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Seasons Greetings

Public Health has experienced significant change and challenges this past year; the tragic events that unfolded in Walkerton have contributed to an increased recognition of the role of Public Health. Health promotion and disease prevention are a key strategy in the Ministry's Business Plan.

This past July the Minister announced that Ontario would be the first jurisdiction in North America to implement a universal influenza program. The success of the program has also been due to the support of the various health care providers who have collaborated to promote and administer the vaccine in both traditional and innovative settings, to ensure that all Ontarians had easy access to influenza immunization within their communities.

Additional funding was also received for Mandatory Programs and for Ontario's first universal and comprehensive Newborn/ Infant Hearing Screening and Communication Development Program.

As we move forward in the millennium, on behalf of the Public Health Branch, I wish you all the very best in 2001.

Colin O. D'Cunha, MBBS, MHSc, FRCPC
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A FOCUS ON PRETERM BIRTH

Why Focus on Preterm Birth?

Preterm birth (gestational age less than 37 completed weeks), is recognized as one of the most important perinatal health problems in Canada and other industrialized nations. It is the leading cause of perinatal mortality in Canada, accounting for 75-85% of the combined mortality of stillbirths and deaths of infants up to 6 days of age as a proportion of all still- and live births [1]. Preterm birth also contributes to substantial neonatal and infant morbidity, including neurocognitive handicaps, chronic respiratory problems, infections and ophthalmologic problems. In response, a newly proposed long-term outcome for the Reproductive Health Mandatory Health Program Requirements is to decrease the pre-term birth rate of singleton infants by 2010 (1995 baseline: 8.1%) [2] .

The Ontario Context [3]

In Ontario, the 1997 preterm birth rate was 8.0 per 100 live births, with a rate of 7.0 per 100 live births for singleton and 47.3 per 100 live births for multiple births. The 1997 rate of mild to moderate preterm birth (a gestational age from 32 to less than 37 completed weeks) in Ontario was 7.0 per 100 live births (with a rate of 6.2 and 37.3 per 100 live singleton and multiple births, respectively). In comparison, the very preterm birth rate (a gestational age less than 32 completed weeks) for that year in Ontario was 1.0 per 100 live births (with a rate of 0.8 and 10.0 per 100 live singleton and multiple births, respectively).

Health Impacts [4]

Looking at the health impacts of preterm birth, most studies have focused on morbidity and mortality among very preterm infants. The emphasis is understandable, given that mortality rates markedly increase with decreasing gestational age, and that much lower absolute risks exist for mild and moderate preterm infants, particularly with recent advances in neonatal intensive care.

Extreme Prematurity and School Outcomes [5]

Other studies, including the population-based matched cohort study published in the October 2000 edition of *Paediatric and Perinatal Epidemiology,* have focused on the high risk of morbidity for very preterm infants. Buck et al's study assessed the impact of extreme prematurity ($\leq$ 28 completed weeks gestation) on three global measures of school outcome - grade repetition, special education placement and use of school-based services. All children in the study were born between 1983 and 1986 at a regional tertiary neonatal hospital serving the western New York population. The study results show that extreme prematurity is strongly associated with educational difficulties based on all three measures, even after children with major neurosensory or developmental disability were excluded.

Mild to Moderate Prematurity and Infant Death

Yet births at gestational ages of 32 through 36 weeks are much more common than those at less than 32 gestational weeks. It is therefore important to also consider the population-health impact of mild and moderate preterm birth.

This was the focus of an article in the August 2000 edition of the *Journal of the American Medical Association*. Kramer et al. applied a public health perspective to assess the quantitative contribution of mild (birth at 34-36 gestational weeks) and moderate (birth at 32-33 gestational weeks) preterm birth on infant mortality [6]. The design was a population-based cohort study using linked singleton live birth-infant death cohort files for US birth cohorts for 1985 and 1995 and Canadian birth cohorts from 1985-1987 and 1992-1994 (NB: Ontario data was excluded due to problems with data quality. The Canadian Perinatal Surveillance System has acknowledged that this problem is being addressed, and it is anticipated that Ontario data will be included in national figures in the near future) [1]. The main outcome measures were relative risks (RRs) and population-attributable risks (PARs) for overall and cause-specific early neonatal (age 0-6 days), late neonatal (age 7-27 days), postneonatal (age 28-364 days), and total infant death among mild and moderate preterm births versus term births (at $\geq$ 37 gestational weeks) [6].

The study does a good job distinguishing absolute risk from both RR and PAR (referred to in the study as etiologic fraction, EF). Relative risk indicates how much more frequently a given outcome (e.g., infant mortality) occurs in persons with versus those without a risk factor (e.g., mild and moderate preterm birth).

The PAR is the proportion of all cases of the outcome occurring in a given population that can be attributed to exposure to the risk factor. Because the PAR is a function of both the RR and the population prevalence of exposure to the risk factor, common risk factors (such as mild to moderate preterm birth) account for much higher PARs than do rare risk factors (e.g., extreme preterm birth) [4].

Despite the low absolute risk of death from mild and moderate preterm birth, the study found that these infants "are at high relative risk (RR) for death during infancy and are responsible for an important fraction of infant deaths" (Table 1). Specifically, infants born at 32 through 36 gestational weeks had "appreciable EFs [PARs] for postneonatal deaths due to infection, SIDS, and external causes, including abuse and maltreatment…their risks were also elevated for neonatal death, especially neonatal death due to asphyxia and infection" [6].

The authors noted that, "except for a slight reduction in neonatal deaths attributable to infection among infants born at 34 to 36 gestational weeks, the patterns we observed have not changed much over the last 10 years in either country. In other words, despite the continued reduction in gestational age-specific mortality with improvements in high-risk obstetric and neonatal care, mild and moderate preterm births continue to contribute an important fraction of infant deaths from a variety of causes" [6].

The RRs for mild or moderate preterm infants are lower than for extremely preterm infants but higher than for full term infants. However, due to the greater frequency of mild and moderate preterm births compared to extreme births, the combined impact of elevated RRs and high prevalence results in a significant health impact at the population level. While these findings do not in any way lessen the importance of extremely preterm infants as a perinatal health problem, they do highlight the need for continued efforts to prevent the occurrence of mild and moderate preterm births and deaths amongst such births.

To support these efforts, further research is required to determine the etiology of preterm birth. To date, a number of risk factors of preterm delivery have been well established. These include genital tract infection, cigarette smoking, pre-eclampsia, incompetent cervix, prior preterm birth, and abruptio placentae [1]. Other psychological factors such as stress, anxiety and depression are considered potential contributors to the risk of preterm birth [1].

Table 1. Infant Mortality and Gestational Age Distribution Among All Live Births, United States, 1985 and 1995, and Canada, 1985-1987 and 1992-1994* >

	United States		Canada	
Age Group	1985	1995	1985-1987	1992-1994
Infant Mortality, per 1000 Births				
Early neonatal (age 0-6 d)	5.7	4.0	4.1	3.3
Late neonatal (age 7-27 d)	1.1	1.0	0.9	0.7
Postneonatal (age 28-364 d)	3.6	2.6	2.9	2.2
Total	**10.4**	**7.5**	**7.8**	**6.2**
Gestational Age, Distribution %				
≤27 Weeks	0.7	0.7	0.4	0.4
28-31 Weeks	1.1	1.2	0.6	0.6
32-33 Weeks	1.3	1.4	0.7	0.8
34-36 Weeks	6.3	7.6	4.5	4.9
≥37 Weeks	86.7	88.2	93.7	92.6
Unknown	3.9	0.9	0.2	0.8

*Canadian data exclude Ontario.

Changes in Preterm Risk Factors [7]

While it is clear that further research into the cause of most preterm births is required, a new French study published in the October 2000 edition of *Paediatric and Perinatal Epidemiology*, suggests that the relevance of previously established risk factors also needs to be regularly verified . As a result of substantial changes in medical practice and the social context in which pregnancy exists, authors in France decided to re-assess well-established risk factors of preterm delivery. The purpose of the study was to see if associations between maternal characteristics and preterm delivery in France in 1995 were similar to those in 1981. The authors were particularly interested in the potential effects of medical progress in assessing gestational age, detecting fetal distress, and in the care of preterm infants, and changes in socio-demographic context. In terms of changes in the social environment of pregnancy, some maternal characteristics that are well-established risk factors for preterm delivery, such as being aged 35 years or more or being unmarried, are becoming more frequent in France and many other countries, including Canada.

Foix-L'Helias and Blondel used 2 national representative samples of single births (5,577 newborns in 1981 and 13,318 in 1995), and applied univariable and multivariable analyses to identify variables associated with increased risk of preterm delivery. Maternal demographic and health status characteristics were considered. Variables included: women's age, parity, weight before pregnancy, previous induced

abortion and history of perinatal death, and preterm delivery or small-for-dates newborn. Socio-economic variables included nationality (French, North African, Black African, other), marital status (married, unmarried cohabiting, single), employment status during pregnancy (employed, unemployed, housewife or student), and smoking during last trimester of pregnancy (none, 1-9 cigarettes per day, 10 or more). Education was classified into four levels, from no schooling/primary level to university level.

The study compared the onset of labour and the health status of preterm newborns (gestational age, birthweight, and live or still birth) born in 1981 and 1995 to describe modifications in medical practice. A comparison of maternal characteristics for 1981 and 1995 was then made to study changes in the social situation of pregnant women. Next, the association between each maternal characteristic and preterm delivery in 1981 and then in 1995 was studied. Finally an analysis of the relation between each factor and preterm delivery 1981 and 1995 was conducted, taking account of the other relevant risk factors by logistic regression analysis. The authors were then able to assess whether the relationships between each maternal characteristic and preterm delivery in 1995 differed from those observed in 1981.

Differences in the characteristics of preterm infants, as well as the demographic and social characteristics of pregnant women were observed between the two surveys. In terms of associated risk factors, some were similar in 1981 and 1995, including age >34 years and previous adverse obstetric history (i.e., previous perinatal death, preterm delivery or intrauterine growth retardation). Other associations revealed changes from 1981 to 1995. Some important risk factors observed in 1981 were less significant or not even linked to preterm delivery in 1995 (mothers being very young < 20 years of age, single or foreign). Other factors identified as important in 1995 (parity, and particularly a history of induced abortion) were not associated with preterm delivery in 1981.

While there are several differences between the samples that could have affected the findings of the comparison between the two years, the results do call into question the stability of epidemiological associations with preterm delivery. This suggests that in order to develop effective antenatal care, primary prevention and health promotion programming, up-to-date information on the population risks associated with preterm delivery is required.

Unintended Pregnancy and Preterm Birth [8]

Another article in the October 2000 edition of *Paediatric and Perinatal Epidemiology* evaluates the association between intendedness of pregnancy and preterm birth This is particularly of interest given the new proposed intermediate objective, in the revised Reproductive Health Mandatory Program Standards, to increase the proportion of planned pregnancies.

Authors Orr et al. enrolled a large prospective cohort of pregnant, black, urban, low-income women aged ≥18 years. The women sampled were enrolled at the time they went to seek prenatal care at four hospital-based prenatal care clinics and one off-site hospital affiliated prenatal clinic in Baltimore City, USA. Only women with live births were included in the analysis sample (n=922).

Each woman completed a self-administered questionnaire at the time of enrolment in the study, which was used to assess demographic and psychosocial data. The questionnaire included an item to measure "intendedness" of pregnancy (I wanted to be pregnant sooner; I wanted to be pregnant now; I wanted to be pregnant later; I did not want to be pregnant now or at any time in the future; I am unsure how I feel). Because the authors found similar risks of preterm birth among those with mistimed (I wanted to be pregnant later) and unwanted pregnancies (not now or at any time), and those who were unsure about intendedness, these women were grouped together for subsequent analysis. Therefore, final analysis used two classifications, "intendedness" and "unintendness" of pregnancy (p310).

Of the 922 women in the sample, almost one third of the pregnancies were wanted (n=303). One third were mistimed (n=312), 10.6% reported an unwanted pregnancy (n=97), and 22.0% (n=201) were unsure of the intendedness of the current pregnancy. Overall 13.7% of all births to women in the sample were preterm (p310-311).

Adjustments were made to control for potential confounding by clinical and behavioural predictors of preterm delivery. Clinical variables adjusted for included abruptio placentae, bleeding during pregnancy, chronic disease (e.g., hypertension, asthma), hospitalized during pregnancy, and poor weight gain of < 21 lbs., pre-eclampsia and previous poor pregnancy

outcome (stillbirth, low birth weight, preterm birth or fetal death). Further adjustments were made for the following behavioural variables: alcohol use, drug use and smoking. After adjustment for risks, women with unintended pregnancies has almost twice the risk of a preterm delivery as women with intended pregnancies (adjusted RR = 1.82, 95% confidence interval [1.08-3.08], p=0.026) (p311).

