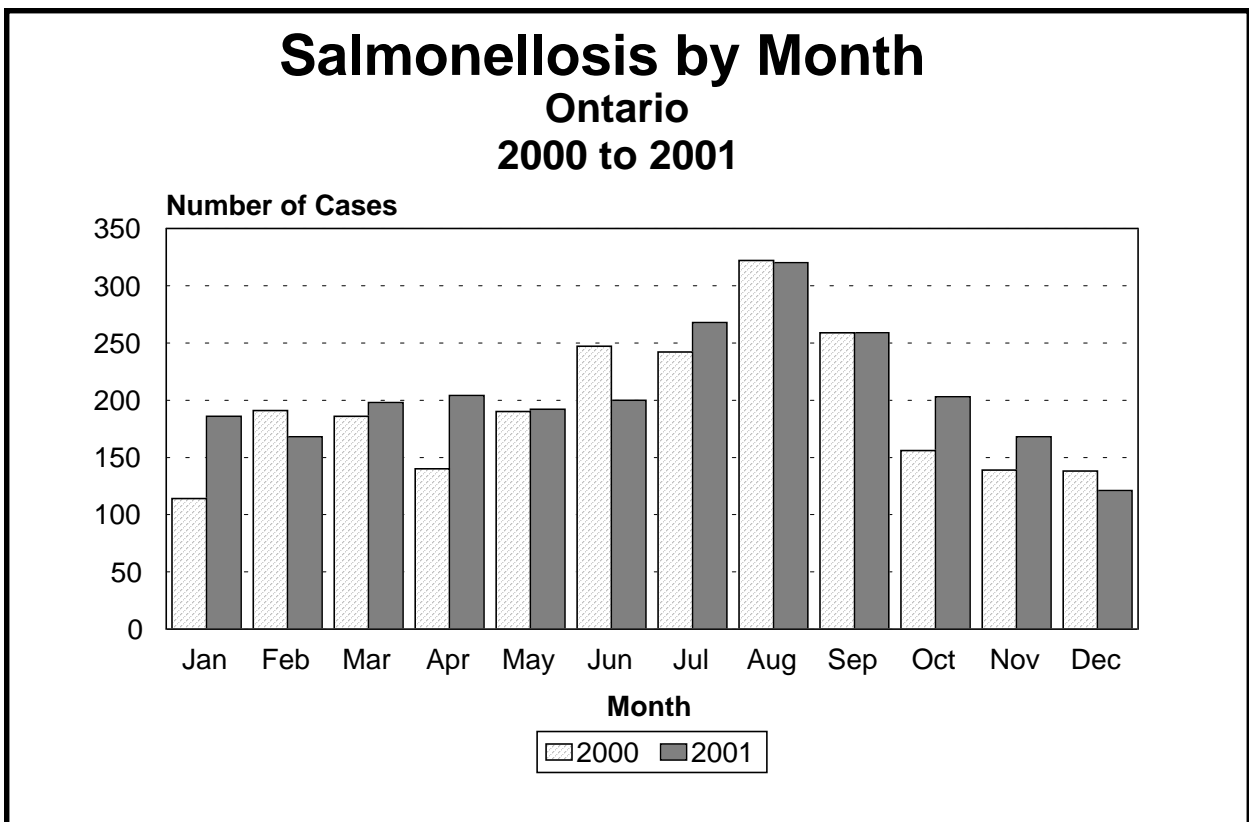
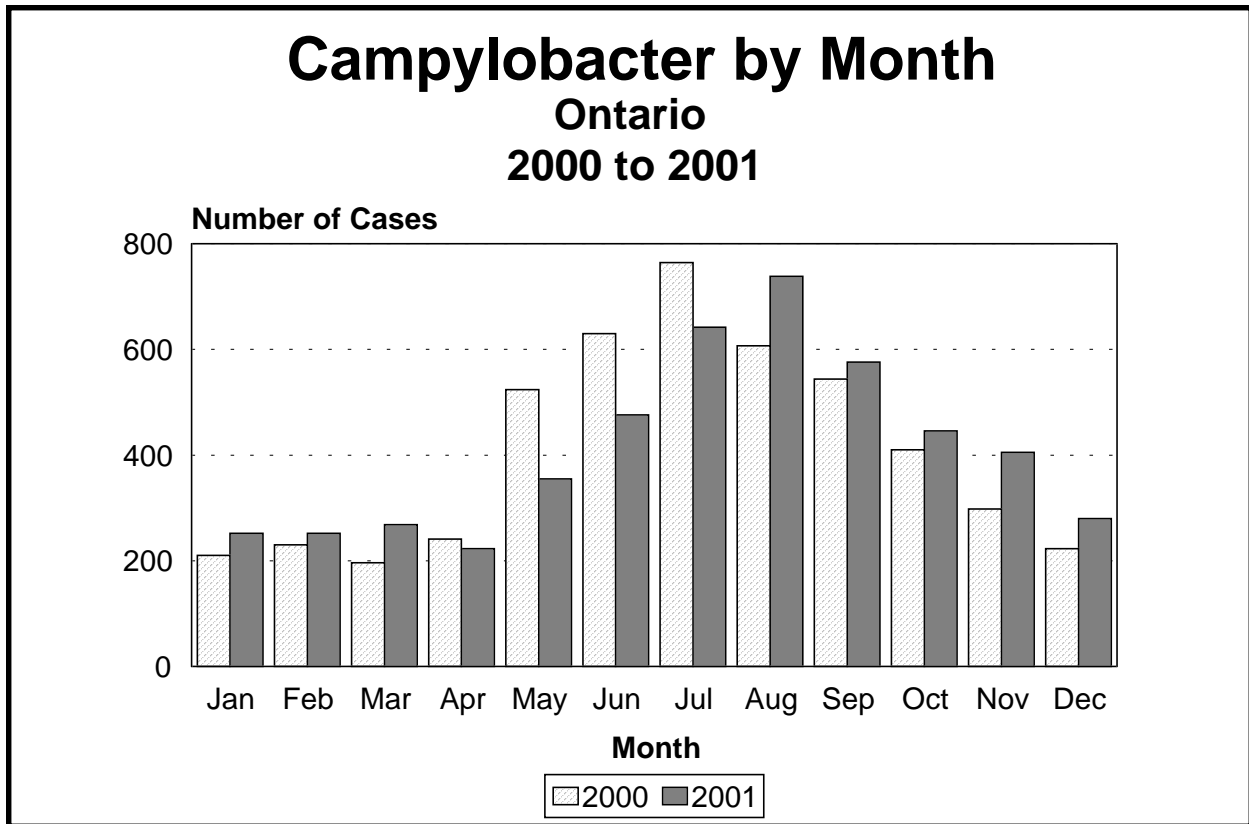
January 2000 to December 2001



