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RESPONSE TO pH1N1 IN SIMCOE AND MUSKOKA 2009

simcoe muskoka
DISTRICT HEALTH UNIT

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EXECUTIVE SUMMARY

The first influenza pandemic of the 21st century began in March of 2009 in Central Mexico. Cases of the novel Influenza A were first identified in Ontario in early April of 2009. On June 11, 2009, the World Health Organization (WHO) raised the Pandemic Alert level from five to six based on the fact that the virus (pH1N1) had spread to multiple countries and (at least two) WHO regions.

Simcoe Muskoka District Health Unit (SMDHU) initiated a coordinated response to the events at the end of April 2009 guided by the health unit's Pandemic Influenza Plan (PIP). In October 2009, in response to the second wave of pH1N1 and at the direction of the Chief Medical Officer of Health for Ontario, the health unit expanded its response with the provision of immunization. SMDHU provided community based clinics across the region and distributed vaccine to approved Vaccine Delivery Agents (i.e. hospitals, physicians, long-term care institutions and other key health care partners).

An evaluation of the agency response to pH1N1 was initiated to capture and incorporate lessons learned for the purpose of updating the agency's pandemic plan and to inform pandemic plan reviews at the county/district and provincial level. The evaluation covered the period of April 2009 to December 2009, with a focus on the second wave and the Mass Immunization Clinics (October 26 to December 16, 2009). The evaluation included incident debriefs, surveys of staff and stakeholders, document review, cost analysis, and an epidemiological analysis.

In total, the SMDHU distributed almost 170,000 doses of pH1N1 vaccine in 2009: enough to provide protection for approximately one-third of the Simcoe Muskoka population. Given that the majority of health unit resources were deployed to pH1N1 response or the provision of essential services through the six weeks of Mass Immunization Clinics, it is unlikely that the health unit would have been able to achieve similar immunization rates within the same period of time without the support of Vaccine Delivery Agents (VDAs). Therefore, it is essential that the use of these resources be supported by the Ministry of Health and Long-Term Care (MOHLTC) in response to future pandemics and incorporated into the SMDHU plan as a necessary component of the immunization strategy.

Establishing a priority sequence for accessing the vaccine was a successful strategy in managing the initial demand for the vaccine. It also ensured access to the vaccine for those most vulnerable within the first two weeks of vaccine release. In Simcoe Muskoka, the medical officer of health extended eligibility for immunization from the Sequence 1 priority groups to seniors, and then to the general population based on the number of cases, mortality and vaccine data locally and provincially, and prior to the MOHLTC direction to expand the vaccination program. This experience demonstrates the need for priority sequencing to be balanced with the need for flexibility and autonomy at the level of the local medical officer of health in interpreting and implementing the sequencing based on local circumstances and risk.

Cost Analysis

The MOHLTC funded health units at the rate of $10 for each pH1N1 vaccination delivered through health unit clinics. The cost to the health unit of responding to pH1N1 significantly exceeded the per dose funding provided by the MOHLTC. The funding formula should be reviewed by the MOHLTC using information from Ontario health units based on their experience.

Surveillance

The systematic ongoing collection, collation and analysis of data and the timely dissemination of information was used to inform the public health response. Improvements in real-time surveillance of influenza activity in the community should be considered in order to improve response and to assist with the evaluation of the response activities.

Mass Immunization Clinics

The majority of health unit resources allocated to the pH1N1 response addressed the provision of vaccines at Mass Immunization Clinics (MIC). Staff scheduling arose as a significant issue due to the complexity of the clinic schedule and resourcing required. Responsibility, resourcing, and parameters for (1) site procurement, (2) scheduling and (3) supplies management need to be clearly identified earlier in the pandemic response.

Information Technology (IT) played a new and major supporting role to the immunization clinics. As with any change in practice, there was a significant learning curve with the introduction of the Clinic Event Management System. Improvements to the application, ongoing orientation and training and a comprehensive review of the human resources required will enhance the value of this necessary resource in future pandemics using MICs.

The scheduling of 92 per cent of health unit staff to cover over 1400 hours of clinics over a six week period in 72 sites across the large geographical area of Simcoe Muskoka was a logistical challenge. Managing the demand for clinics was also identified as a key issue. The line management strategy, although rudimentary, appears to have been effective. In-kind resources provided by municipalities and community partners to support clinic operations contributed significantly to the success of the pandemic response through the initial weeks of the Mass Immunization Clinics.

The experience highlighted the critical role of partnerships in the pandemic response. More sophisticated strategies for booking clients in advance of clinics in order to manage client demand were implemented in other health units and should be explored in preparation for future pandemics. SMDHU should investigate a more sophisticated, flexible and user-friendly staff scheduling system in preparation for future pandemics.

Public Health Measures

Public health measures during this pandemic were restricted to providing public education and conducting case and contact management. During the second wave of pH1N1, communicable disease staff was challenged to keep up with case and contact management for pH1N1 as well as other essential services because staff was redeployed to work in clinics. This experience provided a greater understanding of the resources required to address this aspect of pandemic response and reinforced the need to retain adequate resourcing within the communicable disease program in order to maintain essential services.

Communications

Effective and timely communications provide the backbone for a coordinated response. Communications with local external stakeholders were perceived by those stakeholders to be successful. Most agreed that they received sufficient information to ensure a coordinated response to pH1N1. Health unit staff felt informed enough about pH1N1 in general and with respect to their roles and responsibilities. However, those in the field had more difficulty and less frequent access to the Intranet and email, created barriers to accessing key updates and resources. This feedback reinforces the need for more and varied strategies to keep staff informed.

Orientation and Training

At the beginning of the pH1N1 incident there were orientation and training procedures still to be completed in the Pandemic Influenza Plan including retesting of the plan and all-staff orientation to the recently adopted Incident Management System. There were many concerns related to training raised by staff in the debriefings with recommendations for more training, more timely training and more opportunities for cross-training through regular agency programming.

Despite the challenges relating to timing, training on medical directives and medication errors for immunizers and clinic leaders, was successful. However, training for other roles appears to have been less effective. More staff felt competent to perform their roles at the end of Mass Immunization Clinics than at the beginning. Experience, not training, was identified as the most common factor leading staff to feel more competent in their roles. The SMDHU should continue to take into consideration the impact of cross-training of staff in the inter-pandemic periods to increase surge capacity.

Business Continuity

Since 92 per cent of staff was deployed or redeployed and 26 per cent provided essential services (services that could not be delayed or deferred), this means that some staff had double duty: to work at the clinics and to provide essential services as required. Observations about the provision of essential services reflect overall concerns that while the health unit was able to provide essential services, with some limitations, future incidents may be more difficult to manage. SMDHU should re-

assess redeployment strategies to reduce role conflict and ensure adequate staff are available where and when needed to provide essential services.

Pandemic Influenza Planning and Response

Despite the significant research and resources used to develop the health unit's pandemic influenza plan, it is acknowledged as a work in progress. This review provides the catalyst for reviewing and updating the plan. All resources, tools, policies and procedures that were developed and implemented during the pH1N1 incident should be incorporated into the plan for future reference, ensuring that needed activities to bring the health unit into a state of preparedness are completed during the inter-pandemic phase. The evaluation of the health unit's experience also captures lessons learned and recommendations for improvement that should be shared with community partners and the Ministry of Health and Long-Term Care to enhance preparedness and response at all levels.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

RESPONSE TO PH1N1 IN SIMCOE AND MUSKOKA 2009

1. Introduction

The first influenza pandemic of the 21st century began in March of 2009 in central Mexico. The virus quickly spread to the rest of North America, South America and Europe. The World Health Organization (WHO) identified this new influenza virus as pandemic Influenza A (pH1N1) 2009. On June 11, 2009, the WHO raised the Pandemic Alert level from five to six based on the fact the novel Influenza A had spread to multiple countries and (at least two) WHO regions.

Cases of pH1N1 were first identified in Ontario in early April of 2009. Simcoe Muskoka was among the first health units in Ontario to have a laboratory-confirmed case of pH1N1. SMDHU initiated a coordinated response to the events at the end of April 2009 guided by the health unit's Pandemic Influenza Plan (PIP).

In October 2009, in response to the second wave of pH1N1, the health unit expanded its response with the provision of immunization through community based clinics across the region and the distribution of vaccine to approved Vaccine Delivery Agents (i.e. hospitals, physicians, long-term care institutions and other key health care partners). For a period of approximately six weeks from late October to mid December 2009 almost all health unit staff was deployed to the response, assisted by contracted services and in-kind services provided by municipalities and community partners. Public health programming beyond pH1N1 response was restricted through this period of time to essential services defined as those activities that could not be delayed or deferred without risk to the health and well-being of our communities.

The health unit's response to pH1N1 through wave one and wave two included actions in accordance with the key areas outlined in the Pandemic Influenza Plan (PIP):

Surveillance

Vaccine and Antivirals

Public Health Measures

Communications

Emergency Response

Orientation & Training

Business Continuity/Redeployment and Recovery.

Based on research and experience from past pandemics the Pandemic Influenza Plan includes plans for mass immunization. Over that six week period from October to mid December 2009, SMDHU immunized about 60,000 people against pH1N1 and distributed over 110,000 doses of vaccine to up

to 90 per cent of physicians as well as other Vaccine Delivery Agents (VDAs) in Simcoe County and the District of Muskoka. The experience of pH1N1 can further inform planning for future pandemics. An evaluation at this time is necessary to capture lessons learned while the experience is still fresh in people's minds.

The goals of this evaluation are:

To inform a review and revision of the SMDHU Pandemic Influenza Plan (PIP), the implementation of future mass immunization clinics (MIC), and response to other incidents and emergencies.

To synthesize the SMDHU experience in order to provide input to the review of pandemic response at the district/county level and at the provincial level.

1.1 Evaluation Questions

Consultation with key internal stakeholders, along with a review of the Pandemic Influenza Plan (PIP) and Incident Management System (IMS), resulted in the following questions to guide the evaluation:

1. How many people received the pH1N1 vaccine at the SMDHU Mass Immunization Clinics (MIC) and at physician offices in Simcoe and Muskoka?

2. What was the cost of providing immunization against pH1N1 at SMDHU MIC and of distributing the vaccine to physician offices and other vaccine delivery agents?

3. Was the provincial funding per dose for pH1N1 sufficient to cover the costs of mass vaccination (see one and two above for scope)?

4. What policies, procedures and resources were developed, used and improved and what needs to be done to ensure they are carried forth for future use in MIC and pandemic response specific to the following areas:

   Surveillance

   Mass Immunization Clinics (MIC)

   Public Health Measures with respect to case and contact management and communications about prevention.

   Communications with staff, external partners and the public.

   Emergency Response with respect to site procurement and external partners.

   Orientation and Training specific to the MIC, the PIP, and IMS.

   Business Continuity (deployment of staff and other resources, essential service coverage, recovery).

Health Connection

Use of Information Technology

The Incident Management System (IMS).

5. Were the services that were identified as essential the right services and were we able to provide them effectively?

6. To what extent was the Pandemic Influenza Plan, its sub-plans and annexes followed and what revisions need to be made for future use?

There were six data collection strategies used for the evaluation: pH1N1 incident debrief; survey of staff; survey of external partners; document review; epidemiological analysis; and cost analysis.

2. Background

2.1 pH1N1 in Simcoe Muskoka

Cases of pH1N1 were first identified in Ontario in early April of 2009. Many of the early cases were linked to travel to Mexico. However, sustained community spread was evident within a few weeks. Simcoe Muskoka was among the first health units in Ontario to have a laboratory-confirmed case of pH1N1.

Ontario experienced two waves of pH1N1 activity in 2009: the first wave in late spring/early summer and the second in the fall. As summarized in the SMDHU report 2009 Pandemic Influenza A (H1N1): Activity and Impact,[1] over 400 laboratory-confirmed cases of Influenza A were reported to the health unit during the course of the pandemic. Half of those cases were confirmed with the pH1N1 subtype. This represents more than double the number of annual Influenza A cases typically reported to the health unit. Limited laboratory capacity prevented testing for the pH1N1 subtype in all specimens. However, almost all influenza circulating in Ontario between April and December 2009 was pH1N1.

Eight local outbreaks of pH1N1 were reported in Simcoe Muskoka: five in summer camps during the first wave and three in institutions during the second wave. Ninety-eight people were hospitalized in Simcoe Muskoka for Influenza-Like Illness (ILI) during the pandemic period; 17 were admitted to intensive care units and four deaths were attributed to pH1N1. All four deaths and most of the hospitalizations and ICU admissions occurred during the second wave.

[1] Simcoe Muskoka District Health Unit. 2009 Pandemic Influenza A (pH1N1): Activity and Impacts. April 2010. Canada. http://www.simcoemuskokahealth.org/HealthUnit/Library/Reports.aspx

Overall, our experience in Simcoe Muskoka with pH1N1 was consistent with that of the province and with the international experience:

- a dramatic increase in ambulatory cases at periods of time atypical for seasonal influenza
- a dramatic reduction in mortality in seniors compared with past influenza seasons, with a resultant decrease in overall mortality
- an increase in illness severity in younger populations, particularly those with pre-existing medical conditions or pregnancy.[1]

2.2 Pandemic Influenza Plan

Planning is a key component of emergency response. Regardless of whether the emergency is manmade, health-related or environmental in nature, good planning is what separates a successful response from an unsuccessful one.

The Simcoe Muskoka District Health Unit (SMDHU) has been engaged in pandemic influenza planning as an agency for the past decade. The health unit completed its first Pandemic Influenza Plan in 2000. The original plan has undergone a number of revisions since that time with the most recent version of the plan completed in 2006.[2] Despite the significant research and resources used to develop the plan, it is acknowledged to be a work in progress with outstanding gaps that need to be filled, processes and procedures that need to be developed and a variety of unknowns that could not be anticipated. Pandemic planning evolves. As circumstances change, internal and external, local and international factors will influence its content and future direction.

The goals of the SMDHU Pandemic Influenza Plan are: (1) to minimize serious illness and overall deaths; and (2) to minimize societal disruption as a result of an influenza pandemic. The basic framework of the plan aligns with the World Health Organization (WHO)[3] pandemic phases and with the local public health requirements outlined in the Ontario Health Plan for an Influenza Pandemic.[4] The framework consists of activities grouped within seven specific pandemic planning components:

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[2] Simcoe Muskoka District Health Unit. Pandemic influenza plan. Version 1.0, September 2006 [Online]. http://www.simcoemuskokahealth.org/Libraries/HU_Library/SMDHU_Pandemic_Plan.sflb.ashx [accessed 15 December 2009].

[3] Pandemic Influenza Preparedness and Response: WHO Guidance Document http://www.who.int/csr/disease/influenza/pipguidance2009/en/index.html [accessed 7 June 2010].

[4] Ontario Health Plan for an Influenza Pandemic. http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html [accessed 7 June 2010].

(1) surveillance (2) vaccine and antivirals (3) public health measures (4) emergency response (5) communications (6) orientation and training and (7) business continuity/redeployment and recovery planning. Each component includes specific objectives as well as supporting documentation.

1) Surveillance

Pandemic influenza surveillance is the collection and analysis of data that determines when, where and which influenza viruses are circulating. It also determines those segments of the population that are at risk of illness, hospitalization and death. Surveillance information is used by decision makers to guide a public health response.

2) Vaccine and Antivirals

Influenza vaccination is an essential tool in preventing the harmful health effects of influenza. In a pandemic influenza situation, vaccine is generally not available until four to five months after the pandemic strain has been identified. Antivirals are recommended for use preventively for identified groups such as health care workers and other essential service workers, and for early treatment of cases.

3) Public Health Measures

Public health measures are non-medical interventions used to decrease the number of individuals exposed to the pandemic virus, to slow the spread of disease and to reduce illness and death caused by the pandemic. Public health measures can include, but are not limited to: providing public education; issuing travel restrictions and screening travelers; conducting case and contact management; closing schools; and restricting public gatherings. The decision to implement specific measures depends on factors such as: the epidemiology of the virus; the pandemic phase and virus activity in the region; characteristics of the community; resources required to implement the measure; public acceptance of the measure; and the amount of social disruption the measure will cause.

4) Emergency Response

During an influenza pandemic, public health authorities lead the response. However, all health sector organizations and emergency responders play vital roles in the provision of services and the coordination of overall emergency response. Effective emergency response requires that emergency management structures are in place, that a continuous state of readiness is maintained and that effective communication systems are ready and able to facilitate information flow between the health unit, health sector and community emergency response partners.

5) Communication

Well planned internal and external communications are essential to supporting a coordinated and effective response to an influenza pandemic. Considerations include: providing for and responding to public and provider communication needs; educating the public about pandemic influenza and plans

to minimize the impacts; and ensuring that all health and emergency sector partners and the public have access to accessible, accurate, timely information that will help them respond to challenges during each phase of the pandemic.

6) Orientation and Training

Providing an effective response to an influenza pandemic requires a knowledgeable and well trained staff. The health unit is committed to enhancing and supporting the development of public health staff skills and capacity to respond competently in the event of a pandemic influenza emergency.

7) Business Continuity/Redeployment and Recovery

In the event of an influenza pandemic it is anticipated that all businesses—private and public—will experience high employee absenteeism due to illness and/or other personal employee situations that arise as the result of an emergency. Businesses and agencies alike must plan for the negative effects a pandemic will have on its workforce and prepare business continuity plans to maintain essential services and/or functions accordingly.

2.3 Mass Immunization

Mass immunization has been shown to be the most effective approach to reduce morbidity and mortality from pandemic influenza.[5] However, an assumption of the Pandemic Influenza Plan is that "a vaccine will not be available for at least four to five months after the seed strain is identified, which means it will not be available in time for the first wave of illness but may be available in time to mitigate the impact of the second wave."[6]

Universal seasonal influenza immunization campaigns have been conducted annually in Ontario since 2000. The Ontario program is implemented though local public health units who now have up to eight previous years' experience providing mass immunization clinics and distributing vaccines to other vaccine delivery agencies (i.e. hospitals, physicians, long-term care institutions and other key health care partners). An evaluation of the program demonstrated that providing the vaccine free of charge to everyone who wants it increased the number of people who were vaccinated, when compared with

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[5] Vajo, Z. Tamas, F. Sink, L. and Jonkovics, I. Safety and immunogenicity of a 2009 pandemic influenza A H1N1 vaccine when administered alone or simultaneously with the seasonal influenza vaccine for the 2009 = 10 influenza season: a multicentre, randomised controlled trial. The Lancet: 375, January 2, 2010. Downloaded January 4, 2010.

[6] Simcoe Muskoka District Health Unit. Pandemic influenza plan. Version 1.0, September 2006 [Online]. http://www.simcoemuskokahealth.org/Libraries/HU_Library/SMDHU_Pandemic_Plan.sflb.ashx [accessed 15 December 2009]

other programs that used a more targeted approach.[7] However, even though Ontario's Universal Influenza Immunization Program (UIIP) is shown to have increased the vaccination rates for the household population aged 12 or older by 24 per cent between 1996 and 2005, less than half of the population was vaccinated in 2005. A recent study describes the resources needed for a local public health unit to provide immunization through clinics, and estimates the cost to provide each vaccination to be approximately $5.[8]

The SMDHU Pandemic Influenza Plan calls for the implementation of health unit mass immunization clinics upon the direction of the Ministry of Health and Long-Term Care (MOHLTC).

3. Methodology

The evaluation covered both waves (i.e. from April to December 2009) with a focus on the second wave during the Mass Immunization Clinics (i.e. from October 26 to December 16, 2009). It was conducted using multiple methods which are summarized below. Please refer to the technical report for more details regarding data collection methods. [9]

3.1 Incident Debrief

The purpose of debriefing was to obtain information from staff members related to their lessons learned and recommendations as soon as possible after the incident. A meeting of each program or service team, including Board of Health and the Executive Committee, was scheduled before year end or as early in the New Year as possible. Debriefing instructions and questions were available for staff in advance of meetings (*Appendix A: pH1N1 Influenza Virus Response Incident Debrief*). Summaries of the debriefs were saved as MSOffice Word documents, and the content of each document was analyzed based on the key questions arising from the pH1N1 evaluation plan: 'What have you learned from this experience?' and 'If you could recommend one change or improvement to the agency's pH1N1 response what would it be?' Forty-one different debrief meeting summaries or notes were analyzed qualitatively by categorizing text according to themes and sub-themes.

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[7] Public Health Agency of Canada. Evaluation of the effect of Ontario's Universal Influenza Immunization Program (UIIP). 2008. [Online]. http://www.phac-aspc.gc.ca. [Accessed January 4, 2010].

[8] Mercer, N. J. Cost Analysis of public health influenza vaccine clinics in Ontario. Canadian Journal of Public Health. September 1, 2009. [Online] .http://www.thefreelibrary.com/Cost+analysis+of+public+health+influenza+vaccine+clinics+in+Ontario-a0211236536 [Accessed January 4, 2010] .

[9] Simcoe Muskoka District Health Unit. Response to pH1N1 in Simcoe and Muskoka: Technical Report. June 2010. Canada http://www.simcoemuskokahealth.org/HealthUnit/Library/Reports.aspx

3.2 Staff Survey

The purpose of the survey was to identify what policies, procedures and resources were developed, used and improved during the second wave of pH1N1 and to assess if they were adequate so that recommendations can be made for future use in Mass Immunization Clinics (MIC) and other pandemic responses. An electronic survey (Appendix B: Staff Survey**)** was administered through Survey Monkey to all staff—308 permanent staff plus 46 casual staff and seven temporary staff for a total of 361. A response rate of 71 per cent was achieved. Quantitative data was analyzed with SPSS analysis package. Qualitative data was coded into main topics and themes using MS Office Excel. Qualitative data included many questions with open-ended questions.

