



Office of the
Provincial Health Officer

B.C.'s Response to the H1N1 Pandemic

A Summary Report

June 2010

Table of Contents

INTRODUCTION 2

ANTIVIRAL STRATEGY 5

IMMUNIZATION CAMPAIGN 6

FIRST NATIONS EXPERIENCE..... 10

HEALTH CARE SYSTEM 10

INFORMATION SHARING 11

LESSONS LEARNED 11

CONCLUSION 12

INTRODUCTION

The H1N1 pandemic was the first influenza pandemic B.C. – and the world – faced during the last 40 years. Now, just over a year after this new strain of influenza appeared in Mexico and the southern United States, we are able to look back and consider the effectiveness of British Columbia's response, both in silo and in partnership at the provincial and national levels.

Certainly, the H1N1 pandemic posed a significant challenge to all sectors in the province and, in retrospect, I believe our response to this challenge was measured, reasoned and appropriate. We took a proactive approach in responding to this pandemic, both towards educating and informing the public and with regards to operational and service delivery preparations.

When it became evident that this pandemic virus was going to arrive in B.C., the provincial government made the appropriate decision to have B.C.'s health professionals lead the charge against H1N1 and, with other Canadian governments, implement Canada's pandemic response plan.

This decision was made before the World Health Organization officially declared H1N1 a pandemic on June 11, 2009, and gave B.C. – and our partners across the country – the opportunity to be proactive in responding and managing this pandemic virus thus mitigating its impact with regards to social disruption, illness or death.

British Columbia's response depended greatly on the province's public health community and our front line health care workers. As such, I would like to personally thank all of the physicians, nurses, pharmacists, medical health officers and other front line workers and public health staff for their months of dedicated and committed work to assist with B.C.'s pandemic response.

What follows in this report is a summary of the key events, tactics and lessons learned from B.C.'s response to the 2009 H1N1 pandemic.

A handwritten signature in black ink, appearing to read 'Perry Kendall', with a horizontal line drawn underneath it.

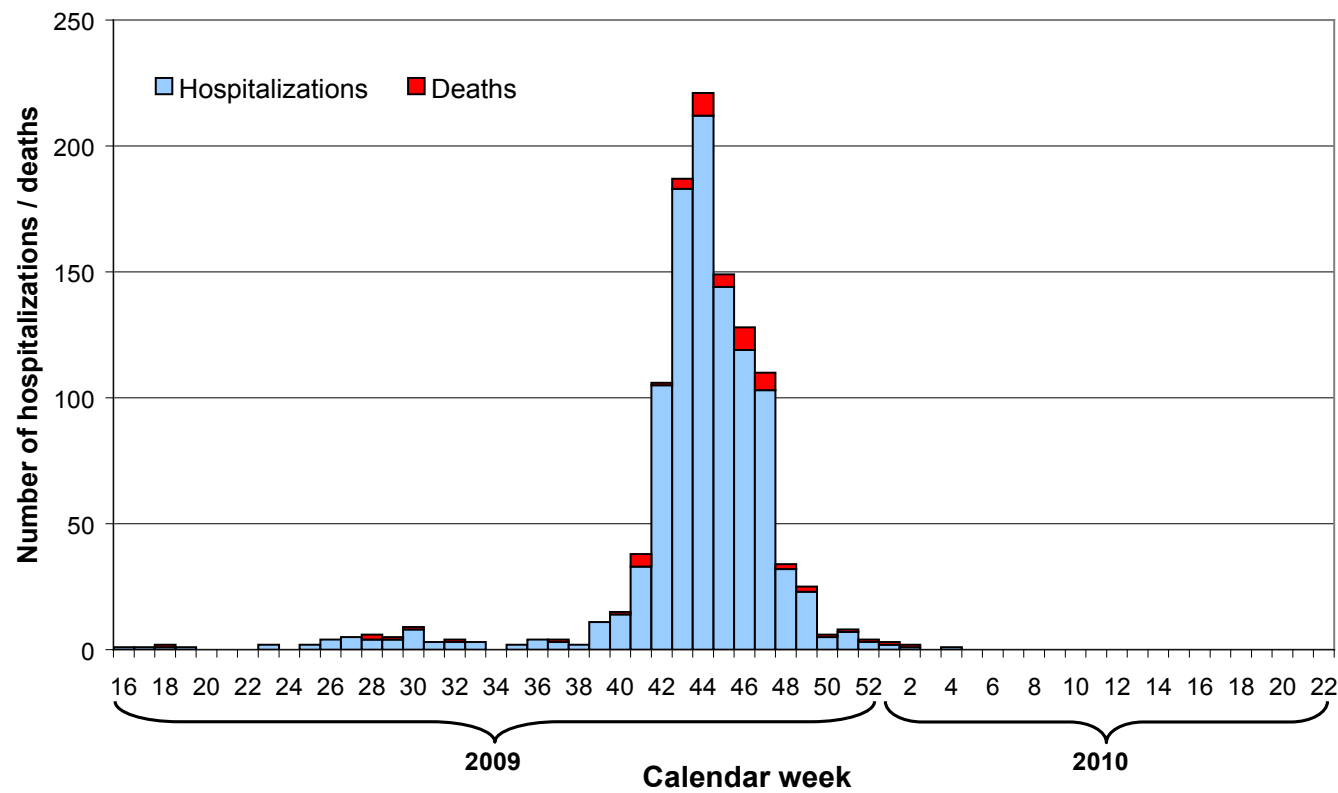
Dr. Perry Kendall
B.C. Provincial Health Officer

