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DATE                                      20 September 1999

TO/DEST.                                Co-Ordinator  
    Community Services Committee

FROM/EXP.                                Medical Officer of Health

SUBJECT/OBJET                         **SEXUALLY TRANSMITTED DISEASES IN OTTAWA-  
CARLETON : 1992-1998**

Information Previously Distributed

To be listed on the Community Services  
Agenda, 7 October 1999

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Please find attached a copy of Sexually Transmitted Diseases and Blood Borne Pathogens In Ottawa-Carleton : Surveillance Report 1992-1998 (Annex A).

This report looks at reportable sexually transmitted diseases over a 6 year span. It highlights current trends and compares regional incidence rates with provincial and national goals to reduce diseases such as gonorrhoea, chlamydia and syphilis.

The report also looks at blood borne pathogens specifically the viral hepatitis B and C and describes current initiatives in disease prevention.

Finally, the report addresses non-reportable sexually transmitted diseases such as herpes and human papilloma virus. Although not reportable under the *Health Protection and Promotion Act*, these infections can have serious effects particularly in women. All reportable and non reportable STD's have varying sequelae that can affect individual wellness and eventually impact the impact the health care system financially.

The focus of sexually transmitted diseases has changed over the years. Infections such as gonorrhoea and syphilis have been reduced significantly. Chlamydia less stigmatized than the older infections needs to be closely monitored. Viral infections however, are on the increase. Treatment of these viruses is challenging and cures do not exist.

Over the past decade individuals do seem better informed about sexually transmitted infections. More people report knowing where to go for information on how to stay safe and where to receive appropriate care. The majority of individuals surveyed at the Sexual Health Centre in 1998 report having primary care physicians for general health needs. However, when sexual health was the main concern, they opted for a specialized sexual health clinic. An overwhelming majority felt that confidentiality was the number one reason for attending the Sexual Health Centre.

Among Ontario public health practitioners, Ottawa-Carleton has maintained a reputation for efficient and successful STD case management and partner follow-up. This may explain trends of increased STD case finding and overall regional reduction in incidence rates.

When HIV surfaced in the 1980's the Healthy Sexuality Program was in the forefront of public education and prevention strategies. As part of its mandate the program offered clinical services through the Sexual Health Centre. The Centre was one of the first sites to offer HIV testing, counseling and consultation. The Sexual Health Centre remains a safe and confidential environment that offers universal access to people from all walks of life.

Among the primary objectives of the Health Sexuality Program are the reduction of STD rates, the continuous promotion of healthy sexuality messages and ensured access to family planning services. These goals are being met not only through clinical services and case management activities but also through a variety of health promotion strategies and community outreach projects.

*Approved by  
Robert Cushman, MD, FRCPC*

**SEXUALLY TRANSMITTED  
AND  
BLOOD BORNE DISEASES  
IN  
OTTAWA-CARLETON**

**SURVEILLANCE REPORT: 1992-1998**

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Manon Morin  
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Dr. Edward Ellis

Region of Ottawa-Carleton Health Department  
September, 1999

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**SEXUALLY TRANSMITTED AND BLOOD BORNE  
DISEASES IN OTTAWA-CARLETON  
SURVEILLANCE REPORT: 1992-1998**

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**Regional Highlights**

- Incidence rates of gonorrhoea have been increasing among males in recent years, but have exhibited an overall decrease in the general population since 1992
- The proportion of antimicrobial resistant strains of gonorrhoea has been increasing since 1992
- After a steady decrease seen from 1992 through 1997, the incidence of chlamydia increased from 1997 to 1998 and remains highest among females aged 15 to 24
- Infectious syphilis incidence rates have been increasing in recent years, but the number of cases in the Region remains below the provincial and national goals
- The number of hepatitis B cases and carriers has been decreasing since 1992
- Hepatitis C remains under-diagnosed in the Region
- The HIV incidence rate is unstable but gradually decreasing