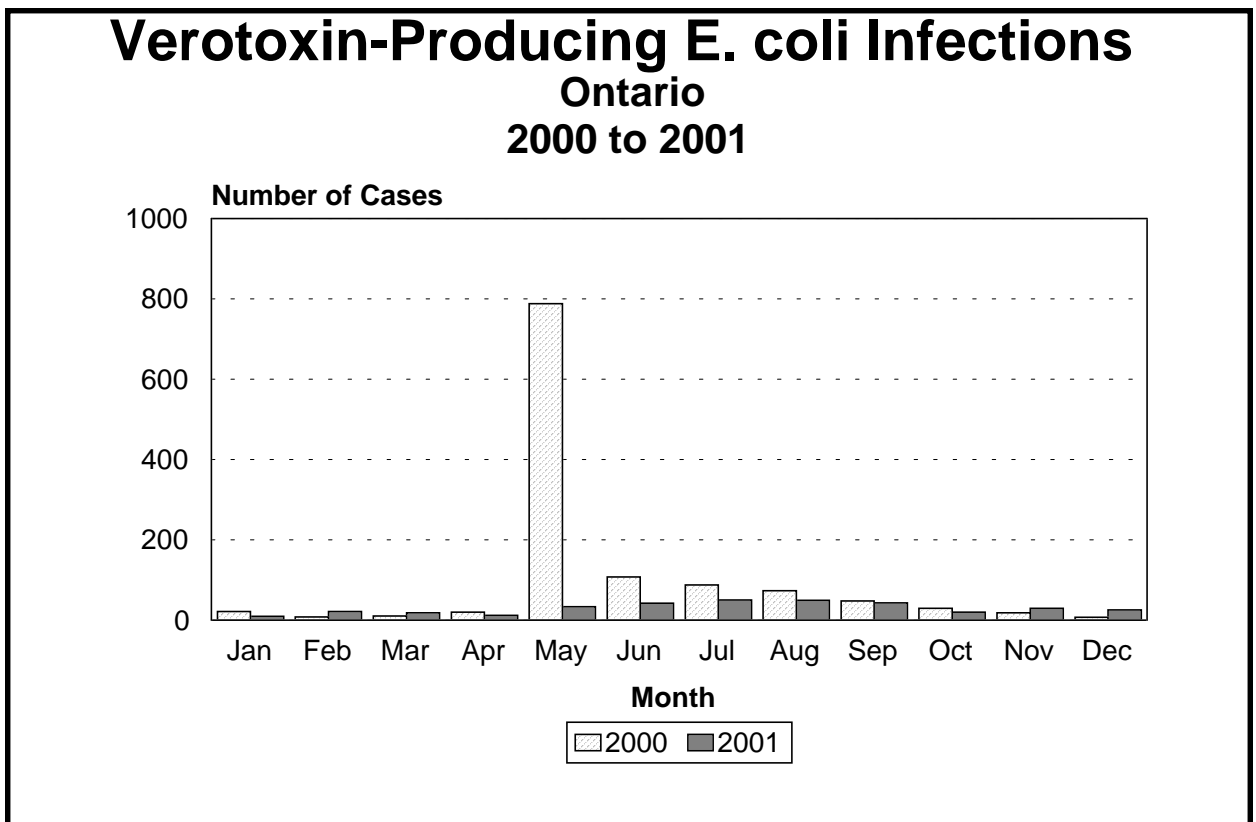
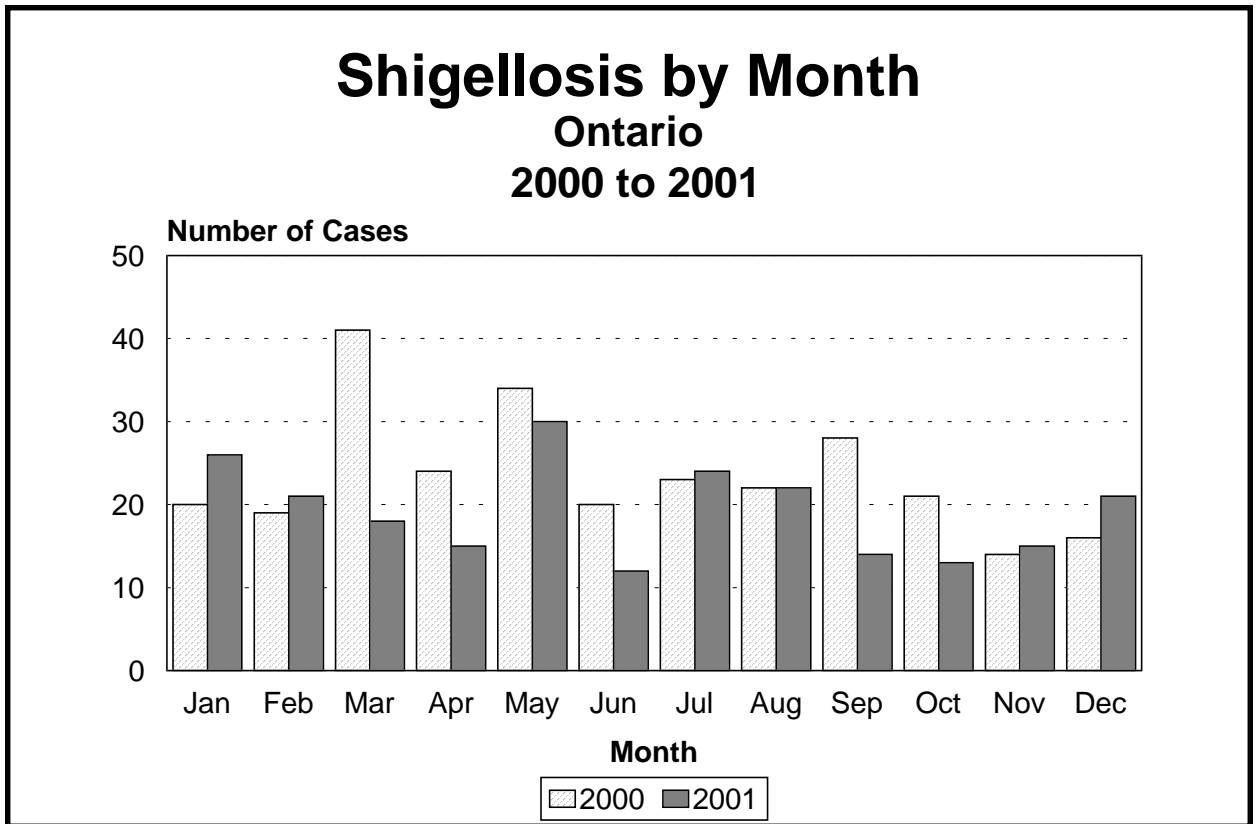
Vaccine Preventable and Other Diseases



