To: Mayor and Members
   Board of Health

From: Elizabeth Richardson,
      Medical Officer of Health
      Public Health Services

Date: March 22, 2006

Re: 2005 Vaccine Preventable Disease Report (PH06013) (City Wide)

Council Direction:
Not Applicable.

Information:

Overview

Despite great progress, vaccine preventable diseases (VPD) persist. Some examples of VPD include: measles, mumps, rubella, diphtheria, polio, tetanus (lock jaw), pertussis (whooping cough), meningitis, chicken pox, and pneumococcus. These diseases can be severe, often resulting in illness and sometimes death. However, they are all preventable with the use of vaccines.

Each year in April we celebrate the successes of vaccines and reinforce the ongoing need for their use during National Immunization Awareness Week (NIAW). This year, NIAW will run from April 23-29. This week presents an opportunity to focus the attention of Canadians on the importance of vaccinations for all ages.

NIAW also coincides with Vaccination Week in the Americas organized by the Pan American Health Organization (PAHO), during which countries in North, Central & South America will be encouraging parents, caregivers and health care providers to ensure children and adults are immunized.

The VPD program in Hamilton ensures that a wide breadth and depth of activities occur each year to maximize health and decrease morbidity and mortality related to VPD. Public health is mandated to perform these activities by the Ontario Ministry of Health and Long Term Care (MOHLTC) under the Mandatory Health Programs and Services Guidelines (MHPSG, 1997), and under the Health Protection and Promotion Act (RSO 1990). The following information report summarizes the VPD program activities completed in 2005 to meet these mandates.
Complement

The Vaccine Preventable Diseases program has 1.5 Program Managers, 2 program secretaries, 1 IRIS (Immunization Records Information System) administrator, 6 IRIS data entry clerks, 1 BIOS (biologic inventory operating system) administrator, 2 Public Health Nurses (PHN), 7 Registered Nurses (RN) and 2 Registered Practical Nurses (RPN).

Immunization Record Information System (IRIS)

At least 95% of the population must be immunized against VPD to prevent outbreaks. The Immunization Record Information System (IRIS) is a database which maintains the immunization records of all children attending licensed child care centres (LCCC) and schools. According to the Immunization of School Pupils Act (R.S.O 1990) all children are required to be immunized against measles, mumps, rubella (MMR) and diphtheria, polio and tetanus (DTP). The Day Nurseries Act (R.S.O 1990), Reg. 262, s. 33(1) specifies that all children enrolled in a LCCC must be immunized according to the local Medical Officer of Health. Based on these Acts parents must provide immunization information to Public Health Services when they enrol their child in a LCCC or school. These Acts also specify that if a parent chooses not to immunize their child, or the child cannot be immunized for medical reasons, an exemption form must be completed and this is kept on file on the IRIS database. The Immunization of School Pupils Act (R.S.O 1990) notes that in the event of a vaccine preventable disease outbreak a child who is not adequately immunized would be excluded from school during the outbreak.

Immunization records of all children in licensed child care centres (LCCC) are screened annually for up to date information in accordance with the Day Nurseries Act (R.S.O. 1990). Approximately 3700 children are enrolled in LCCC in Hamilton. In the fall of 2005, letters were sent to parents of children attending LCCCs who were identified as having provided no immunization information or incomplete information. This process yielded the following results:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Screening</th>
<th>Post-screening</th>
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</thead>
<tbody>
<tr>
<td>MMR</td>
<td>78%</td>
<td>86%</td>
</tr>
<tr>
<td>DTP</td>
<td>65%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Childhood immunization rates are likely higher however the collection of immunization information relies on parental reporting, and there is no consequence if parents do not report this information for children attending LCCC.

Immunization records of all children in schools are to be screened and reported to the Ministry annually, in accordance with the Immunization of School Pupils Act (R.S.O. 1990). This act directs the Medical Officer of Health to order the suspension of students who do not provide complete immunization records by the deadline given to the parents. In Hamilton, there are approximately 100,000 children enrolled in both elementary and secondary schools. The year 2001 was the beginning of a 7 year plan towards screening all children in school. Each year, age groups of students are screened and once screened, continue to be screened each year. By the year 2007, all students 4 to 17 years of age will be screened to ensure records are complete.
During the 2004-2005 school year, the immunization records of all students registered in school (48, 398) who were born in the years 1990-1997 (ages 7-14 years) were screened. A total of 5,732 letters were sent to parents requesting that they provide current immunization information. A total of 600 students were suspended from school. The following chart highlights the success of this program:

<table>
<thead>
<tr>
<th></th>
<th>Pre-screening</th>
<th>Post-screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMR</td>
<td>89%</td>
<td>98%</td>
</tr>
<tr>
<td>DTP</td>
<td>94%</td>
<td>97%</td>
</tr>
</tbody>
</table>

**MMR- Measles, Mumps, and Rubella**  
**DTP- Diphtheria, Tetanus, and Polio**

**Hepatitis B Vaccination Program**

Each year, Hepatitis B vaccine is provided through schools to all eligible grade 7 students. Hepatitis B vaccine requires 2 doses, given 4 to 6 months apart. The first dose is given in the fall and the second dose is given in the spring. In the fall of 2004, 93% of eligible grade 7 students received the first dose. Eighty-four per cent of these students completed the 2-dose vaccine program in the spring of 2005. Some students go to their family doctor to receive their second dose and this information never gets reported to the health department. These coverage rates are similar to other Central-West health units.