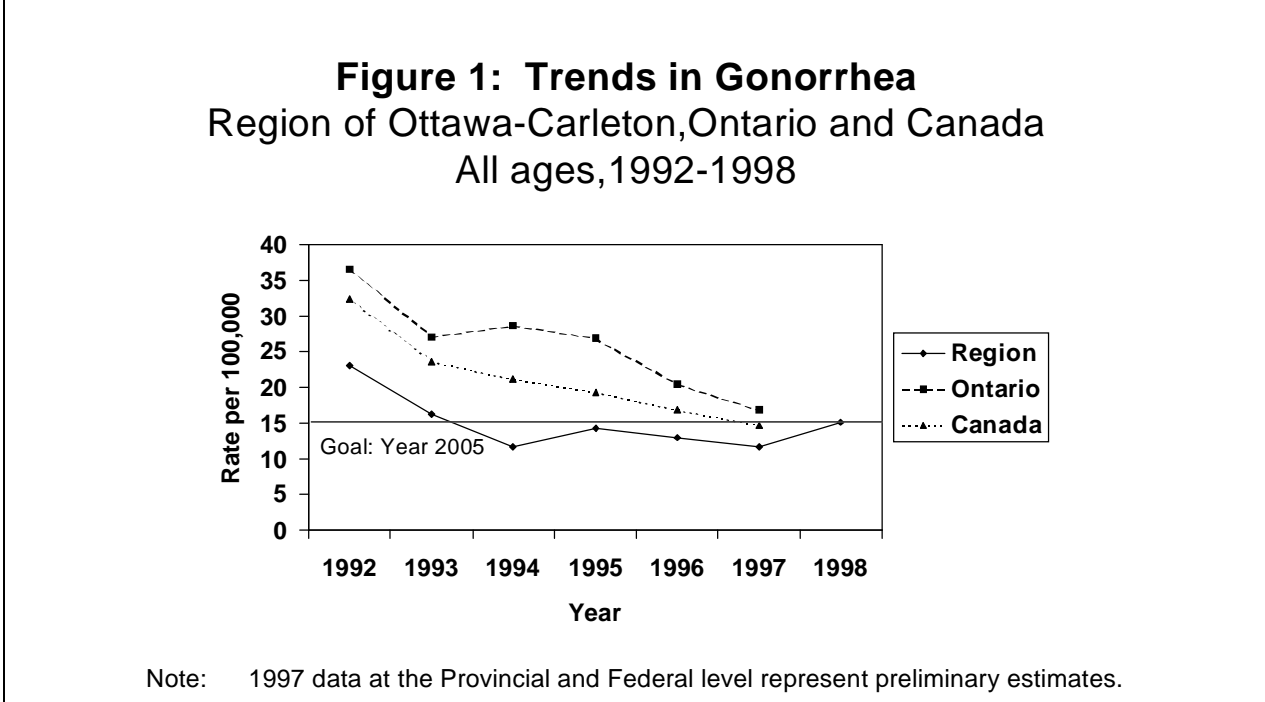
**I REPORTABLE SEXUALLY TRANSMITTED DISEASES**

Under the provisions of the Ontario Health Protection and Promotion Act, the Healthy Sexuality Program (HSP) of the Region of Ottawa-Carleton Health Department is mandated to follow up reportable communicable sexually transmitted diseases (STDs) to prevent their spread and to protect susceptible individuals. Reportable diseases of relevance to the HSP include gonorrhoea, chlamydia, syphilis, hepatitis B, hepatitis C, and human immunodeficiency virus (HIV). The HSP provides surveillance, case management, contact tracing and follow-up, outbreak management, infection control and sexual health education. In order to facilitate diagnosis, treatment and disease prevention the HSP offers specialized clinical services through the Sexual Health Centre.

This section summarizes regional trends for reportable STDs. Provincial and national goals have been set for the prevention and control of three of these diseases (namely: gonorrhoea, chlamydia and syphilis). These goals, set by the Ontario Ministry of Health as outlined in the *Mandatory Health Programs and Services Guidelines*, and by Health Canada (representing national goals) will be discussed in light of the regional trends. Provincial targets have been set for the year 2005, while National guidelines were set for short-term (the year 2000) and long-term (the year 2010) time frames.

**Trends in Gonorrhoea**

As demonstrated in Figure 1, incidence rates at the regional, provincial and national level for gonorrhoea have been decreasing since 1992. Ottawa-Carleton gonorrhoea incidence rates are below those of the province and the nation, which leaves the Region well-situated to exceed the provincial goal of reducing the incidence rate of gonorrhoea to 15 per 100,000 population by the year 2005 (Table 1). In 1998, the regional incidence rate was 15.2 per 100,000 population, and the HSP diagnosed almost half (47%) of all regional cases of gonorrhoea.

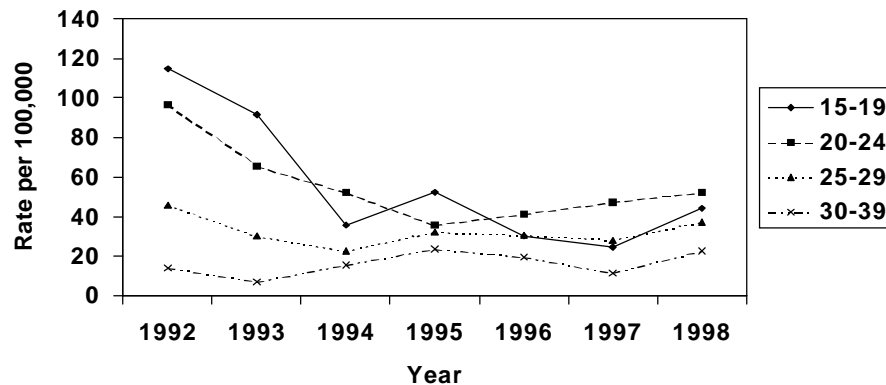


**TABLE 1: Goals for the Prevention and Control of Gonorrhoea**

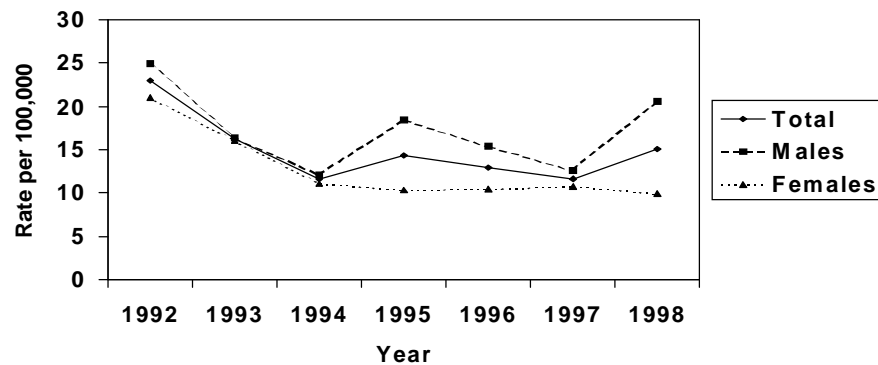
	Year 2000 (National Goals)	Year 2005 (Provincial Goals)	Year 2010 (National Goals)
<b>Provincial Goals</b>	NO GOALS SET	<ul style="list-style-type: none"> <li>reduce incidence rate to 15 per 100,000 population</li> </ul>	<ul style="list-style-type: none"> <li>elimination of locally transmitted infection</li> <li>reduce secondary transmission of imported cases to &lt;1 per reported case</li> </ul>

Incidence rates for the Region of Ottawa-Carleton are highest among individuals between the ages of 15 and 34 (Figure 2) and among males (Figure 3). It is encouraging that gonorrhoea incidence has exhibited an overall decline in most age groups, however, there has been a slight increase in incidence from 1997 to 1998.