3.3 External Stakeholders Survey

The purpose of this survey was to assess if the policies, procedures and resources that were developed, used and improved for the communication of information to local external partners were adequate so that recommendations can be made for future pandemic influenza response. Sampling of participants was necessary and the process is detailed in the Technical Report. Overall, 488 external partners were sampled. An electronic survey was created. A link was sent by email to all external stakeholders with the exception of physicians who received a fax with a hardcopy version of the survey because email addresses were not available (Appendix C: External Stakeholders Survey). Quantitative data was analyzed using SPSS statistical analysis package. Of the 488 external partners reached by email or fax, 147 surveys were completed for an overall response rate of 30 per cent.

3.4 Document Review

The Pandemic Influenza Plan (PIP) was reviewed by the PIP Review Group leads for each section, using a template developed for this purpose. The purpose of the document review was to: assess the extent to which the PIP and its sub-plans and annexes were followed; identify additional resources that were developed and used and recommend revisions to the plan to guide future response.

Incident Management System (IMS) meeting minutes were reviewed to assess the composition of the committee and the human resources used during those meetings.

Health Sector Teleconference minutes were reviewed to assess attendance at the meetings and to get a sense of the type of information shared between the health care sector partners and the health unit.

Clinic schedules were reviewed to determine the number of clinics and sites.

Email responses from directors and managers about the provision of essential services were reviewed to assess what services were delivered.

3.5 Epidemiological Analysis

Surveillance data were reviewed to (1) provide a context for the other components of this evaluation, (2) analyze the reach of the MIC and vaccine distribution activities; and (3) analyze the public's demand for information through Health Connection. Data were extracted from existing databases which included data from the Simcoe Muskoka population, people who were immunized at the MIC or by other VDAs and people reported with Influenza-Like Illnesses (ILI).

3.6 Cost Analysis

The purpose of the cost analysis was to estimate the costs to provide SMDHU response to the second wave of pH1N1 and assess whether or not the MOHLTC funding was adequate. Data were extracted from the health unit's financial databases and analyzed by staff in Corporate Service—Finance and the Associate Director, Corporate Service to answer the evaluation questions.

4. Results

4.1 Vaccine Delivered and People Immunized

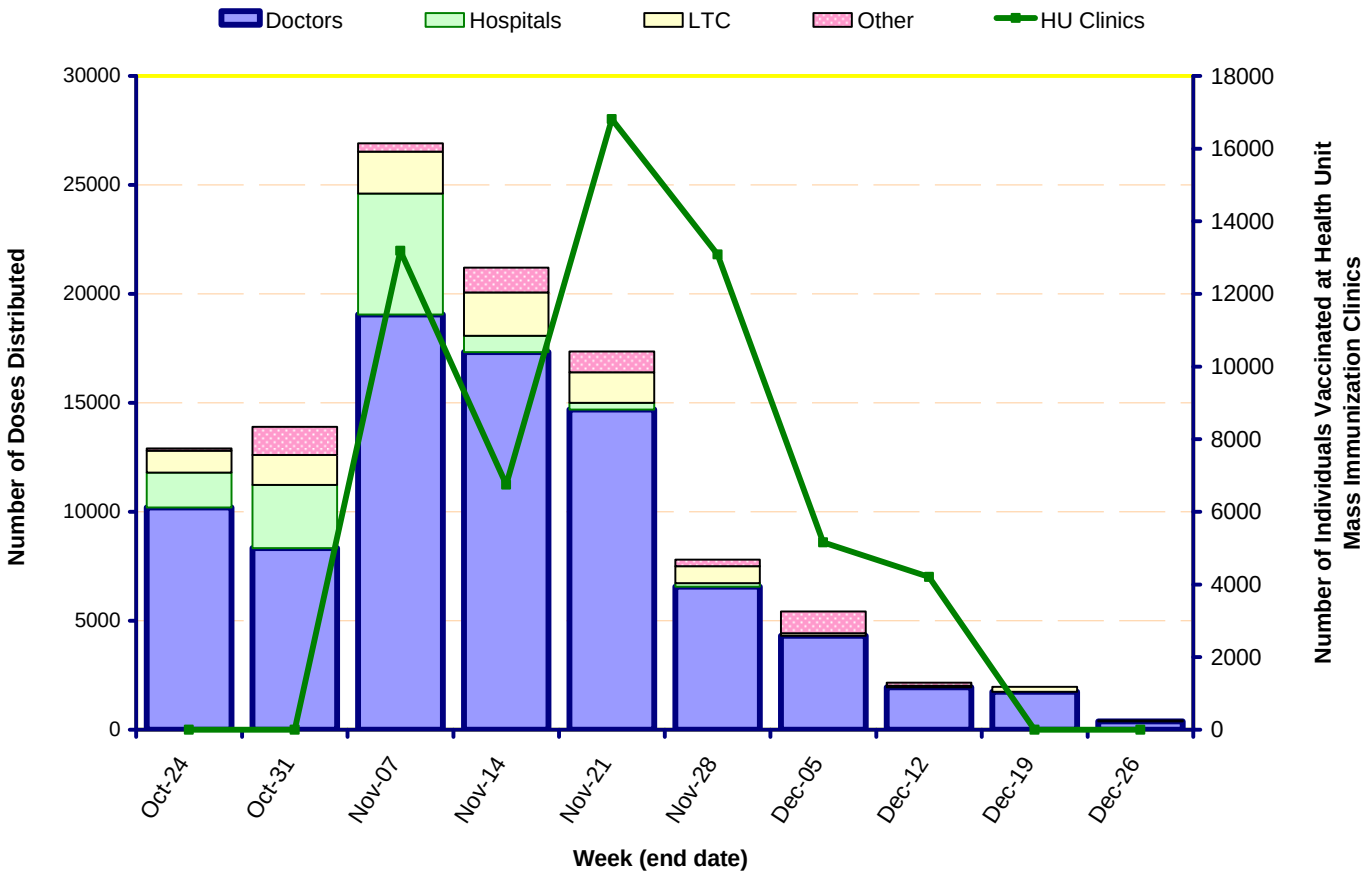
In response to pH1N1, the MOHLTC directed health units throughout the province to establish Mass Immunization Clinics (MIC) to immunize as many people as quickly as possible. There was initially no provision for the distribution of the vaccine to VDAs. Upon assessing the capacity of the health unit to immunize a significant proportion of the population in Simcoe and Muskoka, the health unit in conjunction with other health units successfully lobbied the MOHLTC to allow for pH1N1 vaccine to be distributed through VDAs.

The document 2009 Pandemic Influenza A (H1N1): Activity and Impacts [10] summarizes the immunization activity of the health unit. The health unit began receiving H1N1 vaccine from the province in late October, at which time doses were distributed to vaccine delivery agents (i.e. Hospitals, physicians, long-term care institutions and other key health care partners). The health unit began immunizing the public through mass immunization clinics (MIC) in the first week of November. Initial efforts were focused on immunizing those in the first priority sequence, which included: those under five years of age, pregnant women, those under 65 years of age with chronic conditions, those living in remote communities and health care providers.[9]

Figure 1 shows the amount of vaccine distributed to Vaccine Delivery Agents (the bars) and the number of individuals immunized at health unit Mass Immunization Clinics (the line) by week from late October to the end of December. Enough vaccine was made available through either Vaccine Delivery Agents or health unit Mass Immunization Clinics to vaccinate more than three-quarters of those in priority sequence one by November 14, 2009 (after which time vaccine was made available to the general population). By the end of December 2009 enough vaccine was made available to immunize more the one-third of the entire Simcoe Muskoka population.

[10] Simcoe Muskoka District Health Unit. 2009 Pandemic Influenza A (H1N1): Activity and Impacts. April 2010. Canada. http://www.simcoemuskokahealth.org/HealthUnit/Library/Reports.aspx

Figure 1: Number of pH1N1 vaccine doses distributed to Vaccine Delivery Agents and number of individuals vaccinated at health unit Mass Immunization Clinics, Simcoe Muskoka, Oct. 18 to Dec. 26, 2009



Sources: Bioinventory System (BIOS) & Clinic Event Manager Database SMDHU

In total, the health unit distributed almost 170,000 doses of pH1N1 vaccine in 2009:

110,205 doses of pH1N1 vaccine were distributed to physician offices, hospitals, long-term care facilities, Emergency Management Services agencies, first nations, corrections and employers between October 26 and December 31, 2009.

59,594 shots were administered at health unit Mass Immunization Clinics between November 3 and December 19, 2009.

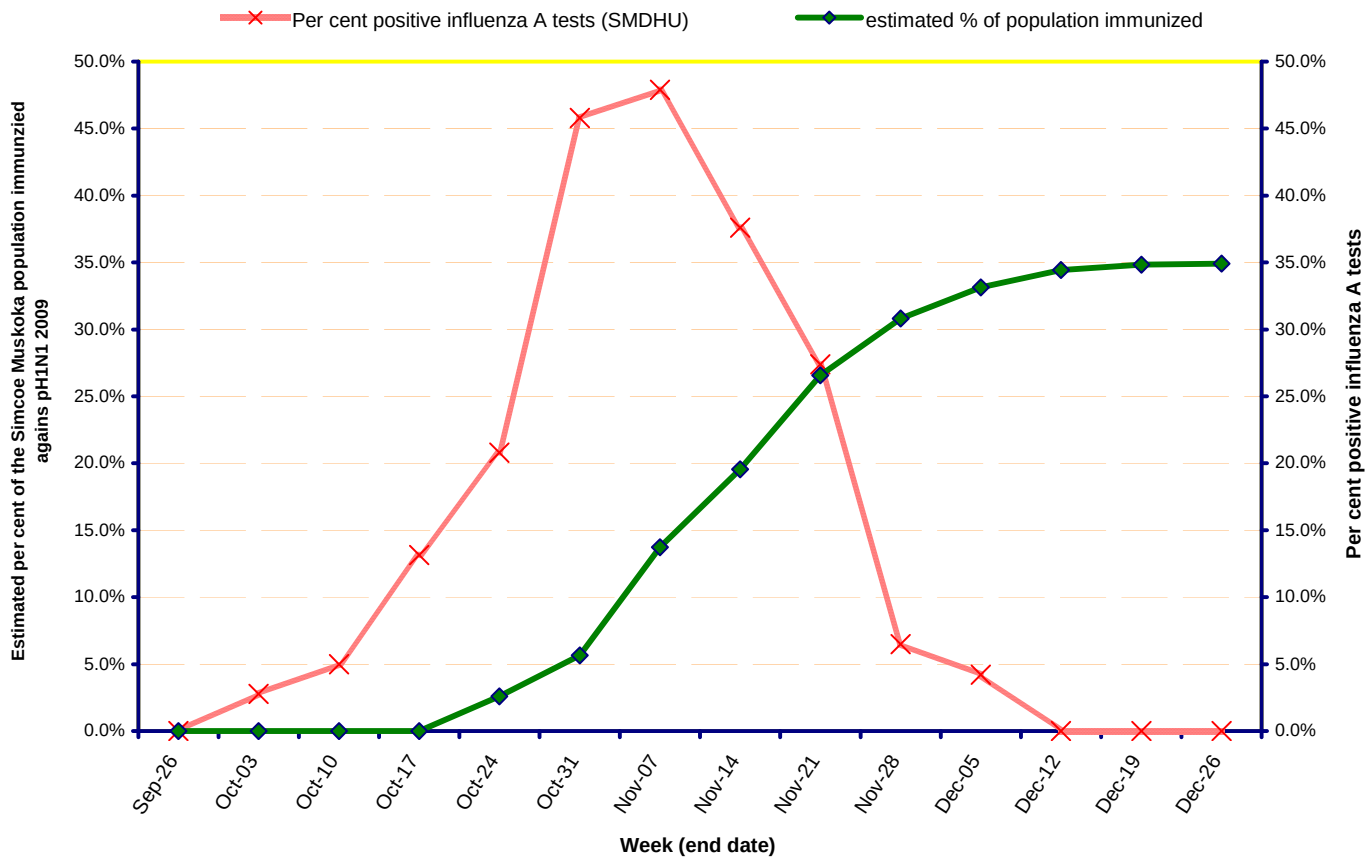
91 per cent of SMDHU staff was vaccinated.

65 per cent of staff in Long-Term Care Facilities and 60 per cent of staff in Acute Care Facilities was vaccinated.

Initial demand for vaccine was high. Demand for vaccine at public health clinic sites rose again after the vaccine became available for the general public, but declined rapidly in the latter three weeks of the campaign.

There is a similarity in the pattern of positive Influenza A tests and immunization. Figure 2 compares the cumulative amount of vaccine distributed and individuals immunized at health unit Mass Immunization Clinics (the blue line) with the per cent positive Influenza A tests in Simcoe Muskoka by week from late October to the end of December. While it is difficult to quantify the exact impact of the vaccination campaign on influenza activity in the community, the pattern suggests that the vaccination efforts may have contributed to a more rapid decrease in influenza activity than would have been seen otherwise.

Figure 2: Estimated per cent of the Simcoe Muskoka population immunized against pH1N1 2009 compared with the per cent positive Influenza A tests, by week, Simcoe Muskoka, Oct. 18 to Dec. 26, 2009



Sources: Bioinventory System (BIOS), Clinic Event Manager Database SMDHU &
Ontario Agency fro Health Protection and Promotion (OAHPP) Laboratory Pandemic H1N1 Surveillance Report

Discussion

Almost twice as many doses of vaccine were distributed to the VDAs than were given at health unit Mass Immunization Clinics (MICs). Assuming that all the doses distributed to VDAs were used, about one-third of the population of Simcoe Muskoka was immunized between October 26, 2009 and December 16, 2009. Given that the majority of health unit resources were deployed to pH1N1 response or the provision of essential services through this period, it is unlikely that the health unit

would have been able to achieve similar immunization rates within the same period of time without the support of the VDAs.

Recommendation

1. That the Board of Health forwards this report to the MOHLTC recommending that the province support the use of Vaccine Delivery Agents in order to enable the timely distribution of vaccine to the population.

Establishing a priority sequence for accessing the vaccine was a successful strategy in managing demand and ensuring access to the vaccine for those most vulnerable within the first two weeks of the release of the vaccine.

Recommendation

2. That the Board of Health forwards this report to the MOHLTC recommending that the province clearly communicate expectation and rationale for priority sequencing allowing for flexibility and autonomy at the level of the local medical officer of health in interpreting and implementing the sequencing based on local circumstances and risk.

The impact of the vaccinations on local influenza activity could have been greater had the vaccines been available earlier.

Recommendation:

3. That the Board of Health forwards this report to the MOHLTC recommending that they explore any and all measures to reduce the amount of time required to release and distribute vaccines to the health units.

4.2 Costs and Funding

The health unit tracked the following expenses in relation to pH1N1 response:

Salaries for staff redeployed from 100 per cent funded programs to pH1N1 response[11]

Payment of overtime and casual hours

Purchased and contracted services

Materials and supplies

Site procurement.

[11] Healthy Babies Health Children (HBHC); Smoke-Free Ontario (SFO): Tobacco Control Coordinators (TCC), Tobacco Control Area Network (TCAN) and Enforcement.

These additional expenses totaling $1,108,645 were over and above the costs of deploying staff from general cost-shared public health programs to pH1N1 response.

As of January 5, 2010 the estimated number of vaccinations delivered through the health unit was 59,435.[12] The MOHLTC funded the mass immunization program at $10 per pH1N1 vaccination leaving an estimated shortfall of $9 per dose for additional expenses incurred in pH1N1 response.

Discussion

It is evident that the cost to the health unit of responding to pH1N1 exceeded the per dose funding provided by the MOHLTC. However, data collection tools and expense tracking systems did not break out the costs of specific components of the response so it is difficult to determine to what degree the $10 per dose would have covered the costs of the mass vaccination component of public health response. The costs to VDAs of immunizing their staff or clients are also not available.

Recommendation

4. That the Board of Health forwards this report to the MOHLTC recommending reassessment of the funding for Mass Immunization Clinics and vaccine distribution for future pandemics.

4.3 Surveillance

Surveillance is the systematic ongoing collection, collation and analysis of data and the timely dissemination of information to those who need to know so that action can be taken. Pandemic influenza surveillance determines when, where and which influenza viruses are circulating as well as those segments of the population that are at risk of illness, hospitalization and death. Ultimately, the surveillance information that is disseminated is utilized by decision makers to guide a public health response. For example, surveillance data can be used to:

determine when a pandemic begins or enters a health jurisdiction, or

assist in the identification of high risk groups requiring antivirals or vaccinations, or

evaluate interventions.

(SMDHU Pandemic Influenza Plan, 2006).

A review of the SMDHU Pandemic Influenza Plan (PIP) and the actual activities conducted by the PIP Review Group revealed that many, but not all, of the surveillance activities in the PIP were carried out.

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[12] This amount is the estimate used for the calculation of costs as of January 5, 2010. Actual numbers of vaccinations delivered in the MICs was 59,594. Therefore, the actual amount of funding from the MOHLTC will probably increase to $595,940.

Decisions were made to only partially conduct some of the surveillance activities due to the nature of the pandemic and/or changes to technology subsequent to the 2006 version of the PIP.

Surveillance activities introduced as a result of changes to technologies in order to monitor and adjust response activities includes the collection of data to monitor vaccine distribution from the Client Event Management System (CEMS) and the monitoring of phone response through the Basic Call Management System (BCMS).

A template to standardize surveillance reporting for key indicators evolved through the response period with additional monitoring activities added as identified to guide the response including:

Lab-confirmed cases of Influenza A (iPHIS, MOHLTC Provincial Influenza Weekly Report)

Lab testing Surveillance (OAHPP Weekly Laboratory Surveillance Updates)

Influenza A Outbreaks (SMDHU CD Institutional Outbreak Log)

ILI Consultation Rate reported by Sentinel Physicians (MOHLTC)

School Absenteeism (SMDHU Electronic School Absenteeism Report)

pH1N1 Hospitalizations (SMDHU CD Intake Database; iPHIS MOHLTC)

- ICU Admissions
- Age distribution
- Risk factors
- Vaccination status and antiviral treatment.

pH1N1 Deaths (iPHIS MOHLTC)

pH1N1 Vaccine Distribution (Bioinventory System [BIOS]; CEMS)

Phone Inquiries (BCMS).

Surveillance data were distributed through:

surveillance updates produced weekly for the IMS team (n=7).

surveillance emails (n= 34) sent to 27 staff on the internal “SwineFluResponse” mailing list.

pH1N1 situational updates (n=12) posted to the health unit’s website and distributed electronically to staff and external partners.

HealthFaxes (n=8) sent to health care partners.

The following examples were cited as evidence of how surveillance data informed decision-making throughout the pH1N1 incident:

> The decision to use health unit staff and the staff and volunteers of partner agencies to hand out appointment times to those in line was developed in response to reports of long lines in other health unit jurisdictions where influenza clinics were initiated, coupled with a sharp increase in the number of Influenza A cases, and acknowledgment that the weather during November in Central Ontario would create hardship for people waiting outside for long periods of time.
>
> The SMDHU Medical Officer of Health (MOH) extended eligibility for immunization from the Sequence 1 priority groups to seniors, and then to the general population based on the number of cases, mortality and vaccine data locally and provincially, and prior to the MOHLTC direction to expand the vaccination program.
>
> The decrease in the number of cases of influenza and the number of people attending pH1N1 clinics contributed to the decision to offer the seasonal flu vaccine during an additional two weeks of pH1N1 MIC clinics.

Discussion

During this pandemic, the systematic ongoing collection, collation and analysis of data and the timely dissemination of information was used to inform the public health response. While the surveillance plan within the PIP guided the surveillance and monitoring activities undertaken in response to pH1N1, some activities were not implemented and new activities were introduced.

Recommendations

5. That as part of the PIP review and updating process, the PIP Review Committee ensures the time frames for collection and reporting identified within the Surveillance Time Clock are useful and make changes as necessary.

6. That as part of the PIP review and updating process, the PIP review committee includes reference to the school reporting form in the PIP's appendices.

7. As part of the PIP review and updating process, the PIP Review Committee develops reporting forms for long-term care and primary care and includes them in the appendices.

The school absenteeism data for elementary schools followed the pattern of influenza activity, although the data reported was not restricted to absenteeism due to the influenza. It should be noted that the Ontario Agency of Health Protection and Promotion (OAHPP) is currently conducting an evaluation of school's compliance with the Ministry of Health and Long-Term Care's (MOHLTC) pH1N1 guidelines, including absenteeism reporting.

Recommendations

8. That SMDHU reviews the process of school absenteeism reporting and considers possible improvements based on the experience of pH1N1.

9. That SMDHU reviews the OAHPP evaluation of schools' compliance with the MOHLTC guidelines for school absenteeism reporting and incorporates identified improvements into the system.

It was noted that in the first wave of the pandemic,

> "limited observations from physicians, walk-in-clinics and EMS hampered local surveillance capacity."

In the absence of a comprehensive surveillance system for Influenza-Like Illness (ILI) during the pandemic in Simcoe Muskoka, weekly teleconferences were held with key ambulatory and acute care teams or facilities and chaired by the medical officer of health. The teleconferences provided a forum for ambulatory and acute care providers to share local information about observed levels of influenza activity. According to teleconference minutes, only three of the invited key health sector teams or facilities were represented at every teleconference. However, the minutes also indicate that updates of observed levels of influenza activity were received by most of the key partners at each meeting.

