
Communicable Disease Control and Sexual Health Program Cluster

Vaccine Preventable Diseases Program

Goal:

To reduce the incidence of vaccine preventable diseases.

Selected Vaccine Preventable Disease Indicators:

Vaccine Preventable Diseases (VPDs) are a group of diseases for which vaccines are readily available and commonly used to prevent illness. Vaccines are highly effective, so the incidence of these diseases is relatively low.

Influenza is the most commonly reported VPD, accounting for 70% of the total VPD reports to TPH in 2002. TPH statistics on influenza are based on laboratory-confirmed cases and cases of influenza-like illness detected during influenza outbreaks. The reported cases are usually influenza type A. Most cases of influenza occur between early November and the end of April. During the 2002/2003 season, there were 203 lab-confirmed cases (8 cases per 100,000) of influenza reported in Toronto (Table 1), a decrease of 93 cases (31%) from the 2001/2002 season. There were 8 per 100,000 lab-confirmed cases reported in the rest of Ontario during the 2002/2003 season. During the 2002/2003 season, only five influenza outbreaks were reported in Toronto compared to 32 during the 2001/2002 season. All of the 2002/2003 outbreaks occurred in institutional settings, 83% of which were in long-term care facilities.³⁷

Vaccination can reduce the incidence of influenza. The percentage of Toronto respondents to the Rapid Risk Factor Surveillance System who reported receiving the influenza vaccination increased from 32% (+/-5%) for the 2002/2003 season to 45% (+/-5%) for the 2003/2004 season.

According to the Immunization of School Pupils Act, children must be immunized against measles, mumps, rubella, diphtheria, tetanus, and polio. The province of Ontario funds these vaccines as well as a hepatitis B vaccine for grade 7 students and diphtheria, tetanus and pertussis vaccine for 14-16 year olds. Reported rates of these vaccine preventable diseases are currently quite low. Pertussis accounted for 29% of reported VPD cases in Toronto in 2002, with a rate of 3 per 100,000. The rate in the rest of Ontario in the same year was 5 per 100,000. These are the lowest rates of pertussis for the period from 1992 to 2002. Three cases of mumps and two cases of rubella were also reported in Toronto in 2002 (Table 1). There were no reported cases of the other vaccine preventable diseases noted above in Toronto in 2002.

The Ontario Ministry of Health and Long-Term Care has announced that free, routine immunization for all children against chickenpox, meningitis and pneumococcal disease is being fully phased-in in early 2005.³⁸ Chickenpox is currently the second most common reportable disease, averaging 3,179 cases per year (129 per 100,000) for the 10-year period from 1992-2001.

Table 1: Number and Percent of Reported Cases of Vaccine Preventable Diseases, Toronto, 2002

Ranking	Reportable Disease	Number of Cases	Percent of Cases
1	Influenza*	203	70
2	Pertussis	83	29
3	Mumps	3	1
4	Rubella	2	<1
	Total	291	100

*Seasonal year from July 1, 2002 to June 30, 2003. Source: Communicable Diseases in Toronto 2002 and Trends 1992 to 2002.

Selected Vaccine Preventable Disease Program Activities:

Influenza Immunization.

2003/2004 was an exceptionally busy year in the Universal Influenza Immunization Program. TPH vaccinated approximately 47,000 Toronto residents against the flu, an increase of 60% from 2002/03. This included an increased number of homeless individuals who were vaccinated at clinics held in conjunction with Toronto Emergency Medical Services. Each year, VPD management makes changes to the program to meet the needs of the community and TPH. Nursing staff from across TPH participate alongside VPD nursing staff to administer the vaccine. To prevent illness and death in those at high risk of flu illness, TPH's infection control staff also ensured that vulnerable individuals living in long-term care facilities in Toronto were protected against the flu.



Immunization of School Pupils. The VPD program continues to review immunization records to ensure that all school students are properly protected against the mandated diseases in the Immunization of School Pupils Act. During the 2003/2004 school year, VPD nurses and clerks reviewed the records of 380,990 students at 850 schools. The vaccination coverage rate for students in these schools was 98.4%.