**Figure 2: Trends in Gonorrhoea**  
Age-Specific Incidence Rates  
Region of Ottawa-Carleton, 1992-1998

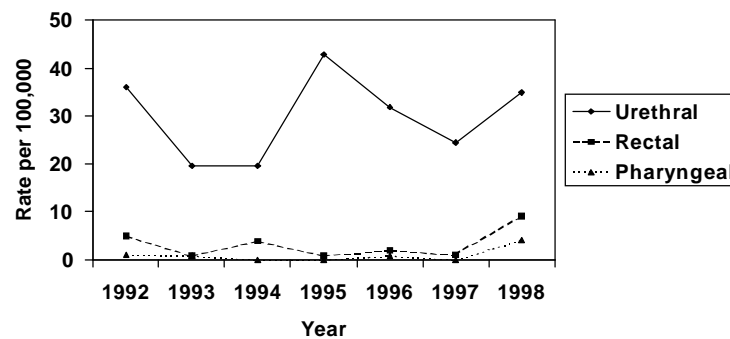


**Figure 3: Trends in Gonorrhoea**  
Region of Ottawa-Carleton, By Gender  
All ages, 1992-1998



Further analysis by site of infection shows that gonorrhoea among males aged 25 to 39 increased in 1998 (Figure 4). In recent years, more male clients of the Sexual Health Centre have been reporting that they engage in sexual intercourse that does not involve condom use. This suggests the need for more education about the continuing need for safer sex in this population.

**Figure 4: Trends in Gonorrhoea  
Males Age 25-39, By Site  
Region of Ottawa-Carleton, 1992-1998**

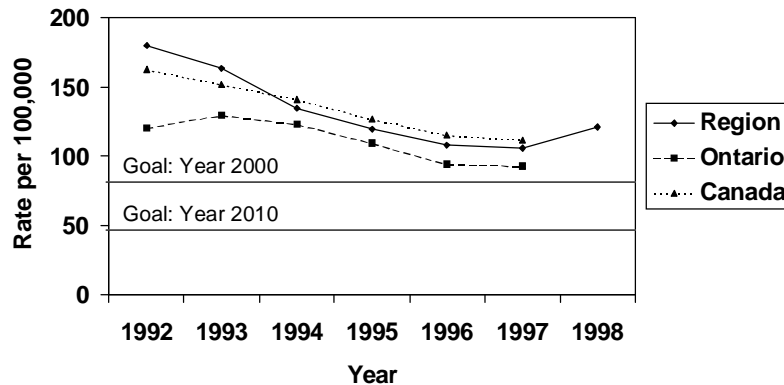


Antimicrobial-resistant strains of gonorrhoea are accounting for increasingly large proportions of diagnosed gonorrhoea. In 1992, 14% of cases diagnosed in Ottawa-Carleton exhibited some form of resistance. By 1998, this proportion doubled to 29% of cases. Similarly, 33% of gonorrhoea diagnosed throughout the entire province of Ontario in 1998 was of a resistant strain. Nationally, one-quarter of all gonorrhoea diagnosed in 1996 was resistant. The antimicrobial-resistant strains most commonly encountered are *penicillinase-producing Neisseria gonorrhoeae* (PPNG) and *tetracycline-resistant Neisseria gonorrhoeae* (TRNG). Antimicrobial resistance must continue to be monitored over time as resistance presents significant treatment challenges.

### **Trends in Chlamydia**

Chlamydia incidence rates have been decreasing steadily since 1992 at the national, provincial and regional level (Figure 5). Although regional disease rates remain slightly above provincial incidence rates, this discrepancy and the regional increase in 1998 are likely due in part to increased urine testing in males, which is better accepted than the previous method of urethral swabbing. These trends may also be attributed to significant efforts of HSP case finding and follow-up efforts. The HSP has recently implemented a tracking system that aids with partner notification and contact tracing. An enhanced tracking system will lead to more case finding, provided that contacts are tested for chlamydia and as a result of this system, a large proportion of case contacts and partners are identified and tested for chlamydia. In 1998, the HSP diagnosed over a third (36%) of all chlamydia cases in the Region.

**Figure 5: Trends in Chlamydia**  
Region of Ottawa-Carleton, Ontario and Canada  
All ages, 1992-1998



Note: 1997 data at the Provincial and Federal level represent preliminary estimates.

Health Canada (Table 2) has set a goal of reducing overall incidence rates to 80 per 100,000 population. In 1998, the incidence rate of chlamydia in the Region was 120.8 per 100,000 population (132.43 per 100,000 females and 96.64 per 100,000 males), indicating the need for more efforts in the prevention of the disease. By the year 2010, National goals aim for a reduction in the overall incidence rate to less than 50 per 100,000.