SUMMARY OF CASES

Since the first outbreak in April 2009 in British Columbia, this pandemic has resulted in more than 1,050 hospitalizations and 57 deaths in people who had laboratory-confirmed H1N1 illness. For the most part, these cases occurred during the second wave of increased influenza activity. The peak of demand on our hospitals came in Week 44 – the last week in October (2009) (Figure 1).

Figure 1

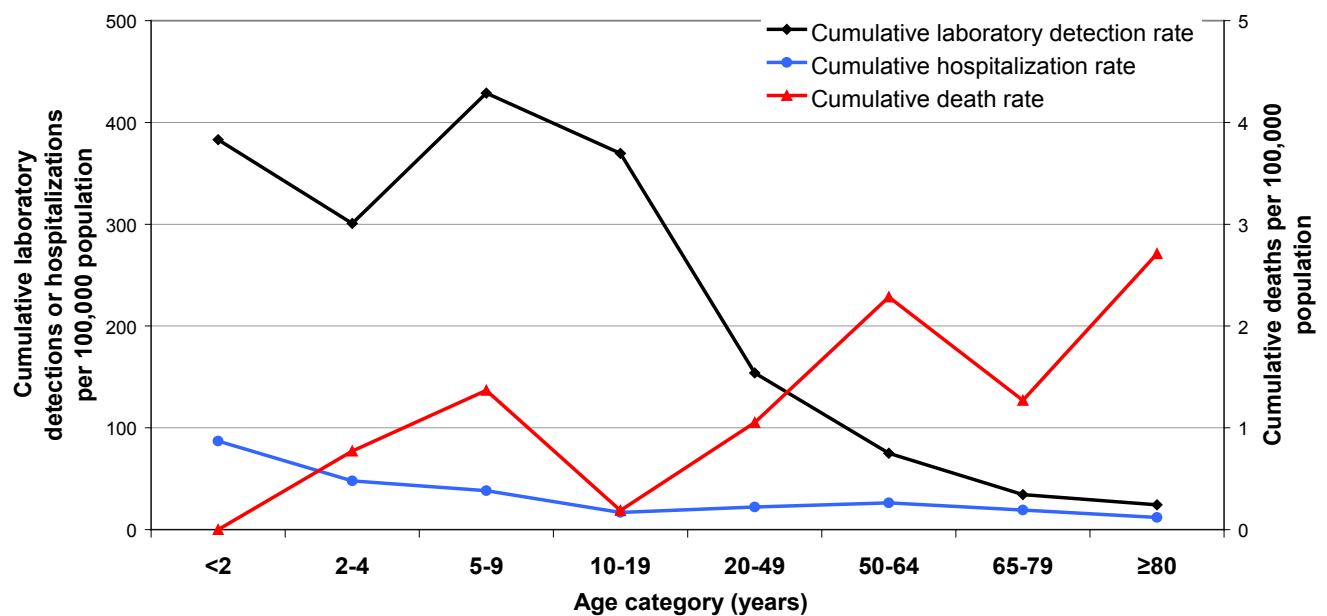
Pandemic influenza A/H1N1 hospitalizations and deaths by week reported, British Columbia, April 2009 - June 2010