Enteric Diseases

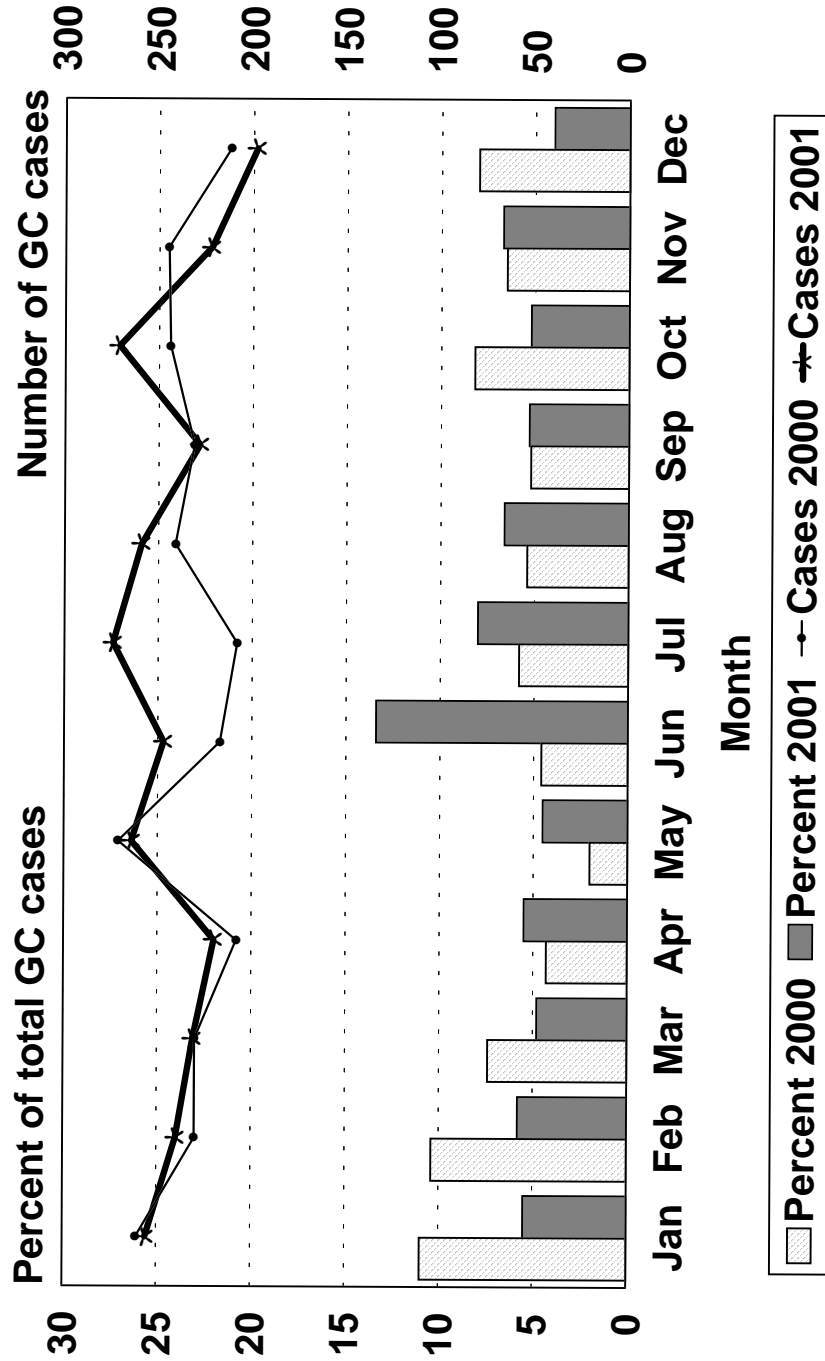


Enteric Diseases