While the findings reported need to be replicated in further research, they are thought provoking and potentially important. As unintended/ unplanned pregnancies occur in women from all socio-demographic groups, sexual and reproductive health services need to be accessible and tailored to all non-pregnant women. Efforts to reduce the circumstances that lead to unintended pregnancy and to support planned pregnancies when they are desired may help to reduce the rate of preterm delivery, as well enhance other preconception, perinatal and maternal health outcomes.

Conclusion

Clearly much research is still required in order for us to better understand what causes preterm birth and how we can help to prevent and delay it. In spite of gaps in our knowledge, many health unit staff are already hard at work designing, implementing and evaluating efforts to achieve these outcomes. Recently a copy of the final report prepared by the Perinatal Partnership Program of Eastern and Southeastern Ontario (PPPESO) for Health Canada was distributed to managers of the Reproductive Health Program. The report is titled "Evaluation of a Community-Wide Education Program for Health Care Providers on Preterm Labour/Birth" [9]. It provides a good overview of the community-wide intervention, design, and evaluation results.

This is just one example of the work that is already being undertaken to reduce the rate of preterm birth and improve reproductive health outcomes in Ontario. Through ongoing sharing of research and strategies we can strengthen our efforts in this area. I hope this article has provided insightful information to help support your continued efforts. For those who are interested, I recommend that you read the October 2000 issue (Volume 14, Number 4), of the journal Paediatric and Perinatal Epidemiology. It includes a number of articles relating to preterm birth/delivery, only some of which has been summarized above.

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PERINATAL HIV INFECTION IN ONTARIO- HOW ARE WE DOING WITH OUR PREVENTION EFFORTS?

Prevention of mother-to-child transmission (MCT) of HIV is one of the success stories for public health in North America. Without intervention, MCT occurs in 15 to 40 percent of infants perinatally exposed to HIV, but with current management transmission rates may be as low as 1 percent [1].

HIV is transmitted from mother to child throughout pregnancy with the peak time of transmission being intrapartum, and then secondly, in the early weeks of breast-feeding. In a randomized controlled trial, zidovudine (ZDV) alone was compared to placebo for prevention of MCT of HIV [2]. In the trial, ZDV was taken orally in pregnancy, given intravenously intrapartum and given as syrup to the newborns. The infants did not breast-feed and the transmission of HIV was reduced from 25 to 8 percent. Subsequent to that study, it has been shown that maternal viral load at delivery is strongly predictive for transmission of HIV to the infant [3,4]. Current HIV therapy using combinations of antiretroviral agents (ARVs) is effective in lowering viral load (VL), frequently to undetectable levels. Although there are no randomized controlled trials evaluating combination therapy in pregnancy for prevention of MCT, observational studies have shown transmission rates on combination ARVs to be as low as one percent [5]. This has led to the recommendations that in pregnancy combination therapy of ARVs should be offered to women, both to optimize their health and prevent HIV transmission to their infants [6].

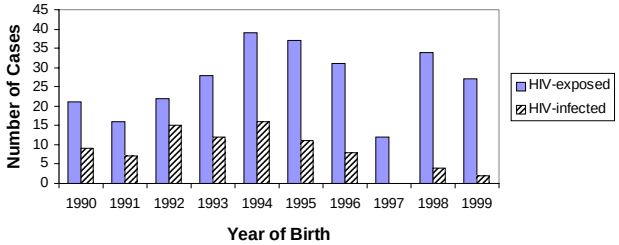
The role of cesarean section for prevention of MCT is less clear. If pregnant women are not taking any ARVs or are on ZDV alone, then an elective cesarean section reduces transmission rates by 50 percent [7,8]. However, it is not known whether an elective cesarean section is effective in further reducing transmission in women whose VL is already undetectable. At the present time, the consensus of Canadian HIV specialists is that an elective cesarean section is recommended for HIV-positive pregnant women who are not on antiretroviral therapy or who have a VL not suppressed by their antiretroviral therapy. The consensus for HIV-positive women on ARV therapy and in whom their VL is undetectable, is that an elective cesarean section should be offered so individually they can weigh the potential risks against unknown benefits.

HIV is in breast milk and therefore breast-feeding is a route of transmission from mother to child. In a randomized controlled trial in Africa, in which formula feeding was compared to breast-feeding, formula feeding was found to reduce MCT by 44 percent [9]. In Canada where formula feeding is a safe option, it is recommended that HIV positive women do not breast feed [10]. In Ontario infant formula is provided free of charge through a program coordinated by the Teresa group (www.interlog.com/~teresag).

Evidence of the effectiveness of interventions to prevent MCT of HIV has been available since 1994 [2]. At that time, the recommendation in Ontario was that pregnant women with risk factors for HIV should be tested. Selective testing was not an effective strategy and in December 1998 a revised recommendation was issued, recommending that there be routine offering of HIV testing to all pregnant women. Following this recommendation testing rates in pregnant women in Ontario rose from approximately 40% to 50 % but have leveled off at that level for the past year [11]. In comparison, other provinces such as Quebec, British Columbia and Alberta estimate that their testing rates are at 80% or greater.

The Canadian Paediatric AIDS Research Group (CPARG) conduct surveillance for perinatal HIV across Canada. Information is collected on infants identified as perinatally exposed to HIV. This includes infants born to mothers identified as HIV-positive before or during pregnancy and those identified after birth of the infant. The number of infants who have been identified as perinatally HIV-exposed in Ontario since 1990 are shown in Figure 1. Further details on perinatal HIV

Figure1



surveillance in Ontario can be found in the HIV/AIDS Ontario Surveillance Report, November 2000 [12]. Even allowing for delay in reporting, the number of mother-infant pairs identified appears to have peaked in 1994. The number of infected infants has fallen each year since 1994. This suggests some success of the prevention program. But these reports must be interpreted with caution because HIV-infected children, who were not identified through screening of their mothers in pregnancy, may not present until many years later when they become symptomatic.

The reports of perinatal HIV-exposure can give us some information on the areas of success and failure in our efforts for prevention of perinatal HIV infection. If we consider the mother-infant pairs from July 1994 to December 1999, the period in which the effectiveness of ARV therapy in pregnancy was known, then of the 162 pairs, 107 received some ARV therapy but 55 received none [12]. Of these 162 exposed infants, 34 infants were infected, 3 in those who received any ARV but 31 in those who had no ARV. We have therefore been successful in reducing perinatal HIV transmission for those women receive HIV care in pregnancy. However, we have failed to provide HIV care for a significant number of HIV-positive women who are pregnant. Based on modeling analyses, not only are 50% of pregnant women not being tested for HIV but testing is identifying fewer than 50% of the infected women [13]. The numbers reported in this surveillance are therefore clearly an underestimate of the number of HIV-positive pregnant women and all those unidentified obviously did not have an opportunity to be offered HIV care. There is an urgent need to determine the reasons for failure to reach this population, so that these women and children can benefit from HIV care.

In Ontario, it has been rare that a woman who knows that she is HIV-positive has refused ARV therapy in pregnancy. The major reason for lack of ARV therapy in pregnancy was lack of the woman's knowledge of her HIV status. For the 50% of pregnant women in Ontario are not being tested for HIV, we do not know why they are not being tested. Important questions to answer are

1) what proportion are not being offered versus being offered but refusing testing, 2) why are they not being offered or refusing testing 3) what are the characteristics of women not being tested, 4) where are these women receiving their care and 5) what is the HIV seroprevalence in the women not being tested. Studies are currently underway to try to get a better understanding of such issues for HIV testing in pregnancy in Ontario.

From the surveillance information, we know that the exposure categories for risk of HIV infection of the mothers are similar in the two regions with the largest number of cases, Toronto and Ottawa. In these regions approximately half of the mothers are from HIV-endemic countries but two-thirds of the infected infants are born to women from HIV-endemic countries. Identification of HIV status prior to delivery and therefore receipt of ARV therapy in pregnancy was lowest in women in this risk category. The corollary is that the highest rate of failure of prevention of perinatal transmission is in pregnant women who are from HIV-endemic countries.

Prevention of mother-to-child transmission of HIV is an achievable and worthwhile goal. In Ontario, we have had some success with our preventive efforts but we still are not identifying a large proportion of HIV-positive pregnant women and therefore preventable perinatal infections are still occurring. A necessary first step to improve prevention of perinatal HIV infection in Ontario is to improve HIV counseling and testing in pregnancy, particularly finding ways to reach women from HIV-endemic countries.

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Summary of Reportable Diseases in September, 2000

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	123,953		2	5	9	1	2	
North Bay	93,841		2		5	4		1
Northwestern	80,235	1		38	15			1
Porcupine	97,437		1		7			
Sudbury	201,154		1		27	1		1
Thunder Bay	161,187		2		30			
Timiskaming	38,847		1		3			
Total - Northern	**796,654**	**1**	**9**	**43**	**96**	**6**	**2**	**3**
Eastern Ontario	185,314		3		9	1		
Hastings-Prince Edward	143,790		4	1	2			
Kingston-Frontenac	175,568		8		35	1		
Leeds-Grenville	156,129							
Ottawa-Carleton	721,136	1	43	30	79	2	1	7
Renfrew	97,634		2		3			
Total- Eastern	**1,479,571**	**1**	**60**	**31**	**128**	**4**	**1**	**7**
Durham Region	458,616		7	62	42			4
East York	107,822		7	4	9	2		2
Etobicoke	328,718		17	5	28	1	1	8
Haliburton-Kawartha	165,039		8		1			
Muskoka-Parry Sound	78,675		1	25	1			
North York	589,653		43	13	114			22
Peel Region	852,526		70	161	94	5	2	22
Peterborough	123,448		3		13	1		2
Scarborough	558,960		38	44	128	3	1	38
Simcoe County	329,865		11	78	31	2		
Toronto City	653,734		50	37	34		2	15
York City	146,534		9		17			5
York Region	592,445		35	16	1	4		
Total - Central East	**4,986,035**		**299**	**445**	**513**	**18**	**6**	**118**
Bruce, Grey-Owen Sound	153,312		10	1	8	1		1
Elgin-St. Thomas	79,159		3	33				1
Huron	60,220		1		3			
Chatham-Kent	109,650		5		7			
Lambton	128,975		3					
Middlesex-London	389,616		14		29	3		12
Oxford	97,142		3		3	1		
Perth	72,106		5	4	1		1	
Windsor-Essex	350,329		13	19	40	3		3
Total - Southwest	**1,440,509**		**57**	**57**	**91**	**8**	**1**	**17**
Brant	114,564			4	15			
Haldimand-Norfolk Region	102,575		2	12	5		1	
Halton Region	339,875		9		24	1		1
Hamilton-Wentworth	467,799		18	1	60		1	9
Niagara Region	403,504		21		34		2	3
Waterloo Region	405,435		13		40			8
Wellington-Dufferin	217,052		10	4	5	2		2
Total - Central West	**2,050,804**		**73**	**21**	**183**	**3**	**4**	**23**
September 2000	**10,753,573**	**2**	**498**	**597**	**1,011**	**39**	**14**	**168**
*** Total YTD 2000**	**-**	**47**	**3,833**	**20,418**	**10,028**	**260**	**320**	**1,845**
*** Total YTD 1999**	**-**	**104**	**3,301**	**10,989**	**10,007**	**310**	**223**	**1,648**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in September, 2000