Hepatitis B Immunization. TPH provides education and offers Hepatitis B vaccine to all Grade 7 students attending Toronto schools. Annually, approximately 28,000 Grade 7 students in 440 schools are eligible to receive the hepatitis B vaccine and 22,000 were vaccinated during 2003/04, for a coverage rate of 80%.

Vaccine Storage and Handling Inspections. To ensure that the public receives effective vaccines, TPH provides on-site annual inspections of health facilities storing publicly funded vaccines, e.g. physicians' offices. This is a requirement of the Ontario Ministry of Health and Long-Term Care. TPH inspected approximately 1,500 sites where publicly funded vaccine is stored in 2004.

Adverse Vaccine Reactions. TPH provides education to physicians in Toronto about reporting requirements for adverse vaccine events. TPH staff investigated 82 reports of an adverse vaccine event reported by Toronto physicians in 2003.

VPD Health Promotion. TPH continues to work with the public, school community and health professionals to ensure that adults and children are properly immunized and able to make informed choices about vaccines.

Other. TPH also delivers vaccinations when there is an outbreak of a vaccine preventable disease. For example, in the summer of 2002, TPH provided hepatitis A vaccinations to approximately 18,000 individuals who had been exposed to an infectious food handler at a local grocery store. Two secondary cases of hepatitis A were associated with this incident.³⁷

Tuberculosis Prevention and Control Program

Goals:

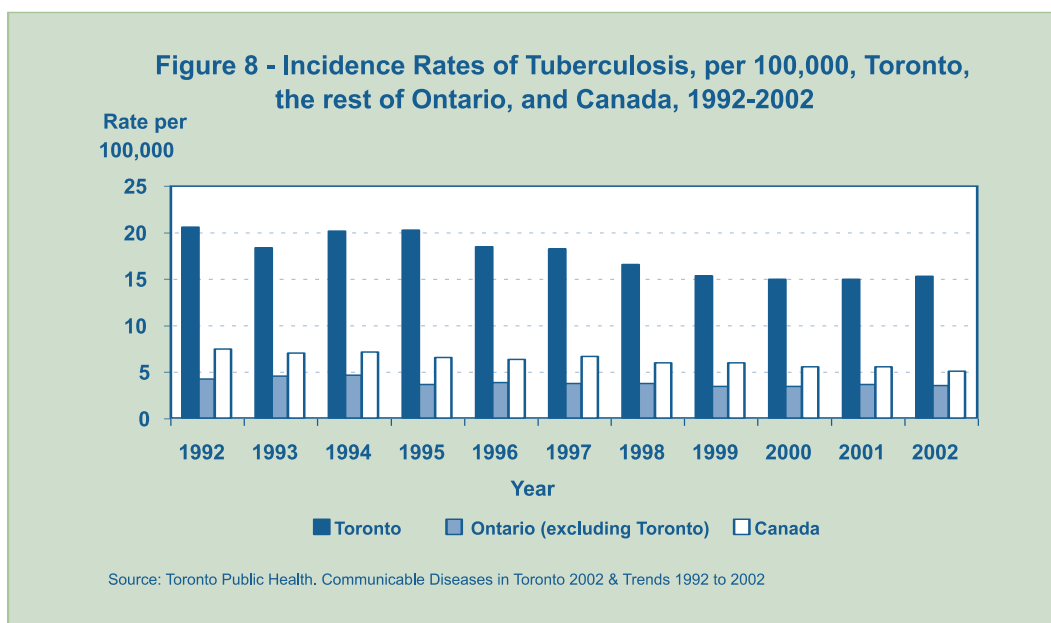
To reduce the incidence of tuberculosis (TB) in Toronto.

To provide an accessible and equitable tuberculosis control program.

