



HEALTH PROTECTION ACT ANNUAL REPORT 2009/2010 AND 2010/2011

A Report to the House of Assembly

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1.0 Introduction

This report fulfills the requirement outlined in Section 6(1) (h) of the *Health Protection Act*, which states the Minister shall provide a report to the House of Assembly on an annual basis outlining the progress of the Department of Health and Wellness (DHW; formally the Departments of Health Promotion and Protection and Health) with respect to the surveillance of and response to health hazards, notifiable diseases or conditions and communicable diseases.

Work in these areas is integrated across the Environmental Health, Communicable Disease Prevention and Control, and Population Health Assessment and Surveillance Responsibility Centres/Branches in the Department of Health and Wellness.

The report covers the time period April 1 2009 to March 31 2011- a two year time frame. It is important to note that 2009/10 was an unusual year in that the majority of time and effort was spent in planning for and responding to H1N1.

The report is divided into four sections:

- Health hazards
- Notifiable diseases and conditions
- Communicable diseases
- Response to H1N1

The 2010 Report on Notifiable Diseases and Conditions is attached as Appendix 1.

2.0 Health Hazards

The primary lead in response to health hazards under the *Health Protection Act*, the Environmental Health Responsibility Centre, focuses on the assessment and control of environmental factors. These include chemical, biological and physical hazards in the environment which prevent disease and create health-supportive environments.

The responsibility centre coordinates the activities of public health inspectors designated under the Health Protection Act who are employed by the Department of Health and Wellness, the Department of Environment and the Department of Agriculture. The structure of environmental health programs and services requires careful coordination and collaboration to ensure efficient use of resources for a health hazard response. Many of the responsibility centre's activities are designed to enable and enhance health hazard response by the three departments through the leadership of the Joint Environmental Health Protection Committee and provision of response in areas where no program or specific regulation exists.

Staff within the responsibility centre also provide direct support to regional medical officers of health and district health authority program staff for local environmental health issues.

2.1 Key Projects, Accomplishments & Outcomes

2.1.1 *Environmental Health Renewal Project*

In March 2009, DHW began to coordinate and lead activities to renew environmental health programming in Nova Scotia. Programs and services are currently divided among several provincial government departments and the nine district health authorities, requiring focused effort to integrate responses to environmental health issues, both locally and provincially.

DHW formed a core team with representatives from the departments of Agriculture and Environment to consult with staff working across the broad spectrum of environmental and public health programs. The goal was to identify key strengths and weaknesses. The result of this consultation is the emergence of four action areas (projects) for system improvement. These action areas include: the need to ensure environmental health programs across departments and districts are comprehensive and integrated; invest in staff training; prepare for emergencies; and work together to achieve efficiencies across departments and districts.

The outcome of the environmental health renewal project will be a shared vision for environmental health goals, enhanced programming that fills current gaps and improved resource efficiencies.

To enhance its support of the regional medical officers of health and district health authorities, environmental health consultants were located within the district health authority public health offices in 2009/2010. This significantly enhances access to environmental health expertise by the regional medical officers of health. It also aids district staff in responding to local environmental health issues. The effectiveness of this approach will be evaluated continuously to identify additional opportunities for integration and collaboration between DHW, district health authorities and the departments of Agriculture and Environment.

The outcome will be an efficient response to environmental health hazards at the local level and improved health protection for Nova Scotians. Early indications are that this approach has a positive impact on decision making at the local level and assists to clarify roles and responsibilities.

2.1.2 Environmental Health Human Resources Working Group

The Environmental Health Human Resources Working Group, reporting to the Joint Environmental Health Protection Committee, planned and implemented an environmental health student practicum guideline in 2009/2010. The guideline clarifies the roles of HPP, Environment and Agriculture with respect to training opportunities provided to graduates entering the environmental health profession.

The working group initiated other projects in 2009/2010 aimed at enhancing the skills of the existing environmental health workforce and improving health hazard response. These projects include development of training opportunities, a workforce analysis and competency inventory and enhanced access to online training modules. These projects continued to be rolled out in 2010/2011.