Early on we realized that H1N1 was not like the everyday seasonal flu; it was not targeting the elderly as we would expect of seasonal influenza, rather we saw relatively young people hospitalized and fighting for their lives (Figure 2).

Figure 2

Pandemic influenza A/H1N1 detection and serious outcome rates per 100,000 population, British Columbia, April 17, 2009 - June 1, 2010



In about one-third of cases, these individuals had no underlying risk conditions. Children under 10 years of age had the highest crude hospitalization rates, but this reflected their high infection rates (represented in Figure 2 by the cumulative laboratory detection rate) rather than their true risk of serious outcomes. Conversely, those over 50 years of age had lower infection rates, but if they did become infected, they had the highest risk of hospitalization or death.

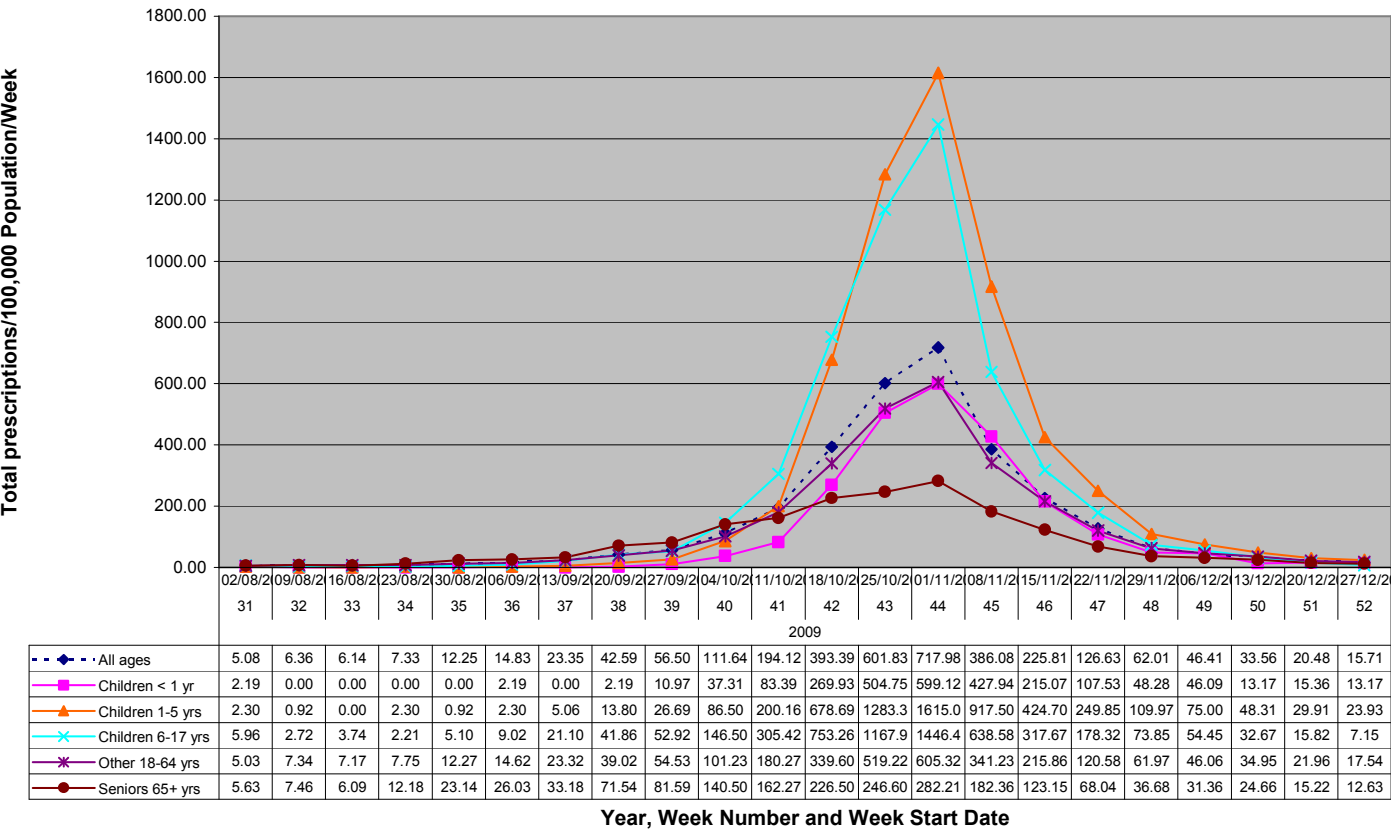
ANTIVIRAL STRATEGY

In anticipation of a second wave of the pandemic, B.C. made the decision to proactively release our pandemic antiviral stockpile. This meant that anyone could get antivirals free-of-charge in order to treat the flu if they got sick. This was especially helpful as people at the highest risk for complications or severe disease – those with underlying conditions – could get prescriptions in advance so that they could have them filled as soon as they got sick without waiting in a clinic to see a doctor.

This meant many people who may have ended up in hospitals, instead dealt with a shorter and less severe illness – one they could recover from at home, on their own. Between the weeks of Oct. 4 and Nov. 22 (2009), more than 120,000 prescriptions of antivirals were filled around the province (Figure 3).

Figure 3

Weekly prescription rate in BC by age groups