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	123,953				13				
North Bay	93,841				6				
Northwestern	80,235				1				
Porcupine	97,437								
Sudbury	201,154				13				
Thunder Bay	161,187				5				
Timiskaming	38,847								
Total - Northern	**796,654**				**38**				
Eastern Ontario	185,314			1	1				
Hastings-Prince Edward	143,790				4				
Kingston-Frontenac	175,568		1	1	1				
Leeds-Grenville	156,129								
Ottawa-Carleton	721,136	2	1	1	37				1
Renfrew	97,634			1	3				1
Total- Eastern	**1,479,571**	**2**	**2**	**4**	**46**				**2**
Durham Region	458,616								
East York	107,822				2				
Etobicoke	328,718			1	13				
Haliburton-Kawartha	165,039		1		5				
Muskoka-Parry Sound	78,675								
North York	589,653				26				
Peel Region	852,526		2		29				
Peterborough	123,448				5				
Scarborough	558,960	1	2		12				
Simcoe County	329,865		1						
Toronto City	653,734	1		2	47	1			
York City	146,534		2		11				
York Region	592,445		1		26				2
Total - Central East	**4,986,035**	**2**	**9**	**3**	**176**	**1**			**2**
Bruce, Grey-Owen Sound	153,312				5				
Elgin-St. Thomas	79,159			1	3				
Huron	60,220				1				
Chatham-Kent	109,650				3				
Lambton	128,975								
Middlesex-London	389,616		1		15				
Oxford	97,142		1		1				
Perth	72,106			1					
Windsor-Essex	350,329	1			7				
Total - Southwest	**1,440,509**	**1**	**2**	**2**	**35**				
Brant	114,564								
Haldimand-Norfolk Region	102,575								
Halton Region	339,875		1		1				
Hamilton-Wentworth	467,799	2	1		30				
Niagara Region	403,504		1		24				
Waterloo Region	405,435	1			15				
Wellington-Dufferin	217,052		1		2				
Total - Central West	**2,050,804**	**3**	**4**		**72**				
September 2000	**10,753,573**	**8**	**17**	**9**	**367**	**1**			**4**
*** Total YTD 2000**	**-**	**120**	**96**	**107**	**4,112**	**6**	**1,517**	**8**	**61**
*** Total YTD 1999**	**-**	**88**	**218**	**103**	**4,895**	**3**	**2,291**	**2**	**63**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in September, 2000

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953							
North Bay	93,841				2			1
Northwestern	80,235		3		2			
Porcupine	97,437				2			
Sudbury	201,154				1			
Thunder Bay	161,187				1			1
Timiskaming	38,847							
Total - Northern	**796,654**		**3**		**8**			**2**
Eastern Ontario	185,314				2			
Hastings-Prince Edward	143,790				1			2
Kingston-Frontenac	175,568		5		1			
Leeds-Grenville	156,129				1			
Ottawa-Carleton	721,136		5		23	1		3
Renfrew	97,634							
Total- Eastern	**1,479,571**		**10**		**28**	**1**		**5**
Durham Region	458,616		1		3			
East York	107,822		2		2			
Etobicoke	328,718		2		9	1		1
Haliburton-Kawartha	165,039				3			4
Muskoka-Parry Sound	78,675							
North York	589,653		6		16	5		2
Peel Region	852,526		4		36			1
Peterborough	123,448		2					2
Scarborough	558,960		3	1	13	8		1
Simcoe County	329,865		1		4			
Toronto City	653,734		3		16			
York City	146,534		1		4			
York Region	592,445		5		17			4
Total - Central East	**4,986,035**		**30**	**1**	**123**	**14**		**15**
Bruce, Grey-Owen Sound	153,312				8			2
Elgin-St. Thomas	79,159							
Huron	60,220				1			
Chatham-Kent	109,650				1			
Lambton	128,975				1			
Middlesex-London	389,616	1	5		8	2		2
Oxford	97,142		1					
Perth	72,106				7	1		1
Windsor-Essex	350,329		1		2	5		
Total - Southwest	**1,440,509**	**1**	**7**		**28**	**8**		**5**
Brant	114,564				3			
Haldimand-Norfolk Region	102,575				2			1
Halton Region	339,875		1		13			2
Hamilton-Wentworth	467,799		1		7	1		3
Niagara Region	403,504		2		10	1		
Waterloo Region	405,435		5		10			1
Wellington-Dufferin	217,052		1		3			4
Total - Central West	**2,050,804**		**10**		**48**	**2**		**11**
September 2000	**10,753,573**	**1**	**60**	**1**	**235**	**25**		**38**
*** Total YTD 2000**	**-**	**28**	**457**	**8**	**1,833**	**219**	**7**	**513**
*** Total YTD 1999**	**-**	**28**	**959**	**3**	**1,902**	**224**	**21**	**302**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in October, 2000

Health Units by Region	1996 Population	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph./ Meningitis	GAS	Gonorrhea
Algoma	123,953		3	19	16			
North Bay	93,841		2		9	1		
Northwestern	80,235		3	4	14		1	1
Porcupine	97,437		2		11			
Sudbury	201,154		1		21	1		1
Thunder Bay	161,187		5	19	36	1		
Timiskaming	38,847				2			
Total - Northern	**796,654**		**16**	**42**	**109**	**3**	**1**	**2**
Eastern Ontario	185,314		6		5	2	1	
Hastings-Prince Edward	143,790						1	
Kingston-Frontenac	175,568		3		24			2
Leeds-Grenville	156,129							
Ottawa-Carleton	721,136		19	40	88	3	2	5
Renfrew	97,634		1		6			
Total- Eastern	**1,479,571**		**29**	**40**	**123**	**5**	**4**	**7**
Durham Region	458,616		11	129	42	2		4
East York	107,822		6	16	13			2
Etobicoke	328,718		16	4	4	2		
Haliburton-Kawartha	165,039		4		4			
Muskoka-Parry Sound	78,675		1		1			
North York	589,653		33	27	102		1	24
Peel Region	852,526		31		65	4	2	13
Peterborough	123,448		1		11			
Scarborough	558,960		18	99	129	1	2	33
Simcoe County	329,865		2		32	1		2
Toronto City	653,734		49	38	45	1	2	15
York City	146,534		8		9			3
York Region	592,445		3					
Total - Central East	**4,986,035**		**183**	**313**	**457**	**11**	**7**	**96**
Bruce, Grey-Owen Sound	153,312		3	7	4	2		1
Elgin-St. Thomas	79,159		5	28	3			
Huron	60,220				4			
Chatham-Kent	109,650			34	10			
Lambton	128,975							
Middlesex-London	389,616		6		30	2		10
Oxford	97,142		1		4	1		
Perth	72,106		3	3	3	1		
Windsor-Essex	350,329		11	73	42	1		4
Total - Southwest	**1,440,509**		**29**	**145**	**100**	**7**		**15**
Brant	114,564		1		3	1	1	
Haldimand-Norfolk Region	102,575		1	19	4			
Halton Region	339,875		9		23	3		2
Hamilton-Wentworth	467,799		16	2	69	2		9
Niagara Region	403,504		9		27	2	2	3
Waterloo Region	405,435		2		49			11
Wellington-Dufferin	217,052		11	1	11			
Total - Central West	**2,050,804**		**49**	**22**	**186**	**8**	**3**	**25**
October 2000	**10,753,573**		**306**	**562**	**975**	**34**	**15**	**145**
*** Total YTD 2000**	**-**	**47**	**4,139**	**20,980**	**11,003**	**294**	**335**	**1,990**
*** Total YTD 1999**	**-**	**109**	**3,590**	**11,851**	**11,135**	**362**	**242**	**1,840**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in October, 2000

Health Units by Region	1996 Population	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningo-coccal
Algoma	123,953				4		1		
North Bay	93,841				6				
Northwestern	80,235								
Porcupine	97,437								
Sudbury	201,154				7				
Thunder Bay	161,187				14				
Timiskaming	38,847								
Total - Northern	**796,654**				**31**		**1**		
Eastern Ontario	185,314								
Hastings-Prince Edward	143,790								
Kingston-Frontenac	175,568			1	1		1		
Leeds-Grenville	156,129								
Ottawa-Carleton	721,136		4	1	38				
Renfrew	97,634			1					
Total- Eastern	**1,479,571**		**4**	**3**	**39**		**1**		
Durham Region	458,616								
East York	107,822				7				
Etobicoke	328,718				11	1			
Haliburton-Kawartha	165,039				5				
Muskoka-Parry Sound	78,675				1				
North York	589,653	1	1		33				1
Peel Region	852,526	2			6				
Peterborough	123,448				6				
Scarborough	558,960	1	1		29		1	1	
Simcoe County	329,865								
Toronto City	653,734	2	1	4	36				
York City	146,534				9				
York Region	592,445				23				1
Total - Central East	**4,986,035**	**6**	**3**	**4**	**166**	**1**	**1**	**1**	**2**
Bruce, Grey-Owen Sound	153,312	1			2				
Elgin-St. Thomas	79,159				1				
Huron	60,220				3				
Chatham-Kent	109,650				2				
Lambton	128,975								
Middlesex-London	389,616				11				
Oxford	97,142				1				
Perth	72,106								
Windsor-Essex	350,329				14				
Total - Southwest	**1,440,509**	**1**			**34**				
Brant	114,564								
Haldimand-Norfolk Region	102,575			1	2				
Halton Region	339,875				3				
Hamilton-Wentworth	467,799	4	1		22				
Niagara Region	403,504		1	1	20				
Waterloo Region	405,435				17				
Wellington-Dufferin	217,052			1	1				
Total - Central West	**2,050,804**	**4**	**2**	**3**	**65**				
October 2000	**10,753,573**	**11**	**9**	**10**	**335**	**1**	**3**	**1**	**2**
*** Total YTD 2000**	**-**	**131**	**105**	**117**	**4,447**	**7**	**1,520**	**9**	**63**
*** Total YTD 1999**	**-**	**98**	**232**	**115**	**5,437**	**4**	**2,310**	**2**	**67**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases in October, 2000

Health Units by Region	1996 Population	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	123,953				3			
North Bay	93,841				1			3
Northwestern	80,235		1		1			
Porcupine	97,437				1			1
Sudbury	201,154							
Thunder Bay	161,187							1
Timiskaming	38,847							
Total - Northern	**796,654**		**1**		**6**			**5**
Eastern Ontario	185,314				4			
Hastings-Prince Edward	143,790				1			
Kingston-Frontenac	175,568		2					
Leeds-Grenville	156,129							
Ottawa-Carleton	721,136		3		6	1		4
Renfrew	97,634							
Total- Eastern	**1,479,571**		**5**		**11**	**1**		**4**
Durham Region	458,616		3		3			
East York	107,822				1			
Etobicoke	328,718				8			1
Haliburton-Kawartha	165,039				2			1
Muskoka-Parry Sound	78,675							
North York	589,653		4		15	2		
Peel Region	852,526		1		24	1		2
Peterborough	123,448		7		3			
Scarborough	558,960		7		12	1		
Simcoe County	329,865				1			1
Toronto City	653,734		3		10	2		
York City	146,534				5	1		
York Region	592,445		4		4			1
Total - Central East	**4,986,035**		**29**		**88**	**7**		**6**
Bruce, Grey-Owen Sound	153,312				1	2		
Elgin-St. Thomas	79,159							
Huron	60,220							1
Chatham-Kent	109,650							
Lambton	128,975							
Middlesex-London	389,616	1	2		1	1		
Oxford	97,142	1			1			
Perth	72,106		2		1	1		1
Windsor-Essex	350,329		2			2		
Total - Southwest	**1,440,509**	**2**	**6**		**4**	**6**		**2**
Brant	114,564		1		1			
Haldimand-Norfolk Region	102,575				1			1
Halton Region	339,875				4			4
Hamilton-Wentworth	467,799		2		4			
Niagara Region	403,504				5	1		1
Waterloo Region	405,435		3		2			
Wellington-Dufferin	217,052		3			1		
Total - Central West	**2,050,804**		**9**		**17**	**2**		**6**
October 2000	**10,753,573**	**2**	**50**		**126**	**16**		**23**
*** Total YTD 2000**	**-**	**30**	**507**	**8**	**1,959**	**235**	**7**	**536**
*** Total YTD 1999**	**-**	**30**	**1,045**	**3**	**2,059**	**242**	**22**	**326**

* Adjusted for deletions and late reports.