Selected Tuberculosis Indicators:

Tuberculosis is primarily a disease of the respiratory system that is spread by tiny droplets that are dispersed into the air when infected individuals cough, sneeze, or talk. Overall, one-third of the world's population is infected with the TB bacillus, and approximately 2 million people died from this curable disease in 2002. People infected with TB bacilli will not necessarily become sick with the disease, because it can remain latent in the body. Only 5-10% of people who are infected with TB bacilli, and do not have risk factors such as HIV, will become sick or infectious during their lifetime. Treatment of latent TB infections reduces the risk of developing active TB. The highest number of estimated TB cases and deaths is in the South East Asia Region, and the highest mortality per capita is in Africa, where HIV has led to a rapid increase in the incidence of TB, and the likelihood of dying from the disease. Left untreated, each person with active TB disease will infect an average of 10 to 15 people every year.³⁹

There were 377 reported cases of TB in Toronto in 2002. There has been an overall decline in the TB rate in Toronto from 21 per 100,000 in 1992 to 15 per 100,000 in 2002. Toronto rates of TB exceeded those reported in the rest of Ontario and Canada from 1992 to 2002. In 2002, Toronto cases accounted for 54% of TB cases in Ontario, and 24% of TB cases in Canada (Figure 8).



In 2002, 88% of TB cases reported in Toronto, for whom the risk setting was known, had either traveled to, or lived in, a country outside of Canada where TB is endemic. Other risk settings included staying at a shelter or rooming house (4%), and the home environment (3%). The likely location of acquisition was unknown for 5% of the cases. In 2002, 94% (n=353) of Toronto's TB cases were born outside of Canada. The most frequently identified countries of birth were China, India and the Philippines (each accounting for 12% of foreign-born cases).

An outbreak of TB in two homeless men's shelters was identified in 2001, involving 15 cases with the outbreak strain and 1,582 contacts between June 2000 and October 2002. Eighty-nine percent of 1,582 contacts were assessed and the prevalence of TB infection was found to be 35%.

Selected Tuberculosis Prevention and Control Program Activities:

Tuberculosis Control and Case Management. TPH TB staff are mandated to ensure that each person who is diagnosed with TB not only receives the correct treatment, but also completes the treatment as prescribed. The length of treatment for someone with TB ranges from 6 months to 2 years. Where appropriate, TB clients are offered Directly Observed Therapy (DOT). Successful treatment of TB is more likely when cases are under DOT, where the patient is observed taking their medication to ensure compliance with treatment. Approximately 50% of patients with active TB in Toronto are on DOT at any time. Highest priority is given to individuals with drug resistant TB, children and adolescents, clients who are HIV positive, homeless or underhoused, clients whose TB has relapsed or re-activated, and clients who are non compliant with treatment. Of Toronto TB cases reported in 2001, 84% of those treated with DOT and 75% of those not treated with DOT were "successfully treated." The TB case managers oversee the treatment of cases by educating clients and their families about TB, ensuring that the treatment is adequate and completed, communicating with the treating physician regarding any side effects, and providing free medication, which is delivered to the physician's office. Case managers also identify any contacts that may have been at risk for becoming infected with TB and ensure that they are adequately tested and treated as appropriate.



With respect to the TB outbreak in shelters, all suspect cases of active TB were isolated in hospital until non-infectious and received DOT upon discharge. A section of one of the shelters was closed to admissions until the outbreak was declared over. TPH utilized proactive approaches such as the use of incentives, flexible DOT arrangements, Directly Observed Preventive Therapy, and broad inclusion criteria for contacts.

TPH initiated an active case finding initiative among staff and residents at all men's and co-ed shelters, after two active cases were identified in one shelter's staff members in the fall of 2004. The case finding began on November 8, 2004. With this endeavour, seven new cases were identified in residents.

Tuberculosis Prevention. The TB Prevention Team is dedicated to outreach and health promotion initiatives, and reaches a variety of populations through multicultural organizations, newcomer agencies, community groups, schools, daycares, agencies that work with the homeless/underhoused population, and Corrections.

The team also follows immigrants/refugees placed on surveillance for inactive TB by Citizenship and Immigration Canada. In 2000, the Team followed approximately 1,500 individuals. By 2002, this number had grown to more than 3,400. In 2002, approximately 2000 individuals with latent TB infection (LTBI) completed prophylactic treatment.

During 2003, the Team delivered 59 presentations, reaching more than 1600 individuals from various groups. The Team operates a telephone consulting line, open to the public, which received close to 600 telephone calls in 2003. The team also supplies numerous groups with TB materials, distributing thousands of resources each year.