What this meant is that for the 120,000 people who took antivirals after getting sick, they were able to manage their illness and recover at home and, in the vast majority of cases, avoid a trip to the hospital or a clinic. In fact, the highest rate of antiviral prescriptions filled were those for children and youth between the ages of one and 17.

B.C.'s antiviral strategy was also a key measure in preparing our remote First Nations communities to combat this virus. Early on in the outbreak, B.C. developed the comprehensive B.C. First Nations H1N1 Action Plan in consultation with the First Nations Health Council and other First Nations stakeholders. The Action Plan called for the pre-positioning of antivirals and diagnostic kits in 21 remote First Nations communities where delivery times may have otherwise compromised speedy diagnosis and care.

By eliminating cost as a factor in treatment and by allowing early access to antivirals, I believe we helped prevent a number of severe outcomes of the pandemic here in the province; in fact, our antiviral strategy may have cut the number of these severe outcomes by almost half.

IMMUNIZATION CAMPAIGN

This is the first pandemic in history where there has been a vaccine available for a virus while the pandemic is still underway. This was also the largest immunization campaign ever attempted in British Columbia: we had never before undertaken such a challenge.

We were ultimately able to offer the vaccine to every British Columbian who wanted or needed to be immunized. To offset initial challenges in vaccine supply, B.C. made the reasonable and correct decision to offer immunization in a phased approach, targeting the most vulnerable groups of our population first (Table 1).