Summary of Reportable Diseases
4th Quarter, 1999

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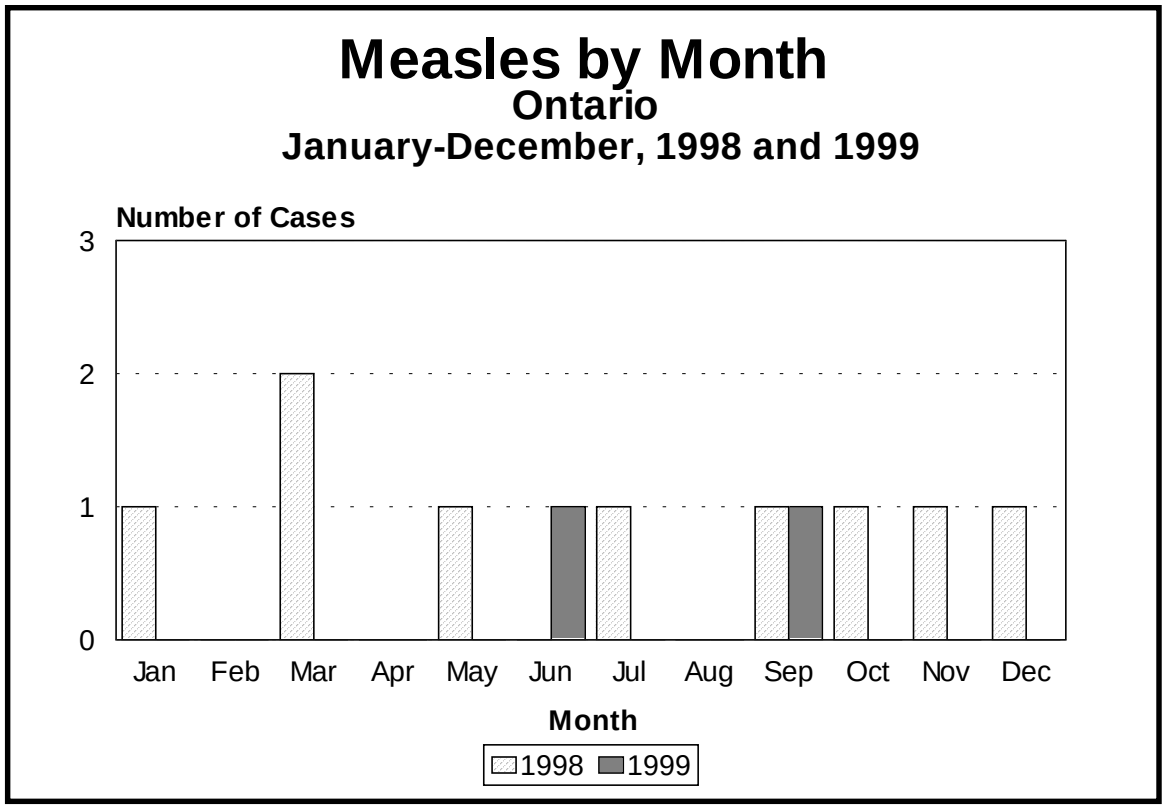
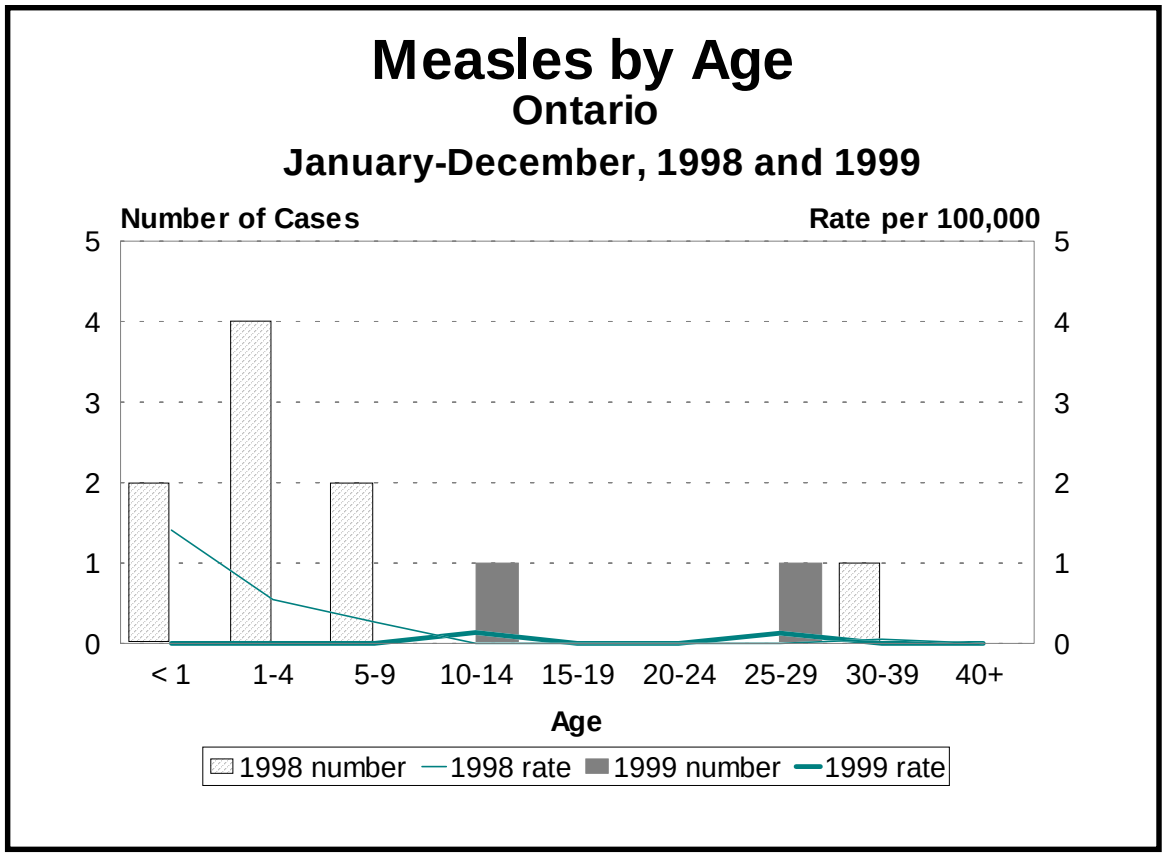
Ministry of Health

Ontario

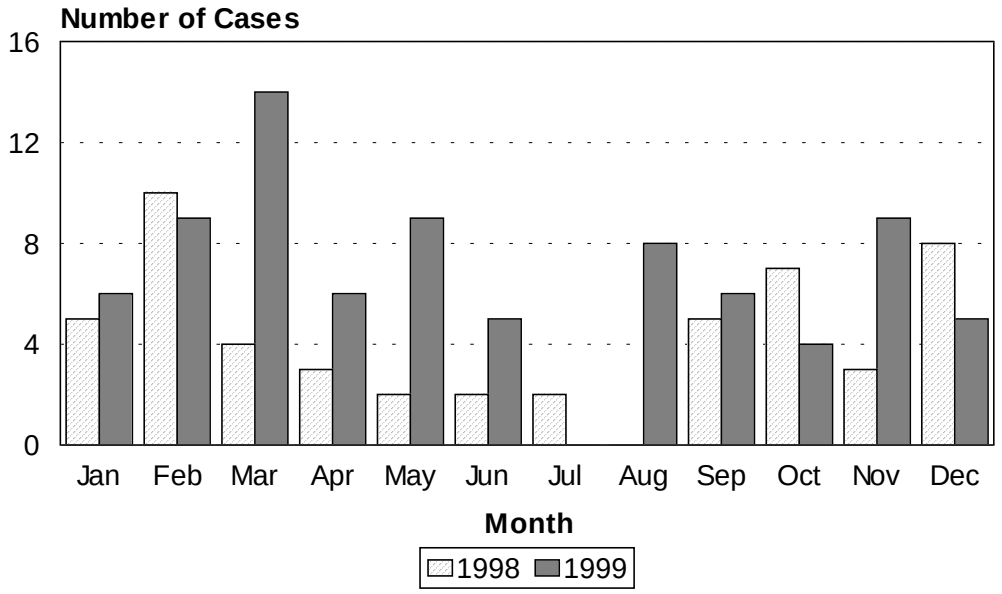
Vaccine Preventable and Other Diseases



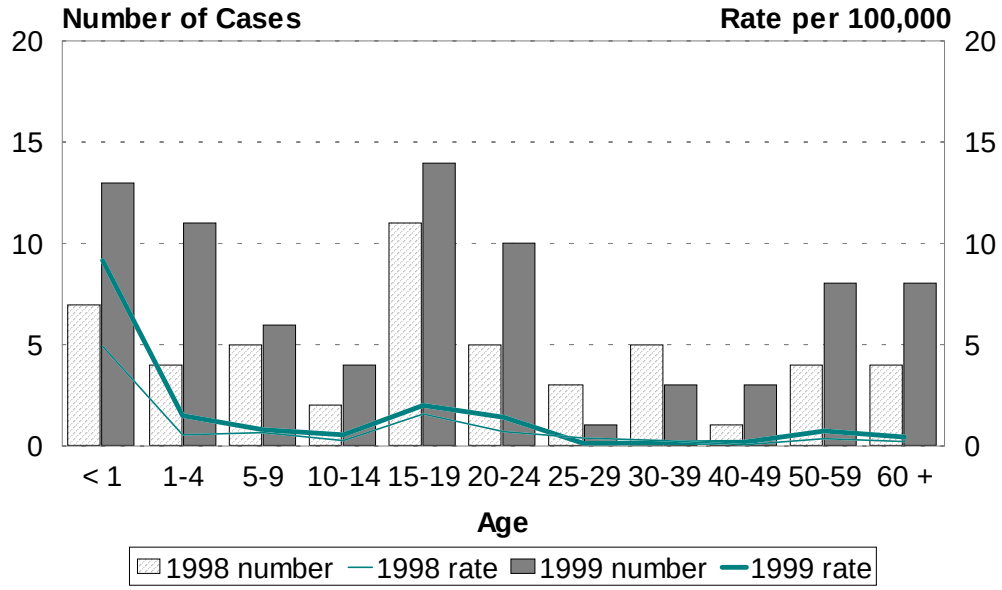


Vaccine Preventable and Other Diseases

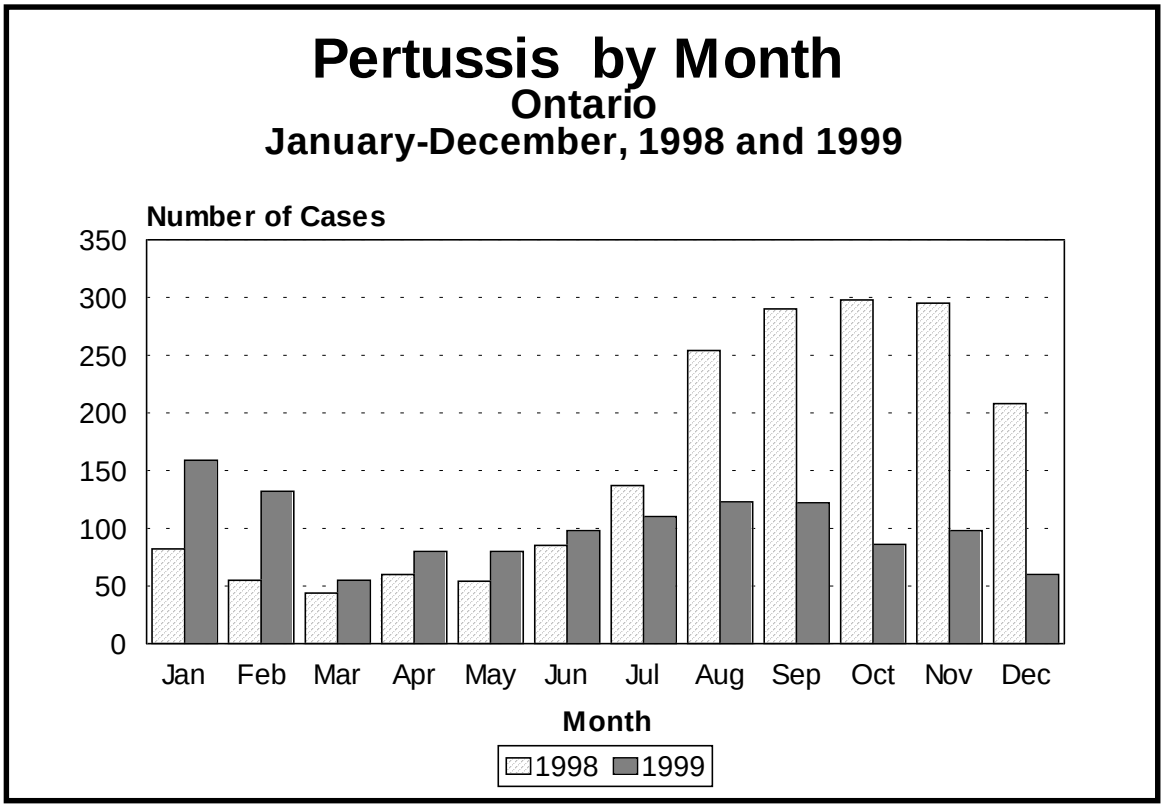
Meningococcal Disease by Month
Ontario
January-December, 1998 and 1999