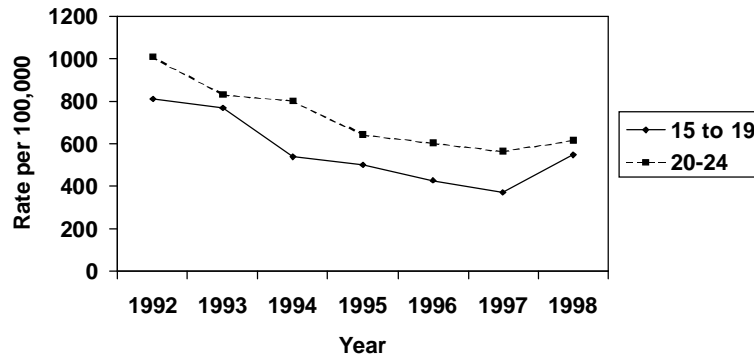
**Table 2: Goals for the Prevention and Control of Chlamydia**

	<b>Year 2000 (National Goals)</b>	<b>Year 2005 (Provincial Goals)</b>	<b>Year 2010 (National Goals)</b>
<b>Provincial Goals</b>	<ul style="list-style-type: none"> <li>• reduce overall incidence rates to 80 per 100,000</li> <li>• reduce incidence among 15-24 year old females to 500 per 100,000</li> <li>• of contacts will be contacted, screened, and if positive, treated</li> </ul>	<ul style="list-style-type: none"> <li>• reduce the incidence rate among 15-24 year old women to 500 per 100,000</li> </ul>	<ul style="list-style-type: none"> <li>• reduce overall incidence rate to &lt; 50 per 100,000</li> <li>• reduce incidence among 15-24 year old women to &lt;200 per 100,000</li> <li>• of contacts will be contacted, screened, and if positive, treated</li> </ul>

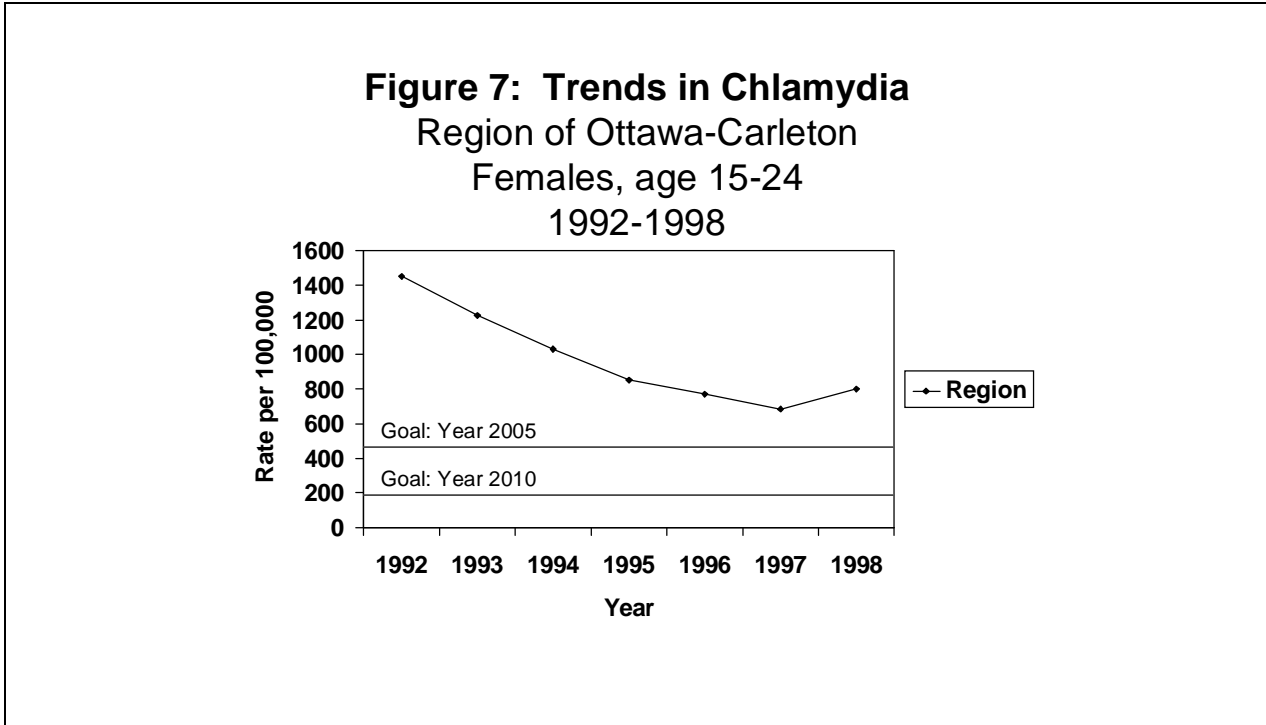
Figure 6 demonstrates age-specific incidence rates for individuals between the ages of 15 and 24. Rates of disease among this age group are significantly higher than those in any other age group, and demonstrates the need and importance of HSP outreach programs.



**Figure 6: Trends in Chlamydia**  
 Age-Specific Incidence Rates  
 Region of Ottawa-Carleton, 1992-1998



Incidence rates for chlamydia are typically higher among females, in particular the 15-24 age group. Figure 7 demonstrates the incidence rate of chlamydia among females in this age group for the Region of Ottawa-Carleton. The Ontario Ministry of Health has set the goal to reduce disease incidence in this age group of women to 500 per 100,000 population by 2005 (Table 2). By 2010, Health Canada has forecasted the goal of reducing incidence to less than 200 per 100,000. In 1998, the regional incidence rate of chlamydia among this age group was 797 per 100,000 women. While the incidence rate among women has been exhibiting a general decrease since 1992, the goal for 2005 must remain as a target for the HSP.