On World TB Day, March 24th 2004, TPH hosted a workshop for organizations that service Toronto's newcomer population, reaching more than 200 different groups.

Sexual Health Promotion & Sexually Transmitted Infections/HIV Program

Goal:

To reduce incidence and complications of sexually transmitted infections (STIs), including HIV/AIDS, through surveillance, education, follow-up of cases and contacts, health promotion and protection.

Selected Sexual Health & Sexually Transmitted Infections/HIV Indicators:

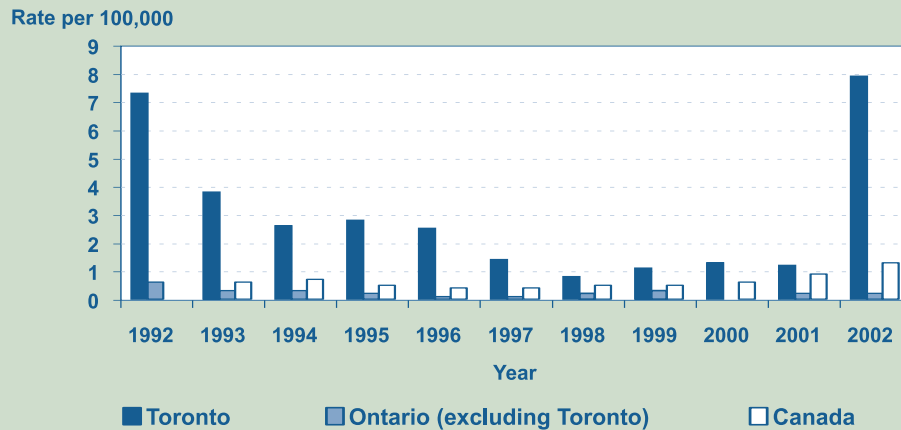
Chlamydia is the most common sexually transmitted infection in Toronto. Rates of chlamydia decreased from 184 per 100,000 in 1992, to 157 per 100,000 in 1997, and then increased to a high of 254 per 100,000 in 2002. The increase between 1997 and 2002 was partly due to increased detection after the introduction of a new screening test in 1994. Chlamydia incidence has historically been higher in women, although recently the gender difference in incidence rates has decreased. This is also partly due to new screening tests allowing for more testing and detection of chlamydia in men. The rate for the rest of Ontario in 2002 was 132 per 100,000.

Gonorrhea. The gonorrhea incidence rate in 1992 was 110 per 100,000, declining to 48 per 100,000 in 1997, and increasing to 72 per 100,000 in 2002. Rates are highest among youth and young adults (ages 15-24). Men are more likely than women to be reported as having gonorrhea. The gonorrhea incidence rate for men was 102 per 100,000 in 2002, while the rate for women was 44 per 100,000 in the same year. The rate for Ontario (excluding Toronto) was much lower than the Toronto rate, at 14 per 100,000 in 2002.

Syphilis. The incidence rate of infectious syphilis declined from 7 per 100,000 (173 cases) in 1992 to a low of 0.8 per 100,000 (19 cases) in 1998. The low rate of syphilis persisted between 1999 and 2001. In 2002, an unexpected and dramatic increase in syphilis cases was noted. The number of syphilis cases in Toronto increased from 31 cases in 2001, to 195 cases in 2002. Males accounted for 96% of all reported cases and had an incidence rate of 16 per 100,000 (n=188) in 2002. In the same year, females accounted for 4% of all reported cases and had an incidence rate of 0.5 per 100,000 (n=7). The recent syphilis cases are occurring primarily in populations of men who have sex with men. Of the 195 reported infectious syphilis cases in 2002, 74 (38%) were known to be co-infected with HIV. Other large urban centres in Canada and elsewhere have experienced a similar increase in the number of syphilis cases. Compared to Toronto, rates in Canada and the rest of Ontario remain low (Figure 9).