2.1.3 Health Protection Act Designation Training

A key project undertaken by the Environmental Health Responsibility Centre in 2009/2010 included the development of a training program for public health inspectors designated under the *Health Protection Act*. This training intends to clarify the authority public health inspectors working with the departments of Agriculture and Environment have with respect to health hazard response. The training continued to be rolled out and evaluated in 2010/2011.

2.1.4 Framework for Children's Environmental Health

The Environmental Health Responsibility Centre participated in the development of a framework for children's environmental health through the F/P/T Committee on Health and the Environment. The framework includes strategic goals and principles to improve children's health with respect to environmental factors and is expected to be released in 2011.

2.2 Key Challenges

2.2.1 Human Resources

The Environmental Health Responsibility Centre has two environmental health consultants who provide program support to nine district health authorities. Providing support to complex environmental health issues often requires knowledge of the geographic area, local authorities and stakeholders. The geographic coverage areas for the environmental health consultants covers four or more district health authorities, preventing them from developing local understanding and knowledge outside of their own geographic locations (Sydney and Halifax). The Environmental Health Responsibility Centre is currently working to add two additional environmental health consultants to its staff, further enhancing coverage in rural areas.

3.0 Notifiable Diseases and Conditions

The Population Health Assessment and Surveillance (PHAS) Responsibility Centre is responsible for the planning, implementation, and reporting of ongoing surveillance of notifiable diseases and conditions in Nova Scotia.

In Canada, surveillance of communicable diseases is supported by provincial legislation that mandates the reporting or notifying of diseases by many individuals and groups within the public health system. The list of notifiable diseases differs by province/territory but the Public Health Agency of Canada provides specific case definitions for those diseases under national surveillance to facilitate comparability across jurisdictions.

Reporting of notifiable diseases and conditions in Nova Scotia is governed by the *Health Protection Act*. As per the Act, the following persons are required to report cases of notifiable diseases and conditions to the Medical Officer of Health in the district health authority in which they work:

- physicians
- registered nurses
- medical laboratory technologists
- principal of a public school or operator of a private school
- administrator of an institution (including day care facilities, universities and community colleges)
- employees of Canadian Blood Services

Public health officials within the district health authorities are responsible for receiving reports, investigating and managing notifiable diseases and conditions, and outbreaks within the province. These are reported to DHW. Epidemiologists from DHW work with district health authority staff and staff from the Communicable Disease Prevention and Control responsibility centre to collect, analyze, and interpret the data. Reports are created, reviewed, and disseminated monthly (Notifiable Conditions Monthly Report), annually or on an ad hoc basis to public health stakeholders.

District public health officials utilize both manual and electronic tools for data collection of notifiable disease cases. The Application for Notifiable Disease Surveillance (ANDS) is used by district health authority staff and epidemiologists at DHW for the surveillance of notifiable diseases and conditions.

The annual notifiable disease surveillance report provides a summary of notifiable diseases and conditions reported in Nova Scotia for each calendar year. It includes highlights of notifiable disease data and examines important trends. The 2009 Notifiable Diseases Surveillance Report can be found at the following link [http://www.gov.ns.ca/hpp/publications/Surveillance Annual Report-2009.pdf](http://www.gov.ns.ca/hpp/publications/Surveillance%20Annual%20Report-2009.pdf). In

addition the 2010 Notifiable Diseases Surveillance Report can be found as an appendix to this document and is located online at <http://www.gov.ns.ca/hpp/populationhealth/>.

3.1 Key Projects, Accomplishments & Outcomes

3.1.1 H1N1 Influenza Disease Surveillance

In spring 2009, the first Canadian case of pH1N1 was diagnosed in Nova Scotia. The appearance of this novel virus necessitated a timely review and revision of influenza surveillance in Nova Scotia.

As a result, an enhanced influenza surveillance system was designed to monitor trends in disease occurrence and changes in disease severity. Through a number of different surveillance initiatives, the surveillance team was successful in quickly developing and implementing enhanced surveillance, which relied on the collaboration of public health partners provincially and nationally. See H1N1 information at the end of this report.

3.1.2 H1N1 Influenza Immunization Coverage

A second wave of the pH1N1 influenza virus was anticipated and experienced in fall 2009. Given the potential impact this influenza virus could have had on a previously unexposed population, decisions were made across the country to launch a nation-wide immunization campaign.