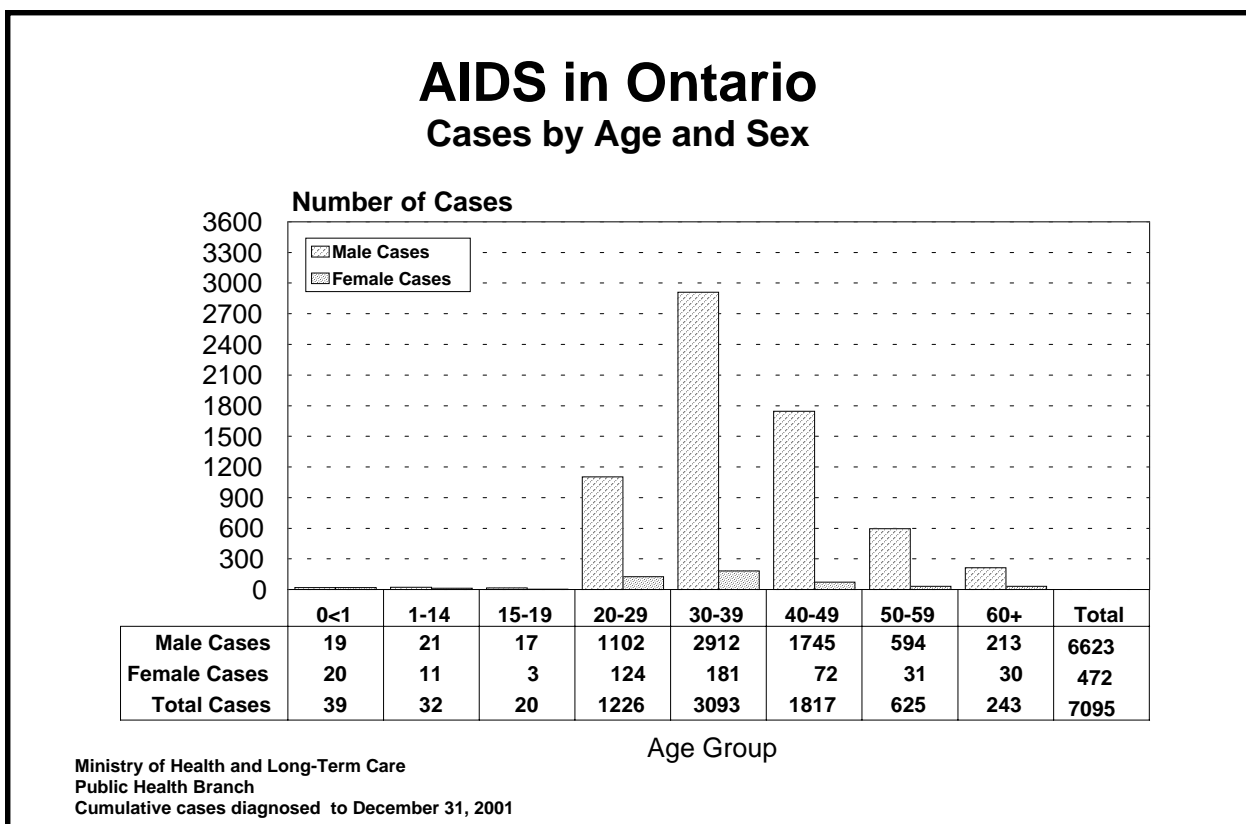
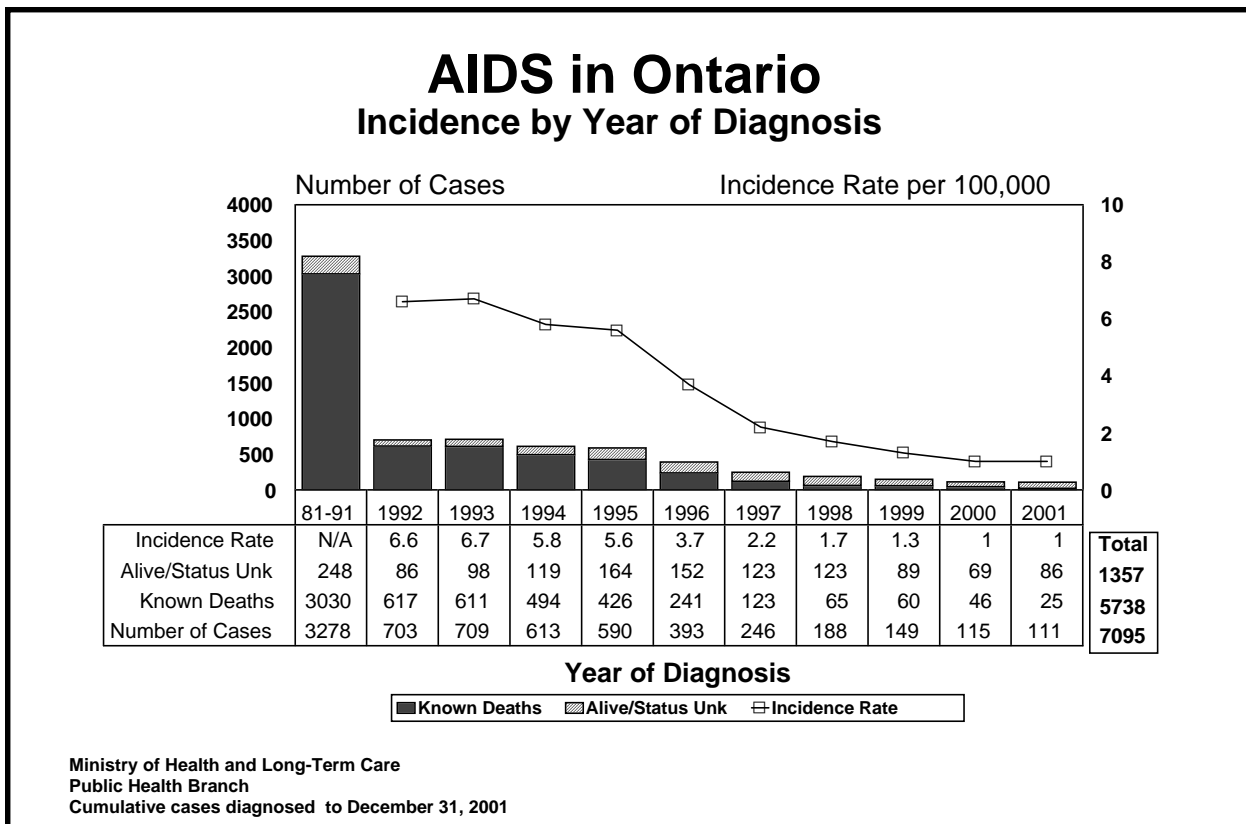