Recommendation

10. That SMDHU fosters and enhances two-way communication with physicians, walk-in clinics and EMS during phase one and implements regular teleconferences with identified key ambulatory and acute care facilities during phase six in order to enhance surveillance intelligence.

Improvements in real-time surveillance of influenza activity in the community should be considered in order to report on the influenza activity more accurately and quickly to improve response and to assist with the evaluation of the response activities. A syndromic surveillance system was used during the 2009 pH1N1 incident in other parts of the province. Currently four hospital corporations in Simcoe and Muskoka have signed onto the new Queens University Emergency Syndromic Surveillance Team (QUESST) and are being monitored and assessed for future use.

Recommendations

11. That the SMDHU continues to monitor and assess the use of QUESST for real-time surveillance of influenza activity.

12. That SMDHU encourages all hospitals in Simcoe and Muskoka to use QUESST.

4.4 Vaccine and Antivirals

Influenza vaccination is a primary means of preventing disease and death from influenza. When a vaccine is available, it will be distributed to those facilities and health care providers who would normally immunize high risk groups with influenza vaccine (e.g. family physicians, acute care facilities, long-tem care homes). The health unit will implement Mass Immunization Clinics upon the direction of

MOHLTC. These clinics will provide influenza vaccine to the general public, as the vaccine will be available according to identification of specific priority groups.
(SMDHU Pandemic Influenza Plan, 2006)

The health unit did not become involved in the provision or distribution of antivirals during the 2009 pH1N1 pandemic incident as this responsibility was removed from health units in the Ontario Health Plan for an Influenza Pandemic revision of August 2008. Therefore, the focus of the evaluation is on the Mass Immunization Clinics (MIC) and distribution of vaccines to VDAs.

4.4.1 Mass Immunization Clinics

The majority of health unit resources allocated to the pH1N1 response addressed the provision of vaccines at Mass Immunization Clinics (MIC). Between November 3, 2009 and December 16, 2009, 185 clinics were held at 72 different sites (including special clinics held at an aboriginal community, corrections facility and post secondary education institution). Over 1400 hours were scheduled for clinics. In addition to the 59,594 people who were immunized with the pH1N1 vaccine, 8,305 people received the seasonal influenza vaccine which was made available during the last two weeks of SMDHU Mass Immunization Clinics.

The hours of operation and the number of people attending the clinics were not evenly distributed across the six week MIC period. During the first two weeks when access to the vaccine was restricted to individuals in priority sequence one as defined by the Chief Medical Officer of Health, over 20,000 people received the vaccine at health unit clinics including over 15,000 people in the high priority categories. Starting week three, access to the vaccine was extended to the general population. During weeks three and four, over 30,000 individuals were vaccinated with the numbers declining fairly rapidly to week six.

Table 1: Number of pH1N1 shots administered in Health Unit Clinics, by priority group and by week

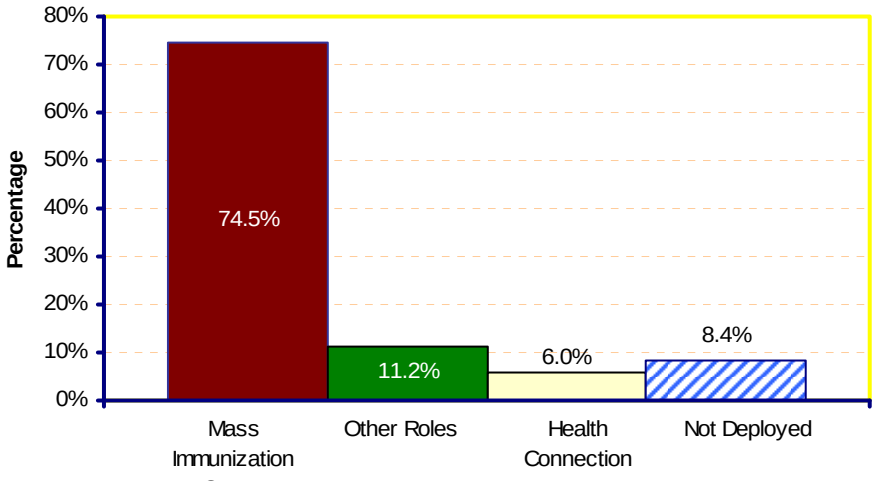
Week	High Priority		
	Yes	No	Total
Nov 1 to 7	11,519	1,764	13,283
Nov 8 to 14	3,823	3,063	6,886
Nov 15 to 21	3,452	13,477	16,929
Nov 22 to 28	3,059	10,035	13,094
Nov 29 to Dec 5	1,356	4,207	5,563
Dec 6 to 12	736	2,793	3,529
Dec 13 to 19	72	238	310
Total	*24,017*	*35,577*	*59,594*

Source: CEMS, SMDHU extracted Feb. 24, 2010

Clinic Staffing

According to the staff survey, 92 per cent of staff (including casual staff) were deployed or re-deployed in response to the second wave of pH1N1. Three-quarters of staff were deployed to work in the MIC.

Figure 3: Distribution of pH1N1 roles by type (n=251; 95% CI)



Data Source: SMDHU Staff Survey 2010

Of those deployed/redeployed to the MIC, approximately 40 per cent were deployed as immunizers, 24 per cent registration, 14 per cent facilitators, 10 per cent clinic leaders, seven per cent tech runners and six per cent in the role of after care.

Table 2: Evaluation Question: Per cent of staff redeployed to MIC (only those deployed)

lpH1N1role	Frequency	Valid Percent
deployed/redeployed as after care	12	6.4
deployed/redeployed as a tech runner	13	6.9
deployed/redeployed as a clinic leader	18	9.6
deployed/redeployed as a facilitator	26	13.9
deployed/redeployed for registration	44	23.5
deployed/redeployed as an immunizer	74	39.5
Total	187	100

Source: SMDHU Staff Survey 2010

The current Pandemic Influenza Plan does not identify all the roles listed in the chart above. Registration personnel, tech runners and clinic facilitators were roles created to manage the large volumes of people attending the clinics and the implementation of a new information system.

Facilitators

Deploying 14 per cent of staff as facilitators was necessary to implement the line management strategy that was developed the weekend before the first scheduled pH1N1 Mass Immunization Clinic in Simcoe Muskoka. Staff reported that the line management system was a success.

Registration and tech runners

Deploying 24 per cent of staff for registration and seven per cent as tech runners was necessary for the efficient introduction and implementation of the Client Event Management System (CEMS). CEMS is a client management system developed by Niagara Region Public Health and adopted for use by a number of health units across the province including SMDHU. The system was used to document client contact information and health history as well as vaccine supply and usage and adverse reactions.

Aside from the benefit of being able to immunize almost 60,000 people over a six week period, staff identified that working at the clinics resulted in:

- *A great experience; improved personal experience; personal satisfaction.*
- *Opportunity to learn and practice new skills.*
- *Appreciative public; opportunity to interact with the public.*
- *Improved team work; acknowledgement that the agency and staff can meet challenging situations as a team; appreciation for other roles.*

Clinic Information System

After the first wave of pH1N1 the MOHLTC identified the need for an information system to be used during Mass Immunization Clinics in order to report vaccination counts daily to the province. They chose CEMS, developed and being used by Niagara Region Public Health, which they then encouraged other local health units to adopt. The use of CEMS was not mandated, but it was the only system available that would transmit the required vaccine information on a daily basis to the MOHLTC, and the only system that the Ministry would support. SMDHU agreed to acquire the system. Regular procurement procedures were followed to purchase 91 laptop computers, software and a number of printers and larger servers. This was the equipment required to operate the system in six simultaneous clinics and to handle centralized downloads. Proper approvals were followed by just-in-time delivery, IT imaging of all computers, training and a staged deployment just as training began. As soon as training was completed the Mass Immunization Clinics immediately began to open.

According to the PIP review lead:

> "The introduction of the CEMS data base was valuable and should be included in the revised PIP. It allowed for easy tracking of second doses. It also provided valuable data for estimating immunizing capacity. A new formula for estimating nurse immunizing capacity was developed and should be included in the PIP appendix."

The use of the computerized system was one of the most common supports identified by staff during their debriefing sessions.

- *Computers made it faster.*
- *Computers help clinics to be efficient.*
- *Registration was easier with computers.*
- *Ran more efficiently with computers.*
- *(The Niagara System) can be used in smaller (sites) . . . helped to immunize more people.*
- *Big improvement.*
- *(C)linics that used computers were more efficient than those who did not.*

Despite its successes, introducing this new information system within tight timelines was not without challenges, especially to those involved in the procurement, IT imaging and training. Some additional challenges are reflected in these recommendations made by staff:

- *Ensure tech support is electronically available.*
- *Consider ease of set-up and for hauling of equipment.*
- *More experts on computer system.*
- *Incorporate Niagara (System) into tablets.*
- *Provide computers and training ahead of time.*
- *Review storage/home for new equipment.*
- *Change user guides for better quality.*
- *Make application compatible with IRIS.*
- *Review application which has to be re-written for different vaccines.*
- *Find a way to archive medical information per demographic info to avoid double records.*
- *Streamline lists and information viewed for data entry and multiple/duplicate clients.*

In order to meet the health unit's needs for Information Technology (IT) support related to the MIC, the IT team started preparation on September 1, 2009 and extended a month beyond the wind down of the health unit clinics. IT support was resource intensive. Two contract staff was hired. Additional technology related supplies and materials, including 91 laptops, software licensing, etc. cost about

$244,000. These costs do not include orientation and training of staff on the CEMS system or the redeployment of staff to “tech runners” (i.e. the in-clinic IT support).

Clinic Facilities

Selection of clinic sites was a topic of some concern that was raised during staff debriefings:

- *Challenge planning for locations.*
- *Collaboration on selecting venues.*
- *Location in larger areas were better.*
- *More clinics in smaller venues/drop small clinic locations.*
- *Suggestions for better clinic locations; ask local staff.*
- *Improve accessibility; have indoor waiting areas.*
- *Pre-assessment of clinic sites; secure sites earlier.*
- *Work with what you have even if it not an ideal location.*
- *Need enough room for confidentiality (i.e. screens between desks, visual barriers).*

Some agreements were in place (a Phase 1 activity); however, because the technical requirements were not known in advance, confirmation of mass immunization sites was delayed until phase six. Security needs were also not clearly known or understood until phase six.

In a review of the Emergency Response section of the PIP, the lead identified that a number of templates relating to booking MIC sites were developed. It was also recommended that responsibility for facility assessment, procurement and management be transferred to logistics within the IMS and be handled by Corporate Facilities.

Clinic Schedules

During the PIP review, clinic scheduling was identified as a larger and more time consuming task than anticipated. Six clinic sites ran simultaneously five days per week. The need for a clinic scheduling data base with agency policies to support the implementation was identified as a key area for improvement.

- *Closing busy clinics early, or on time, sometimes created conflicts for clients and staff.*
- *Clinics should follow the rules set out by IMS; decisions about when to close clinics or clinics’ length should be reviewed.*
- *Staff should be scheduled and arrive to begin with enough time before the clinic opens to update themselves.*
- *It was exhausting; scheduling should ensure only one role at a time and that no staff is working clinics five days/week.*
- *Need better information to the public re: cancellation of clinics.*
- *Scheduling was difficult to coordinate with clinics.*

Supplies Management

Supplies management was another task that was larger and more time consuming than anticipated. Estimates of supplies required were known: the process of acquiring supplies in a timely manner was complicated by the MOHLTC indicating they would provide health units with some supplies (a cost savings) but had no supplies in stock. It is difficult for local health unit to store large amounts of supplies because of (a) storage space issues and (b) cost.

4.4.2 Vaccine Delivery

Other roles to which staff were deployed included a variety of supports to the clinics and also vaccine distribution. When reviewing the PIP, the lead for this section identified a few challenges to the distribution of vaccines:

> Confusion about who would be a Vaccine Delivery Agent (there was a change to the eligible list by the MOHLTC from seasonal influenza vaccinations).
>
> Limited provincial working group guidance once the pandemic was underway.

While it is known how many doses of vaccine were distributed to VDAs, our knowledge of the actual use of the vaccine by VDAs is limited. The MOHLTC required that the VDAs report their actual use to the health unit on a weekly basis. This had never been done before, despite the use of VDAs in previous Universal Influenza Immunization Program campaigns and placed added pressure on health unit and VDA resources, including contracting of casual staff for health unit data entry. Only about one-third of the VDAs complied with the requirement. The reporting requirement was eventually lifted toward the end of the campaign, but the backlog of data from VDAs continued to put a strain on health unit resources until data entry could be completed.

Discussion

The health unit Mass Immunization Clinic response was successful in immunizing approximately 12 per cent of the Simcoe Muskoka population in six weeks. The costs to do so were significant, particularly in terms of human resources redeployed to provide this service with 92 per cent of staff deployed to the MIC for a six week period. From this experience it is clear that the health unit does not have the capacity to immunize the population in a timely manner without the support of VDAs. While VDAs were used in the UIIP, they were not included as a support in the PIP.

Recommendation:

13. That as part of the PIP review and updating process, the PIP review committee includes the use of Vaccine Delivery Agents in the plan to distribute vaccine in response to a pandemic.

Logistics for setting up clinics and running them has an impact on the effectiveness of the mass immunization strategy. Responsibility, resourcing and parameters for site procurement, scheduling and supplies management needed to be addressed earlier in the pandemic response. Managing the demand for clinics was also identified as a key issue. The line management strategy appears to have been effective. More sophisticated strategies for booking clients in advance of clinics in order to manage client demand were implemented in other health units.

Recommendations

14. That as part of the PIP review and updating process, the PIP Review Committee reviews the templates used for scheduling staff and clinics and incorporate them into the PIP.

15. That as part of the PIP review and updating process, the PIP Review Committee incorporates the line management strategy into the PIP based on the pH1N1 clinic experience.

16. That SMDHU investigates alternative methods for line management (e.g. making appointments by phone or online, as opposed to in-person) in preparation for future pandemics.

17. That SMDHU investigates confusion over the provisioning of supplies by MOHLTC and recommends that this be addressed in the provincial pandemic influenza plan.

18. That as part of the PIP review and updating process, the PIP Review Committee includes site procurement procedures and checklist in the Mass Immunization Plan (MIP) appendices.

Information Technology (IT) played a major supporting role. Although the health unit has many years of experience in providing immunization clinics as part of the Universal Influenza Immunization Program (UIIP), as well as responding to other outbreaks (e.g. measles), this was the first time community clinics were computerized. As with any change in practice, there was a significant learning curve. Ongoing improvements to the system, orientation and training, assessment of the human resources required, and incorporation of IT into the PIP should provide improved performance of this necessary resource in future pandemics using MICs.

Recommendations

19. That the PIP Review Committee clarifies all roles that were introduced during pH1N1 and incorporate these roles into the PIP.

20. That SMDHU continues to maintain, improve and test the CEMS system and adequately resources IT infrastructure between pandemics to ensure readiness.

4.5 Public Health Measures

Public health measures are non-medical interventions used to reduce the spread of disease, including but not limited to:

> providing public education
>
> issuing travel restrictions and screening travelers[13]
>
> conducting case and contact management
>
> closing schools
>
> restricting public gatherings.
> (SMDHU Pandemic Influenza Plan, 2006)

According to PIP Review Committee public health measures lead, activities in phases one through five were delivered fully. During phase six a couple of adjustments were made:

> Individual case management was discontinued and then reinstated to increase understanding of the disease.
>
> No specific social distancing controls (e.g. closures) were implemented as they were not required for this pandemic.

Public health measures during this pandemic were restricted to providing public education and conducting case and contact management. These measures were used throughout all phases of the pandemic. Prevention materials were produced and disseminated during the first five phases of the pandemic, including posters, decals, signs and tip/fact sheets instructing public on infection control hygiene (wash hands, cough and sneeze into your sleeve), self care, listing the symptoms of the influenza, encouraging vaccination when available and staying home when ill. Additional prevention messages included advising the public to seek medical attention only if necessary. In the spring, prevention information was provided to school boards for dissemination to students and their parents and within worksites as well.

Between April 29, 2009 and December 30, 2009, eight confirmed pH1N1 outbreaks were investigated, involving 226 confirmed cases. Five of the outbreaks occurred in overnight children's recreational camps (summer camps) in Simcoe Muskoka through late June and early July 2009.

Between April 29, 2009 and December 30, 2009 there were a total of 45 respiratory outbreak investigations, eight which were confirmed as pH1N1. Of the eight pH1N1 outbreaks:

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[13] During earlier phases of the pandemic people reporting influenza-like illnesses were screened for recent travel to Mexico. However travel restrictions and screening of travelers are implemented at the international, national and/or provincial level.

five were Summer Camps

two were Long-Term Care Homes

one was a Correctional Institute.

There was an approximate total of 694 respiratory case investigations, of which 226 were confirmed Influenza A pH1N1 cases. Of the 226 pH1N1 cases:

207 were non-outbreak related

12 were camp cases

seven were institutional cases (including hospital in Toronto, long term care and correctional institute).[14]

During the second wave of pH1N1, Communicable Disease staff was challenged to keep up with case and contact management for pH1N1 as well as other essential services because staff was redeployed to work in clinics. The PIP Review Committee member responsible for this section of the plan recommended that case and contact management be separated from social distancing measures, to allow clearer strategies for both and inclusion of human resources beyond the Communicable Disease team if necessary.

Discussion

While the PIP Review Committee lead indicated that the activities for phase one through five had been implemented, a review of the plan indicates that it may not reflect changes and improvements implemented since 2006.

In addition, this experience provided a greater understanding of the resources required to address this aspect of pandemic response and maintain essential services particularly within the Communicable Disease (CD) portfolio.

Recommendation

21. That the SMDHU re-assesses staffing requirements for essential services and clearly identifies CD staff as unavailable for redeployment in order to ensure appropriate resourcing for case and contact management as well as other essential CD related services.

[14] Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [01/03/2010].

4.6 Communications

Effective and timely internal and external communications provide the backbone for a coordinated response to an influenza pandemic. Communication is critical before, during and after an influenza pandemic.
(SMDHU Pandemic Influenza Plan, 2006)

A review of the Communication section of the SMDHU Pandemic Influenza Plan (PIP) reveals that most activities were carried out, although modified, where needed. The Pandemic Communication Time Clock was occasionally used as a means to identify the critical communications that needed to occur as laid out in the PIP. Timing of activities was adapted to align with changes made at the provincial level in relation to their published time clock (e.g. changed times for public health teleconferences) and the timing of Incident Management System meetings. The following resources were developed:

- Plan for media briefings
- Situation Update template
- Web-based structure for public/partner communications
- Intranet-based structure for staff communications.

Processes evolved that fit the needs of this particular pandemic situation. This included the “unofficial” network of communications in the absence of a Crisis Communication Network. Since no emergency was declared, there was no need to activate the Joint Media Centre or work with the Simcoe Muskoka Health Sector Emergency Plan (SMHSEP) Communications Committee. However, all appropriate parties kept abreast of communications via email, teleconferences and meetings that unfolded on an as-needed basis. Communications plans were identified and revised and/or implemented through:

- IMS meetings
- SMHSEP teleconferences
- School Board meetings
- Media briefing planning
- Situation Update planning
- SMHSEPC administrative coordinating body meetings/teleconferences.

Some activities were not conducted at all, primarily due to the situation. During the pandemic, policies and procedures had not yet been developed to direct staff on emergency response communications (i.e. access, reporting, etc.). No volunteer training to support communications functions was undertaken. The agency had determined not to use volunteers.

4.6.1 External Stakeholders

Communication to external stakeholders is used to disseminate information to their constituents as well as to ensure active participation of partners in the incident. Stakeholders included 1655 health care providers and facilities, school boards, municipalities, county, and other health and social service agencies in Simcoe and Muskoka.

The SMDHU website was used to disseminate information to the public and external stakeholders. Between October 26, 2009 and December 12, 2009 the following hits to the website were documented:

H1N1 main portal page – 35,872

H1N1 Clinic Schedule page – 124,854

Protect Yourself from the Flu page – 4,476.

SMDHU delivered the following types of communications directly to external stakeholders.

Presentations: 18

Situation Updates: seven (to December 15, 2009)

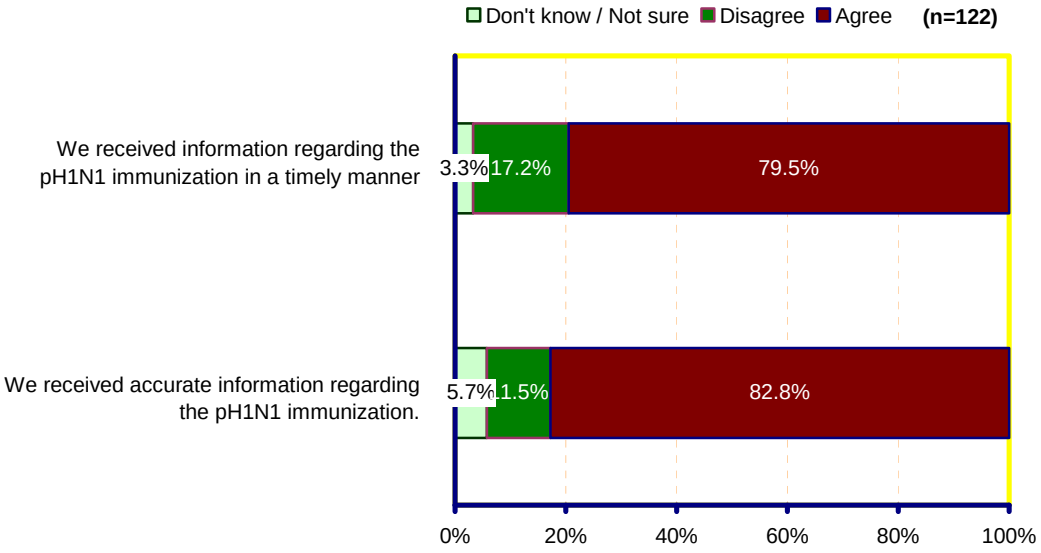
Health Fax: 12 (October – December, 2009)

Letters to partners: three

Fact Sheets: eight.