Within a matter of months, and in the absence of a Nova Scotia immunization registry, the surveillance team developed and implemented two surveillance systems that were key to Nova Scotia's immunization campaign. The first system was a multi-faceted vaccine coverage system that enabled DHW to track the number of Nova Scotians to receive the H1N1 vaccine. The second system tracked adverse events following immunization. See H1N1 Immunization coverage at the end of this report.

3.1.3 Automation of Outbreak Reporting

Nova Scotia was the second province in the country to implement automation of outbreak reporting through a secure web-based application called Outbreak Summaries. Hosted by the Canadian Network for Public Health Intelligence (CNPHI), the application is used by local, provincial and federal public health professionals to share and summarize the results of enteric, respiratory and vaccine preventable disease outbreak investigations. Outbreak Summaries allows users to monitor trends in outbreaks and contribute to policy development and public health planning.

3.2 Key Challenges

Recruitment and retention of epidemiologists continues to be a challenge for our surveillance team. We are working with the Public Service Commission to address this challenge and hope to have resolution in the coming year.

An additional challenge is our need for a comprehensive public health information system. The existing Application for Notifiable Disease Surveillance (ANDS) was developed as an interim solution and is only used for surveillance purposes and lacks an immunization registry. The lack of a comprehensive public health application that combines notifiable disease surveillance, an immunization registry and case management functionality is a critical gap in public health capacity in Nova Scotia.

4.0 Communicable Diseases

Communicable Disease Prevention and Control Responsibility Centre (CDPC RC) provides leadership in program development as it relates to the prevention and control of communicable diseases. It also provides direction and evidence-informed advice to a variety of Public Health practitioners, internal and external partners, stakeholders and organizations on issues pertaining to communicable disease prevention and control. Inherent as well within the CDPC RC is the response to new and re-emerging infectious diseases, and the management of outbreaks related to communicable diseases, and the management of the publicly funded immunization program.

As one of public health's five core functions, health protection within the CDPC RC is guided by and accountable to the legislature under the *Health Protection Act* (November 1, 2005). Along with the *Act*, the Auditor General's Report of the Communicable Disease Surveillance/Immunization Program 2007 (Mumps report) and the H1N1 Lessons Learned (2009-2010) report, also provide direction.

There are a number of key program areas that are directly linked to legislation:

- Direct Contact and Respiratory Diseases, including tuberculosis and influenza
- Enteric Food and Water Borne Diseases
- Outbreak Management and Response
- Pandemic Preparedness (Public Health Component specifically – Vaccine Strategy, Public Health Measures)
- Publicly Funded Immunization – Childhood Immunization, School Based Immunization, Adult and High Risk Immunization, Universal Influenza Immunization Program
- Sexually Transmitted and Blood Borne Infections (STBBI)
- Vaccine/Biological Management
- Vaccine-Preventable Diseases
- Vectorborne Diseases and other Zoonotic Diseases – West Nile Virus, Tick Borne Disease, Rabies

4.1 Key Projects, Accomplishments & Outcomes

4.1.1 *Planning and Response to pH1N1*

The CDPC RC was pivotal to the management and response to both the first and second wave of the H1N1 pandemic (April 2009-May 2010). See pH1N1 information at the end of this report for more information on H1N1.

Comprehensive Public Health Information System – Panorama Project

In 2006, the Ministers of Health provided direction to develop Panorama, a national communicable disease surveillance and case management system. This direction was further supported by an NS Auditor General's report in February 2008, which indicated a need for an immunization registry. It also became evident during H1N1 that such a system is required.

At present, Panorama is designed to include the following components:

- Communicable Disease Case Management
- Surveillance
- Outbreak Management
- Immunization Registry
- Vaccine Inventory
- Vaccine Safety
- Public Health Alerts
- Workload Management
- Family Health

Nova Scotia continues to support the Pan-Canadian vision for this system and continues to provide significant investment in time and human resources.

The implementation of Panorama in Nova Scotia was put on hold in July 2009, due to the arrival of H1N1. DHW and the Public Health system did not have the resources to continue with the project implementation and respond effectively to the pandemic simultaneously. The department Panorama Leadership Team continues to evaluate the readiness of the department and the Public Health system in relation to the national project. To provide support to this project additional human resource capacity is required.