Sexually Transmitted Diseases

PPNG as a Proportion of Total Gonorrhea Ontario 2000 to 2001

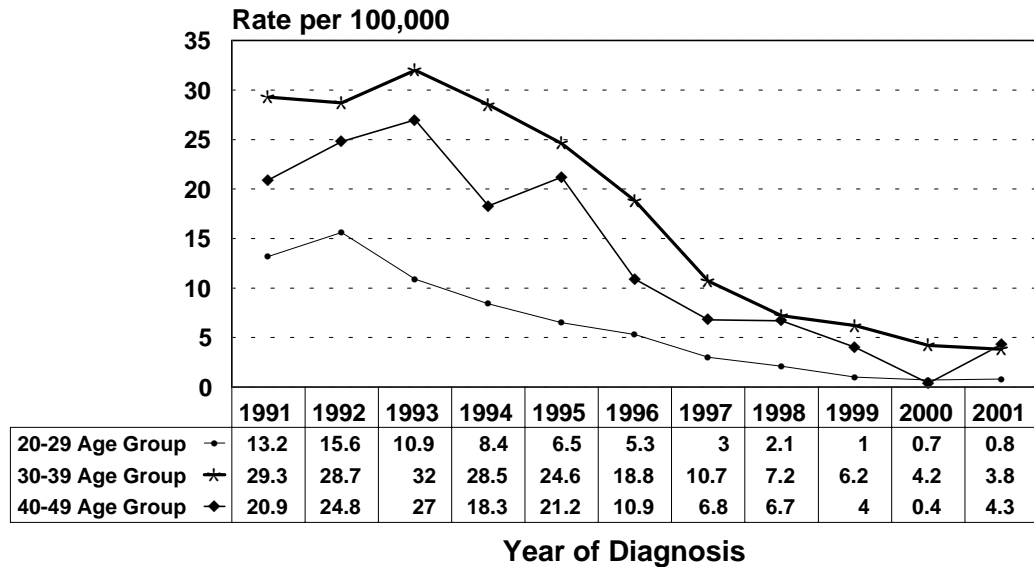


Sexually Transmitted Diseases



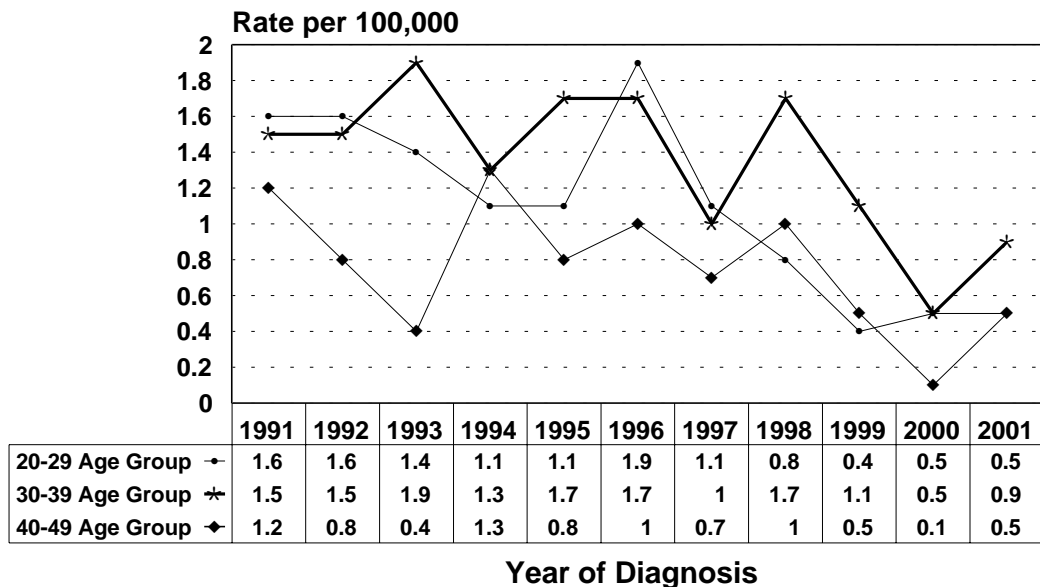
Sexually Transmitted Diseases