A survey of external stakeholders was conducted to ascertain how well the health unit communicated with them as a part of its incident response. The results indicate that the respondents were satisfied with the communications, confirming that using a variety of channels and types of communication is a successful strategy. Eighty per cent agreed that they received information regarding pH1N1 immunization in a timely manner and 83 per cent agreed that the information they received was accurate.

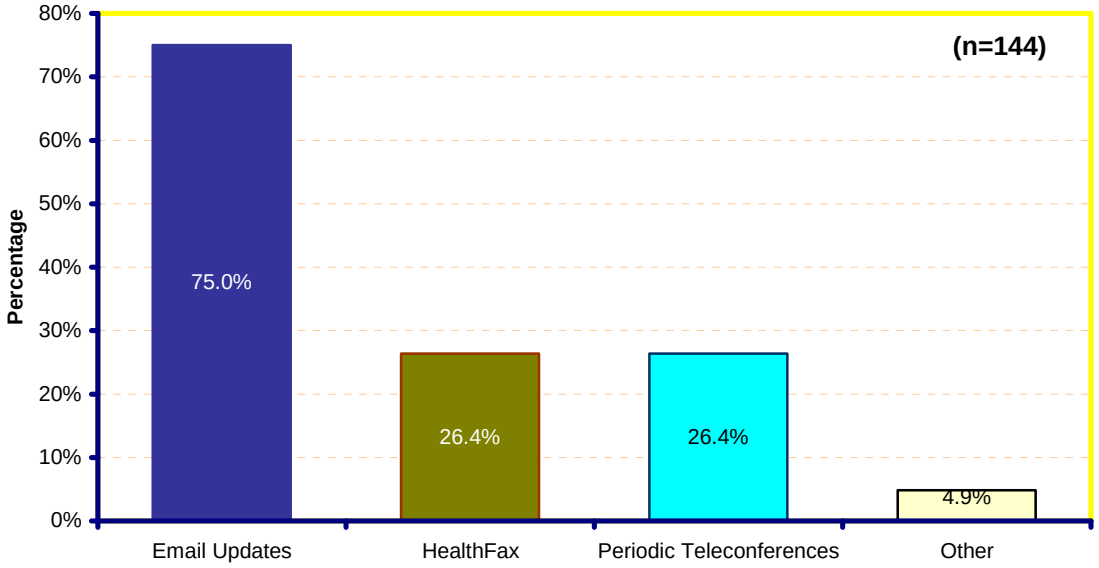
Figure 4: Respondents' opinions on communications (n=122)



Data Source: SMDHU External Stakeholders Survey 2010

When asked how they would prefer to receive communications in the future, three-quarters replied that they would prefer email. However, in their comments a few indicated that they would prefer that the emails be shorter, containing more pertinent information with clear headings indicating items requiring action.

Figure 5: Preferred communication format by external stakeholders (n=144)



Data Source: SMDHU External Stakeholders Survey 2010

Providing electronic communications to some external groups was challenging. Keeping contact lists up-to-date and accurate was difficult. Where possible, communications were sent to organizations to forward information to their contact lists (e.g. vulnerable population sector). The PIP calls for the use of the Simcoe Muskoka Health Sector Emergency Planning Committee (SMHSEPC) Extranet. However, it was not used by committee members. In its place SMDHU directed all partners to the health unit website and electronic Situation Updates.

4.6.2 Internal Stakeholders

Communications with staff is an integral component of service delivery during an incident, particularly one in which a majority of staff are deployed or redeployed to work on the response. Those communications included:

Teleconferences: two (to December 15, 2009)

Intranet:

- Up Front blog: 24 postings (October 9, 2009 to December 18, 2009)
- What's New postings: four
- H1N1 Response portal: one
- Daily Updates (on portal): 23

Presentations: one

Situational Updates: seven

Additions to the planned communications strategies that were introduced internally included the following:

Regular briefings occurred during phase six (i.e., Swine Flu Response Group then IMS group), but not on a daily basis and not as a separate Internal Communications Group.

The Communications Team Leader (or designate) sat at the IMS table.

The communications team met informally on a daily basis with the Medical Officer of Heath.

Communications oversight responsibilities were divided between Internal/Media (Director of Corporate Service) and Community/HC (Director of Healthy Living Service).

In addition, regular updates were provided via Healthy Living Service Management for the Health Connection and Communicable Disease teams and posted to the intranet.

Vaccine Preventable Disease Management developed daily communications email updates for Clinic Coordinators, who in turn shared updates with clinic staff and posted to the clinic communications binder.

Over 90 per cent of the staff who responded to a staff survey felt very well informed or well enough informed about updates in general, and there was no apparent difference between those deployed and those not deployed to pH1N1 response. A similar proportion felt either very well informed or informed enough about SMDHU's priorities and activities in relation to the pH1N1 response.

Table 3: Staff perceptions about how well informed they were about pH1N1

	felt informed during the second wave of pH1N1 about updates on pH1N1 in general		felt informed during the second wave of pH1N1 about the SMDHU's priorities and activities in relation to pH1N1 response	
	Deployed (n=218) %	Not Deployed* (n=23) %	Deployed (n=214) %	Not Deployed* (n=20) %
Very well informed	46.3	47.8	49.1	60.0
Informed enough	47.7	43.5	43.0	30.0
Not informed enough	6.0	8.6	7.9	10.0

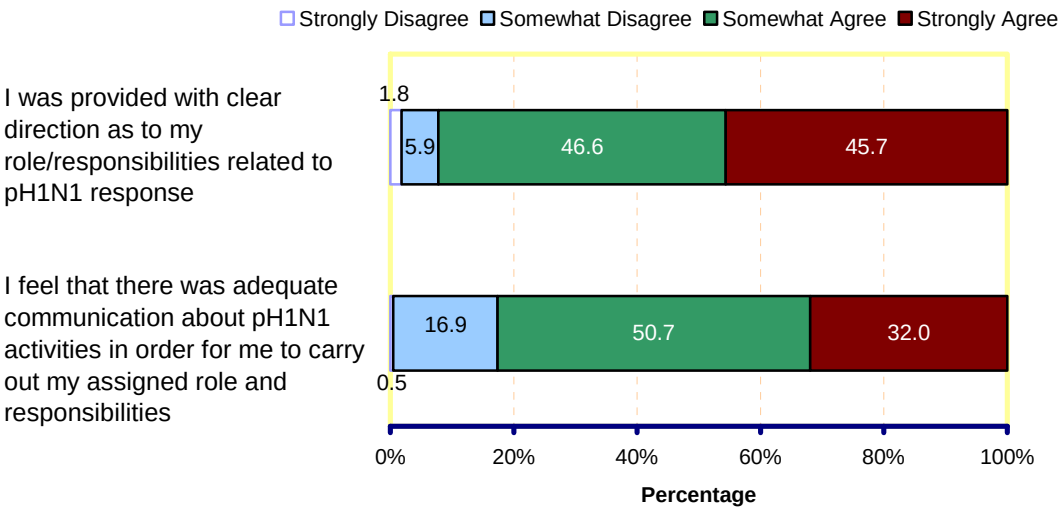
* Response categories for the respondents that were not deployed were: Strongly agree, somewhat agree, somewhat and strongly disagree (combined)

Source: SMDHU Staff Survey 2010

Forty-six per cent of all those who were deployed strongly agreed that they were provided with clear directions as to their roles and responsibilities. About one-third strongly agreed that there was adequate communication about pH1N1 activities to carry out their assigned roles. Only about eight per cent disagreed that they had clear direction about their roles and responsibilities but over 17 per cent disagreed that they had the information they needed to carry out their assigned roles and

responsibilities. This would indicate that staff knew what role they were to perform and what the responsibilities of the role were, but felt less well-informed about the how to do it. This finding is consistent with staff comments from the incident debriefing that role clarity could be improved.

Figure 6: Perception about adequacy of communications related to pH1N1 (n=219)

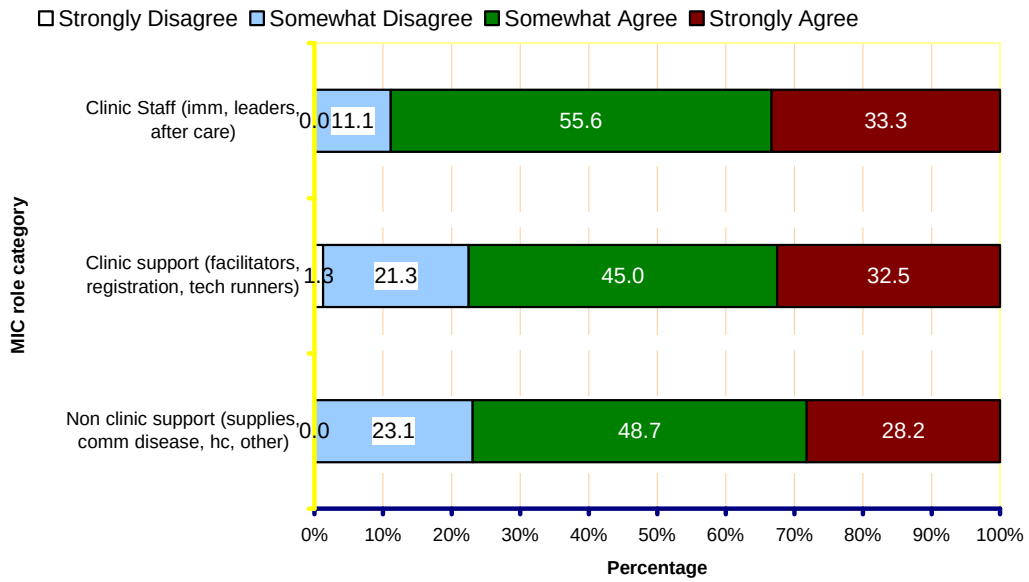


Data Source: SMDHU Staff Survey 2010

The proportion of staff who felt they did not have the information they needed to perform their roles was dominated by those in the support roles. Twenty-three per cent of non clinic support and clinic support staff disagreed that there was adequate communication about pH1N1 activities in order to carry out assigned roles and responsibilities compared to only 11 per cent of those in clinical roles.[15]

[15] Among those deployed, 41per cent were assigned to clinical roles (immunizers, clinic leaders and aftercare), 33 per cent worked in the clinics as support (facilitators, registrators, tech runners) and 17 per cent provided support away from the clinics (supply, communicable disease investigations, health connection, other).Please see the technical report for more detailed analysis of the differences between clinical staff, clinic support staff and non-clinic support staff.

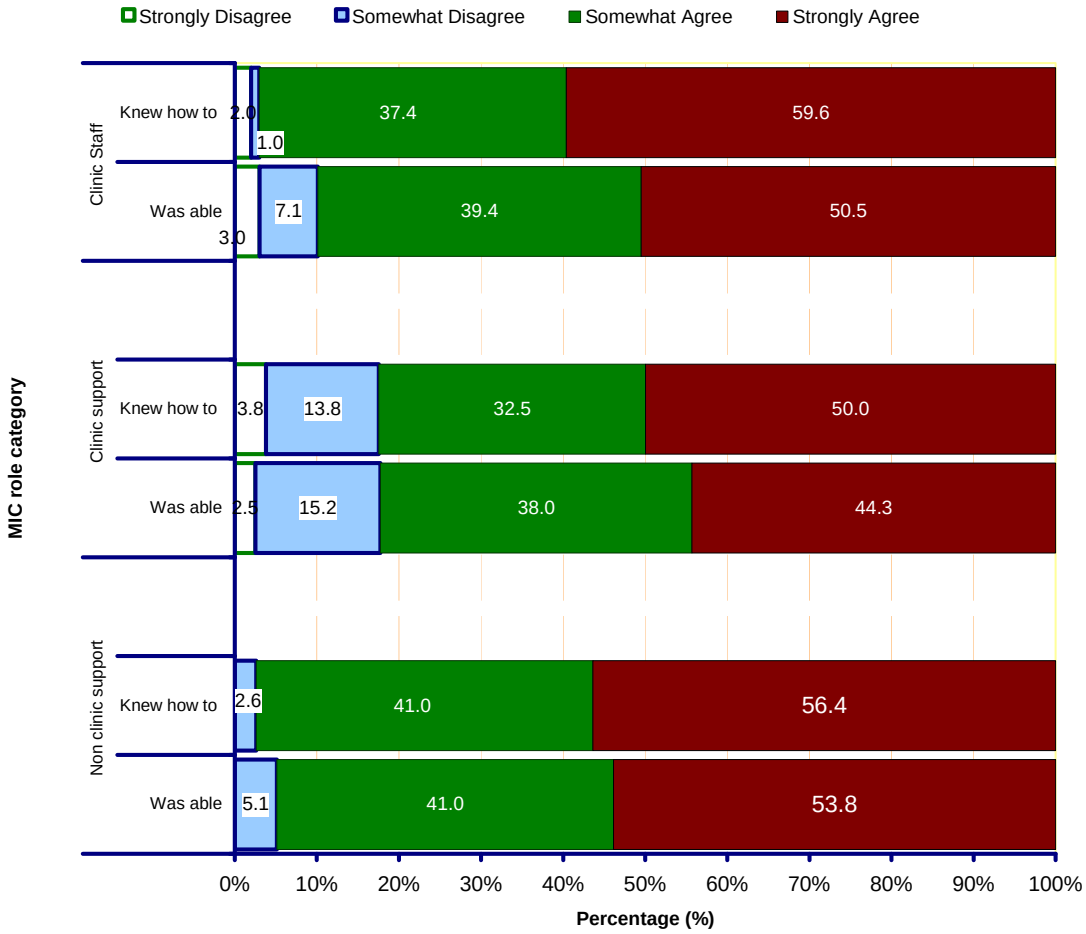
Figure 7: Perception of communication received about pH1N1 activities in order for staff to carry out their assigned roles and responsibilities (n=218)



Data Source: SMDHU Staff Survey 2010

While communications to staff about how to access resources were successful, approximately one in 10 identified that they did not know how to access the resources and/or that they were unable to access them. More clinic support staff (facilitators, registration, tech runners) than non-clinic support and clinical staff (immunizers, clinic leaders, aftercare) disagreed that they knew how to access resources (18 %) and were able to access them (18 %).

Figure 8: Perception about accessing resources to support staff in performing their roles and responsibilities in response to pH1N1 (n=219)

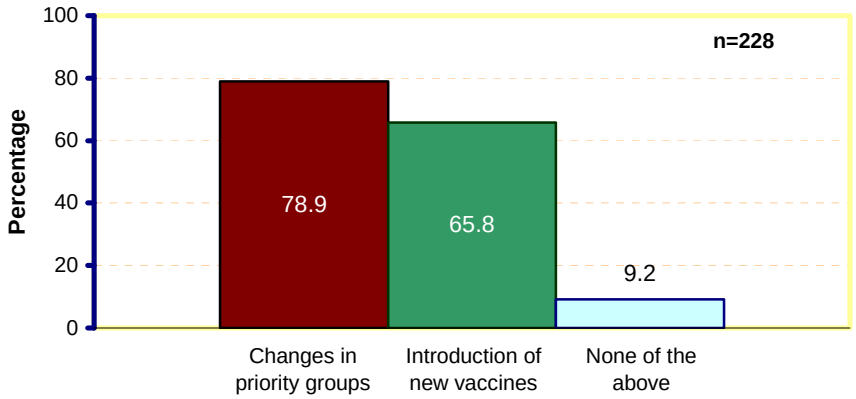


Data Source: SMDHU Staff Survey 2010

It was a challenge to communicate new or modified information to staff deployed to work at the clinics. However, 79 per cent agree that they had the information they needed about changes in priority groups and 66 per cent agree they had the information they needed about the introduction of new vaccines. Nine per cent of deployed staff felt they had the information they needed for neither of those topics.

Figure 9: Deployed staff who had the information needed for the following topics (n=228)

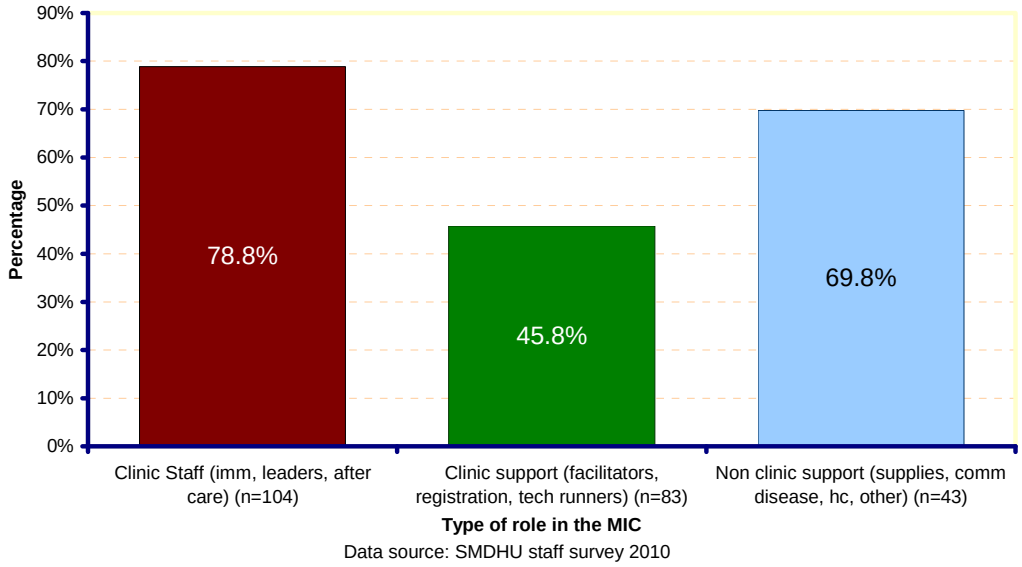
(Percentages do not add up to 100% since it was a multiple choice question)



Data Source: SMDHU Staff Survey 2010

There were marked differences among deployed staff that had the information needed for the introduction of new vaccines. Over three quarters of clinical staff (immunizers, clinic leaders, and aftercare) had the information they needed. Fewer non-clinic support staff had the information they needed about new vaccines (70%). However, only 46 per cent of clinic support staff (facilitators, registration, tech runners) felt they had the information they needed about introduction of new vaccines. During staff debriefings, some noted that all staff (immunizers, aftercare, facilitators, tech runners and registration) at the clinics needed briefings at the beginning of each shift.

Figure 10: Perceptions of staff about having the information needed for the introduction new vaccines (n=230)



Providing electronic communications to some internal stakeholders was challenging. Not all staff used web-based access to Outlook to get updates from home. Some reported having no internet/high speed access was a limitation.

4.6.3 Public

Mass media is an essential method of communicating public health information to the public. Mass media channels included radio, television and newspaper. Media-related activities between October 26, 2009 and December 12, 2009 include:

seven press conferences

eight press releases

176 interviews requested and given.

Between April 29, 2009 and September 30, 2009 39 pH1N1 related items appeared in local print media. From October 1, 2009 to December 12, 2009 91 items were printed for a total of 130 items in 15 different publications.[16] These items ranged from news items in which the MOH or other SMDHU staff was cited. Items included those that resulted either from interviews or press releases as well as editorials.

[16] Excluding items in publications that were not received at the health unit offices. Other local print media may also have published items of which the health unit is unaware.

Where prevention and/or mitigation materials were not available for specific populations due to resource limitations (i.e. French-speaking, low literacy, vulnerable populations), links were provided to external resources (e.g. MOHLTC & Public Health Agency of Canada (PHAC) French websites, promotion of Health Connection and Telehealth for phone inquiry, other media for low literacy, community partners for hard-to-reach populations).

Inconsistency of messages to the public coming from various sources, such as MOHLTC and PHAC, was identified as a challenge identified by staff and management in various debriefing meetings:

> "Communication to the public needs to be consistent and it becomes challenging if there are variations."

4.6.4 Public Inquiry – Health Connection

Health Connection is the main point of contact between the Simcoe Muskoka population and the health unit. During the pH1N1 incident callers to the main SMDHU phone line were given an option to go directly to a pH1N1 specific line. Health Connection Core handled general calls and pH1N1 specific calls.

During the second wave of pH1N1 additional staff was redeployed to work in Health Connection Core as it was expected that the call volume would increase due to the MIC. Health Connection scheduled six Core Public Health Nurses (PHNs), two Core Customer Service Representatives (CSR) and five Casual PHNs, all of whom worked primarily on Health Connection. Another 21 staff was redeployed to work on Health Connection Core in rotation, along with being rotated into the Mass Immunization Clinics (MIC). In addition, nine staff was deployed to return calls that could not be answered live. Those staff also rotated into the clinics.

Health Connection staff answered 5160 live calls during eight weeks that included October 26, 2009 to December 16, 2009. During the same weeks in 2008, 1728 calls were answered live; a three-fold increase from 2008 to 2009. Most of the calls received during the 2009 time period related to pH1N1. Almost half (46%) of the live answer calls occurred in the first two weeks following the release of the pH1N1 vaccine, and peaked at 1321 calls during the second week, which was the first week of the SMDHU clinics. These were also the same weeks that saw the peak in positive Influenza A tests in Simcoe Muskoka. While the number of people immunized continued to be high during the third and fourth weeks of the MIC, the number of calls answered by Health Connection gradually declined.