HIV and AIDS. The reported rates of HIV have fluctuated in Toronto from 41 per 100,000 in 1992, to 16 per 100,000 in 1998, to 25 per 100,000 in 2002. AIDS rates in Toronto have declined from 19 per 100,000 in 1992 to 3 per 100,000 in 2002. Historically, AIDS rates have been higher among males, with only 4% of cases reported in females in 1992. By 2002, the proportion of females among

Figure 9 - Incidence Rates of Infectious Syphilis, per 100,000, Toronto, the rest of Ontario, and Canada, 1992-2002



Source: Toronto Public Health. Communicable Diseases in Toronto 2002 & Trends 1992 to 2002

AIDS cases had risen to 17%. HIV and AIDS rates in Toronto exceeded those in the rest of Ontario and Canada each year between 1992 and 2002.³⁷

Injection Drug Use. It is estimated that there are 15,000 injection drug users in Toronto. A recent Health Canada study revealed that in 2003 the rate of HIV was 5% among injection drug users in Toronto and the self-reported rate of Hepatitis C was 55%. These rates are actually significantly lower than other large cities in Canada and the United States. The study identified heroin, cocaine, crack, and morphine as the most common injection drugs in Toronto.⁴⁰

Selected Sexual Health Promotion & Sexually Transmitted Infections/HIV Program Activities:

The Sexually Transmitted Infections (STI) Program reduces the incidence and complications of all STIs, including HIV/AIDS, and promotes healthy sexual behaviours. All reports of STIs received from physicians, hospitals and laboratories are followed to ensure that each client received adequate, appropriate treatment, education and counselling. In addition, staff ensure that partners of these clients are identified, counselled and referred for testing and treatment. STI program staff also provide educational outreach to groups of physicians and other health professionals.

The Sexual Health Promotion Program also aims to reduce the incidence of, and complications from, all STIs, including HIV/AIDS, through individual counselling and referral, peer education, consultation with teachers and other community partners, parenting groups, sexual health promotion campaigns, and involvement in community capacity building, advocacy and policy development. The program also aims to increase access to contraception methods and reduce the rate of teen pregnancy.

Sexual Health Clinics provide services in 10 different locations across the City of Toronto. Over 50,000 clinic visits were recorded in 2003. The target group is women under 26 years of age, and men under 30 years of age. The program also provides services to those who have barriers to accessing other health services, such as recent immigrants and refugees, those without OHIP, those with ability limitations, homeless or street involved, and those living in poverty. Sexual health clinic services include STI testing and free treatment, birth control counselling and provision of birth control, the provision of condoms and the emergency contraceptive pill at a low cost or free, pregnancy testing and options counselling, and the provision of vaccines.

The *AIDS Prevention Grants Program* was established by the former Toronto City Council in 1987. Public Health grants are a key component of TPH's comprehensive strategy for the prevention of HIV/AIDS. The goal of the grants is to support strategic, targeted community education programs to influence behaviours and situations that put people at risk of acquiring HIV. The integration of grants with City-delivered programs helps ensure responsiveness to emerging public health issues and timely access to community expertise in local organizations. In 2004, City Council allocated \$1.36 million for AIDS prevention grants which funded 51 community projects.

The objectives of the AIDS Prevention Grants are to address high risk behaviours, enhance access to HIV/AIDS prevention messages and address social barriers related to poverty, race, sexual orientation, culture, sex, language skills, age, physical or mental ability, etc.

The AIDS and Sexual Health Information Line is a province-wide anonymous counselling line, offering service in 18 languages, seven days a week. Counsellors assist callers with a variety of concerns including HIV prevention and testing, STI information, clinic referrals, birth control, and relationship issues. The line receives about 40,000 calls annually from across the province.

The Works is an HIV/AIDS prevention program for injection drug users and sex trade workers in Toronto. Using a Harm Reduction Framework, the program provides needle exchange, safer injection supplies, and condom distribution. In the office, nurses and counsellors provide crisis intervention, short-term counselling, basic first aid, referrals, advocacy, assistance with accessing housing, medical, social services, and treatment. There is also a low-threshold methadone maintenance program for opiate users, HIV testing, hepatitis screening, and vaccination. A mobile van also provides services throughout the city. Since the program cannot meet the needle exchange needs of the entire city, there are 28 community agencies across the city that are under contract with TPH to do needle exchange.