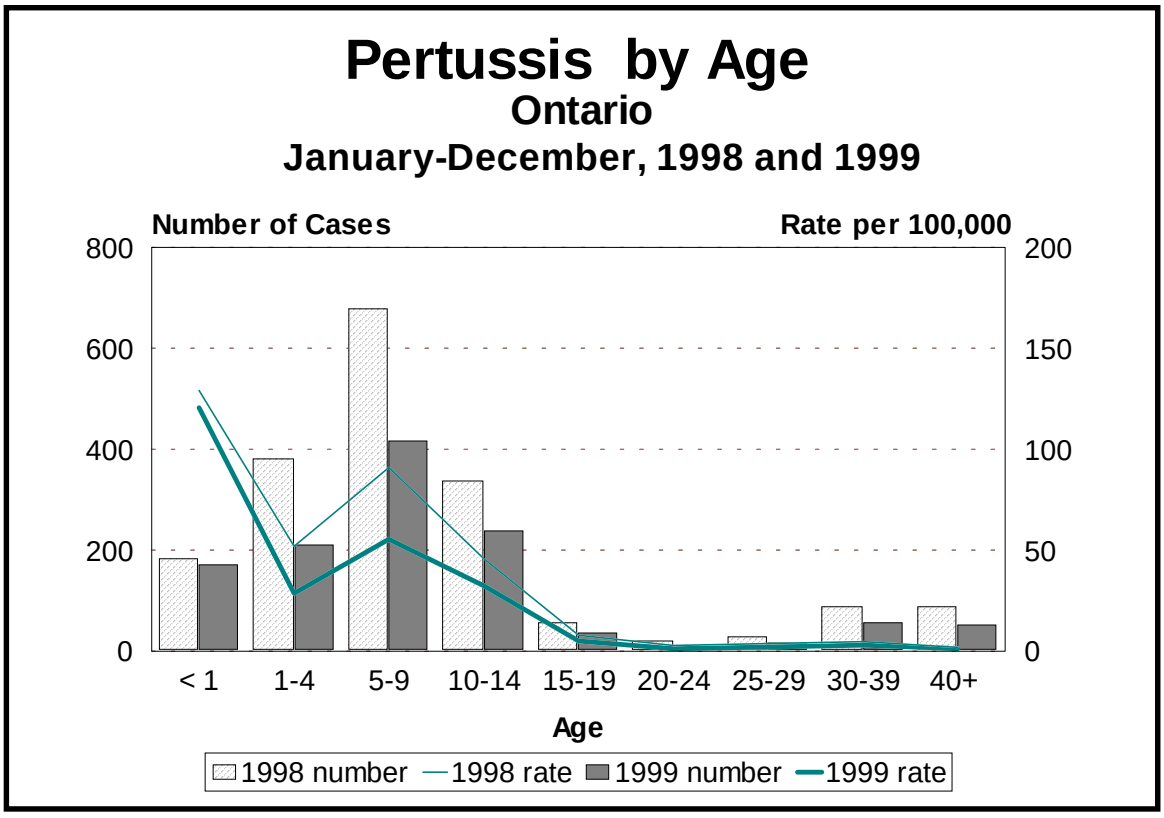


Meningococcal Disease by Age
Ontario
January-December, 1998 and 1999

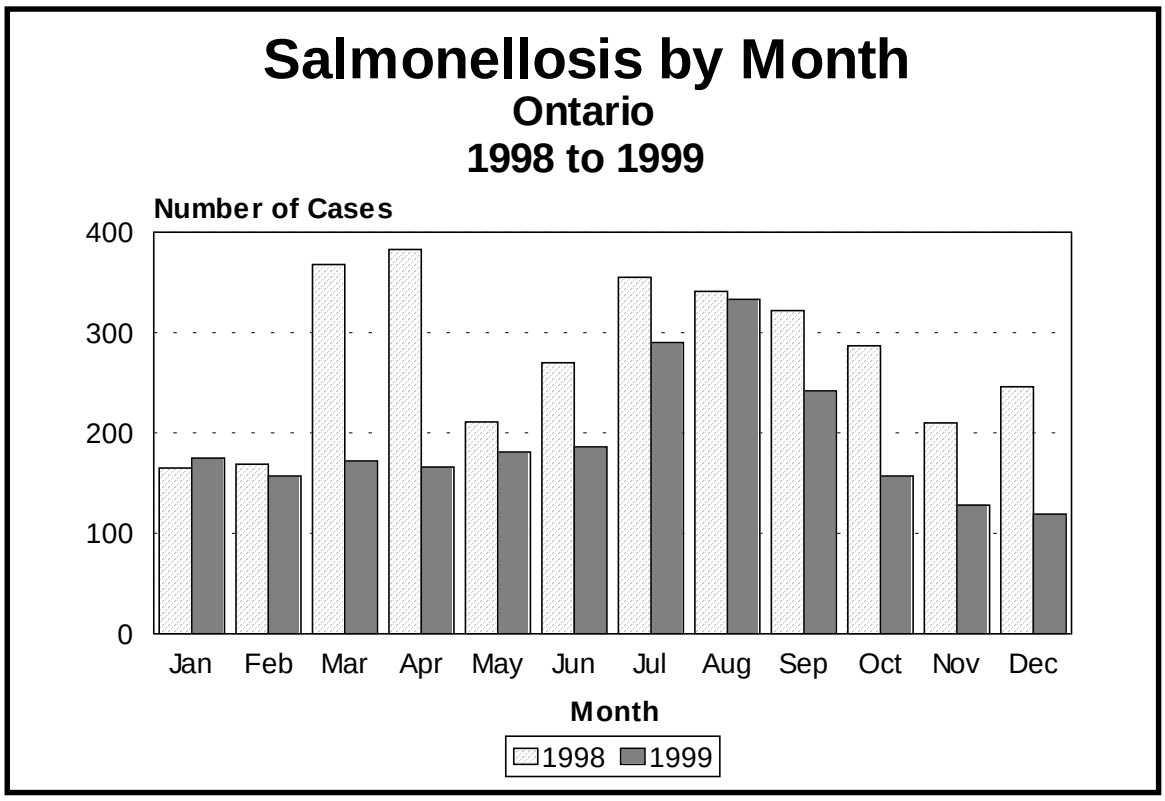


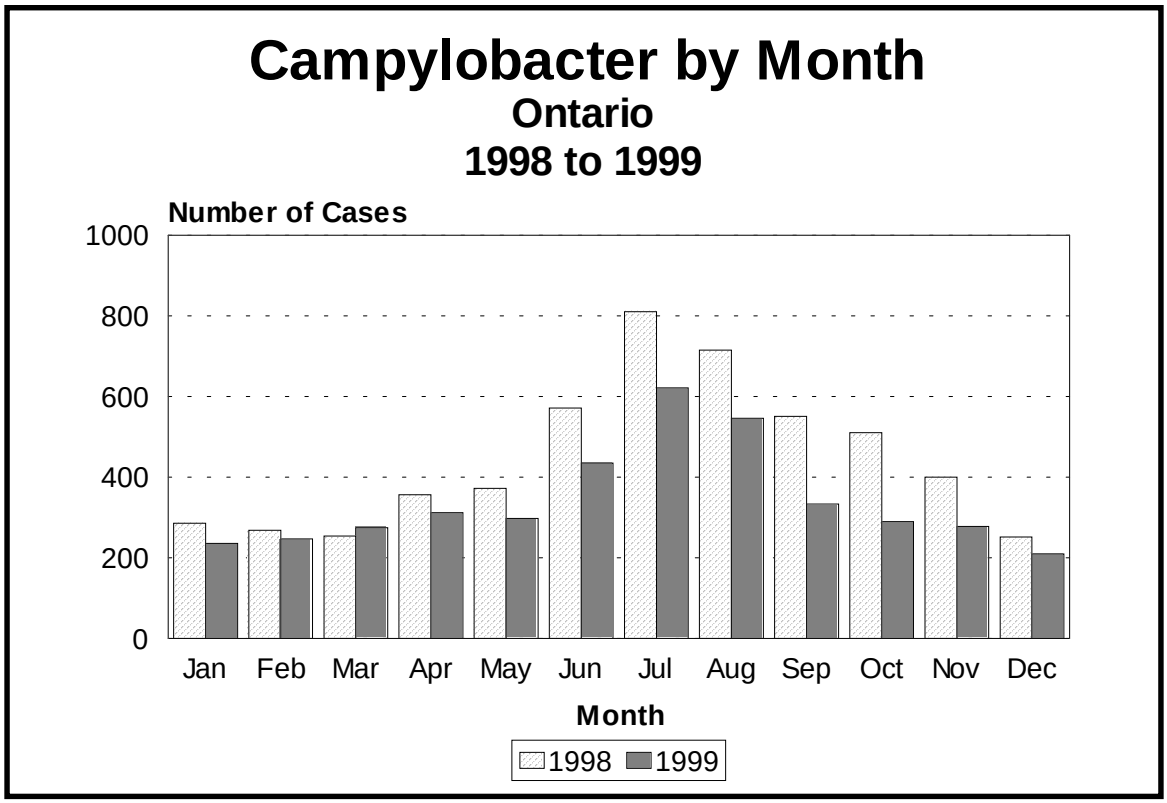
Vaccine Preventable and Other Diseases





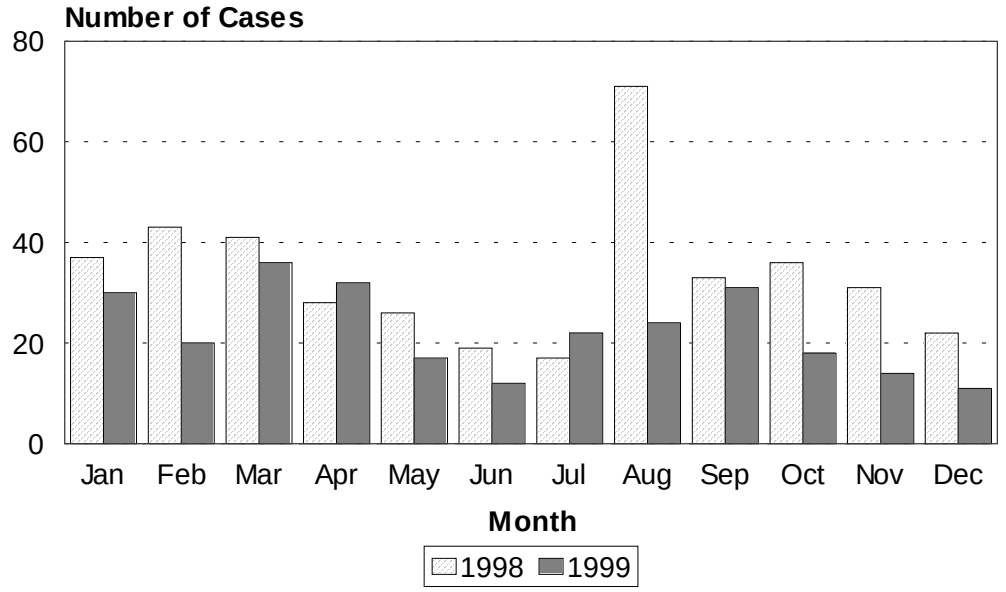
Enteric Diseases



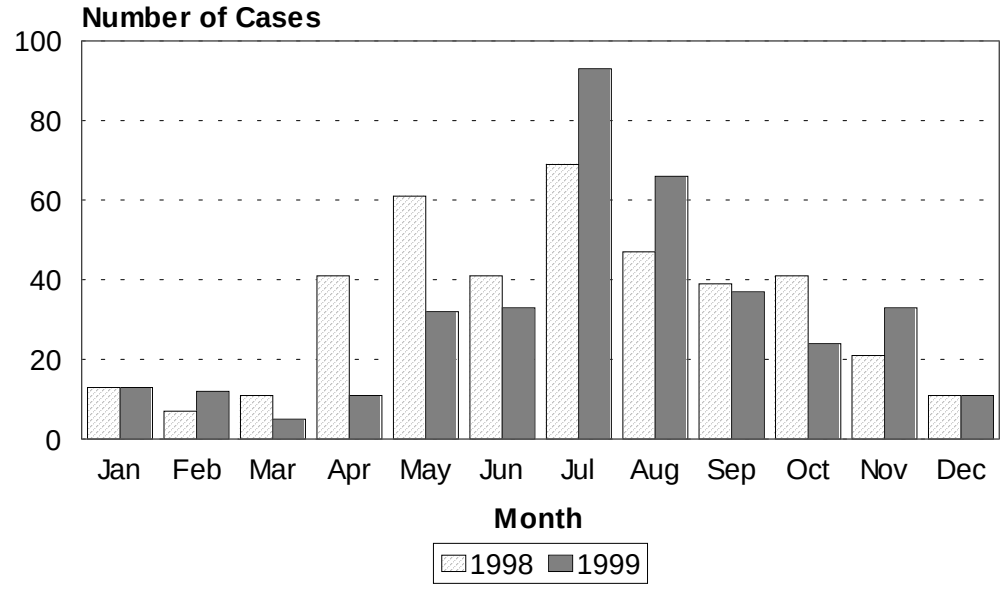


Enteric Diseases