Table 4: Number of Live Answer (ACD) Health Connection calls for weeks 44 to 51, 2008 and2009.

2008		2009	
Week	**Number of Calls**	**Week**	**Number of Calls**
44 (Oct. 27 – 31)	252	44 (Oct. 26 – 30)	1068
45 (Nov. 3 – 7)	284	45 (Nov. 2 - 6)	1321
46 (Nov. 10 – 14)	249	46 (Nov. 9 – 13	808
47 (Nov. 17 – 21)	186	47 (Nov. 16 – 20)	561
48 (Nov. 24 - 28	220	48 (Nov. 23 – 27)	443
49 (Dec. 1 – 5)	185	49 (Nov. 30 – Dec. 4)	328
50 (Dec. 8 – 12)	179	50 (Dec. 7 – 11)	353
51 (Dec. 15 – 19)	173	51 (Dec. 14-18)	278
Total	***1728***		***5160***

Source: 2008 - BCMS and 2009 - Nfocus

**2008 Skills = 1, 2, 5 and 16

**2009 Skills = 1, 2, 5, 16, (17 and 18 - HC VPD Skills added in 2009)

Within their lessons learned in the debriefings, Health Connection Core reported that flexibility, communications, teamwork and coordinated response are important. Moreover, they recommended having daily updates with information that will help them answer questions to the public. Staff redeployed to Health Connection identified that it was not easy having to rotate through both Health Connection and MIC. They also identified that regular Health Connection Core staff were very supportive of those rotating through Health Connection, and recommended the designation of a person to address staff questions since the VPD team seemed to be overloaded by both internal and external calls.

Staff debriefing notes indicate that Health Connection was an appreciated role and service that could benefit from improvements in training and orientation and scheduling.

- *Need Health Connection procedure manual/guide.*
- *Need more time to prepare for phone lines.*
- *Health Connection staff felt the public was appreciative.*
- *Other staff appreciated the support from Health Connection.*
- *More ergonomic equipment needed for Health Connection (e.g. headsets).*

Discussion

Pandemic Influenza Plan communications activities were adjusted to meet the needs and restrictions of the situation. There are a number of overall lessons learned from this experience.

Recommendations

22. That as part of the PIP review and updating process, PIP Review Committee reviews the pandemic communications clock to align with the communications clock provided by the MOHLTC.

23. That SMDHU forwards this report to the MOHLTC and encourages the establishment and maintenance of a communication cycle that is consistent with the clock.

24. That the SMDHU acknowledges the need for flexibility to tailor the communications to the situation and specific audience needs.

External

Communications with local external stakeholders, although not exactly according to plan, were perceived by those stakeholders to be successful. Some improvements could be made to target communications to different sectors (e.g. short emails for some audiences). The revised PIP should take into consideration the need for up-to-date contact lists and alternative protocols and procedures for communication when the Simcoe Muskoka Health Sector Emergency Plan (SMHSEP) Communications Plan is not instituted. This may also be an opportunity for discussion at SMHSEP about criteria for implementing their Communications Plan.

Recommendations

25. That as part of the PIP review and updating process, the PIP Review Committee revises the PIP to include the Situation Update template.

26. That the SMDHU incorporates and maintains accurate electronic contact lists for key partners identified through the pH1N1 experience

27. That the SMDHU establishes protocols and procedures for communication with external stakeholders when no emergency has been declared

Internal

Overall, staff felt informed enough about pH1N1 in general and with respect to their roles and responsibilities. Staff who was not deployed to the clinics felt generally better informed than deployed staff. This could be attributed to the types of work that those who were not deployed were involved in, or it might be because they had easy and frequent access to the Intranet and email. Those in the field, because of their focus on delivering the service and because they had more difficult and less frequent access to the Intranet and email, may not feel they had a sense of the bigger picture and of the

agency's response. This suggests the need to improve communication to staff who are working in the field.

There were also some differences among those in the various deployed roles. The data suggests that some support staff felt somewhat less informed than immunizers, aftercare and clinic leaders. Clinic support staff, (facilitators and registration staff), were usually the first staff seen by clients. Clients may have asked questions that the clinic support staff did not have the information needed to respond, causing some of them to feel less well-informed. Some staff comments reflected the need for daily briefings for all staff, not only to immunizers. This suggests that in addition to improving communication channels to those in the field, SMDHU should assess what information is needed for which roles, and include informational needs and expectations in training and orientation and role clarification.

Recommendations

28. That as part of the PIP review and updating process, the PIP Review Committee revises the PIP to include the Intranet-based structure for staff communications.

29. That the SMDHU explores options for enhancing staff access to electronic communications from home and clinic locations including the exploration of an extranet as proposed in the PIP.

30. That the SMDHU establishes a direct line or other procedure for processing calls from health unit staff rather than going through the same call process as the public.

Public

A primary focus of communications to the public was the use of mass media during the second wave to encourage the people of Simcoe and Muskoka to be vaccinated. That enough vaccines were delivered to immunize a third of the population may be attributable in part to successful use of the media. The challenges of reaching some populations (non-English speakers or readers, low literacy, and other vulnerable populations) should be considered in the development of resources during the inter-pandemic phases.

Recommendations

31. That as part of the PIP review and updating process, the PIP Review Committee revises the PIP to include:

    Plan for media briefings

    Web-based structure for public/partner communications.

32. That the SMDHU establishes processes and resources for communication to specific hard to reach populations.

Public Inquiry

Even though the level of morbidity was not as high as anticipated during a pandemic, the number of calls to Health Connection were up to three times higher at the peak than the same period in 2008 and required significant redeployment of staff. Along with suggestions from staff, further investigation and comparison with other health units in the Province may provide evidence for improved Health Connection planning for the future.

Recommendations

33. That the SMDHU re-assesses the redeployment strategy in relation to phone response for essential services including Switchboard, Health Connection, Communicable Disease and Health Protection to provide for either continuity of staff in those positions or strategies to support ongoing updating and orientation to key information and issues as they change over time.

4.7 Emergency response

The objectives of emergency response are:

> To ensure that effective emergency management structures are in place to allow for the collaboration between the health sector, emergency service personnel and public health to ensure that the planned pandemic response is coordinated
>
> To ensure a continuous state of readiness through education, testing and revision of plans
>
> To minimize societal and economic impacts by ensuring that emergency and essential services are maintained and
>
> Ensuring that effective communication systems are in place to facilitate information flow between the health unit, health sector and community emergency response partners.

Effective emergency response requires cooperation between many agencies to coordinate resources and services during all stages of an emergency.
(SMDHU Pandemic Influenza Plan, 2006)

No emergency was declared during the 2009 influenza pandemic. However, emergency response activities were implemented and managed by an Incident Management System (IMS). A review of the PIP revealed that the World Health Organization (WHO) pandemic phases used in the SMDHU plan were not revised to 2009 standards. Information about essential service providers requiring immunization was not up-to-date or divergent from the sequencing priority one plan from the province. Not needed this time, but still required for updating is a list of morgues and facilitation of Natural Death Surge planning.

4.7.1 Liaison with External Stakeholders and Establishment of the pH1N1 Assessment Centre

During this incident, the health unit liaised with the health sector, emergency service personnel and other community stakeholders to encourage a coordinated response. This included collaborating with the Simcoe Muskoka Health Sector Emergency Planning Committee (SMHSEPC) to assess the need for and establish assessment centres and to provide information to 140 agencies that support vulnerable populations.

There were 1655 different agency and partner contacts, including 931 health care providers in the health unit's communication lists. A group of 53 representatives from key health care facilities and agencies were invited to weekly teleconferences to share information about the pandemic.

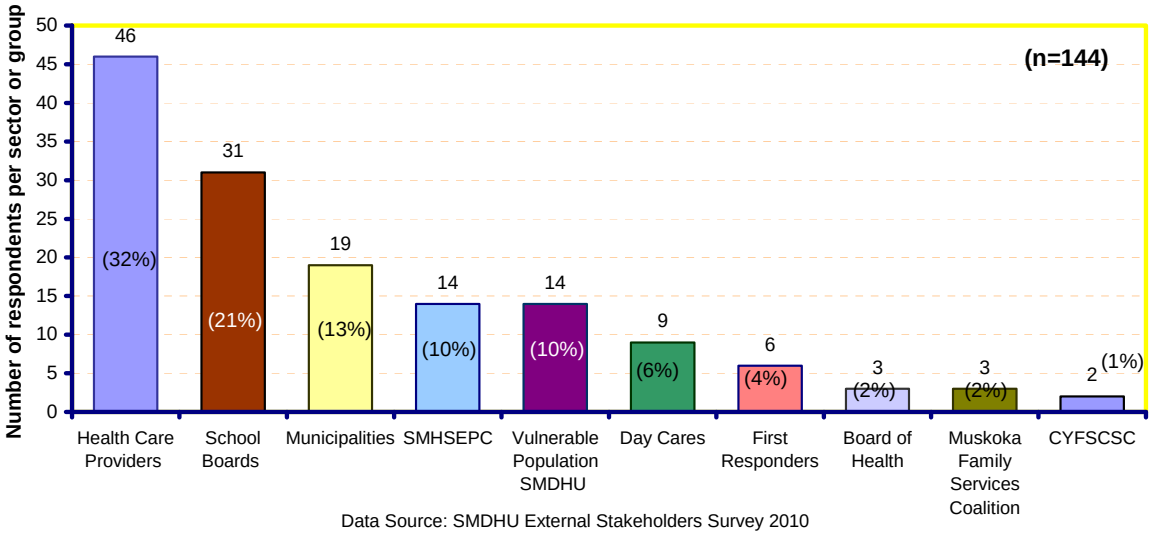
Table 5: Total population of external stakeholders involved in communications of SMDHU related to pH1N1 response

Sector/Group	Total
Physicians	508
Health Care Providers (No Teleconference and No Physicians)	423
Total of Health Care Providers (including Physicians)	931
Municipalities	241
Day Cares	153
SMHSEP and Vulnerable Population	141
School Boards	45
Children Youth and Family Services Coalition (CYFSCSC)	47
Muskoka Family Services Coalition	19
Ambulance	12
Board Of Health	13
Health Care Providers Teleconference	53
Totals	1655

Source: SMDHU External stakeholders Survey 2010

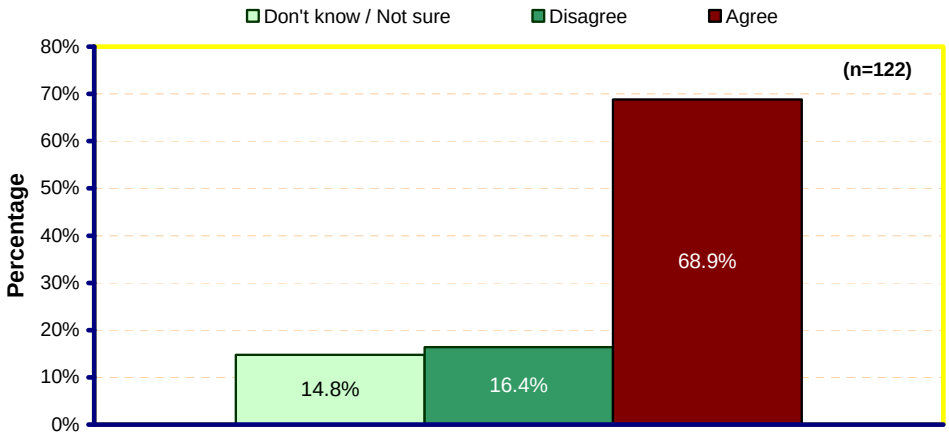
During January 2010 the health unit surveyed 458 external stakeholders to ascertain the effectiveness of communication strategies. The survey was conducted electronically for those for whom email addresses were available. Physicians, for whom the usual method of communication is via fax, were sent a survey by fax.

Figure 11: Sector to which respondents/agencies on the external stakeholders' survey belong (n=144)



Of the 144 respondents, most agreed that they received sufficient information to ensure a coordinated response to pH1N1 (69%).

Figure 12: Respondents' opinions on SMDHU communications to ensure a coordinated pH1N1 response across the County/District (n=122)



Many of the stakeholders who responded to the survey provided support to vulnerable populations including providing immunizations, monitoring, communicating, planning, providing prevention information and encouraging immunization. Fourteen of the respondents came from the SMDHU's vulnerable population associated agencies mailing group which consists of day cares, long-term care

facilities (LTCs), retirement residences, group homes, corrections. Additional agencies also provide services to vulnerable populations.

Table 6: Populations served or supported by external stakeholders

Populations served or supported by external stakeholders			
No	Populations	No	Populations
18	School community	2	Nursery community
15	Patients	2	Public services staff
12	Staff	2	Students
3	Clinics	2	Various
3	Hospital	2	Vulnerable Pop
2	Acute Care Facility	1	Agency
2	Community	1	Correctional
2	family of ill children	1	Employees
2	First Nation	1	Family practice
2	LTC	1	Ill patients
2	Marginal communities	1	Mental Health patients

Source: SMDHU External Stakeholders Survey 2010

Partnership with SMHSEPC

An assessment centre was established in Barrie from November 16 to 29, 2009, by health care sector partners to provide walk-in medical care for patients across Simcoe County with Influenza Like-Illness (ILI) symptoms in order to divert patient surge being experienced at Royal Victoria Hospital (RVH) in Barrie. Partner agencies included RVH, SMDHU, Barrie and Community Family Health Team, North Simcoe Muskoka Community Care Access Centre (CCAC), North Simcoe Muskoka Local Health Integration Network (LHIN), the City of Barrie, Barrie Police Services, Dr. Monica Wolnik, Medical Director of the Huronia Urgent Care Clinic, and the County of Simcoe.[17]

During the 14 days the assessment centre was open, 247 people were seen that might otherwise have gone to the emergency department at RVH or other hospitals. SMDHU contributed 61.5 hours of nurse practitioner time, 44.5 hours of emergency management and clerical support, 16.5 hours of clerical support and three hours of other staffing time to support the assessment centre. Almost 190 hours over 14 days, equivalent to almost two full-time staff per day.

In a review of the Pandemic Influenza Plan (PIP), the section lead identified challenges in ensuring the right people and agencies were represented and had the tools to provide services. Specifically:

[17] Barrie and Community Family Health Team, County of Simcoe, Royal Victoria Hospital and Simcoe Muskoka District Health Unit. Review of the Establishment of the Simcoe County Flu Assessment Centre, November 16th – 29th, 2009. March, 2010. Available from: Dr. Charles Gardner, Medical Officer of Health, Simcoe Muskoka District Health Unit.

Community service providers were identified as potential supports to mass immunization in response to pH1N1. Representatives from these groups must go through an approval process to become designated vaccinators. This is particularly important for representatives from vulnerable population service providers.

Membership on the SMHSEPC Vulnerable Population Plan should be reassessed, as it expanded throughout the response phases. Lead contact information needs to be updated regularly.

The membership on the Inter Agency Framework should be reassessed. The health sector meetings and teleconferences initially included hospitals and LHIN and additional membership was eventually included. The revised PIP should consider the inclusion of other critical stakeholders for communications and debriefing (i.e. EMS, Community Health Care Partners, and Emergency Management Team).

4.7.2 Incident Management System (IMS)

The Incident Management Team met 36 times between April 27, 2009 and December 17, 2009. The IMS structure was evident in the meeting minutes starting with the second meeting on April 29. Nine of the meetings occurred during the first wave between April 27, 2009 and May 27, 2009, and 27 were during the second wave between October 5, 2009 and December 17, 2009. No IMS meetings were documented between May 28, 2009 and October 4, 2009. According to the minutes, each meeting was scheduled to last about one hour; however, the actual meeting times were not noted.

The IMS structure used during this incident comprised of 10 roles (chiefs, leads, officers):

Public Health Incident Commander

Planning Section Chief

Operations Section Chief

Health Protection Lead

Community Health Nursing & Support Lead

Public Inquiry and Community Awareness support Section Chief

EOC Director & Internal, Public & Media Communications

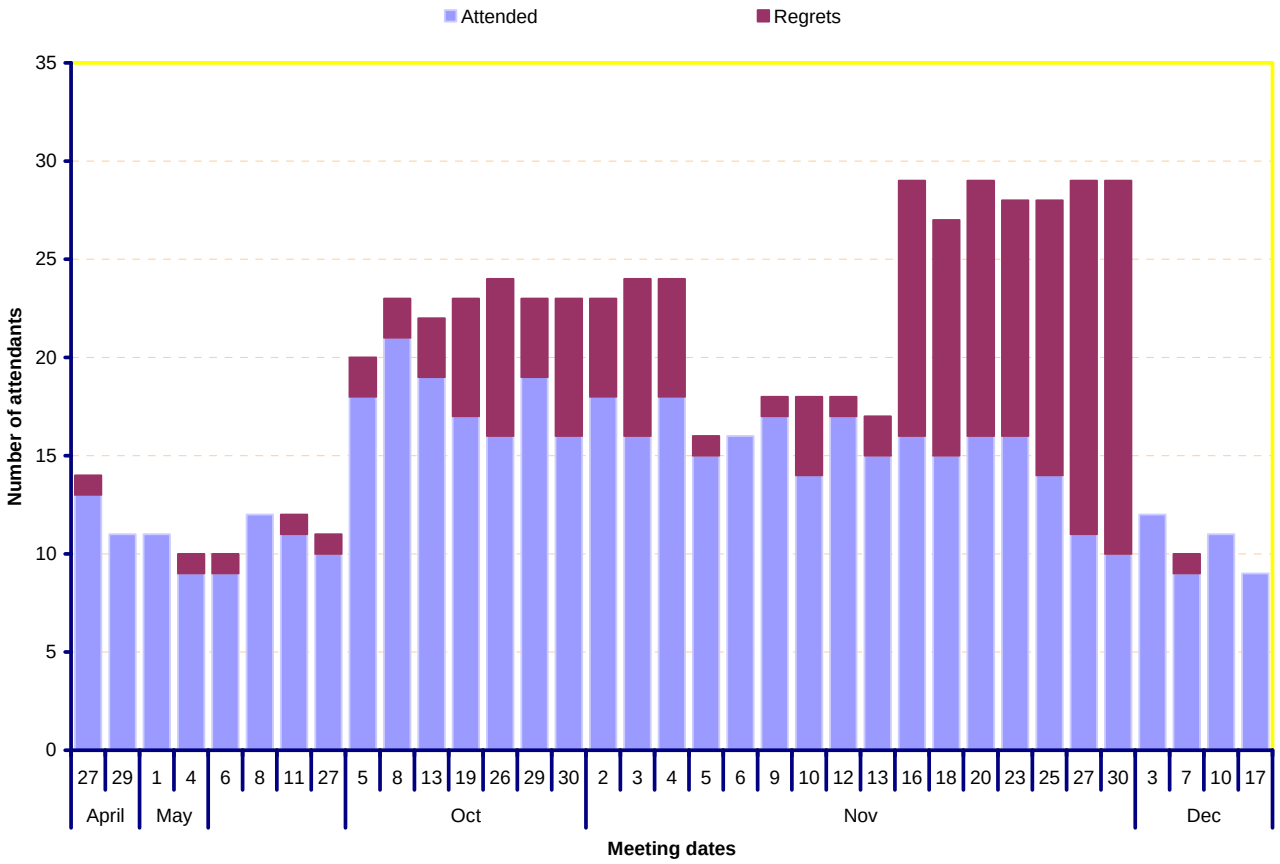
Logistics Section Chief & Finance and Administration Section Chief

Liaison Officer

Health & Safety Officer.

Additional staff was added to the IMS meetings as needed. In total, 42 different staff members attended at least one IMS meeting, including chiefs or leads and recorders. The number of staff attending each meeting varied from about 10 to 20 (Fig. 13). In total, 533 person hours were spent in IMS meetings (assuming each meeting lasted one hour).

Figure 13: SMDHU staff attendance at IMS meetings, April 27 to December 17, 2009



Source: IMS Meeting Minutes April 21 – Dec 17, 2009

Authority and decision making were raised as concerns during the debrief:

- *Who has the authority to make changes to the recommendations to priority and risk groups? Differences between health units can be acceptable but within the health unit decision should be done centrally and the messaging needs to be very clear and everyone needs to have the same information and messaging.*
- *There were many chiefs with demands. Filter and synthesize and leads for specific areas and stick with leadership. Need to have decisions made with proper consultation. Streamline command and control list.*
- *One understanding of priorities and expectation.*

Other recommendations from the Incident Management Team/Executive Committee include:

Establish and formally write into the plan the leadership designate role including management staff as back-up to the director for both IMS and management functions.

Initiate IMS earlier to ensure key tasks are assigned as agency tasks rather than a service area responsibility, to secure resources for clinic sites, schedule and redeployment.

Establish back-up support staff for taking minutes and ensuring adequate document management.

Review authority, responsibility and expectations around scheduling.

Another significant issue was identified in the debriefings:

> "Streamlin(e) the IMS structure. Figure out who should be there. Those who are in attendance would have to disseminate the information to their own service areas."

In a review of the Emergency Response section of the PIP, the section lead noted that the IMS structure used during the pH1N1 incident, and the Emergency Operations Centre (EOC) operation cycles were revised from the model included in the PIP. This is consistent with comments from the IMS debriefing session.

In the staff debriefs, rare mention was made of IMS. Orientation and training has been planned for 2010. Ideally, all staff should be aware of IMS, its structure and responsibilities in the case of a declared emergency or incident and the changes to the agency structure and expectations of staff during a response in which IMS is activated.

Discussion

As with other parts of the pH1N1 response, some activities were not carried out exactly as they are provided in the PIP.