In addition to direct service, staff are responsible for various community development initiatives, such as street outreach, prison outreach, participating on community committees and advisory boards and supervising peer training and outreach programs. Each year, *The Works* sees approximately 30,000 clients, distributes 350,000 needles, and 70,000 condoms.

Control of Other Infectious Diseases and Infection Control Program

Goal:

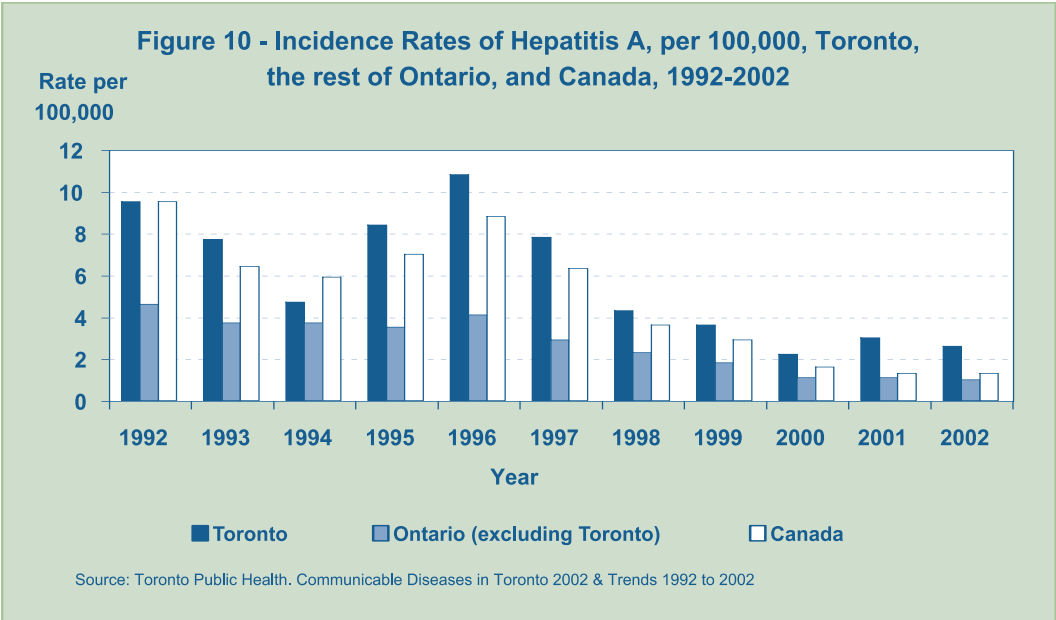
To reduce the incidence of communicable diseases of public health importance.

Selected Other Infectious Diseases Indicators:

An outbreak is generally defined as the occurrence of two or more cases of illness linked by person, place, and time. Disease events that exceed an expected baseline rate are also investigated as potential outbreaks. In 2002, there were 301 enteric disease outbreaks reported in Toronto, an increase of 103% from 2001. The number of respiratory outbreaks decreased by 42% from 140 outbreaks in the 2001/2002 season to 59 outbreaks during the 2002/2003 season. Long-term care facilities were the most common sites for both respiratory and enteric disease outbreaks in Toronto.

West Nile Virus (WNV) occurs when a human is bitten by a mosquito that has been infected with the virus through a blood meal from an infected bird. WNV first appeared in North America in 1999, and was first detected in humans in Canada in 2002. In 2002, there were 163 probable and confirmed cases of WNV reported in Toronto. In 2003, there were 44 cases. In the rest of Ontario, there were 242 cases of WNV reported in 2002, and 45 cases reported in 2003.⁴¹ The decrease in number of cases may be due to the normal cycle of WNV, weather patterns, or mosquito control activities.

Hepatitis A. The rate of hepatitis A in Toronto has decreased from 11 per 100,000 in 1996, to 2 per 100,000 in 2000. The 2002 rate was 3 per 100,000 in Toronto, and 1 per 100,000 in the rest of Ontario (Figure 10).



Selected Other Infectious Diseases Program Activities:

Communicable Disease Surveillance is ongoing and follow-up occurs for all communicable disease reports that are received from physicians, laboratories, and institutions. Cases (and their physicians) are contacted to identify additional ill persons and/or their contacts, provide information about the disease and ways to prevent further spread, implement control measures and ensure appropriate treatment. The disease database is routinely analysed to identify outbreaks, determine disease trends, provide information for program planning, and disseminate information to hospitals, infectious disease specialists, and other relevant partners.