4.2 Key Challenges

DHW receives funding to purchase vaccines for the publicly funded immunization program. The 2007 Nova Scotia Auditor General's Report and the Lessons Learned from H1N1 have shown that attention needs to be paid to support other aspects of an immunization program. This includes:

- (a) Immunization Program Development/Monitoring/Evaluation
- (b) Vaccine Inventory/Supply/Distribution
- (c) Vaccine Registry

4.2.1 *Immunization Program Development/Monitoring/ Evaluation*

Lack of funding to support this work impedes the development of a robust publicly funded immunization program. It is difficult to evaluate the effectiveness of programs when moneys are available for vaccine purchase only.

The current HPV program is funded through a federal HPV Trust fund. This trust fund expires in March 2011. The expiration of this fund has major implications for the sustainment of the HPV program in 2011/12.

While the HPV vaccine is the immediate pressure, other vaccine product pressures will become evident when contracts are renegotiated for the 2010/11.

4.2.2 *Vaccine Inventory/Supply/Distribution*

The Provincial Biological Depot resides within Public Health Services (PHS), Capital District Health Authority (CDHA) and functions under a Memorandum of Understanding (MOU) between PHS, CDHA and DHW. The MOU was signed on November 25, 2008. The duties and deliverables for each party are outlined in the MOU.

Since the MOU was signed, staff within CDHA and DHW have identified roles and responsibilities that need to be refined or improved to ensure vaccine inventory, supply and distribution of the immunization program is robust and connected with other components of the vaccine program (program planning, safety, registries). This in combination with the lessons learned from the response to the H1N1 pandemic has highlighted the need to review the current MOU.

Looking forward, a working group has been started to examine the current model for the Provincial Biological Depot. The outcome of this work will be the identification of human resources and business processes. This is time sensitive work as the MOU will need to be re-evaluated before March 31/11.

4.2.3 *Vaccine Registry*

The *Public Health Electronic Health Information System (Panorama Project)* as stated earlier has a registry component. Commitment to the national Panorama project has considerable impact on staff time and ability to respond to other program priorities/demands is challenging. In order to ensure successful implementation of a

registry along with the other components of an electronic Public Health electronic system, NS will require a full time dedicated team to ensure success

4.2.4 HR Resources

While the CDPC RC was pivotal in the response to H1N1, current human resource capacity is limited to respond to an outbreak. As identified, other program work such as the implementation of a Public Health electronic system was put on hold. HR capacity is also stretched to implement the H1N1 Lessons Learned while at the same time managing existing workloads and priorities identified for the program.

5.0 Nova Scotia's Response to H1N1

Canada experienced a first and second wave of pH1N1 in the spring and fall of 2009. During this time, the Nova Scotia health system put considerable effort into preparation for and response to the potential threat of this illness. This included the largest immunization program in provincial history and the mobilization of resources and activation of plans to be prepared for any potential outcome posed by the disease.

The purpose of this section is to document the influenza related events of the 2009/2010 influenza season as well as the planning and response efforts undertaken by the Department of Health and Wellness.

Planning for and response to H1N1 required a multilayered and well connected structure. Wherever possible existing mechanisms and working groups were used to carry out the activities required.

Senior staff in DHW attended the very frequent (daily for several weeks) conference calls with public health colleagues from the Public Health Agency of Canada and across the country.

Cross DHW planning was coordinated by the Pandemic Leads group. During response efforts, the Joint Health Emergency Operation Centre was the focal point for coordinating DHW and DHA activities. CEOs of DHAs had frequent conference calls throughout this period.

DHW had a working group structure based on key areas -- e.g. surveillance, immunization program, communications etc. -- that came together at the situation room level with direction provided by a comprehensive Influenza Leadership Team.

While Public Health Services in the DHAs were closely linked with their DHA planning and response structure, they also participated in province wide planning and response through the Public Health Leadership team as well as through regular briefing sessions and participation on the existing partnering structure. Post event the department undertook a detailed lessons learned process in relation to the public health response.

5.1 H1N1 Surveillance

Nova Scotia has had a comprehensive influenza virus surveillance program in place for some time now. With some tweaking in light of H1N1, it provided a solid framework for the surveillance system that allowed us to track disease trends in terms of burden of illness and surveillance in all areas of the province. The following are some highlights of H1N1 disease activity indicators in NS.