Recommendations

34. As part of the PIP review and updating process, the PIP review committee reviews and revises as necessary the activities not fully carried out, including:

    Collecting information on number of emergency responders and essential service providers requiring vaccine.

    Training of all staff on IMS structure

    Maintain list of morgues

    Initiate facilitation of Natural Death Surge Planning.

There was also some concern expressed among staff about whether or not health sector partners were the correct ones. Surveyed stakeholders agreed that they had received enough information from the health unit to ensure a coordinated response to the pH1N1 incident. However, information may not have reached agencies that should have been on the contact lists and were not. Those agencies would not have been included in the survey sample.

Recommendation

35. As part of the PIP review and updating process, the PIP Review Committee revises the PIP to include a process for identifying key agency groups including those providing support to vulnerable populations for attendance at the SMDHU led teleconferences.

The evaluation of the Barrie assessment centre was outside the scope of this evaluation.[18] However, the health unit's experience may contribute to future pandemic planning. In addition to participating in the coordinating committee, the health unit provided staff, including nurse practitioners and clerical support, to the equivalent of two Full Time Employees for the 14 days that the assessment centre was open. Would that level of support be sustainable in the future? This is an opportunity to work with health care sector partners in planning for future pandemics.

Recommendation

36. That SMDHU collaborates with health sector partners to finalize and revise the SMHSEPC assessment centre plan, taking into consideration the capacity of the health unit to provide support at the assessment centres.

The IMS structure used was different than the one outlined in the PIP. Key issues arising from the IMS debriefs included who needs to be at meetings, back-up for IMS members, authority, decision making, communications, when to start IMS and expectations around staff scheduling.

Recommendations

37. That SMDHU Executive Committee revises and approves the IMS Plan to:

    Clarify roles and responsibilities, including back-up and preparatory time

    Streamline participation in IMS meetings

    Communicate the IMS structure, roles and responsibilities to all staff.

38. That the SMDHU reviews and considers the role of leadership designates in emergency preparedness and incident management.

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[18] Barrie and Community Family Health Team, County of Simcoe, Royal Victoria Hospital and Simcoe Muskoka District Health Unit. Review of the Establishment of the Simcoe County Flu Assessment Centre, November 16 to 29, 2009. March, 2010. Available from: Dr. Charles Gardner, Medical Officer of Health, Simcoe Muskoka District Health Unit.

4.8 Orientation and training

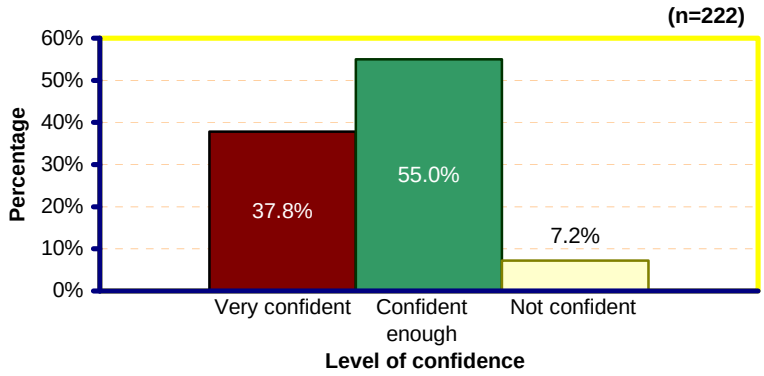
Knowledgeable and well-trained staff is essential for an effective and coordinated response to a pandemic influenza emergency. The goal of the SMDHU Orientation and Training plan is to enhance and support the development of public health staff in their skill and capacity to respond competently in the event of a pandemic influenza emergency.
(SMDHU Pandemic Influenza Plan, 2006)

A simulation exercise to test and evaluate the PIP was conducted in 2006, however not repeated in the early phases of pH1N1, as recommended in the 2006 PIP. Prior to the pH1N1 incident, staff orientation to the SMDHU Emergency Management Framework and IMS was scheduled; however, these sessions had to be postponed due to the deployment of most staff to the MIC. Orientation and training of staff that would be redeployed to Health Connection had been in process since 2007. Additional training in the midst of the pH1N1 incident was conducted due to the new Health Connection electronic documentation application (CHRIS).

The main orientation and training activities were related to the deployment of staff to MIC. All staff were expected to be trained in at least one role related the MIC. For those without a specific deployment or redeployment, a one-hour orientation and training to the use of the Client Event Management System (CEMS) for registration was provided prior to the opening of the clinics. Immunizers received training related to CEMS, medical directives and immunizing. Facilitators received a one-hour orientation via teleconference.

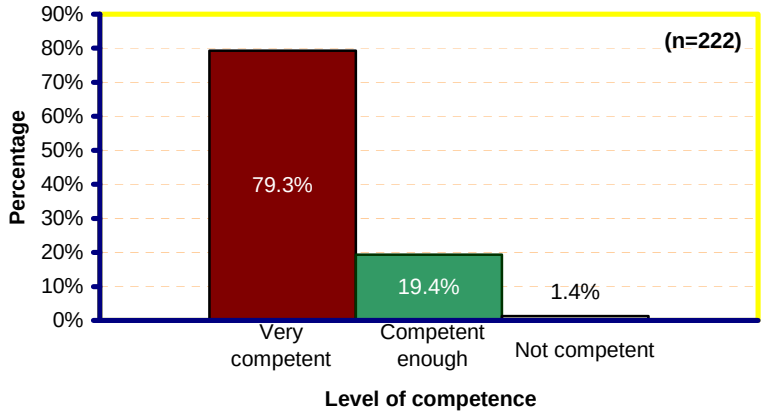
To assess if changes needed to be made to future orientation and training processes, staff was surveyed and asked how confident they were to perform their primary roles at the beginning of the clinics, how competent they felt at the end of the incident to perform them in the future and what contributed to their feelings of competence. Deployed staff felt more competent to perform their primary role at the end of the clinics than they did at the beginning. Only 38 per cent felt very confident they could competently perform their role at the beginning, but 79 per cent felt very competent to perform their primary role again in the future. The main factor that contributed to the improvement in their confidence was experience (85%).

Figure 14: Deployed SMDHU staff who felt confident to competently perform their primary role at the beginning of the MIC (n=222)



Data Source: SMDHU Staff Survey 2010

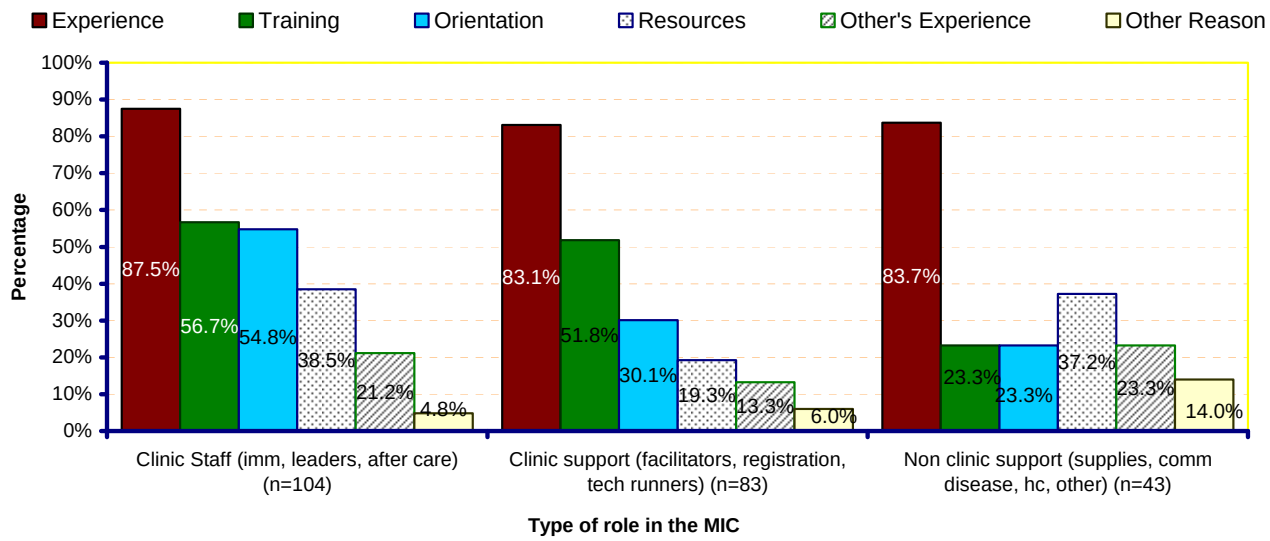
Figure 15: Deployed SMDHU staff who felt competent to perform their primary role again in the future (n=222)



Data Source: SMDHU Staff Survey 2010

Less than half of clinical staff (i.e. immunizers, clinic leaders and aftercare) and clinic support staff (i.e. facilitators, registration and tech runners) said that training contributed to them feeling competent to perform their primary role again in the future. Less than one-quarter of non-clinic support staff attributed their feeling of competence to training.

Figure 16: Deployed SMDHU staff's factors that contributed to feeling competent to perform their primary role again in the future (n=230)

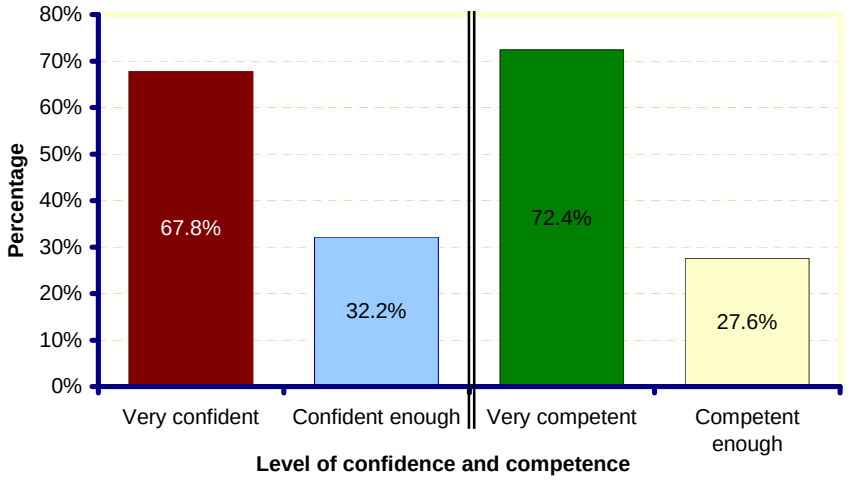


Data Source: SMDHU Staff Survey 2010

* Percentages do not add up to 100% because it was a multiple answer question

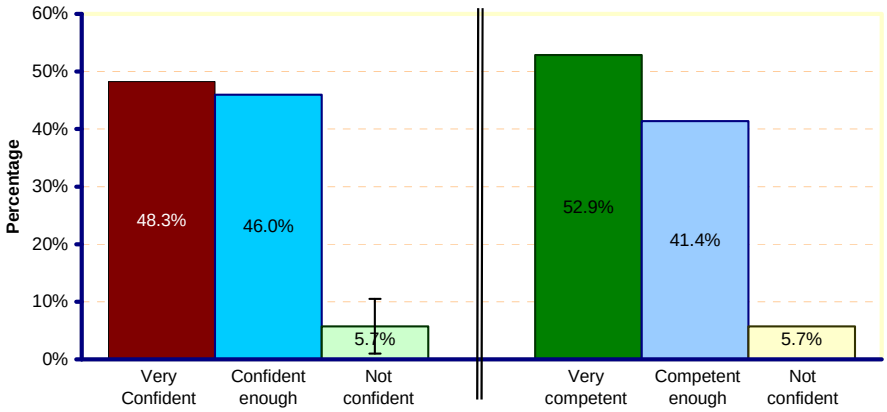
The majority of immunizers and clinic leaders felt very confident (67.8%) and very competent (72.4%) about working with medical directives. Almost all immunizers and clinic leaders felt very confident or confident enough (94.3%) and very competent and competent enough (94.3%) to respond to medication errors. This suggests that the orientation, training and information sharing related to medical directives and medication error was adequate.

Figure 17: Confidence and competence of immunizers and clinic leaders regarding Medical Directives (n=87)



Data source: SMDHU staff survey 2010

Figure 18: Confidence and competence of immunizers and clinic leaders regarding medication errors (n=87)



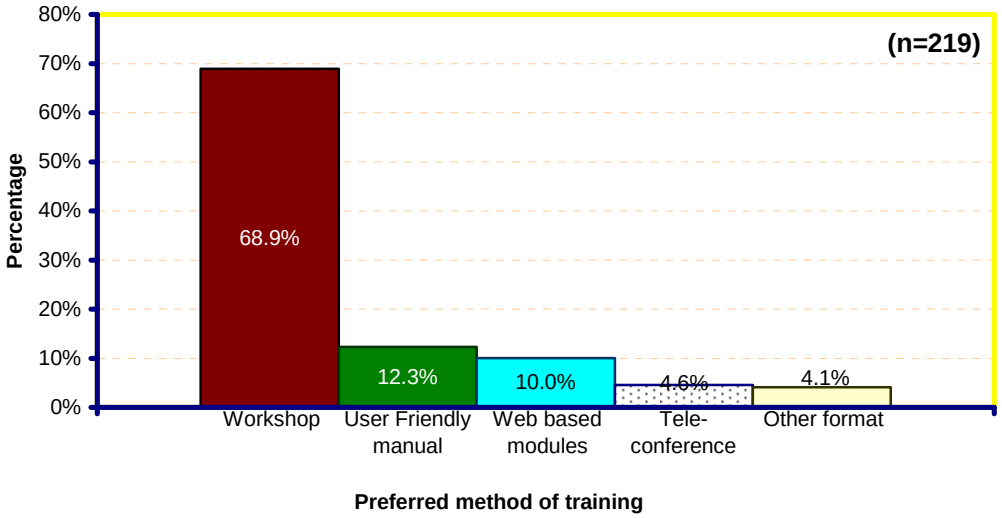
Data source: SMDHU staff survey 2010

When asked for recommendations on the survey and during the debriefing sessions, staff identified a number of training concerns and recommendations:

- *Need more training for the CEMS system and computer use.*
- *Need more training for transition into different roles.*
- *Training needs to be practical and hands-on (e.g. run a mock clinic); extend training to include hands-on practice.*
- *More time is needed for training in advance of a pandemic and before redeployment.*
- *Use staff with experience in operating clinics for training.*
- *Cross training for different roles increases flexibility.*
- *Advance training needed for: CPR, handling emergencies and IMS.*

Despite the perceived need for more training and the availability of alternative methods, the majority of deployed staff still prefers in person workshops over user-friendly manuals, web-based modules or teleconferences.

Figure 19: Preferred type of training format by deployed SMDHU staff (n=219)



Data Source: SMDHU Staff Survey 2010

A review of the PIP at the end of the pH1N1 incident revealed that the section of Orientation and Training contained policies and procedures that were in various states of completion. Modifications were made to the plan to meet the needs of the situation. For example, the number of internal iPHIS trainers is sufficient for the agency and its' users so therefore the number was not increased. An ongoing training schedule was not completed because all necessary training material is not yet available.

Discussion

At the beginning of the pH1N1 incident there were orientation and training procedures still to be completed in the PIP, including re-testing the PIP. Training all staff on the Emergency Management Framework and IMS had been delayed and some necessary training material was not yet available.

Recommendation

39. That SMDHU provides agency emergency response (IMS) training to staff in 2010. (Note: This training has been provided to all staff).

The delivery and set-up of the 91 new laptops and CEMS software just prior to the clinics dictated a “just-in-time” training scenario. Cancellation of the regular seasonal flu clinics prior to the beginning of the pH1N1 MICs removed the opportunity for training of non-VPD nurses in advance. Ongoing immunization training of all nursing staff may increase surge capacity when faced with short timelines for training.

Recommendations

40. That as part of the PIP review and updating process, the PIP Review Committee revises the PIP to differentiate between training required during inter-pandemic phases to maintain a state of preparedness and specific training for phase six.

41. That SMDHU supports engaging all agency nursing staff, supervisors and managers in providing immunization at a minimum of two universal influenza clinics in one year, every third year to assist in maintaining skill and confidence of nurses across the agency to work in a mass immunization campaign.

There were many concerns related to training raised by staff in the debriefings about more, earlier and cross-training. Despite the challenges relating to timing, training on medical directives and medication errors for immunizers and clinic leaders was successful. However, training for other roles appears to have been less effective. More staff felt competent at the end of MIC than at the beginning. Experience, not training, was identified as the most common factor leading staff to feel more competent at the end of the MIC. Fewer non-clinic support staff than other staff felt training was a contributing factor. It could be expected that experience is a greater factor than training in building perceptions of competence when asking the question only at the end of the incident. Future evaluations should be planned in advance to collect knowledge and skills data prior to and again after training in order to more accurately evaluate orientation and training.

While workshops are the preferred choice of staff for training and orientation, they may not always be possible or not the efficient choice in a pandemic. Consideration could be given to making other training formats more user-friendly and giving staff the time and skills necessary to access other formats.

Together these suggest that the training section of PIP should be enhanced to include procedures, standards and templates for training specifically for MIC.

Recommendations

42. That as part of the PIP review and updating process, the PIP Review Committee revises the PIP to include training procedures, standards and templates used in the 2009 pandemic.

43. That SMDHU considers the impact of cross-training of staff to increase surge capacity.

4.9 Business Continuity/Redeployment and Recovery

Business continuity is the process by which a business or agency plans to maintain essential services during a time of emergency. The process involves both the redeployment of staff and the return to normal business operations (recovery).
(SMDHU Pandemic Influenza Plan, 2006)

Most business continuity/redeployment and recovery activities throughout the WHO pandemic phases were conducted, with modifications appropriate to the situation. For example, during phase two priority purchasing contracts were not set up for masks and hand sanitizers because supplies for mass immunization were provided from the provincial pharmacy.

However, the resources contained in the appendices were not used consistently or frequently. For example,

Appendix A – Action Plan Template for Maintaining Essential Service was assessed to be not relevant and therefore not used.

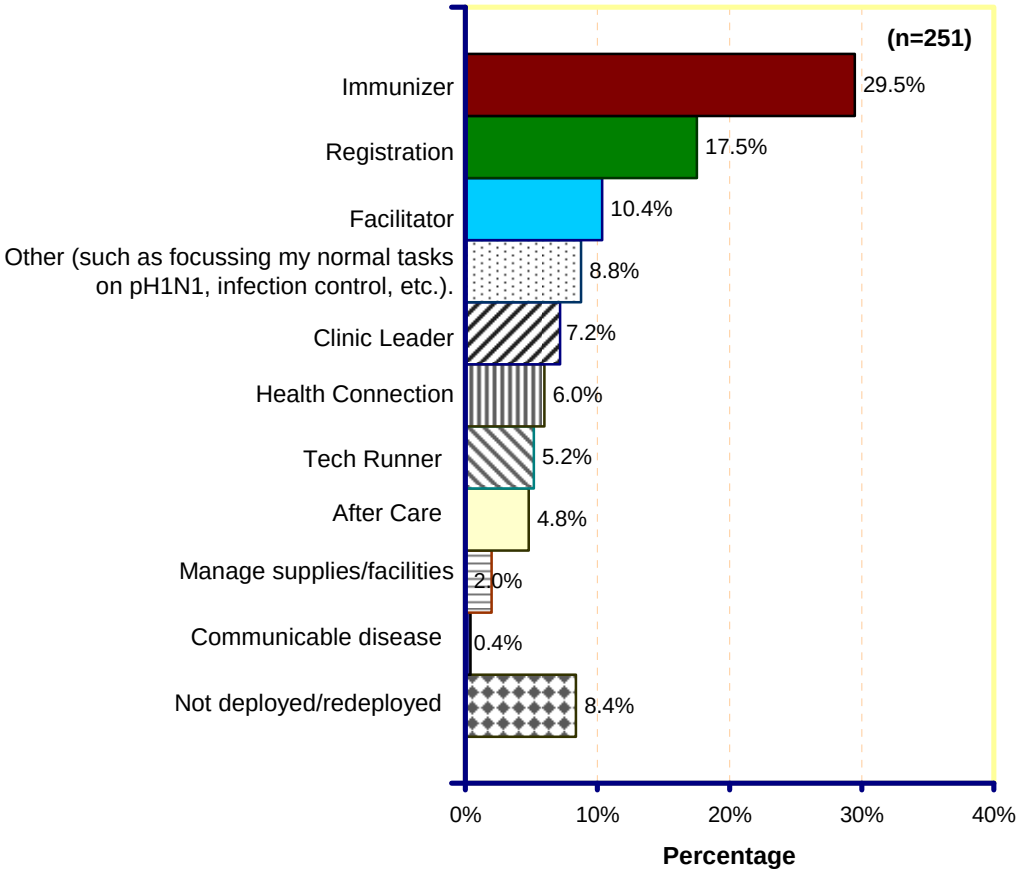
Appendix C – Factors to Consider When Prioritizing Program Activities was relevant and used occasionally.

Appendix D – Business Continuity Preparedness Checklist was considered relevant but not used.

4.9.1 Staffing Mass Immunization Clinics

The majority of staff were deployed or redeployed to work on tasks related to the MIC or distribution of vaccines to VDAs during the second wave of pH1N1. About three-quarters of staff were primarily assigned to roles within the clinics. The top three roles to which respondents to the staff survey were primarily assigned were: immunizers (30%), registration (18%) and facilitator (10%). Seven per cent were clinic leaders, five per cent were primarily assigned as tech runners and another five per cent provided aftercare at the clinics. Others managed supplies and/or facilities or primarily worked on Communicable Disease case management. The nine per cent whose primary role was other than those listed, included staff assigned to the Assessment Centre, Communications and other. Of those not deployed, several were on leave from work, others provided normal administrative tasks, or were involved in business continuity and/or essential services.