Table 1

Vaccine Priority Groups and Eligibility Expansion Dates
Oct. 26/09: • Persons with chronic conditions under the age of 65 • Pregnant women • Persons residing in remote and isolated communities (e.g. some Aboriginal communities)
Nov. 2/09: • Healthy children between 6 months and less than 5 years of age • Health care workers in critical areas • Household contacts and care givers younger than 65-years-old of infants under 6 months of age and of persons who are immunocompromised
Nov. 9/09: • Other health care workers with priority given to those in critical functions and direct patient care roles • Women in the first half of pregnancy (using unadjuvanted vaccine)
Nov. 16/09: • Children and adolescents between 6 months and 18 years of age • First responders (fire, police)
Nov. 19/09 • All other British Columbians who had not been eligible before

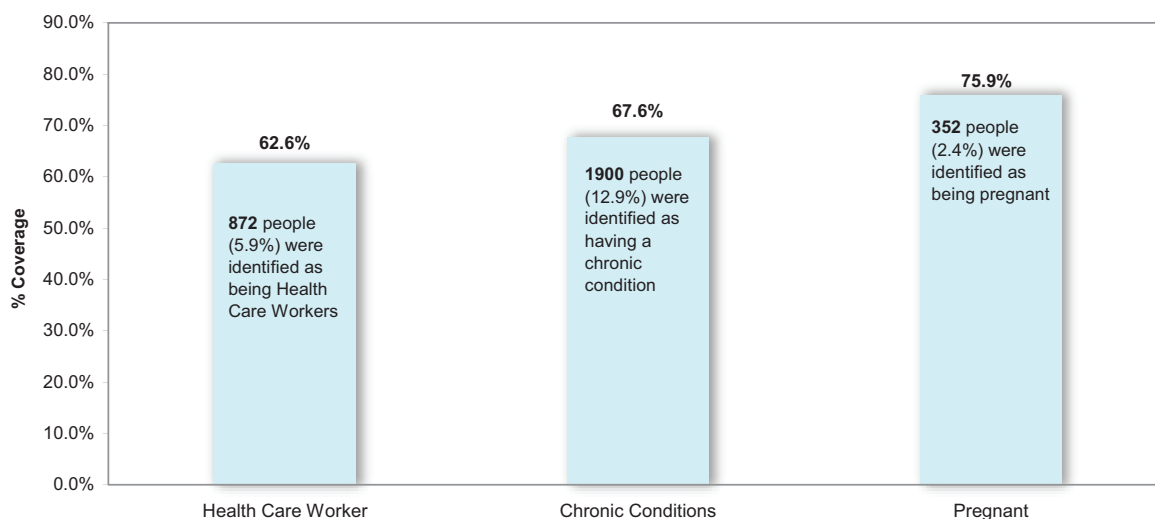
Even with this approach, it was challenging for many clinics to handle the huge demand for vaccine when it became available in late October.

To combat this demand, B.C. expanded the role of pharmacists by authorizing those who were specially trained to provide vaccine injections. As well, Licensed Practical Nurses were a tremendous asset to our health care system, helping with immunizations and public health issues – areas normally associated with Registered Nurses.

In a normal influenza season, about one-quarter of the population will receive the publicly-funded vaccine over many weeks; this year, we were aiming for two-thirds or higher coverage in a much shorter time period. To date, more than 1,800 public immunization clinics have been held around the province and more than 40% of the population has been immunized, greatly exceeding that in the US (20%), Australia (25%), Japan (12%), the UK (7%) and most other European nations.

To determine uptake of H1N1 vaccine during the fall and winter of 2009/10 by age group, in March 2010 the BC Centre for Disease Control (BCCDC) conducted a telephone survey of almost 15,000 British Columbians. The survey found that uptake overall in the province was 42.7% and, by age, varied from a low of 32.2% for 10-18 year olds to a high of 57.9% for those 65 years of age and over. At the regional level, uptake varied from about 39% to 49%. Uptake was highest among targeted high-risk groups including health care workers (HCWs) (62.6%), people with chronic medical conditions (67.6%) and pregnant women (75.9%) (Figure 4).

Figure 4



Further analysis of this data is in progress and researchers at BCCDC will issue final reports on vaccine uptake patterns and attitudinal predictors of vaccine uptake. These results will be used to inform development of strategies for vaccine promotion and education for the upcoming and future influenza seasons.