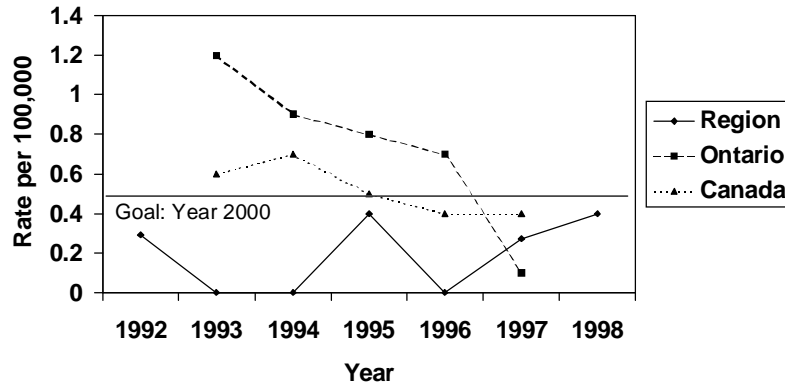
**Trends in Syphilis**

Since 1992, there have been 5 or fewer cases of infectious syphilis annually in the Region of Ottawa-Carleton. In 1998, the incidence rate of infectious syphilis was 0.40 per 100,000, the highest incidence rate since 1992. Although Figure 8 shows some instability in Regional rates, it is well below provincial and national incidence rates which have both been decreasing since 1992. Given the small number of cases, the Region is well-situated to meet the National goals set for the year 2000, that is, to maintain disease rates for infectious syphilis below 0.5 per 100,000 (Table 3).

**Table 3: Goals for the Prevention and Control of Syphilis**

	<b>Year 2000 (National Goals)</b>	<b>Year 2005 (Provincial Goals)</b>	<b>Year 2010 (National Goals)</b>
<b>Provincial Goals</b>	<ul style="list-style-type: none"> <li>maintain disease rates for infectious syphilis below 0.5 per 100,000</li> <li>prevent all cases of congenital syphilis</li> </ul>	<ul style="list-style-type: none"> <li>maintain the incidence rate of primary and secondary syphilis at less than 1 per 100,000</li> <li>maintain the incidence of congenitally acquired syphilis at zero</li> </ul>	NO GOALS SET

**Figure 8: Trends in Infectious Syphilis**  
 Region of Ottawa-Carleton, Ontario and Canada  
 All ages, 1992-1998



Note: 1997 data at the Provincial and Federal level represent preliminary estimates.  
 Interpret with caution: Regional rates may be unstable due to small numbers.

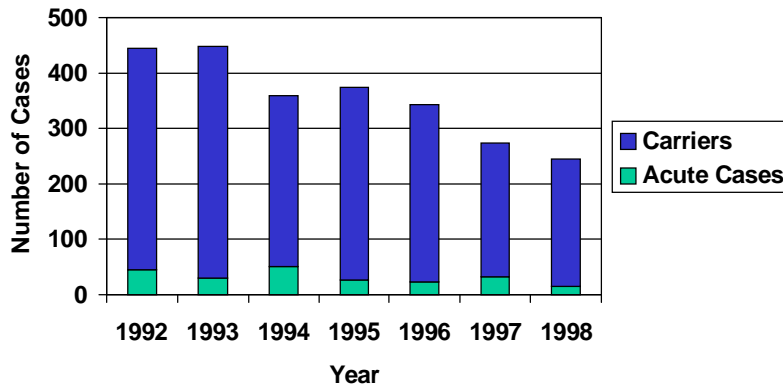
Congenital syphilis is uncommon in Ottawa-Carleton as there have not been any cases reported in the last three years. The goal to maintain the incidence of congenitally acquired syphilis at zero is thus a reasonable target for the Region.

### **Trends in Hepatitis B**

Although National goals have not been set for the prevention and control of this disease, provincial goals aim for a decrease in the annual incidence rate of acute hepatitis B infections to 1.5 per 100,000 population by the year 2000. In 1998, the overall incidence rate for acute Hepatitis B for the Region was 1.99 per 100,000, indicating that this goal is a reasonable target.

When hepatitis acute cases and carriers (chronic infection being diagnosed for the first time) are considered together, there has been an overall decrease in the Region since 1992 (Figure 9). This decline can likely be attributed in part to the Region of Ottawa-Carleton Health Department's efforts in vaccinating grade 7 to OAC students in the past and current grade 7 and 8 students, immunization of other groups at higher risk of infection, provision of the SITE Needle Exchange Program, and the promotion of safer sex.

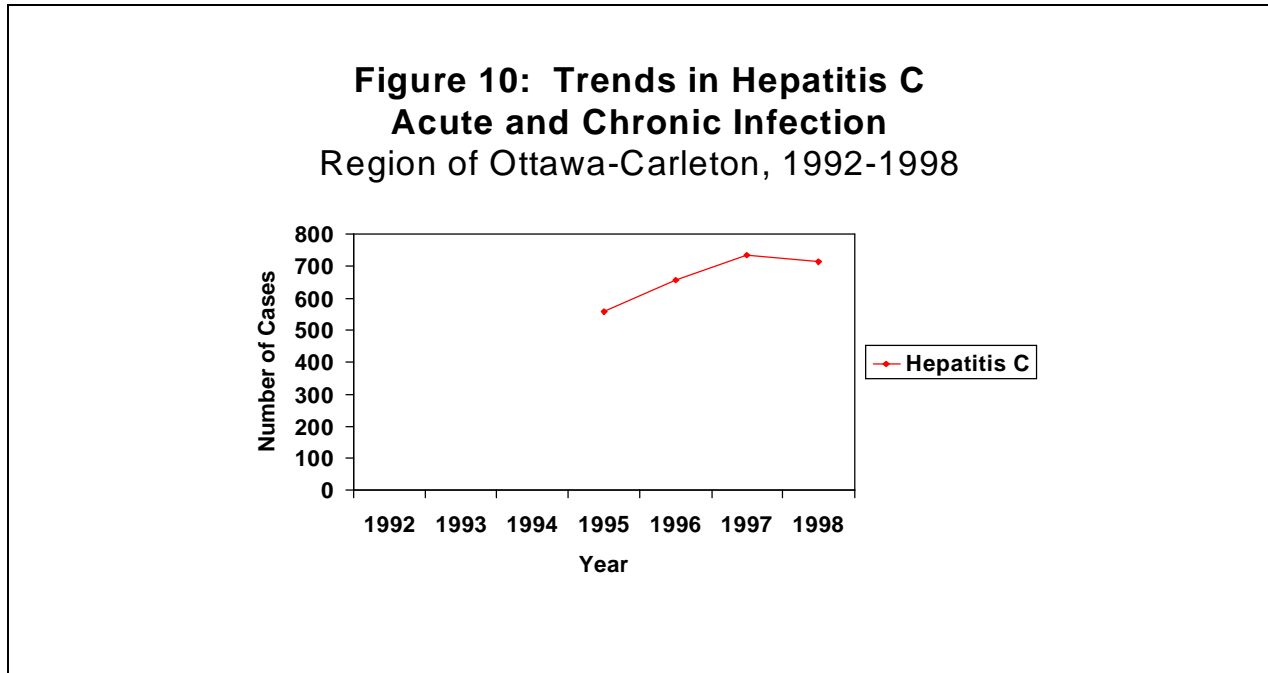
**Figure 9: Trends in Hepatitis B**  
Acute Cases and Carriers\*, All Ages  
Region of Ottawa-Carleton, 1992-1998