Figure 20: Role SMDHU staff played during the pH1N1 response (n=251)



Data Source: SMDHU Staff Survey 2010

To assist with managing the lineups of clients at clinic sites, municipalities were asked to supply staff and many complied. During post-incident debriefs many staff identified this strategy as helpful:

- *Continue to use municipal staff as facilitators in clinics as this was helpful in most cases. Stopped midway and they were missed.*
- *Very nice and fun to work with other teams in clinics as well as municipal partners who provided great support.*

The feelings of usefulness and camaraderie were echoed during the Board of Health debrief:

- *We need to think about engaging the community and not just health unit staff. We were working together with everyone. It was a fun place and it seemed like everyone was happy to be there. A sense of camaraderie.*

The scheduling of 92 per cent of health unit staff to cover over 1400 hours of clinics over a six week period in 72 sites across the large geographical area of Simcoe Muskoka was a logistical challenge. Every redeployed staff member, as able, was expected to take a turn working in the clinics. Staff scheduling arose as a significant issue due to the complexity of the clinic schedule and resourcing required. On average:

Six staffing roles were implemented at each clinic: clinic lead, clinic immunizers, aftercare, clinic facilitators and tech runner.

Two shifts per day were staffed, with the exception of Saturday at most clinics during the first four weeks of MIC.

A master schedule was produced in Excel and maintained primarily by one person, with several others assisting. Scheduling took into consideration: skills, needs, travel time, staff's personal requirements (e.g. family, care, pre-existing vacation). Some staff became ill or was unable to work because they had to care for ill family members. When changes were made to the schedule, emails were sent to all staff so that they could check the schedule for changes on a daily or as-needed basis. Staff was expected to check before their scheduled shift to see if changes had been made.

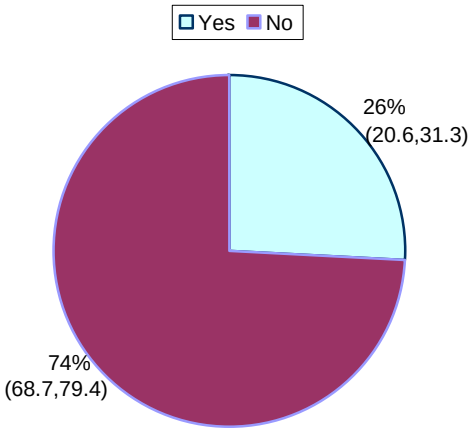
While appreciating the difficulty and effort of producing and maintaining the schedule, many staff identified scheduling challenges. Some examples are:

- *A schedule that was available to all staff was needed (not all staff had access to email from home).*
- *It would be better to volunteer for shifts in order avoid being assigned to those hours you do not want or cannot work.*
- *It was difficult to do two jobs (i.e. work at the clinic one day and back at the office the next day; or provide essential services and be expected to fulfill clinic requirements).*
- *It was important to assign the right people to specific roles (e.g. managers for roles requiring responsibility and decision-making, Nurse Practitioners at assessment centres).*

4.9.2 Essential Services

One-quarter (n=63) of the respondents to the staff survey said they provided essential services. Of those, almost all (90%, n=58) were also deployed or redeployed to either a clinic role, Health Connection or other pH1N1 task. Only five out of the 63 who provided essential services were not also deployed to another pH1N1 related role.

Figure 21: Staff who provided essential services (n=258; 955 CI)



Data Source: SMDHU Staff Survey 2010

Managers and directors were asked what essential services they provided, which ones were limited, what challenges they encountered providing the services and if there were any services that should have been added to the essential services list.

All of the Essential Services that were identified by the health unit were offered as required during the redeployment of staff during the second wave of pH1N1 (Appendix E: SMDHU Essential Services October 26, 2009). However, there were some limitations to the services provided and some challenges to delivering the essential services.

Limitations to Essential Services

Media requests for interviews related to topics beyond pH1N1 were deferred due to lack of staff to respond and to the demands on Communications staff to respond to pH1N1 related requests.

IT was unable to conduct regular maintenance and other ongoing requirements, other than pH1N1.

School immunizations suspended for three weeks while nurses worked in the MIC, but the series was completed by the end of 2009.

Delay in response to school liaison activities as the nurses were involved in the MIC.

There were a few hours when the public could not access Health Connection due to errors in programming in the phone system.

A few health hazard investigations were not conducted in as timely a manner as required due to staff redeployment to MIC.

Challenges

The challenge most frequently cited by managers or directors responding was the unavailability of staff on a consistent basis to provide essential services due to redeployment to pH1N1. This also arose frequently during the debriefings.

Staffing and scheduling issues were cited specifically for the following services:

Communicable Disease – Community Outbreak Management:

> "CD staff in clinics on some days and then rotating back into the office to pick up work" was a challenge.

Sexual Health – STI Case Management for HIV, HBV and syphilis: one person was assigned to follow-up daily was insufficient.

HBHC Postpartum Phone Calls: identified five to six staff needed for this service, and one PA for data entry. Redeployment of staff resulted in workload issues for staff.

Health Protection Services:

> "challenged early on as changes were made to staff assignments in the clinics without proper notification to managers and the admin coordinator to allow alternate coverage arrangements to be made on our HPS minimum coverage schedule."

pH1N1 Document Management: when staff with the required knowledge and skills were drawn to address other priorities it became challenging to control the files and ensure complete documentation.

Other challenges

AV management – last minute requests for teleconferencing; additional requests to video or web conferencing would have been unmanageable.

Cell phone and blackberry support – demand was challenging due to timelines; not enough time for orientation and training; tracking was an issue.

Phone systems

- Demands related to phone configuration were overwhelming and difficult to keep up with;
- The phone system became overwhelmed due to volume of calls requiring constant monitoring and changes at the main switches to allow for enhanced capacity. Resources to undertake these changes were stretched.

Tech

- Management of access requirements was time consuming—new people with new roles needed access to the Intranet and Internet.
- High demand for access and training

Facilities

- Demand was greater than resources allowed.
- Responsibility for securing sites, addressing site contracts and addressing the needs at the sites was unclear due to the number of people involved.

Information Management

- Demands for review and posting of material to the Intranet and Internet exceeded the capacity and knowledge of individuals at times. Requires additional resourcing.

Finance

- Inadequate resources to track and monitor costs.
- Additional resources needed at the end of the incident.

Services not included on the Essential Services lists that should have been

Managers and directors identified the following services that they felt should have been included in the list of essential services:

HBHC – postpartum home visits by PHNs and Family Home Visitors where there are concerns ("brief positive"), including potential postpartum mood disorder and breastfeeding.

Child Health – "situationally essential" services; breastfeeding support.

Corporate – Meeting management and coordination. Requirements for this support at the MOH and Executive level increased through this period of time but the staff to provide the support were stretched and allocated to other tasks.

Some directors also identified services that were either unnecessary or met during this pandemic, but they would not have been able to meet them had the demand been any greater. For example:

No Crisis Communication was needed; the ability to respond would have been limited if it had been required.

Health Protection Services received very few requests, experienced few critical issues and no major emergencies during the vaccination period and were mostly able to respond as requested. However, if there had been an emergency they would have been challenged to respond.

Directors and managers suggested that the PIP should be revised with respect to establishing what constitutes an essential service and using planning tools to make the discernment. They also recommend the PIP consider requirements for delegating a minimum number of staff to be exempt from redeployment in order to be available for essential services.

The PIP should also consider the need for resources to support essential services:

- *Better resource support provided to areas that identify essential services. Particularly, those services that are required to respond within a defined period of time.*
- *Plan for resources to provide communication and/or public relations support to partners.*
- *Extra resourcing should be maintained for tech through the event and follow up as there are continued demands and a need to quickly respond to changing work priorities and demands.*
- *Additional support to monitor the call volumes and bring in people may be of value.*
- *Facilities - more support is needed and Facilities needs to be identified from the beginning as the lead.*

Discussion

The staff and clinic schedule that was used was a simple Excel spreadsheet that was devised by PIP Review Group staff under time and resource limitations. It worked, but was a simple unsophisticated tool that caused the problems documented here and throughout this report. The foregoing suggests that changes to schedule templates and absence reporting need to be made in order to ensure staff are available, not only for deployment roles, but also for the provision of essential services. Changes to procedures for reporting staff absences, conflicts and monitoring the schedules were recommended to reduce the human resource capacity needed for scheduling. An electronic scheduler may not decrease the time required and may not be accessible remotely by staff or clinic leads. However, since scheduling of staff may have been the most frequently mentioned issue by staff, managers and directors, and since in the future scheduling of staff may have a significant impact on the provision of essential services, this issue should be addressed.

Recommendation

44. That SMDHU investigates a more sophisticated, flexible and user-friendly staff scheduling system and scheduling policy and procedures.

One-quarter of the respondents to the staff survey said they provided essential services between November 3, 2009 and December 16, 2009 across all service areas. Since over 90 per cent of staff was deployed or redeployed, this means that some staff had double duty: to work at the clinics and to provide essential services as required. This undoubtedly contributed to the limitations and challenges to providing essential services.

The deployment of municipal staff and volunteers to work as facilitators and registration in the clinics goes beyond providing human resources. As identified by Board of Health members:

> "It (pH1N1) was not only the health unit's issue. We need to build partnerships and assist other agencies and draw on the human resources from those who are not in those roles all that time. . . Would like to see Government agencies working seamlessly together."

This suggests that collaborating with municipalities to provide human resources could be a stepping stone to further collaboration. Revisions to the PIP should take into consideration drawing human resources from municipalities as needed in the event of a pandemic.

Recommendation

45. That SMDHU continues to work with municipalities to develop memorandums of understanding related to the sharing of human resources during an Influenza Pandemic.

Observations about the provision of essential services reflect overall concerns that while the health unit was able to provide essential services, with some limitations, future incidents may be more difficult to manage. A concern about the use of planning tools was also raised by some managers when asked about the provision of essential services. An internal listing of essential services was developed using the existing tools, however, the tools should be re-assessed. The tools would be applied in each event.

Recommendation

46. That SMDHU Executive Committee continues to apply in each event the tools and process to identify essential services and communicates the process and resulting list to managers and supervisors.

Directors and managers also identified the need for additional resources and/or support. Had there been greater need for essential services (e.g. an additional environmental emergency or the need for crisis communication), the challenges imposed by the assignment of staff to work the MIC could have compromised the delivery of essential services. This suggests the need for improved scheduling processes, better communication between service areas, and further assessment and possible reassignment of resources to essential services from the beginning of an incident.

Recommendation

47. That SMDHU reassesses redeployment strategies to reduce role conflict and ensure adequate staff area available where and when needed to provide essential services.

5. Pandemic Influenza Plan

The SMDHU Pandemic Influenza Plan (PIP) has been in development for several years, with the latest public version completed in 2006. Significant human resources were used in the spring of 2009 after the first wave of pH1N1 to bring the document in line with the Ontario Health Plan for an Influenza Pandemic of August 2008 and the revised WHO phases. However the draft plan was not completed to the point where it became an official document.

The pH1N1 incident was an opportunity to test the implementation of PIP. The PIP Review Group (PIPRG) members conducted a document review to assess the extent to which planned activities were conducted, the relevance and use of appendices and to make suggestions about revisions, and including activities and resources that were developed during the incident. The results of this review are incorporated with results from surveys of internal staff and external stakeholders, surveillance data, staff debriefs, and reviews of key documents.

In order to discuss the effectiveness of a plan it is important to examine the assumptions upon which the plan is based. In the case of this pandemic, most of the assumptions were accurate. The main difference between this pandemic and the assumptions of the PIP is the severity of the illness. It was assumed that there would an attack rate of 35 per cent during the first wave; no assumptions were made about the attack rate in the second wave. It also assumed that 53 per cent of people who acquire influenza would require outpatient or primary care, and 1.5 to two per cent would require hospitalization. During this pandemic, the burden of illness appears to have been less.

In Simcoe Muskoka, during the six weeks of the Mass Immunization Clinics enough doses of pH1N1 vaccine were delivered either through the clinics or to VDAs to immunize about one third of the population. If the capacity existed to continue for another 12 weeks, one could assume that the entire population could have been immunized by sometime in March, 2010—four to five months after the peak of the second wave. Assuming that the MIC could keep up the rate of about 10,000 immunizations per week, had VDAs not been utilized, it would have taken a full year to immunize everyone, and about 18 weeks to immunize 35 per cent. Attention should be paid to these assumptions when decisions are made about how vaccines will be provided to the population of Simcoe and Muskoka, and indeed Ontario as a whole and to setting realistic goals for immunization.

It was assumed that the MOHLTC would provide centralized purchase and distribution of personal protective equipment, vaccines/antiviral drugs and other clinical supplies. It was reported by staff that there were problems with timely delivery of those supplies. All of the assumptions should be reviewed.

Aside from the assumptions, the current PIP had large incomplete sections. For example, each section has some requirement for evaluation, yet no evaluation plan for any of the sections or for the

whole plan had been developed. Nor had any evaluation been requested until the last two weeks of the MIC. A post-hoc evaluation was thus undertaken, without a solid plan, which limited its ability to adequately evaluate outcomes.

Many of the activities that appeared incomplete in the plan may have actually been implemented but the plan not officially updated. This suggests that the plan needs regular and timely review and revision. This evaluation points to some of the areas most needing revision.

Some staff reported not using the plan at all, yet upon review most of the activities were conducted, despite not being updated in the plan, and modified to meet the needs of the situation. This suggests that the pH1N1 experience can provide significant information for revisions and that the PIP revisions might take into account the need to be flexible in the implementation of the plan.

Recommendations

That as part of the PIP review and updating process, the PIP Review Committee:

48. Formally revises the phases of the plan for consistency with the WHO and Ontario PIP.
49. Completes all unfinished items of the PIP and update changes made since 2006, ensuring that the activities are realistically aligned with the pandemic phases.
50. Revises the PIP to ensure that needed activities to bring the health unit into a state of preparedness are completed during the inter-pandemic phase.
51. Carefully assesses the assumptions.
52. Reviews and considers for inclusion in the appendices of the PIP all resources, tools, policies and procedures that were development and implemented during the pH1N1 incident.
53. Creates evaluation plans as specified in each section of the plan, and for SMDHU’s response to future pandemics.

6. Conclusion

> This health unit showed it's effectiveness and leadership. Speaks to the preparedness and mobilization that occurred.

(Board of Health Debrief, January, 2010)

This evaluation of the Simcoe Muskoka District Health Unit response to the 2009 pH1N1 incident demonstrated some significant successes and also highlighted some areas for improvement to the Pandemic Influenza Plan. The health unit immunized almost 60,000 people over a six week period through 185 clinics at 72 sites; and distributed over 110,000 doses of vaccine to VDAs. Over 90 per cent of health unit staff was mobilized to provide immunizations during the second wave of the pandemic in the fall of 2009. Morbidity and mortality related to pH1N1 was lower and the duration of the second wave was shorter than expected. These trends were consistent across the province and the extent to which SMDHU's response contributed to the less than expected severity of the pandemic is not known. The further success of the health unit's response will be measured in our preparedness for the next pandemic. To improve our preparedness the lessons learned this time around need to be considered in a revised Pandemic Influenza Plan (PIP).

The costs were higher than expected, and greater than the provincial funding provided. Local surveillance of influenza activity was challenging; however, the communication of surveillance data out to the community was met with satisfaction by external stakeholders.

Communication with external and internal stakeholders provided some challenges. The communication team and others responded to those challenges by modifying the activities in the Pandemic Influenza Plan to the situation. Some specific lessons were learned and recommendations made about improving lists of external stakeholders and improving remote accessibility of electronic communications with staff.

While staff was available for all mass immunization clinics, the process of scheduling the staff was challenging. Ensuring staff availability for the delivery of essential services was also identified as a significant potential challenge in this and future pandemics.

Many lessons can be learned from this evaluation about the set-up and implementation of Mass Immunization Clinics (MIC), from improved processes for site procurement to improved clarity of roles. The province promoted this year as "Not your usual flu season," and we learned that MICs for a pandemic was different than previous seasonal influenza vaccine campaigns. The clinics were electronic for the first time with the introduction of CEMS (also known as the Niagara system). Introducing new technology during a pandemic had its challenges, but the benefits were great.

Nevertheless, some improvements can be made before the next pandemic—most notably the need for training and the need for earlier involvement of IT.

The Incident Management System (IMS) was implemented to manage the incident and direct the response in SMDHU for the first time during a pandemic. Lessons can be learned from this experience, particularly the need to streamline the processes and to update the IMS structure in the PIP.

A measure of success was the identification and provision of essential services while over 90 per cent of staff was deployed to the pandemic response, with few limitations. The moderate severity of the pandemic contributed to our ability to do so. In the future, additional demands for essential services may be difficult to meet without making some changes, most notably ensuring that enough staff is readily available.

The PIP is being revised in response to the lessons learned during this pandemic. We wait for the evaluation of the next influenza pandemic to assess the success of the revised PIP and the implementation of other recommendations made in this report.

APPENDIX A: pH1N1 Influenza Virus Response Incident Debrief

Introduction:

On October 5, 2009 the health unit initiated a coordinated effort to respond to the second wave of pH1N1. Efforts included actions in accordance with the key areas outlined in the plan:

1. Surveillance
2. Vaccine and Antivirals
3. Public Health Measures
4. Communications
5. Emergency Response
6. Orientation & Training
7. Business Continuity

While the actions being taken in response to this incident are still underway, the response phase is winding down and we are gradually resuming our regular operations. One strategy to support staff in achieving closure and refocusing on the return to our full range of programs and services a debrief was recommended for all SMDHU program/service teams. This debrief was also recognized as an opportunity to gather important perspectives on lessons learned and recommendations for changes to our pandemic plan that would inform the pH1N1 incident evaluation.

Therefore, the goals of the debrief are:

1. To share stories from the period of redeployment in an effort to gain a broader understanding of the experience for staff.
2. To explore what staff saw as the successes and challenges of the incident response period.
3. To identify lessons learned and improvements that could be made in our pandemic response and provision of essential time sensitive services that would inform the review and revision of our SMDHU pandemic plan.

Ground rules for debriefing sessions:

Debrief to be conducted at team meetings facilitated by the supervisor or manager. Debrief to be conducted with service management teams facilitated by the service director.
Debrief to be conducted with the MOH team facilitated by the MOH.

Debrief to be conducted with the executive team facilitated by a member the Emergency Management Team.

60 to 90 minutes in length
Not an investigation or an evaluation of performance – instead an opportunity to learn from experience
All viewpoints are important and will contribute to future improvements in response

Participants:

MOH, AMOHs, Directors
Program/service manager/supervisor
Program/service team members

Process:

1. A meeting of each program/service team will be scheduled before year end or as early in the New Year as possible.
2. Debriefing questions can be shared with staff in advance of meetings.
3. Participants who cannot be present for the debriefing sessions can provide their responses to their respective director/manager/supervisor outside of the session.
4. The sharing of stories, successes and challenges will not be documented. However, facilitators and team members are encouraged to flag key stories that staff may wish to document and share through other avenues planned (agency blog and winter gala).
5. Responses to the questions regarding lessons learned and recommendations for consideration in the review and revision of the pandemic response plan (question 4 and 5) will be documented by the designated facilitator and forwarded to Deborah Hardwick via email. The option for staff to provide additional thoughts by email to Deborah would also be made available.
6. The information gathered will be analyzed based on the key questions arising from the H1N1 evaluation plan. Analysis will be conducted by Deborah Hardwick and Magda Montagnese.

Key Questions

1. Briefly summarize the role(s) you played in the agency response to H1N1 and the maintenance of essential time sensitive serviced through the period of redeployment (essentially since October 5, 2009).
2. What successes did you experience (share a story of success)?
3. What challenges did you experience (share a story of challenge)?
4. What have you learned from this experience?
5. If you could recommend one change or improvement to the agency's H1N1 response would it be?

APPENDIX B: Staff Survey

Introduction

This survey is part of the evaluation of the SMDHU's response to pH1N1. The main objective of this survey is:

> To assess what policies, procedures, and resources were developed, used and improved and what needs to be done to ensure they are carried forth for future use in Mass Immunization Clinics (MIC) and Pandemic response.

Your participation is voluntary, anonymous and greatly appreciated. This is **not** an individual performance evaluation, but rather an opportunity for the agency to learn from experience.
The results will not include names and will be aggregated in internal reports and summaries to external stakeholders (e.g. MOHLTC, Local County and district emergency planning organizations).

The results of this survey and other components of the evaluation will be available around the end of February and will be invaluable as we move forward to improve our Pandemic Influenza Plan (PIP) and prepare for future similar incidents.

If you have any questions or concerns about the survey, or any other element of the evaluation, please do not hesitate to contact Deborah Hardwick, Evaluation Specialist by email (Deborah.hardwick@smdhu.org) or at ext. 7624.