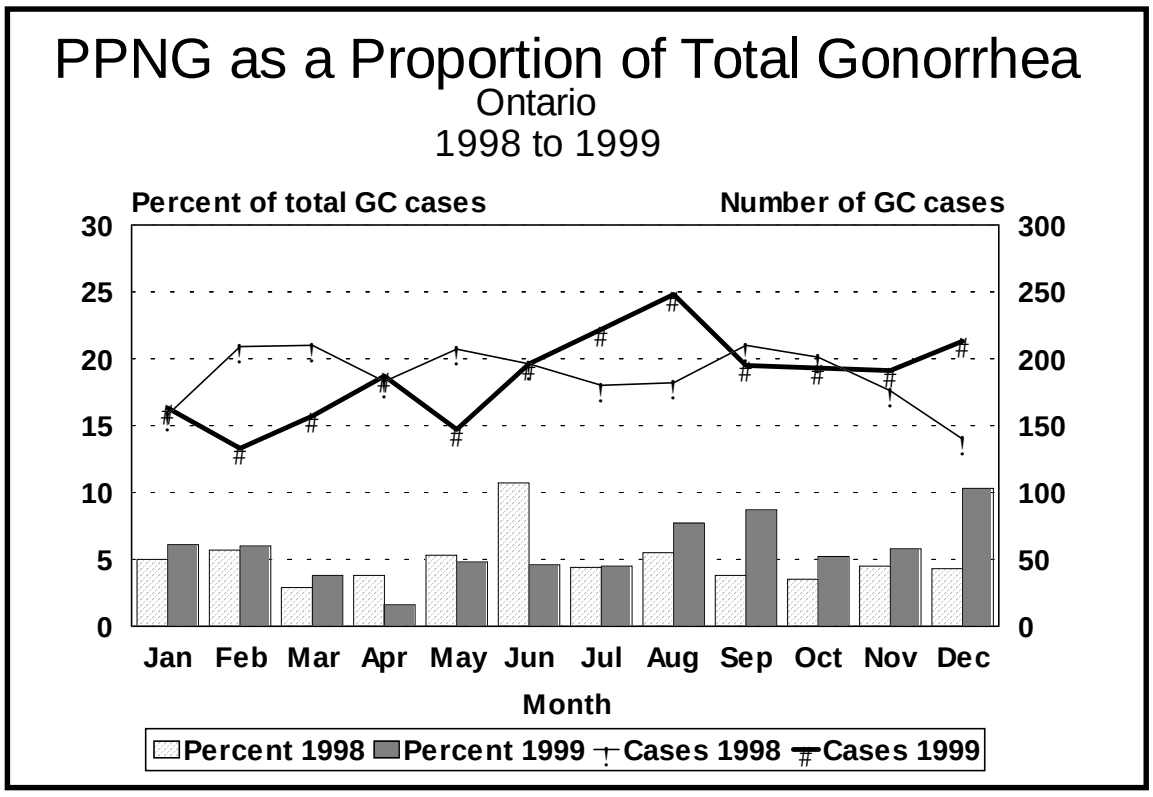
Shigellosis by Month
Ontario
1998 to 1999

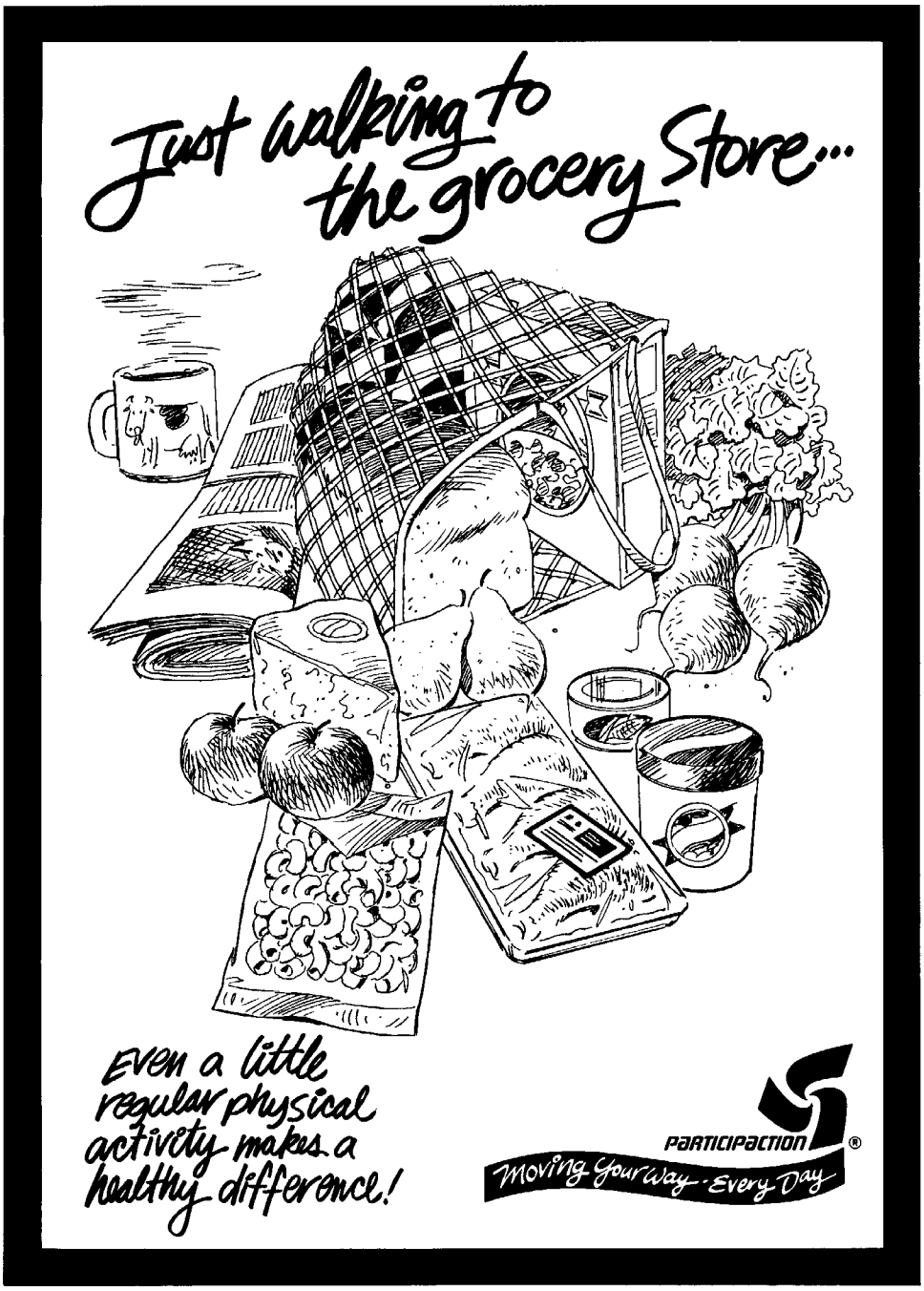


Verotoxin-Producing E. coli Infections
Ontario
1998 to 1999



Sexually Transmitted Diseases

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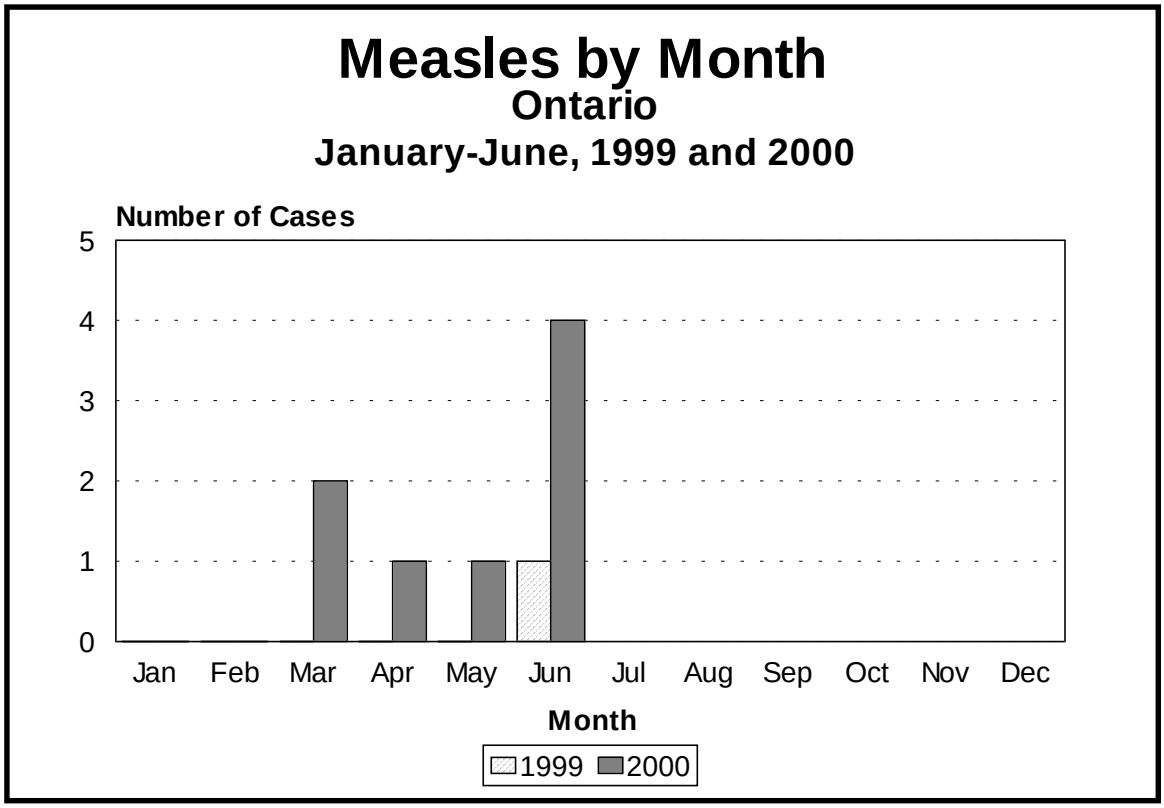
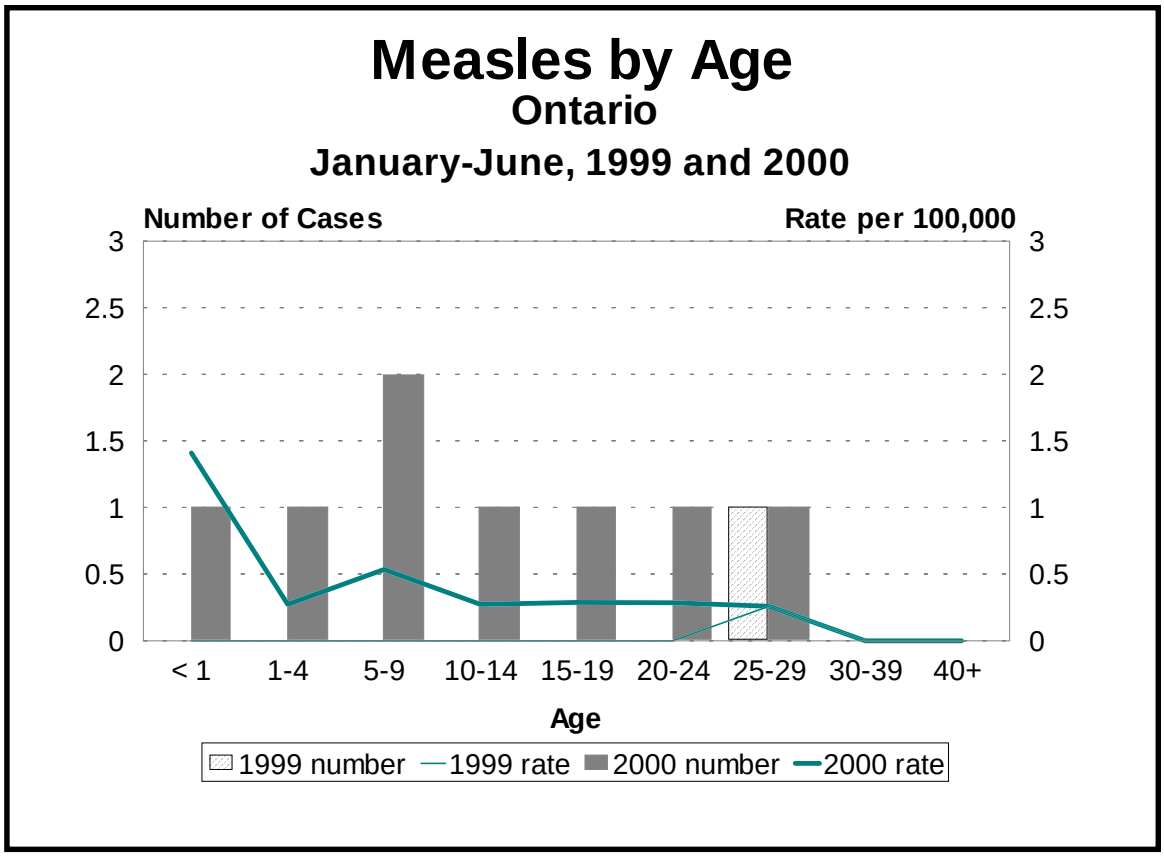
Summary of Reportable Diseases
1st Half 2000