\* Chronic infection being diagnosed for the first time.

## **Hepatitis C**

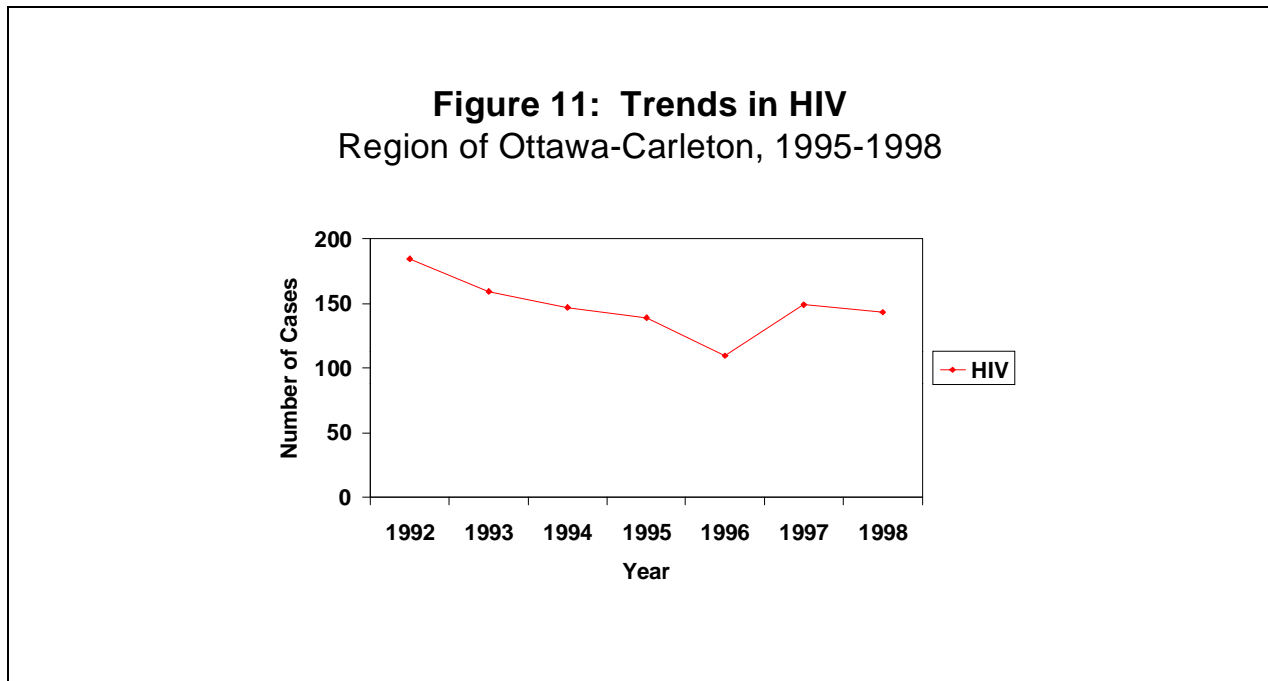
Since hepatitis C reporting began in Ottawa-Carleton in 1995, 2,664 cases and carriers have been reported up until December 31, 1998. Figure 10 demonstrates annual cases since 1995. The University of Toronto, in collaboration with the Laboratory Centre for Disease Control's (LCDC) Hepatitis C Working Group estimates a general Canadian hepatitis C infection rate of 0.8%. Ottawa-Carleton, with a population of approximately 750,000, could potentially have as many as 6,000 cases. With the Regional prevalence of injection drug users and immigrants from hepatitis C endemic areas, the number infected in the region is likely higher. Within the Region, there has been abundant testing for injection drug users and blood products recipients to determine their status of infection. At the current time, there is no vaccine available for hepatitis C, which puts other primary prevention methods in the forefront. The primary risk factor for hepatitis C infection now is unsterile injection drug equipment. Regional Health Department programs that focus on prevention of the disease include the needle exchange program and the promotion of safer sex.



Healthy Sexuality Program staff have been involved in a National Surveillance Project for hepatitis C and B since October 1998. The study is funded by LCDC, Health Canada until the end of March 2000. This surveillance project provides invaluable risk factor information that will aid the Department in setting strategies to control this communicable disease.