☐ **I understand the terms of taking this survey and I consent to the use of my answers as part of the SMDHU's response to pH1N1 evaluation. [Go to QA.1]**

I. General Section

1. What is your current position at the SMDHU?
   a. ☐ Public Health Nurse/Registered Nurse
   b. ☐ Public Health Inspector
   c. ☐ Program Manager/Program Supervisor
   d. ☐ Consultant/Coordinator/Specialist
   e. ☐ Administrative Support Staff
   f. ☐ Registered Practical Nurse
   g. ☐ Other. Explain:

2. Were you assigned to provide an essential service other than pH1N1 response during the period of redeployment for mass vaccination (November 1 through December16)?
   *Essential services are those that are viewed to be necessary to provide to the community even during situations of redeployment. E.g. Immunization clinics for childhood diseases, on-call rotation for the community team disease, or investigating potential cases of rabies with vaccine handling.
   a. ☐ No [**Go to Q3**]
   b. ☐ Yes [**continue to A. below**]

   A. What essential service did you provide? Select your Service and Team to get to the list of essential services.
   a. ☐ Clinical Service
      i. ☐ Communicable Disease Investigation Unit
         1. ☐ TB Program, for active cases
         2. ☐ Community outbreak management
         3. ☐ Case investigation
         4. ☐ iPHIS reporting
         5. ☐ Outbreak management in acute & LTCH
         6. ☐ Other, please explain:
      ii. ☐ Communicable Disease Team
         1. ☐ On-call rotation (PHN or PHI)
         2. ☐ Other, please explain:
      iii. ☐ Communicable Disease Surveillance Unit
         1. ☐ Consultation/staff support/admin
         2. ☐ Other, please explain:
      iv. ☐ Oral Health
         1. ☐ Emergency CINOT and Ontario Works

2. ☐ Other, please explain:

v. ☐ Sexual Health
1. ☐ STI Case management HIV, HBV, syphilis only
2. ☐ Bloodborne exposure / mandatory blood testing application
3. ☐ Other, please explain:

vi. ☐ Vaccine Preventable diseases
1. ☐ Immunization clinics for childhood diseases
2. ☐ Adverse event following immunization
3. ☐ Supply vaccine to community physicians
4. ☐ Other, please explain:

vii. ☐ Other, please explain:
1. ☐ Other, please explain:

b. ☐ Corporate Services

i. ☐ Health Promotion & communications
1. ☐ Public relations
2. ☐ Media relations
3. ☐ Crisis communications
4. ☐ Other, please explain:

ii. ☐ AV management and telecommunications support
1. ☐ AV management
2. ☐ Cell phone and blackberry support
3. ☐ Other, please explain:

iii. ☐ Technology Team
1. ☐ Local Area network
2. ☐ Telephone hardware / software
3. ☐ Phone systems and lines
4. ☐ Voicemail hardware / software
5. ☐ Wide area network
6. ☐ Checkpoint firewall
7. ☐ MS Exchange (email)
8. ☐ BES Server (email and blackberry)
9. ☐ Citrix 4.5
10. ☐ External Website and Intranet
11. ☐ Software required to support essential service operations
12. ☐ User Support - priority to essential systems and services
13. ☐ Other, please explain:

iv. ☐ Facilities and Office support
1. ☐ Office Reception, Main offices
2. ☐ Other, please explain:

v. ☐ Finance
1. ☐ Payroll
2. ☐ Other, please explain:

vi. ☐ Human Resources
1. ☐ Human Resources
2. ☐ Other, please explain:

vii. ☐ Other, please explain:
1. ☐ Other, please explain:

c. ☐ Family Health Services

i. ☐ Healthy Babies Healthy Children
1. ☐ Postpartum Phone Calls to High Risk
2. ☐ Parkyn Data Entry
3. ☐ Other, please explain:

ii. ☐ Other, please explain:
1. ☐ Other, please explain:

d. ☐ Health Protection Services

i. ☐ Emergency Management
1. ☐ Development of Incident Specific Action Plans – Internal (planning) at time of incident
2. ☐ Emergency Response- On-site management

3. ☐ Evacuation Shelter Inspections/Assessments
4. ☐ Act as agency representative at EOC and site command centres
5. ☐ Emergency Response (Risk Assessments, coordination of resources/services with external parties)
6. ☐ Other, please explain:

ii. ☐ Food Safety
1. ☐ Assess food related complaints/declared outbreaks and prioritize for urgency of
2. ☐ Respond to Food Recall notices and requests for assistance
3. ☐ Other, please explain:

iii. ☐ Health Hazard
1. ☐ Conduct risk assessments to respond to and manage health hazards
2. ☐ Complete preliminary investigations to support risk assessment process
3. ☐ Conduct risk assessments to respond to and manage vector-borne diseases
4. ☐ Other, please explain:

iv. ☐ Safe Water
1. ☐ Monitors / responds to adverse results and events including waterborne outbreaks related to all regulated public drinking water supplies
2. ☐ Other, please explain:

v. ☐ Rabies
1. ☐ Investigate potential exposures to rabies from all animal exposures (includes risk Assessment)
2. ☐ Isolation, confinement and release of animals that are assessed (cat, dogs, ferrets) (includes a visual assessments)
3. ☐ Vaccine Handling (Orders/transport/monitoring)
4. ☐ Consultation with external partners (i.e. CFIA /arranging for animal testing, municipalities, MNR, animal control, veterinarians, police)
5. ☐ Other, please explain:

vi. ☐ General
1. ☐ Provision of coverage for after hours response
2. ☐ Health Connection
3. ☐ Review/comment on any new or changed municipal Official Plan document submission in accordance with required timelines
4. ☐ MOHLTC required inspections for licensing purposes (e.g. funeral homes, homes for special care)
5. ☐ Statutory duties (e.g. court appearances)
6. ☐ Other, please explain:

vii. ☐ Other, please explain:
1. ☐ Other, please explain:

e. ☐ Healthy Living Services

i. ☐ CDP – Tobacco
1. ☐ SFO complaint enforcement
2. ☐ Statutory duties (e.g. court appearances)
3. ☐ Other, please explain:

ii. ☐ Healthy Schools
1. ☐ School Liaisons
2. ☐ Other, please explain:

iii. ☐ Health Connection
1. ☐ Health Connection Phone Response
2. ☐ Other, please explain:

iv. ☐ Other, please explain:
1. ☐ Other, please explain:

3. Other than providing essential services, what was your participation in the SMDHU's response to the pH1N1 pandemic?

Please answer this question in reference to your primary, or most frequent, role.

a. ☐ deployed/redeployed as clinic leader
b. ☐ deployed/redeployed as facilitator
c. ☐ deployed/redeployed to health connection

d. ☐ deployed/redeployed as an immunizer
e. ☐ deployed/redeployed to manage supplies/facilities
f. ☐ deployed/redeployed as after care
g. ☐ deployed/redeployed for registration
h. ☐ deployed/redeployed as a tech runner
i. ☐ deployed/redeployed for communicable disease
j. ☐ deployed/redeployed other (such as focusing my normal tasks on pH1N1, infection control, etc.). Explain:
k. ☐ was not deployed/redeployed to any pH1N1 response services. Explain: [**Go to section IV.]**

II. Orientation and Training

Please answer the following questions focusing on your most frequent (i.e. primary) role.

1. How confident did you feel to competently perform your primary role at the beginning of response to the second wave of pH1N1?
   a. ☐ Very confident
   b. ☐ Confident enough
   c. ☐ Not confident. Explain:
2. How competent do you feel about performing your primary role again in the future?
   a. ☐ Very competent
   b. ☐ Competent enough
   c. ☐ Not competent. Explain:
3. The reason for your answer to question #2 was (select all that apply): [**If not immunizer or clinic leader Go to Q4.**]
   a. ☐ Training
   b. ☐ Orientation
   c. ☐ Resources
   d. ☐ Experience
   e. ☐ Others' experience
   f. ☐ Other reason. Explain:

3. A. [**Only for immunizers, clinic leader**] please choose how confident and competent you felt:

	Very confident	Confident enough	Not confident	Very competent	Competent enough	*Not competent*
a. working with medical directives	☐	☐	☐	☐	☐	☐
b. responding to medication errors	☐	☐	☐	☐	☐	☐

4. What recommendations for future training and orientation in relation to pandemic response would you have? (*open ended)*

5. Please answer the following questions based on how much you agree or disagree with the following statements in reference to your primary, or most frequent, role?

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
a. I was provided with clear direction as to my role/responsibilities related to pH1N1 response.	☐	☐	☐	☐
b. I was given sufficient instructions/training so that I could carry out my role/responsibilities effectively.	☐	☐	☐	☐
c. I feel that there was adequate communication about pH1N1 activities in order for me to carry out my assigned role and responsibilities.	☐	☐	☐	☐

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
d. I knew how to access resources to support me in carrying out my role and responsibilities in response to pH1N1.	☐	☐	☐	☐
e. I was able to access resources to support me in carrying out my role and responsibilities in response to pH1N1.	☐	☐	☐	☐

6. In the future, what ONE format of training would you most prefer?
   a. ☐ Workshops
   b. ☐ Web based modules
   c. ☐ Teleconference
   d. ☐ User friendly manual
   e. ☐ Other format. Explain:

7. Did you have any previous experience with large community immunization clinics?
   a. ☐ Yes [**Continue**]
   b. ☐ No [**Go to Section III]**

   If you answered Yes, do you agree or disagree with the following statement:

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
As a result of my experience with large community immunization clinics I was confident performing my role in pH1N1 vaccination clinics	☐	☐	☐	☐
(If answered Strongly Agree or Somewhat Agree) Explain:				

III. Communications with staff

1. Please choose how informed you felt during the second wave of pH1N1:

	Very well informed	Informed enough	Not informed enough
a. about updates on pH1N1 in general	☐	☐	☐
b. about the SMDHU's priorities and activities in relation to pH1N1 response	☐	☐	☐

2. Which was the ONE main factor you attribute to your answers to the previous question?
   a. ☐ Having a briefing at the beginning of clinic/shift
   b. ☐ Training
   c. ☐ Situation updates
   d. ☐ Emailed Dialy updates
   e. ☐ Other. Explain

3. For which of the following topics did you have the information needed? (select all that apply)
   a. ☐ Changes in priority groups
   b. ☐ Introduction of new vaccines
   c. ☐ Medical directives
   d. ☐ None of the above

IV. Staff that was not deployed (from QI.4j.)

1. Please choose how informed you felt during the second wave of pH1N1:

	Very well informed	Informed enough	Not informed enough
a. about updates on pH1N1 in general	☐	☐	☐
b. about the SMDHU's priorities and activities in relation to pH1N1 response	☐	☐	☐

2. Did you receive any training for the pH1N1 response?
   a. ☐ Yes [**continue to Q3**]
   b. ☐ No [**Go Section V**]

3. What role were you trained for (check all that apply):
   a. ☐ clinic leader
   b. ☐ facilitator
   c. ☐ immunizer
   d. ☐ supplies/facilities management
   e. ☐ after care
   f. ☐ registration
   g. ☐ tech runner
   h. ☐ communicable disease
   i. ☐ other. Explain:

4. Would you have been confident in competently performing in the position for which you were trained?
   a. ☐ Yes
   b. ☐ No

V. General Comments

Please provide in the following space any comments that you might have been able to share during your debriefings or that are not captured above.

Thank you for your contribution to this evaluation.

APPENDIX C: External Stakeholders Survey

Introduction

This survey is an element of the evaluation of the SMDHU's response to pH1N1. The main objective of this survey is:

> To assess what policies, procedures, and resources were developed, used and improved and what needs to be done to ensure they are carried forth for future use in Mass Immunization Clinics (MIC) and Pandemic response.

Your participation is voluntary, anonymous and greatly appreciated. This is an opportunity for the health unit to learn from experience. Your contribution is an important piece of this evaluation.

The results will not include names and would be aggregated in internal reports and summaries to external stakeholders (e.g. MOHLTC, Local County and district emergency planning organizations). The results of this survey and other components of the evaluation will be available around the end of February and will be invaluable as we move forward to improve our Pandemic Influenza Plan (PIP) and prepare for future similar incidents.

Please check this box if you agree with the statement below:

☐ **I understand the terms of taking this survey and I consent to the use of my answers as part of the SMDHU's response to pH1N1 evaluation.**

1. Which of the following groups do you or your agency belong to (select all that apply):
   a. ☐ Board of Health
   b. ☐ Simcoe Muskoka Health Sector Emergency Planning Committee (SMHSEPC)
   c. ☐ Vulnerable Population SMDHU (i.e. day cares, LTC, R&R, group homes, corrections)
   d. ☐ Health Care Providers (i.e. Physicians, ICPs, LTCs, emergency depts, hospitals, midwives, nurse practitioners, Walk-in clinics, occupational health professionals, FHTs, CHCs)
   e. ☐ School Boards (i.e. SCDSB, SMCDSB, Trillium Lakelands, French, Private, Post-secondary)
   f. ☐ Municipalities
   g. ☐ First Responders (i.e. Ambulance)
   h. ☐ Day cares
   i. ☐ CYFSCSC
   j. ☐ Muskoka Family Services Coalition

2. What role did you/your agency play in response to the second wave of pH1N1 ?

3. Did you attend or participate in the weekly Health Care Provider Teleconferences with the Health Unit?
   a. ☐ Not Applicable [**Go to Q4**]
   b. ☐ Yes [**Go to Q3A.]**
   c. ☐ No. Please explain on the box.
   [**Go to Q4**]

   If your answer was Yes to the above, how many weekly Health care provider teleconferences with the health unit did you attend/participate?

   a. ☐ 1-2 b. ☐ 3-4 c. ☐ All of them

4. Please indicate if you agree or disagree with the following statements.

	Agree	Disagree	Don't Know / Not sure
We received accurate information regarding the pH1N1 immunization	☐	☐	☐
We received information regarding the pH1N1 immunization in a timely manner	☐	☐	☐
We received sufficient information to ensure a coordinated response pH1N1 across the County/District	☐	☐	☐

5. In the future, how would you like to receive Pandemic information and updates (select all that apply):
    a. ☐ Health Fax
    b. ☐ Email Updates
    c. ☐ Periodic Teleconferences
    d. ☐ Other; please explain:

Thank you for your contribution to this evaluation.

APPENDIX D: SMDHU Essential Services October 26, 2009 (A=ongoing; A-AR= as required)

Service	Team	Program Service/Activity	Priority A/B/C/D
Corporate	Health Promotion & Communications	Public Relations	A
		Media Relations	A
		Crisis Communications	A
	AV Management and Telecommunications Support	AV management	A
		Cell phone and blackberry support	A
	Technology Team	Local Area Network	A
		Telephone Hardware/Software	A
		Phone Systems and Lines	A
		Voicemail Hardware/Software	A
		Wide Area Network	A
		Checkpoint Firewall	A
		MS Exchange (email)	A
		BES Server (email and blackberry)	A
		Citrix 4.5	A
		External Website and Intranet	A
		Software required to support essential service operations	A
		User Support - priority to essential systems and services	A
	Facilities & Office Support	Office Reception, Main offices	A
	Finance	Payroll	A
	Human Resources	Human Resources	A
Clinical	Communicable Disease Investigation Unit	TB Program, for active cases	A - AR
		Community Outbreak mgmt	A - AR
		Case investigation	A - AR
		iPHIS Reporting	A
		Outbreak management in acute & LTCH	A - AR
	Communicable Disease Team	On-call rotation (PHN or PHI)	A
	Communicable Disease Surveillance Unit	Consultation/staff support/admin.	A- AR
	Oral Health	Emergency CINOT and Ontario Works	A
	Sexual Health	STI Case Management HIV, HBV, syphilis only	A - AR
		Bloodborne exposure/Mandatory Blood Testing Application	A - AR
	Vaccine Preventable Diseases	Immunization clinics for childhood diseases	A
		Cold Chain Response	A
		Adverse Event Following Immunization	A - AR
		Supply Vaccine to community physicians	A
Family Health Service	Healthy Babies Healthy Children	Postpartum Phone Calls to High Risk	A
		Parkyn Data Entry	A
Healthy Living	CDP - Tobacco	SFO complaint enforcement	A - AR

Service	Team	Program Service/Activity	Priority A/B/C/D
		Statutory duties (e.g. court appearances)	A - AR
	Healthy Schools	School Liaisons	A - AR
	Health Connection	Health Connection Phone Response	A
Health Protection	Emergency Management	Development of Incident Specific Action Plans – Internal (planning) at time of incident	A - AR
		Emergency Response- On-site management	A - AR
		Evacuation Shelter Inspections/Assessments	A - AR
		Act as agency representative at EOC and site command centres	A - AR
		Emergency Response (Risk Assessments, coordination of resources/services with external parties)	A - AR
	General	Provision of coverage for after hours response	A
	Food Safety	Assess food related complaints/declared outbreaks and prioritize for urgency of response	A - AR
		Respond to Food Recall notices and requests for assistance	A - AR
	Health Hazard	Conduct risk assessments to respond to and manage health hazards	A - AR
		Complete preliminary investigations to support risk assessment process	A - AR
		Conduct risk assessments to respond to and manage vector-borne diseases	A - AR
	General	Health Connection	A
	Safe Water	Monitors / responds to adverse results and events including waterborne outbreaks related to all regulated public drinking water supplies	A - AR
	Rabies	Investigate potential exposures to rabies from all animal exposures (includes risk Assessment)	A - AR
		Isolation, confinement and release of animals that are assessed (cat, dogs, ferrets)	A - AR
		(includes a visual assessments)	
		Vaccine Handling (Orders/transport/monitoring)	A
		Consultation with external partners (i.e. CFIA /arranging for animal testing, municipalities, MNR, animal control, veterinarians, police)	A - AR
	General	Review/comment on any new or changed municipal Official Plan document submission in accordance with required timelines	
		MOHLTC required inspections for licensing purposes (e.g. funeral homes, homes for special care)	A -AR
		Statutory duties (e.g. court appearances)	A - AR

APPENDIX E: SMDHU Essential Services

October 26, 2009

A = ongoing		A - AR = as required	
Service	**Team**	**Program Service/Activity**	**Priority A/B/C/D**
Corporate	Health Promotion & Communications	Public Relations	A
Corporate		Media Relations	A
Corporate		Crisis Communications	A
Corporate	AV Management and Telecommunications Support	AV management	A
Corporate		Cell phone and blackberry support	A
Corporate	Technology Team	Local Area Network	A
Corporate		Telephone Hardware/Software	A
Corporate		Phone Systems and Lines	A
Corporate		Voicemail Hardware/Software	A
Corporate		Wide Area Network	A
Corporate		Checkpoint Firewall	A
Corporate		MS Exchange (email)	A
Corporate		BES Server (email and blackberry)	A
Corporate		Citrix 4.5	A
Corporate		External Website and Intranet	A
Corporate		Software required to support	A

		essential service operations	
Corporate		User Support - priority to essential systems and services	A
Corporate	Facilities & Office Support	Office Reception, Main offices	A
Corporate	Finance	Payroll	A
Corporate	Human Resources	Human Resources	A
Clinical	Communicable Disease Investigation Unit	TB Program, for active cases	A - AR
Clinical		Community Outbreak mgmt	A - AR
Clinical		Case investigation	A - AR
Clinical		iPHIS Reporting	A
Clinical		Outbreak management in acute & LTCH	A - AR
Clinical	Communicable Disease Team	On-call rotation (PHN or PHI)	A
Clinical	Communicable Disease Surveillance Unit	Consultation/staff support/admin.	A- AR
Clinical	Oral Health	Emergency CINOT and Ontario Works	A
Clinical	Sexual Health	STI Case Management HIV, HBV, syphilis only	A - AR
Clinical		Bloodborne exposure/Mandatory Blood Testing Application	A - AR
Clinical	Vaccine Preventable Diseases	Immunization clinics for childhood diseases	A
Clinical		Cold Chain Response	A
Clinical		Adverse Event Following Immunization	A - AR
Clinical		Supply Vaccine to community physicians	A
Family Health Service	Healthy Babies Healthy Children	Postpartum Phone Calls to High Risk	A
Family Health Service		Parkyn Data Entry	A
Healthy Living	CDP - Tobacco	SFO complaint enforcement	A - AR

Healthy Living		Statutory duties (e.g. court appearances)	A - AR
Healthy Living	Healthy Schools	School Liaisons	A - AR
Healthy Living	Health Connection	Health Connection Phone Response	A
Health Protection	Emergency Management	Development of Incident Specific Action Plans – Internal (planning) at time of incident	A - AR
Health Protection		Emergency Response- On-site management	A - AR
Health Protection		Evacuation Shelter Inspections/Assessments	A - AR
Health Protection		Act as agency representative at EOC and site command centres	A - AR
Health Protection		Emergency Response (Risk Assessments, coordination of resources/services with external parties)	A - AR
Health Protection	General	Provision of coverage for after hours response	A
Health Protection	Food Safety	Assess food related complaints/declared outbreaks and prioritize for urgency of response	A - AR
Health Protection		Respond to Food Recall notices and requests for assistance	A - AR
Health Protection	Health Hazard	Conduct risk assessments to respond to and manage health hazards	A - AR
Health Protection		Complete preliminary investigations to support risk assessment process	A - AR

Health Protection		Conduct risk assessments to respond to and manage vector-borne diseases	A - AR
Health Protection	General	Health Connection	A
Health Protection	Safe Water	Monitors / responds to adverse results and events including waterborne outbreaks related to all regulated public drinking water supplies	A - AR
Health Protection	Rabies	Investigate potential exposures to rabies from all animal exposures (includes risk Assessment)	A - AR
Health Protection		Isolation, confinement and release of animals that are assessed (cat, dogs, ferrets) (includes a visual assessments)	A - AR
Health Protection			
Health Protection		Vaccine Handling (Orders/transport/monitoring)	A
Health Protection		Consultation with external partners (i.e. CFIA /arranging for animal testing, municipalities, MNR, animal control, veterinarians, police)	A - AR
Health Protection		Review/comment on any new or changed municipal Official Plan document submission in accordance with required timelines	
Health Protection		MOHLTC required inspections for licensing purposes (e.g. funeral homes, homes for special care)	A -AR
Health Protection		Statutory duties (e.g. court appearances)	A - AR