TPH is working with other city divisions, such as Fire, Ambulance and Police Services, and with external agencies to ensure that the city is prepared for a bioterrorism threat. Examples of bioterrorism threats are anthrax, and smallpox.

In 2002, the City of Toronto focused West Nile Virus control efforts on surveillance and education. Given the considerable human illness and several deaths related to WNV in Toronto in 2002, additional measures were added to the WNV program in 2003. These included enhanced educational outreach, the investigation of reports of standing water, remediation of potential mosquito breeding sites and a mosquito control program in catch basins using the pesticide methoprene. Later in the season, mosquito-breeding sites in surface waters were treated with the pesticide *Bacillus thuringiensis israelensis* (Bti) in areas where WNV positive indicators were found.

The TPH response to WNV is a co-ordinated effort. The human surveillance team follows up on communicable disease reports received from physicians, hospitals and laboratories. Where suspected areas of environmental exposure were identified, referrals are made to the Healthy Environments team for follow-up. Health Hazards Investigations responds to WNV standing water complaints. A protocol for dealing with WNV, including the coordination of larviciding, has been developed.

TPH offers infection control expertise to nursing homes, homes for the aged, day nurseries and personal services settings. TPH participates in numerous infection control committees across the city, conducts inspections, consults on policies and procedures, offers in-service education and provide disease statistics.

Communicable Disease Liaison Program

Goals:

To improve early detection of, and co-ordinated response to, communicable diseases in hospitals.

To act as a liaison between hospitals and TPH Communicable Disease Control programs.

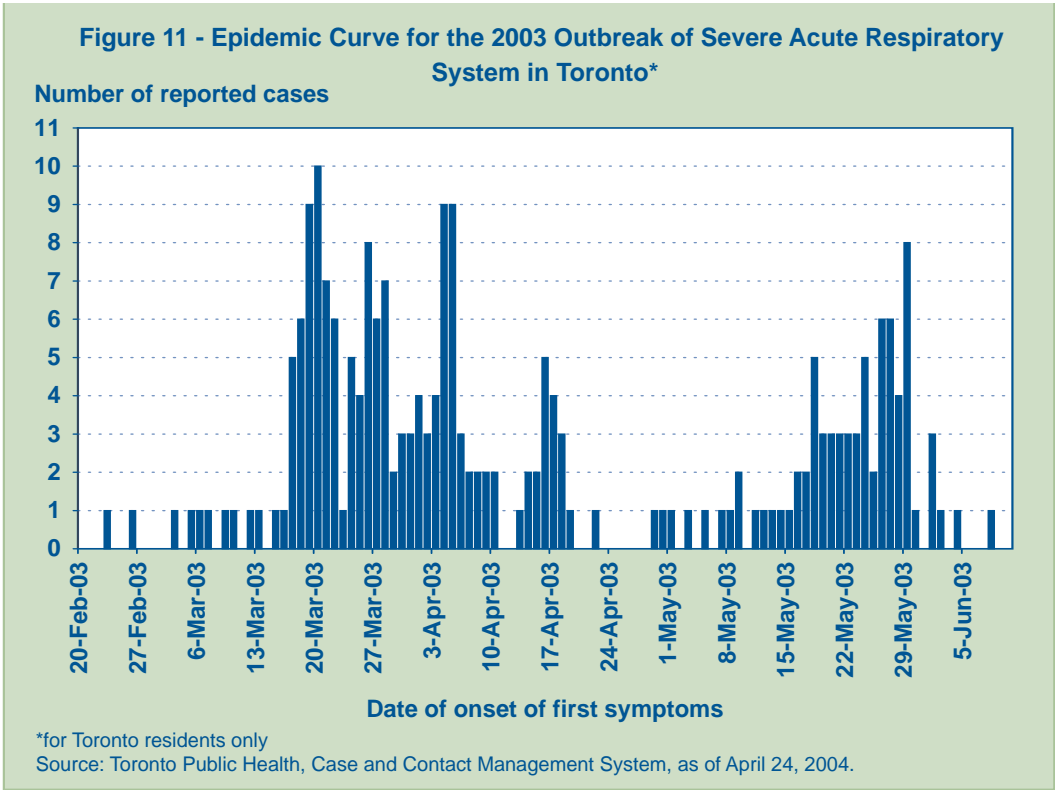
To provide consultation on infection control issues in hospitals.