**Meningococcal C Vaccination Program**

The MOHLTC introduced the meningococcal C vaccine to the list of publicly funded vaccines in September 2004. A single dose of vaccine is funded for all 1 year old infants. However, in order to provide the vaccine to older children, Public Health departments were offered $8.50 for each dose of vaccine given to 12 year olds (grade 7 students) and 15-19 year olds, at public health run clinics.

In 2005, the city of Hamilton’s VPD program provided a total of 19,617 doses of meningococcal C vaccine to students in Hamilton schools. Of these, 5,039 doses were administered to grade 7 students (78% of the eligible population) and 14,578 doses to the 15-19 year olds (52% of the eligible population). Students who did not receive a dose at school were encouraged to receive the vaccine from their family doctor or attend a Public Health Services immunization clinic.

**Immunization Clinic Services**

The Vaccine Preventable Diseases team provides provincially funded vaccine through immunization clinics at a number of sites including: city office buildings, schools, community agencies, and the Community Health Bus. This service is provided to ensure that all residents of Hamilton have equal access to publicly funded vaccine, including those residents without a health card or a family physician.
In 2005 PHS provided service to 815 clients at these clinic sites:

<table>
<thead>
<tr>
<th></th>
<th>SISO</th>
<th>City office</th>
<th>Detention Centre</th>
<th>Arrel Detention</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Adults</td>
<td>65</td>
<td>16</td>
<td>10</td>
<td>0</td>
<td>91</td>
</tr>
<tr>
<td># Children</td>
<td>158</td>
<td>555</td>
<td>0</td>
<td>11</td>
<td>724</td>
</tr>
<tr>
<td>Total doses of vaccine given</td>
<td>362</td>
<td>742</td>
<td>10</td>
<td>14</td>
<td>1128</td>
</tr>
<tr>
<td>% no family physician</td>
<td>100%</td>
<td>50%</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
</tbody>
</table>

**Universal Influenza Immunization Program**

In July 2000 the Ministry of Health and Long Term Care (MOHLTC) announced that it would be the first jurisdiction in North America to make influenza vaccination available to all citizens free of charge. Since then, Hamilton Public Health Services has provided community based clinics for residents.

As part of this program, we also conduct an annual promotional campaign. Influenza related information and resources are disseminated to approximately 88 workplaces, 311 physician offices, 120 pharmacies, 7 poultry processing facilities, 27 long-term care hospitals, 219 schools, 56 recreation centres and 130 daycares.

The resources provided (posters, pamphlets and additional materials) are used by workplaces to advertise their occupational health flu clinics. Some pharmacies use these resources to run their own flu clinics.

The number of flu clinics held by pharmacies has increased over 20%, from 45 in 2004 to 55 in 2005.

In addition the VPD program immunized 23,293 individuals during the 2004 at the community clinics. In 2005, this number increased slightly to 23,907 at a total of 20 clinics.

The amount of flu vaccine distributed by the VPD BIOS program has increased steadily over the past 3 years, from 181,910 doses in 2003 to 207,240 doses in 2005. The 2005 column is accurate as of January 4, 2006 and does not take into account future vaccine orders or returns for the 2005/2006 season.
In addition to providing the flu vaccine at the community clinics, the VPD program also evaluated the flu clinic services. Clinic attendees randomly received a survey, while waiting in the After Care area of each of the twenty flu clinics. In total, 1,941 flu clinic attendees completed the survey. Attendees were 94% “very satisfied” and 6% “somewhat satisfied” with the Hamilton community flu clinics. In early October, VPD sends out flyers to every home to promote the flu clinics. Residents have come to rely on these flyers. Fifty-three per cent of clinic attendees reported receiving their flu clinic information from our home flyer. Satisfaction rates were especially high when asked for their feedback regarding flu clinic locations; 98% of respondents felt that the clinics were well located.
Vaccine Storage and Handling

All vaccines must be stored in a monitored fridge within the temperature range of 2-8° C to ensure that the vaccine will be effective when used. Temperatures outside this range constitute a ‘cold-chain failure’. Vaccines exposed to temperatures outside this range cannot be considered effective.

Public Health units manage vaccine inventory and distribution by receiving vaccine from Ontario Government Pharmaceutical and Medical Supply Services (OGPMSS) and distributing it to area physicians and institutions. On an annual basis this means that Hamilton Public Health Services receives and distributes approximately 370,000 doses of vaccine, with a total value of just over 5 million dollars. Public health units are also directed to minimize wastage of provincially-funded vaccines to five per cent or less.