### **Human Immunodeficiency Virus**

The number of cases of HIV reported in the region has exhibited a slight decrease since 1992 to 143 cases in 1998 (Figure 11). *The Mandatory Health Programs and Services Guidelines* targets a reduction in HIV infections to less than 800 per year by the year 2005 in Ontario. For more information on HIV in the Region, please refer to: *The Epidemiology of HIV and AIDs in Ottawa-Carleton: Statistical Report and Analysis, 1998*.



### **Youth Outreach**

In order to gain STD data and better information regarding risk taking behaviour of street involved youth, the HSP is currently participating in a national study sponsored by LCDC entitled *Enhanced STD Surveillance in Canadian Street Youth*. Since initiation of the study in June of 1999, 90 youth between the ages of 15 and 24 have been recruited.

## **II NON-REPORTABLE SEXUALLY TRANSMITTED DISEASES**

Non-reportable STDs include herpes simplex virus (HSV) and human papilloma virus (HPV). Because these diseases are not legally reportable under the Health Protection and Promotion Act, it is difficult to estimate disease incidence and prevalence.

### **Herpes Simplex Virus**

The overall prevalence of HSV in the Region of Ottawa-Carleton is unknown. The Sexual Health Centre diagnosed 138 cases of HSV in 1997 and 140 cases in 1998. At a national level, laboratory specimen testing has provided information on the proportional distribution of the different serotypes of HSV, which have remained relatively stable since 1990. In the absence of disease incidence or prevalence data, Health Canada has set goals for genital herpes, with a target date of the year 2000:

- Obtain baseline data for both HSV-1 and HSV-2 from unlinked serum surveys or cohort studies
- Reduce the incidence/attack rate of genital herpes to under 2% of women
- Stabilize the prevalence rate
- Gather neonatal data by retrospective analysis of positive cultures for HSV among infants less than 3 months old.

### **Human Papilloma Virus**

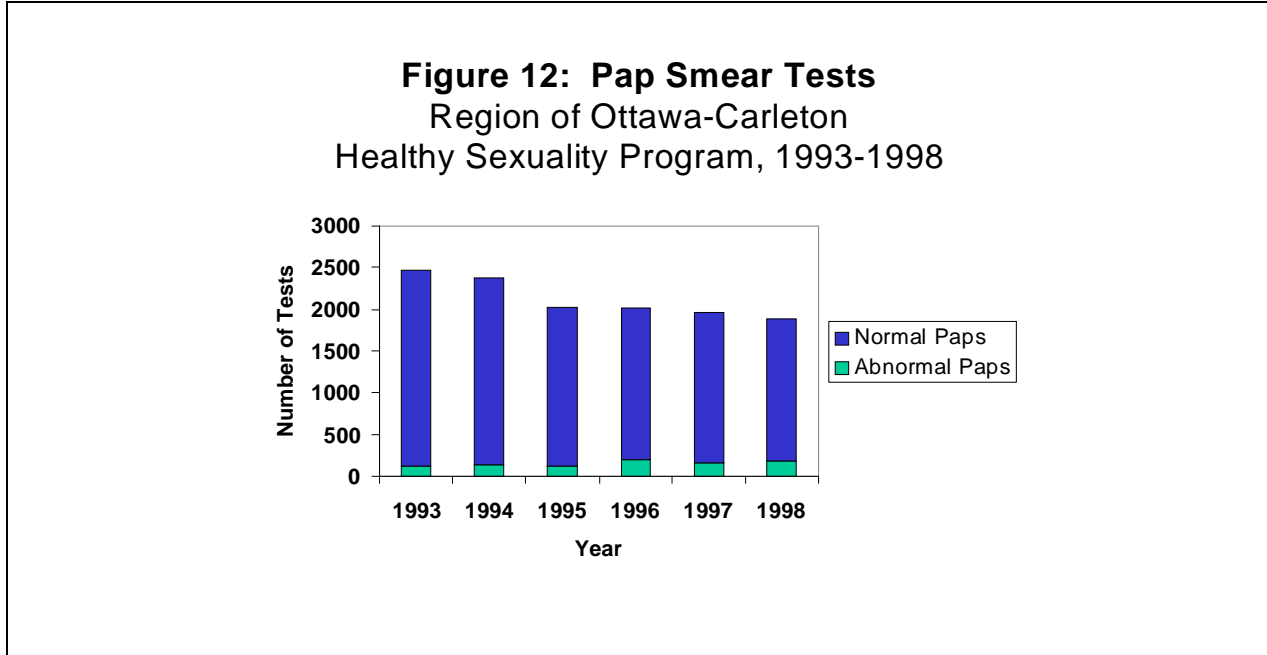
As with HSV, the incidence and prevalence of HPV are difficult to estimate. The Sexual Health Centre diagnosed (among males and females) 358 cases of genital warts in 1997 and 358 cases in 1998. These cases do not represent all of those diagnosed within the Region of Ottawa-Carleton. Without surveillance data, researchers have relied on incidental data such as laboratory testing results, research studies and prevalence/incidence rates of cervical cancer to make inferences about HPV in Canada.

HPV has recently been implicated as a risk factor for cervical cancer. Recent advances in the understanding of the mode of action of HPV have suggested possible methods of developing vaccines that may help to control HPV in the future. Until such a vaccine becomes available, regular use of condoms and Pap-smear testing continue to be the main strategies for prevention. Regular screening can prevent almost all cases of invasive cervical cancer, and the Ontario Ministry of Health recommends the following Pap-smear testing guidelines:

- Women of all ages who are, or ever have been, sexually active should be screened.
- After three normal Pap tests (reported as satisfactory for evaluation) at one-year intervals, screening should be continued every two years.
- If there have been four normal Pap tests in the previous ten years, screening may be discontinued after the age of seventy.
- These recommendations do not apply to those women who have had previous abnormal Pap tests.