Males Rates for Selected Age Group Ontario, 1991-2001



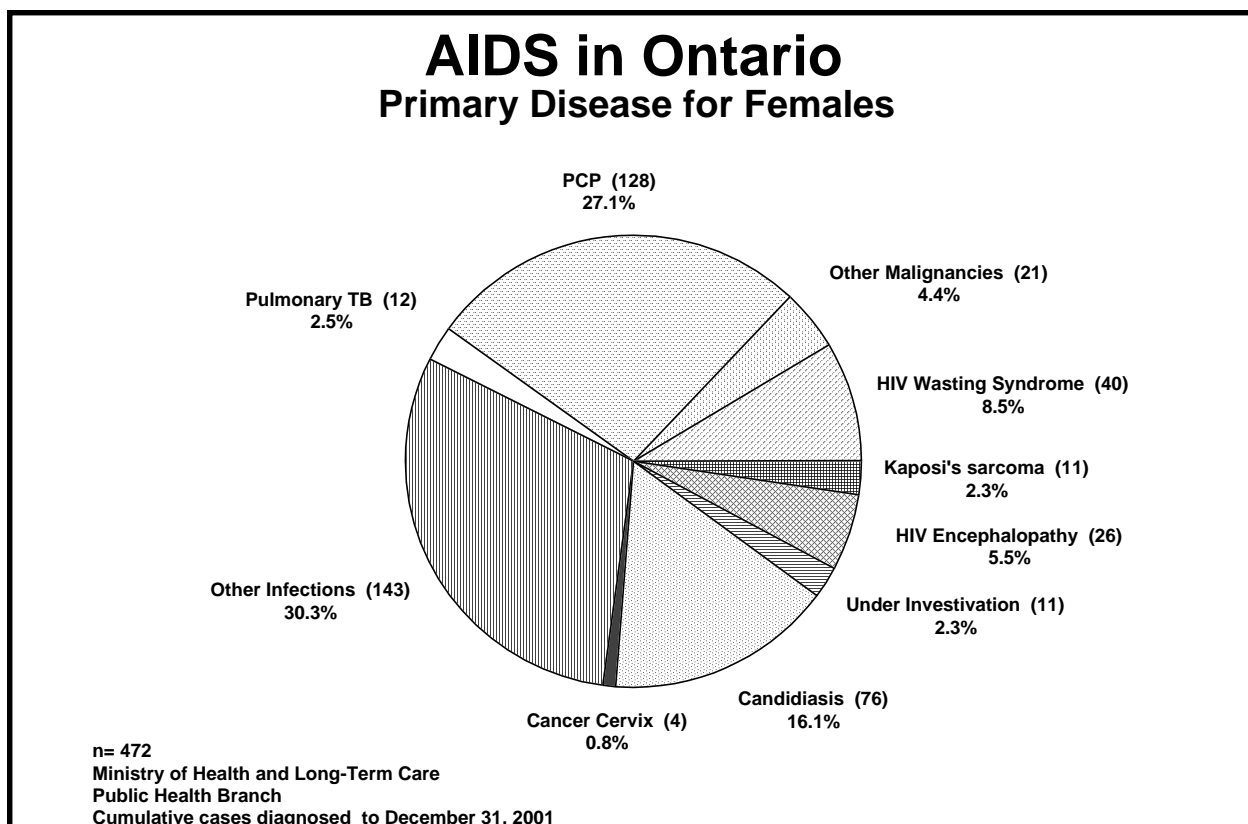
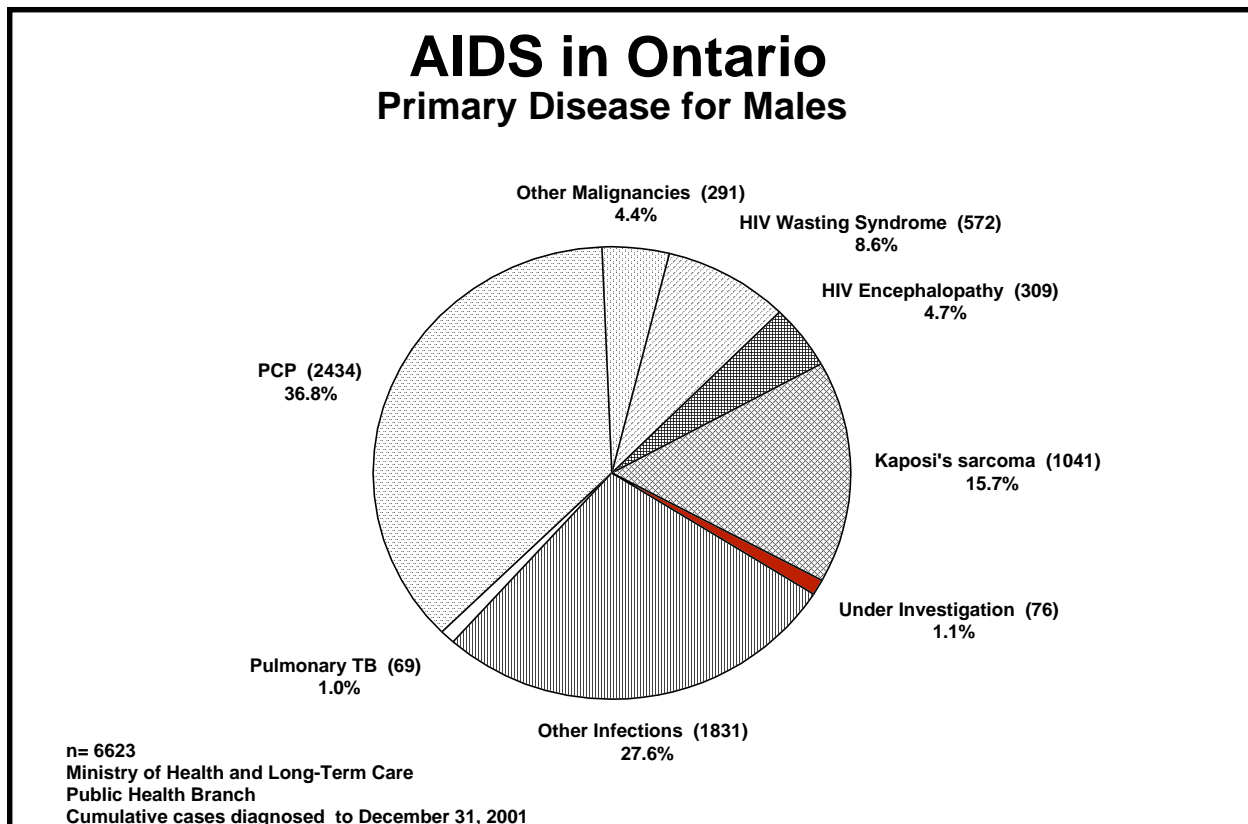
Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to December 31, 2001