Ministry of Health
Ontario

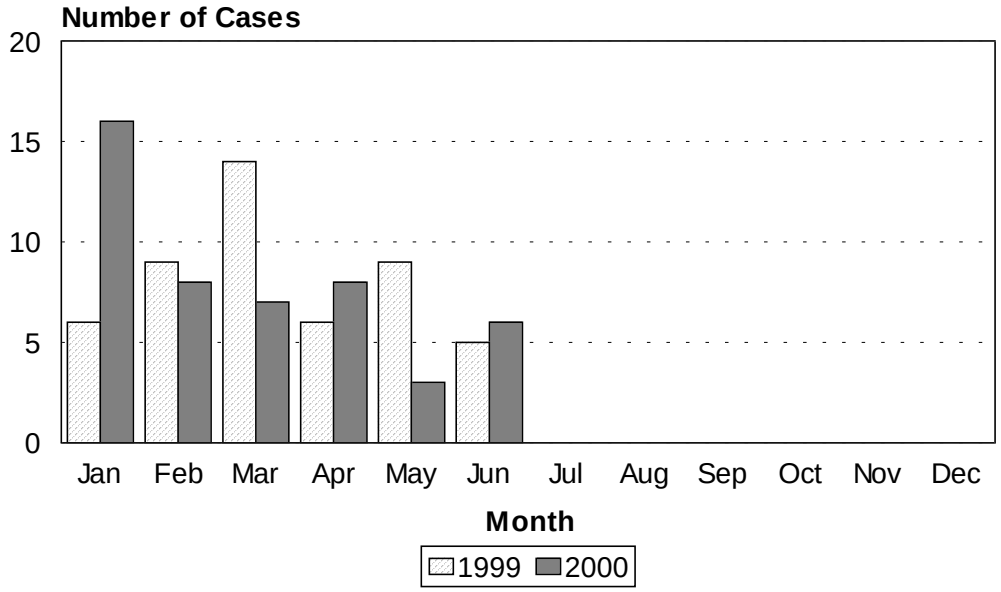
Vaccine Preventable and Other Diseases



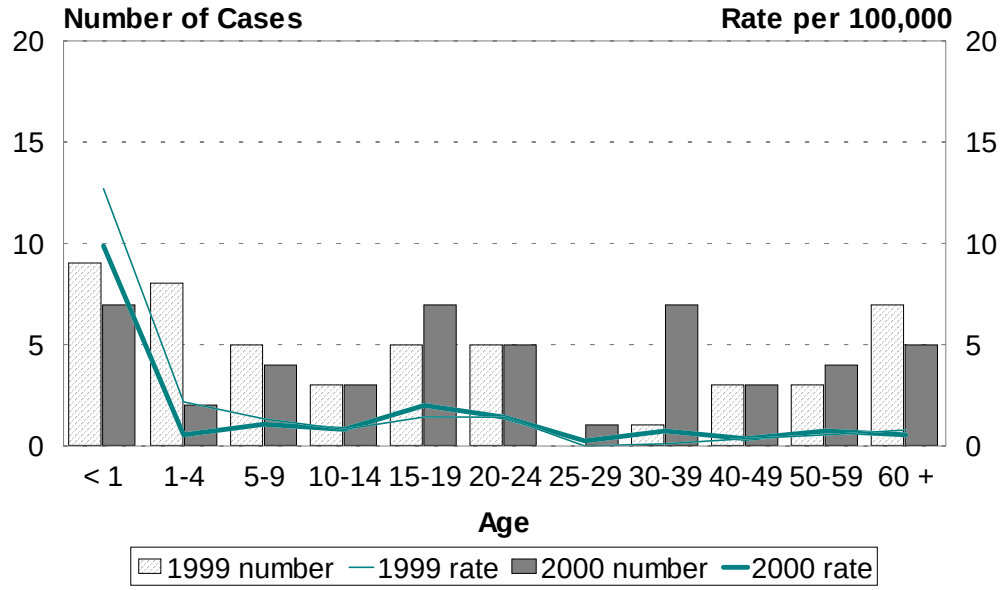


Vaccine Preventable and Other Diseases

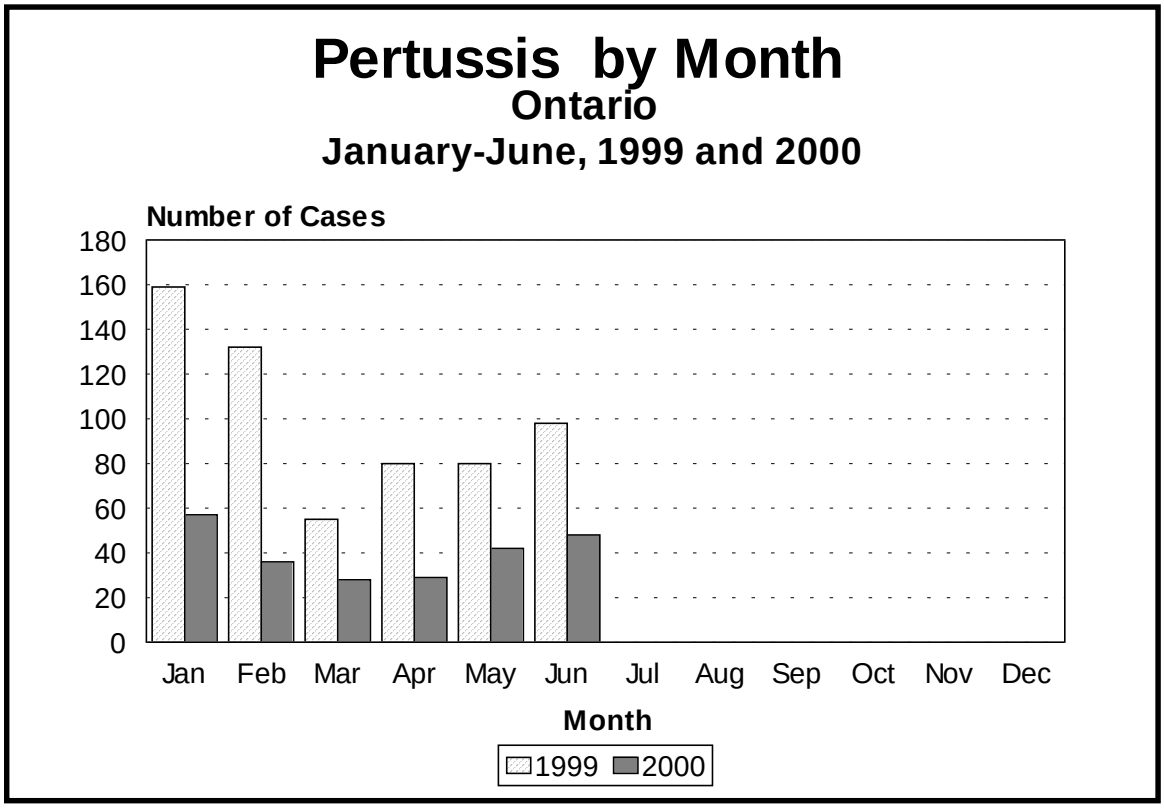
Meningococcal Disease by Month
Ontario
January-June, 1999 and 2000