The incidence rate for cervical cancer among Ottawa-Carleton women in 1993 was 7.16 per 100,000 and the mortality from the disease was 1.87 per 100,000.

The Sexual Health Centre provides regular cervical cancer screening as part of their services. Figure 11 demonstrates a slight decrease in the number of Pap smears provided to Sexual Health Centre clients since 1993. Despite this overall decrease, the Centre is finding a higher proportion of abnormal Pap smear tests requiring further diagnostic follow-up. In the early 1990's, approximately five per cent of Paps were abnormal, and by 1998, this figure had doubled to approximately 10%. This trend may be indicative of a change in the populations that access Healthy Sexuality Program services from lower risk to higher risk.

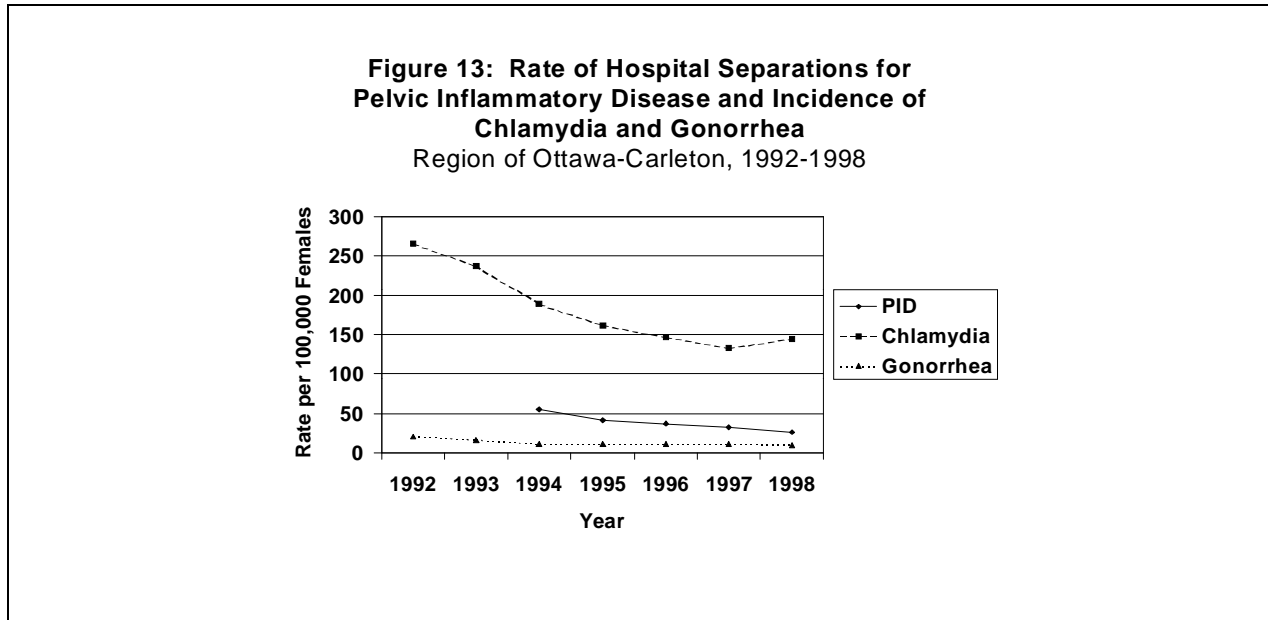


At a Regional level, analysis of the 1996 National Population Health Survey (NPHS) estimates that 91% of women over the age of 18 reported ever having had a Pap smear, and that approximately 70% of these women reported having a Pap smear in the year preceding the survey. Despite this good participation rate, studies that focus on women who do not go for regular cervical cancer screening (approximately 10% of women in the Ottawa-Carleton Region) have found that age, ethnicity, education and income are predictors of Pap smear utilization.

### **III SEQUELAE OF SEXUALLY TRANSMITTED DISEASES**

Conditions such as pelvic inflammatory disease (PID) and ectopic pregnancy are sequelae of STDs. It was estimated in 1993 that approximately 30% to 50% of pelvic inflammatory disease (PID) in Canada was attributable to either gonorrhoea, chlamydia or both. Figure 13 summarizes the rate of hospital separations for PID in conjunction with incidence rates of gonorrhoea among Ottawa-Carleton women. While the trend in PID hospitalizations tend to mirror the trends in gonorrhoea and chlamydia (a gradual annual decrease), it must be noted that PID hospital separations will disproportionately represent severe cases and will likely miss outpatient PID cases or asymptomatic PID. The HSP diagnosed 41 cases of PID in 1997 and 32 cases in 1998.





Given that PID is a precursor to serious problems such as tubal infertility, chronic abdominal pain and ectopic pregnancy, Health Canada has set Canadian goals for pelvic inflammatory disease:

**By the year 2002:**

- Decrease endemic chlamydia by 25%

**By the year 2007:**

- Decrease PID and ectopic pregnancy by 50%
- Decrease endemic chlamydia by 50%

Health Canada reports that ectopic pregnancy rates correlate strongly with chlamydia infection rates, and that evidence exists linking chlamydia as a causal agent of ectopic pregnancy in young women. As with PID, ectopic pregnancies can have severe implications for future fertility in women.

In addition to the health effects of PID and ectopic pregnancy, the sequelae of STDs has an economic impact. It is estimated that the annual cost of treating gonorrhea in Canada is \$54 million and treating Chlamydia and its sequelae costs \$89 million. American costs associated with chlamydia and its complications were estimated at \$2 billion US for 1994.