- The first wave of the pH1N1 outbreak peaked in July 2009 and the second wave peaked by the second week of November 2009.
- In the second wave there were 752 lab-confirmed cases of pH1N1, 277 patients were admitted to hospital (42 of these were in ICU), and six deaths occurred in patients with pH1N1.
- During the second wave, the rates of lab-confirmed cases were highest in those less than 9 years of age and particularly in those less than one year. The lowest rates were in those over 65 years of age.
- The rates of hospitalization were highest in the under one year age group followed by those aged one to nine years, and then those 50 and over.
- Lab-confirmed cases represent only a small fraction of the true number of cases that occurred throughout the province.
- At the height of the second wave, an estimated 27% of all patients who visited emergency rooms had influenza-like illness (ILI).
- At the height of the second wave, sentinel physicians reported approximately 19% of patient visits with ILI, the highest seen in the province over the past five influenza seasons.
- Outbreaks of Influenza A pH1N1 were reported in schools and child care centres. A small number of pH1N1 outbreaks occurred in the long-term care setting.

5.2 Public Health Measures

A variety of public health measures were put in place during the H1N1 Pandemic in an effort to reduce transmission of the virus and minimize morbidity and mortality. These measures were designed to contribute to decreasing the burden on the health system and decreasing social disruption.

Tool kits containing general information as well as policy and procedures were developed by DHW and other stakeholders for use in a broad variety of settings. These were targeted for long term care facilities, schools, post secondary education institutions, personal care settings etc. These tool kits proved to be very popular but were time consuming to produce and co-ordinate for so many settings. They were continuously updated as new information became available and were the basis for education sessions delivered by public health professionals across the province and for the responses to the media and the public.

5.3 H1N1 Immunization Program

The H1N1 immunization campaign was the largest vaccine related program ever done in Nova Scotia. In total, 703,100 doses of H1N1 vaccine were received in Nova Scotia and distributed across the province. The large volume of vaccine received in a short time,

the need for three different products (H1N1 adjuvanted vaccine and two kinds of unadjuvanted vaccine) along with the uncertainty of the vaccine supply provided some challenges to our inventory management system as well as some difficult communication issues for all concerned.

The vast majority of immunizations were administered between the last week of October and Christmas of 2009. The vaccine was administered by a variety of immunizers in a variety of settings. Immunizers included public health nurses, physicians, occupational health staff in DHAs, and private nursing agencies, etc. Settings included large community based clinics, physicians' offices, hospitals, etc. There were many logistics challenges for Public Health Services in the Districts.

Below are some key points on vaccine coverage:

- Based on the information we have, we can be confident that at least 54% of the population of Nova Scotia aged greater than six months has been vaccinated against influenza A pH1N1.
- Vaccine coverage varied by age group and risk factors with the highest coverage in those between 6 and 35 months of age and the lowest coverage in the 20 to 24 year old age group.
- An estimated 64% of pregnant women were immunized against pH1N1.
- Vaccine coverage varied across the country from about 35% in Alberta (<http://www.health.alberta.ca/documents/Influenza-Surveillance-2010-12.pdf>) to about 65% in New Brunswick and Newfoundland (verbal report).

5.4 Lessons Learned

Planning for and response to H1N1 resulted in some important lessons learned. These were identified through a systematic process and have been incorporated into workplans of the appropriate responsibility centres.

6.0 Conclusion

This report outlines accomplishments with respect to the surveillance of and response to health hazards, notifiable diseases or conditions and communicable diseases for the time period April 1 2009 to March 31 2011. Of note, the H1N1 pandemic occurred during this time period.

While the accomplishments were significant, and none more so than the effective response to H1N1, there remain several critical gaps in public health capacity: human resource capacity in environmental health, communicable disease prevention and control and epidemiology; the lack of a Public Health electronic information system (including an immunization registry). These gaps limit Public Health's ability to effectively protect the health of Nova Scotians.

APPENDIX 1:

The '*Notifiable Diseases in Nova Scotia 2010 Surveillance Report*' can be found at the following link:

http://www.gov.ns.ca/hpp/publications/2010_Annual_Report_Notifiable_Diseases_v2.0.pdf