To continue to strengthen working relationships and partnerships with hospitals in Toronto.

Selected Hospital Communicable Disease Indicators:

In spring 2003, Toronto experienced the largest outbreak of Severe Acute Respiratory Syndrome (SARS) outside of Asia. The first case of SARS in Toronto was reported to Toronto Public Health on March 9, 2003. SARS was made a reportable disease under the Health Protection and Promotion Act (HPPA) on March 24, 2003, and a provincial emergency was declared on March 26, 2003. Phase 1 of the outbreak was from March 13 to April 20, 2003. Phase 2 began on May 20 and continued until June 24, 2003. There have been no cases of SARS reported in Toronto since that time.

During the outbreak of 2003, over 1,800 case investigations were conducted in Toronto. Two hundred and twenty-eight cases of SARS were identified (212



probable cases and 16 suspect cases). Fifty of the patients who were hospitalized required intensive care support. Thirty-eight SARS cases died. Fifty percent of all cases were health care workers. There was no significant community spread. The total number of SARS cases during the 2003 outbreak in Ontario was 375, including 247 probable and 128 suspect cases. There were 44 deaths related to SARS in Ontario. Over 26,000 contacts were identified and followed by TPH. Twenty-seven Section 22 isolation orders were issued under the HPPA during the outbreak. A summary of the SARS outbreak is depicted by the epidemic curve shown in Figure 11.

Selected Hospital Communicable Disease Program Activities:

The Communicable Disease Liaison Unit (CDLU) was established with the support of the Ministry of Health and Long-Term Care (MOHLTC) in June 2003 as a SARS Recovery Team and to provide liaison with hospitals. Support is provided to 14 hospital corporations with 21 sites. In the event of a re-emergence of SARS or other emerging infectious disease, TPH will conduct public health investigations and provide outbreak management. TPH is monitoring global communicable disease activity for emerging infectious diseases.

During the SARS outbreak of 2003, over 300,000 calls were made to the TPH hotline. The highest number of calls received in one day was 47,567. There were 700 TPH staff assigned full time to the outbreak team. Over 1,200 media calls were received in the first 8 weeks of the outbreak, with daily live television briefings being conducted throughout the outbreak. Communication materials were posted on the web and printed in 14 languages.

After the SARS emergency in 2003, surveillance and screening for febrile respiratory illness became a new MOHLTC standard for hospitals. The CDLU provides support to hospitals in planning, developing and implementing FRI screening in emergency rooms and for hospital inpatients. Under new MOHLTC standards, TPH investigates all reported cases of febrile respiratory illness/severe respiratory illness and their contacts.

CDLU participates in hospital infection control committees to provide public health expertise and consultation. The unit supports the planning, development, implementation and evaluation of infection control policies in hospitals, and works with hospitals in managing respiratory and enteric outbreaks.

The co-ordinated liaison role includes the transfer of reportable disease information between communicable disease programs at Toronto Public Health and hospitals. CDLU supports hospital infection control teams in providing education about communicable diseases to hospital staff. Epidemiological information is provided to hospitals on communicable disease and surveillance activity within the community, institutions, and globally.

Over the last several years all levels of government have been considering the issue of pandemic influenza. SARS, and the more recent emergence of avian influenza, have brought these issues to the forefront and focus has been placed on developing a comprehensive plan. Local pandemic influenza plans will be based on plans that have already been developed by Health Canada and the

MOHLTC. A pandemic influenza plan for Toronto is being developed in collaboration with hospitals, infectious disease specialists, Fire, Police, and Emergency Services, the Coroner's office, the Toronto District Health Council, and many other stakeholders, with consideration to the overall Emergency Plan for the City. CDLU staff are integral to the coordination and development of the Toronto Pandemic Influenza Plan.