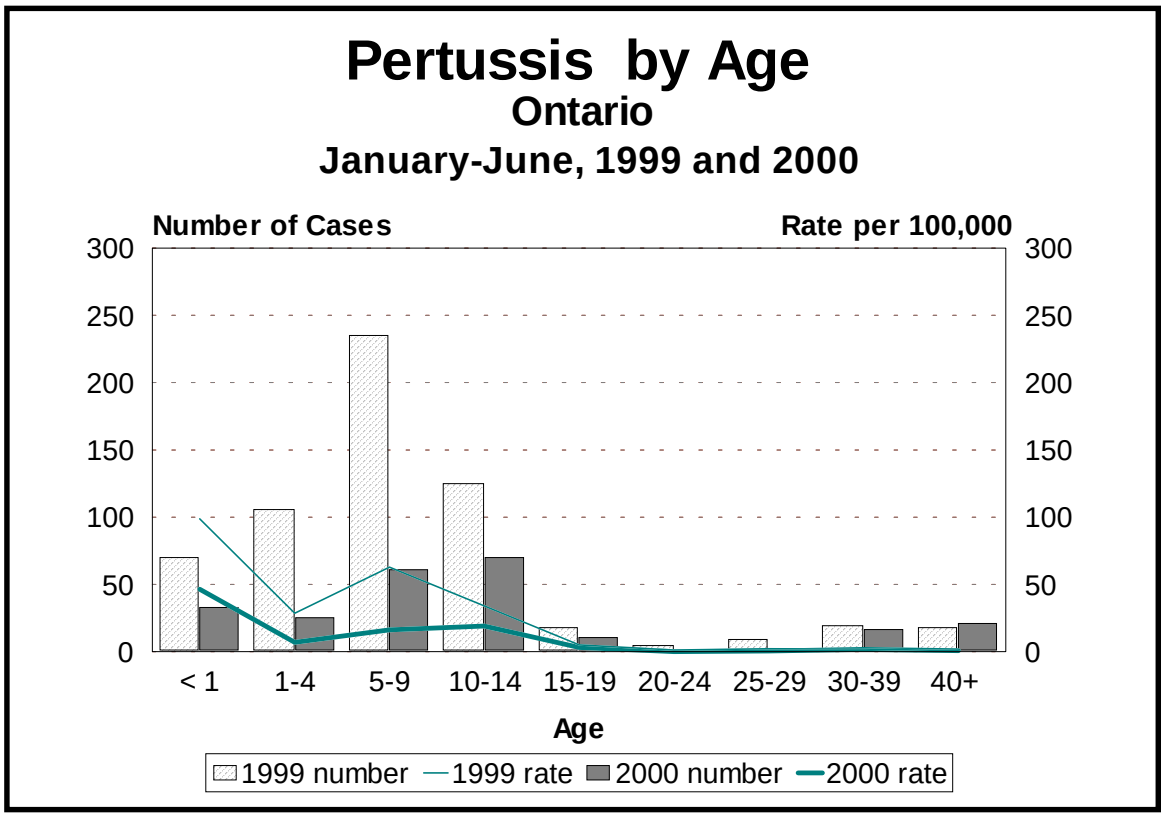


Meningococcal Disease by Age
Ontario
January-June, 1999 and 2000

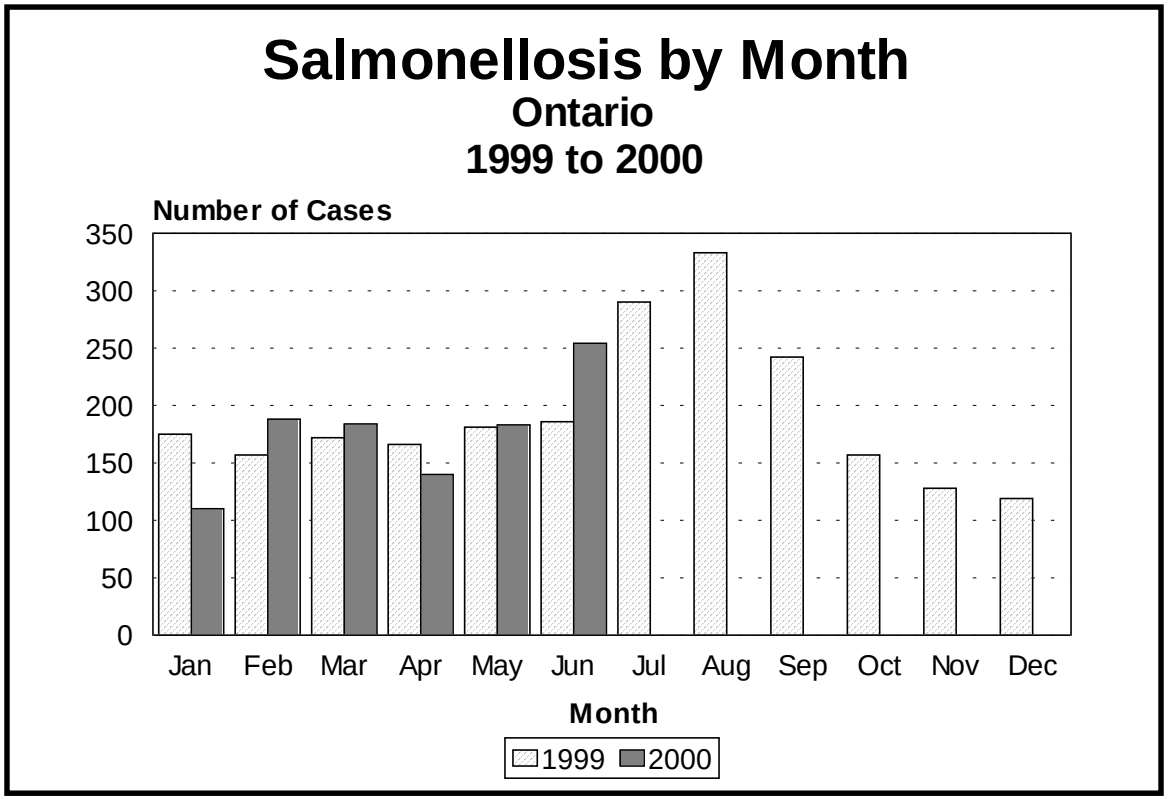


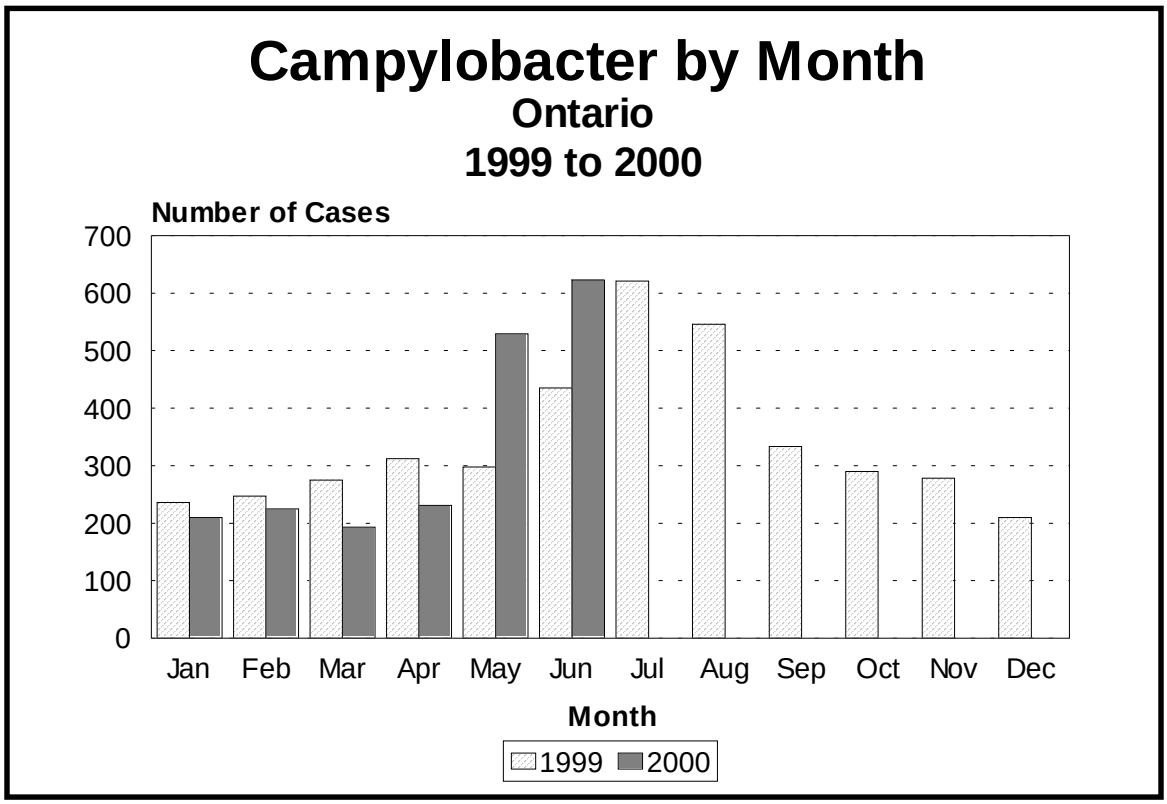
Vaccine Preventable and Other Diseases





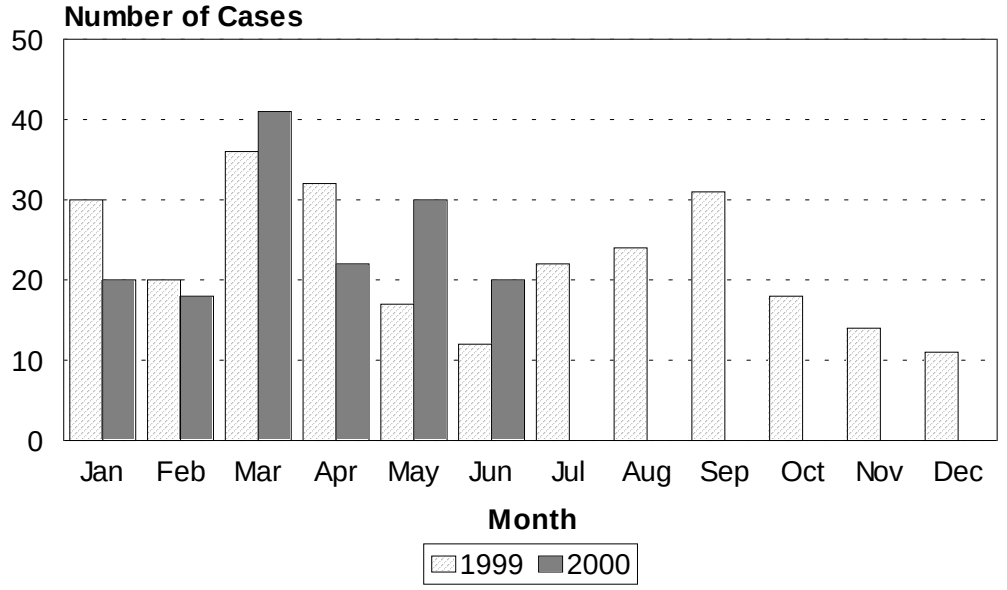
Enteric Diseases



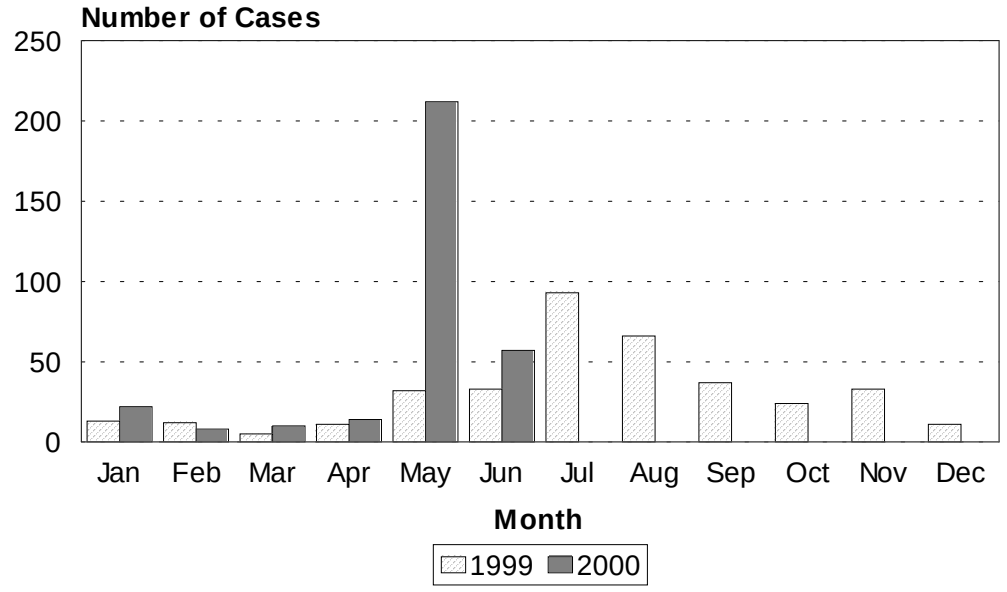


Enteric Diseases

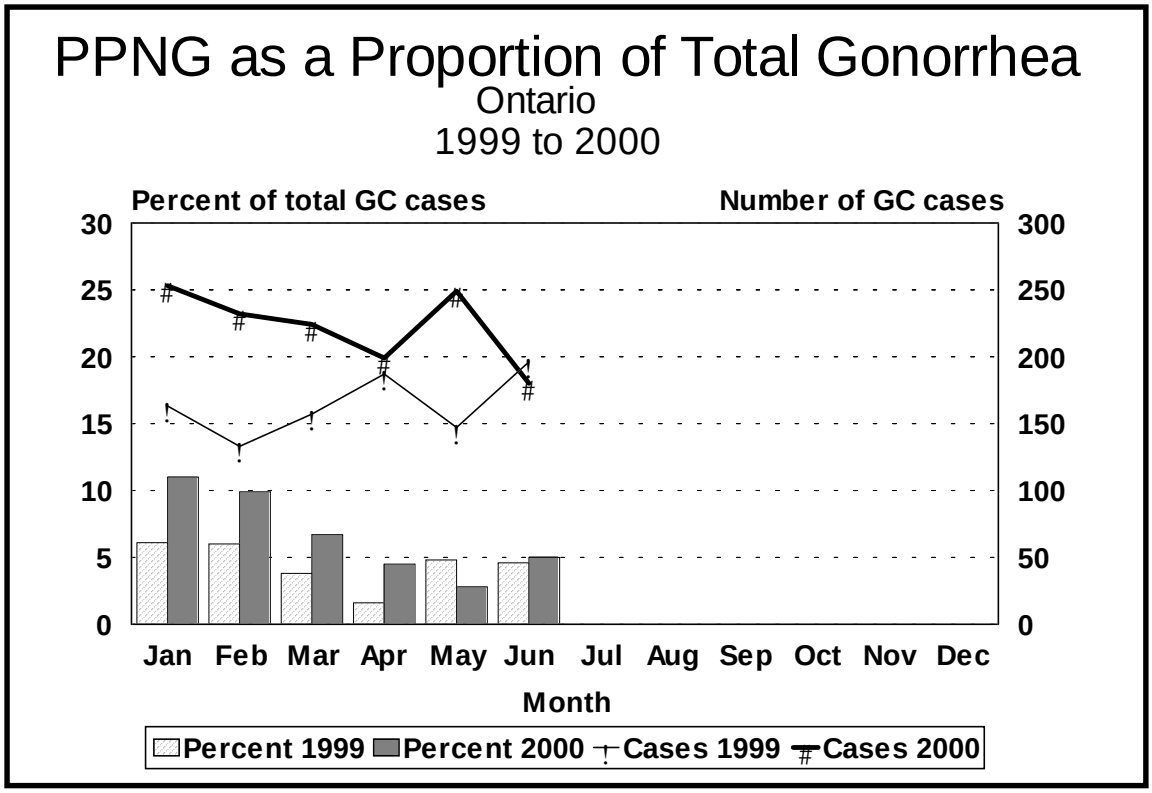
Shigellosis by Month
Ontario
1999 to 2000



Verotoxin-Producing E. coli Infections
Ontario
1999 to 2000



Sexually Transmitted Diseases



Just working out...
...active living – even a little regular physical activity makes a healthy difference!
PARTICIPACTION®
Moving Your Way, Every Day