In order to meet this mandate several activities are completed each year, including:

- Tracking all doses of vaccine sent to and returned from physicians/institutions to ensure appropriate usage of vaccines
- Provide educational material to all facilities that store publicly funded vaccine to educate on proper storage and handling of vaccine
- Annual (at minimum) inspection of all facilities that store publicly funded vaccine
- Responding to all cold chain failures
- Storing health unit vaccine in continuously monitored vaccine fridges and responding to after-hour breaks in cold chain

Results for wastage over recent years reflect the introduction of new vaccines and increased inspection frequencies.

In 2002, 323,061 doses were distributed and 21,842 doses (6.8%) were wasted. In 2004 the total number of vaccine doses distributed was 361,701, of this 10,344 (2.9%) doses were wasted. Recently, a number of new vaccines have been introduced in Ontario. These include pneumococcal conjugate vaccine, meningococcal C vaccine, and the varicella vaccine.

Vaccine wastage for 2005 was 19,348 doses (5.3% of the 363,867 doses distributed). This increase was anticipated due to:

- Increased awareness by physicians to report Cold Chain failures.
- More frequent, unplanned, cold chain inspections carried out by our VPD nurses.
- A “zero tolerance” policy for vaccines that are exposed to temperatures outside of the 2-8° C range and a lack of current vaccine stability charts in physician offices.
Reactions following vaccine administration are rare and usually self limited. Most often the side effects felt are a sore arm, redness at the injection site and, sometimes, fever. Because vaccines are administered to generally healthy people and vaccine use is widespread, it is important to track any adverse events that occur. In Canada, there are two main surveillance systems for vaccine associated adverse events: a passive system that collects data on all adverse events reported by all health care providers, and an active surveillance system through paediatric hospitals.

Public Health Services role is to investigate all reported vaccine associated adverse vaccine events (VAAE). This investigation requires gathering a large amount of detailed information, completing a standard report, consulting the Medical Officer of Health, and notifying the MOHLTC via a provincial database.

In 2005, the VPD nurses investigated 43 VAAE. None of these events required hospitalization. The presence of VPD nurses during community influenza clinics and Men C clinics school clinics is likely part of the reason why numbers of reported VAAE are higher for these immunizations.

Our program distributes fact sheets, forms and other VAAE related material to over 300 local physicians and health care providers. This annual fall campaign coincides with the beginning of each influenza immunization season. Physicians are reminded annually of their legislative responsibilities to report all VAAE.
Educational Initiatives

Under the MHPSG health departments are required to promote immunization for children and adults through “education (such as individual counselling, presentations and/or written materials) targeted at the community and individuals, health care providers, settings for high-risk individuals, educational facilities and institutions.”

Individual counselling is provided daily to physicians, nurses, schools, daycares, students, and parents about a variety of topic areas such as, general vaccine information, immunization schedules, legal requirements to vaccinate school age children, vaccine associated adverse events, and vaccine storage and handling. In 2005, 2815 phone calls related to counselling were recorded by the program’s nurses.

In 2005, 12 presentations were delivered by program Public Health Nurses (PHNs), reaching 460 individuals (125 adults; 178 day care and nursing agency staff; 157 health care providers). Presentations were conducted in a variety of settings such as, Public Health Services venues, Long-term Care Hospitals, Community Nursing Agencies, Canadian Prenatal Nutrition programs, the Ontario Alliance of Christian Schools conference, and physician rounds.

Written materials (posters, pamphlets, newsletters, media releases, web-based) were developed in 2005, to promote immunizations within the Hamilton community. Some highlights for 2005 included:

- Development of a program logo to be used alongside the corporate logo on all promotion materials in an effort to create recognition and awareness of program services and the importance of immunization to the community.
• Development of posters around two key immunization messages: ‘Love Them. Protect Them. Immunize Them.’ and ‘It's as Important as Your Health Card.’

• Development of posters to promote the meningococcal C vaccination to 15-19 year olds.

• Advertisements in the 2005-2006 Hamilton Community Guide reminding parents of their responsibility to call the health department with all immunization information.


• Distribution of 6000 pamphlets into Let’s Grow packages through the Family Health Branch.

• Distribution of tear-off pads to family physicians as a quick way to record immunization information for parents.

• Submission of articles to the Child Care Connections Newsletter and the Healthy Kids Newsletter.

• Advertisement of immunization clinics in the Community Education flyer distributed through Hamilton Health Sciences at no cost to the program.

• Media releases for 1) high school catch-up programs for Meningococcal C immunization, 2) National Immunization Awareness Week and 3) community flu clinics. As a result of these releases, local media including CHML, CHTV, Cable 14, the Hamilton Spectator, and Brabant newspapers all provided coverage of the importance of immunization and the availability of community clinics.

• Utilized the VPD program website as an additional medium to promote vaccination. This website address is provided on all posters, pamphlets, newsletters, and media content.

In conclusion, the MOHLTC mandates a variety of vaccine preventable disease activities to ensure that people are protected from VPD. Through promotional activities, review of day-care and school children’s vaccine records, vaccine provision at clinics and schools, distribution of vaccines to physicians and institutions, ensuring cold-chain maintenance, minimizing wastage and monitoring of VAAE’s, Hamilton Public Health Services ensures that residents are vaccinated appropriately and effectively.

Elizabeth Richardson, MD, MHSc, FRCPC
Medical Officer of Health
Public Health Services