Females Rates for Selected Age Group Ontario, 1991-2001

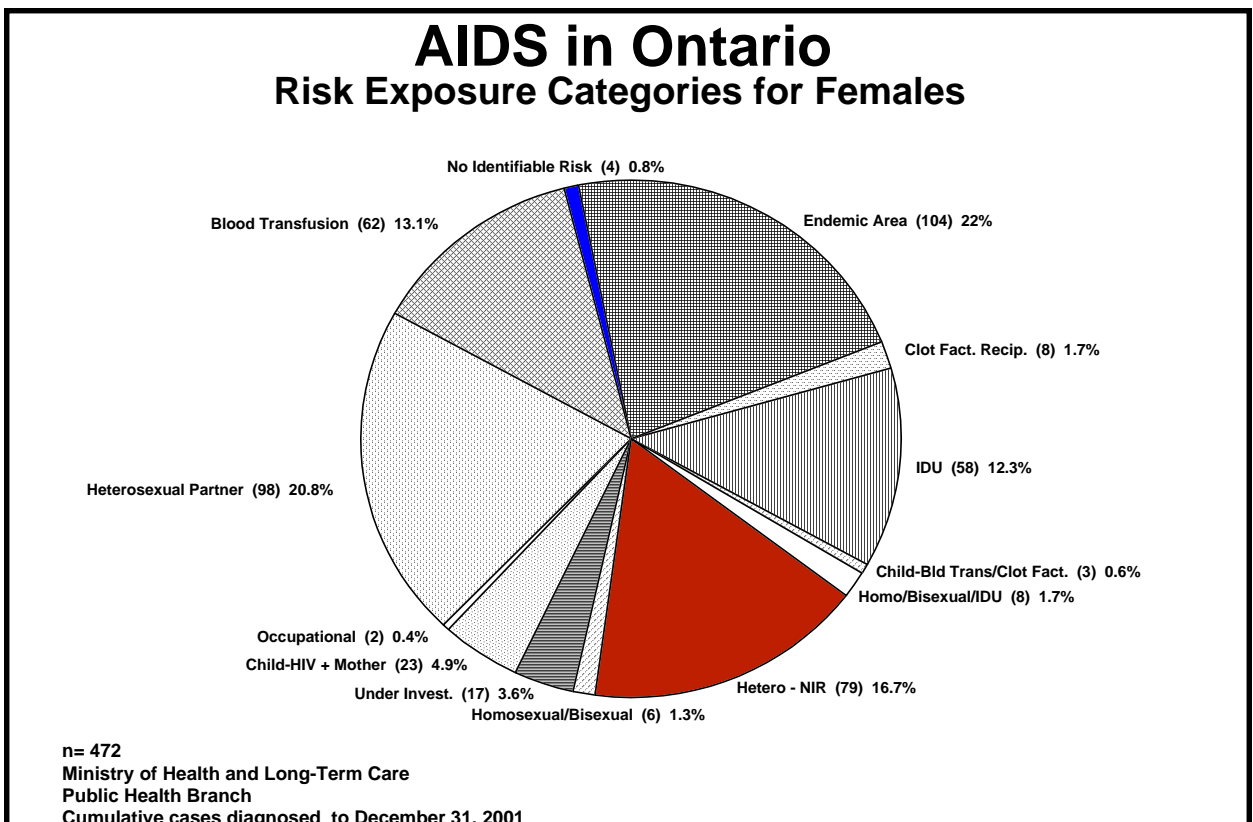
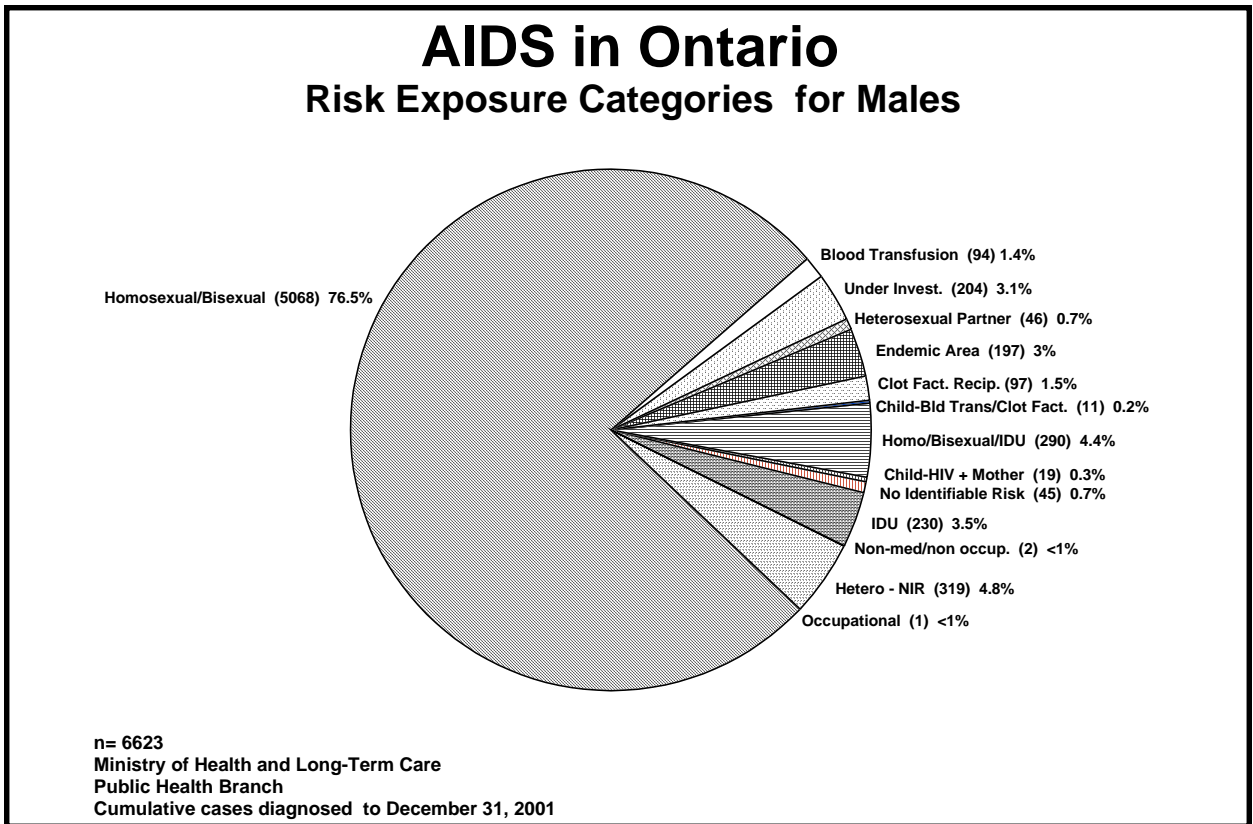


Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to December 31, 2001

Sexually Transmitted Diseases



Sexually Transmitted Diseases



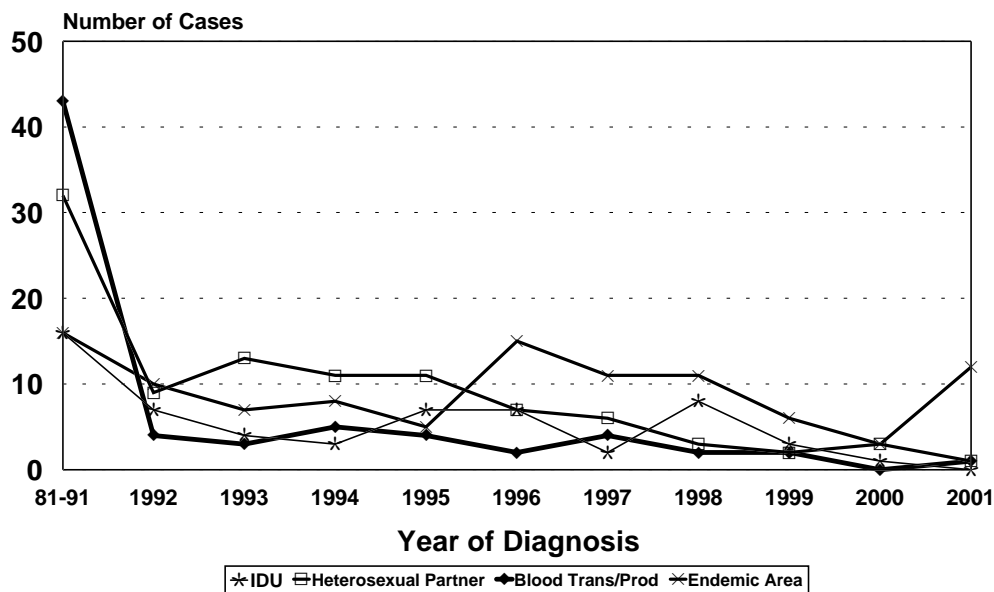
Sexually Transmitted Diseases

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	2566	503	512	442	398	239	139	100	70	57	42	5068
IDU	68	27	22	19	21	20	14	8	12	11	8	230
Homo/Bisexual/IDU	121	32	34	33	31	19	7	6	4	2	1	290
Clot Fact Recip	59	9	7	3	8	3	3	3	1	0	1	97
Endemic Area	45	16	16	11	17	27	16	13	13	9	14	197
Heterosexual Partner	15	3	8	5	3	2	2	3	1	1	3	46
Blood Transfusion	57	8	5	4	6	3	4	3	1	2	1	94
Occupational (possible)	1	0	0	0	0	0	0	0	0	0	0	1
Child-HIV + Mother	5	2	1	1	4	3	2	0	0	1	0	19
Child-Bld Trans/Clot Fact	7	3	0	1	0	0	0	0	0	0	0	11
Hetero-NIR	84	36	36	27	39	23	20	11	16	15	12	319
No Identifiable Risk	30	4	1	3	3	1	0	1	1	0	1	45
Under Investigation	77	21	26	21	18	11	10	3	7	3	7	204
Non-med/non occup	0	0	0	0	0	0	1	1	0	0	0	2

Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to December 31, 2001

AIDS in Ontario Selected Risk Factors for Females



Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to December 31, 2001

AIDS in Ontario

AIDS in Ontario

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

<u>Responsible Health Unit</u>	<u>Number</u>	<u>Per cent</u>
Algoma	13	0.2%
Brant County	30	0.4%
Grey Bruce	26	0.4%
Durham Region	106	1.5%
Eastern Ontario	30	0.4%
Elgin-St. Thomas	15	0.2%
Haldimand-Norfolk	20	0.3%
Haliburton, Kawartha	18	0.3%
Halton Region	90	1.3%
City of	202	2.8%
Hastings & Prince Edward	50	0.7%
Huron County	11	0.2%
Chatham-Kent	23	0.3%
Kingston, Frontenac	70	1.0%
Lambton	27	0.4%
Leeds, Grenville & Lanark	28	0.4%
Middlesex-London	232	3.3%
Muskoka-Parry Sound	14	0.2%
Niagara Region	133	1.9%
North Bay & District	31	0.4%
Northwestern	9	0.1%
Ottawa-Carleton Region	627	8.8%
Oxford County	23	0.3%
Peel Region	269	3.8%
Perth District	18	0.3%
Peterborough	32	0.5%
Porcupine	11	0.2%
Renfrew County & District	17	0.2%
Simcoe	80	1.1%
Sudbury and District	63	0.9%
Thunder Bay District	35	0.5%
Timiskaming	9	0.1%
Toronto City - total	4263	60.1%
<i>North</i>	260	3.7%
<i>South</i>	3365	47.4%
<i>East</i>	360	5.1%
<i>West</i>	278	3.9%
Waterloo Region	85	1.2%
Wellington-Dufferin-Guelph	52	0.7%
Windsor-Essex County	203	2.9%
York Region	130	1.8%
Totals	7,095	100.0%

Ministry of Health and Long-Term Care
Public Health Branch
Cumulative cases diagnosed to December 31, 2001

**Reportable Disease Summary for First Nations and Inuit Health Branch
Ontario Region, October 1 - December 31, 2001**

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		
Chickenpox (varicella)	3	9	6	3			1															22
Chlamydia Trachomatis infections					4	15	45	16	32	4	16	5	4	1	1							143
Giardiasis	2		1											1								4
Gonorrhoea					1	2	4	8	5	2	1											23
GAS		1																				1
Hepatitis C																	1					1
Pertussis (whooping cough)	3	3										1	1	1	1	1	2					11
Salmonellosis	3	1											1	1								6
Tuberculosis								2									1	1	1	1		5

On-Reserve Population - Ontario Region = 67,706