There are always areas in which we can improve our response and we have learned much from the H1N1 pandemic, especially with regard to the logistics of organizing and delivering such a mass immunization campaign. In an ideal world, we would have had the vaccine available to everyone earlier than we did; this is something we will be looking to address as we prepare for possible future pandemics.

We have learned that mass immunization clinics can't be "first-come, first-served," and that they could be better organized by allowing appointment-style bookings. We have learned that using schools or community centres as bases for immunization clinics would probably make good sense for future mass vaccination efforts. We have learned that further engagement and leveraging of B.C.'s primary care physicians would be beneficial to a smoother and more streamlined and effective immunization effort.

Going forward, we plan to work with the federal government to see if there are ways of securing larger quantities of vaccine sooner for future pandemics. Within B.C., we will prepare the vaccine distribution and delivery infrastructure to handle a higher capacity as well. This will be done using a variety of immunization service providers and settings.

In spite of these things which we could do differently during a future pandemic, I would qualify our response to the H1N1 pandemic, including our immunization program, as a success.

Looking specifically at (HCWs), uptake for the H1N1 vaccine was higher across the board than for seasonal vaccine this year. As noted above, an estimated 62.6% of all B.C. HCWs were immunized for the H1N1 flu virus.

While this is a higher percentage than the general population, we still need to better understand why more health care providers don't get immunized on a regular basis, and how to improve acceptance of vaccines.

In spite of the challenges surrounding vaccine timing and delivery, I am confident that without the vaccine, we would have had worse outcomes. When you consider that approximately 40% of British Columbians have already been immunized, and that a substantial proportion of the population (an estimated 20-25%) is likely to have been infected during the outbreak, that means a significant percentage of the population now has immunity to this virus.

I recognize that there are legitimate concerns over the fact that approximately 60% of the pandemic vaccine in B.C. has gone unused, and that most of that has now been deemed "expired".

I believe that the commitment to provide enough vaccine for every Canadian was sound - although that target can, and most likely will, be reviewed. I am also convinced that had vaccine supplies been able to meet the early demand and had vaccine been available earlier, our uptake would have been much higher.

FIRST NATIONS EXPERIENCE

With regards to our experience in assisting and working with First Nations communities to prepare for H1N1, I am very pleased with the work that was done. This work, led by our Aboriginal Health Physician Advisor Dr. Evan Adams and the First Nations Health Council, other First Nations stakeholders, and the medical health officers across the province, resulted in the well-implemented, comprehensive B.C. First Nations H1N1 Action Plan. The Action Plan included communications; a distinct, nurse-based surveillance system; the pre-positioning of antivirals; and diagnostic kits and detailed instructions to 21 remote First Nations communities where delivery times may have otherwise compromised speedy diagnosis and care.

The end result was that there was less anxiety and stress in these communities, and low morbidity and mortality for this province's Aboriginal population. In fact, many First Nations communities saw very high numbers of residents being immunized – some even up to a reported 120% of the population! This could occur because some First Nations people who were living off-reserve chose to return to the community in order to be vaccinated.

HEALTH CARE SYSTEM

A strong relationship and partnership with the BC Medical Association (BCMA) and the BC College of Physicians and Surgeons was critical to a coordinated and cooperative response. For example, in early October 2009, an agreement between the Province and the BCMA meant that physicians had two new fee codes available to them. Being able to bill for giving H1N1 telephone advice and for specific H1N1 office visits enabled physicians to more appropriately diagnose and treat pandemic H1N1 patients.

With regards to the impact on our acute care system as a whole, it was only at the very peak of the second wave that we began to see pressures on our hospitals and intensive care units that resulted in a few elective surgeries being rescheduled.

We were fortunate that we did not have to implement significant scheduling changes or cancellations but if pressures had been greater, we would have seen intensive care units and emergency departments triaging patients. By definition, a more severe pandemic would have put additional pressure on our health system.

Based on our experiences during H1N1, we will continue to develop and adjust our strategies and plans to be ready in the event of a more severe pandemic.

INFORMATION SHARING

Our information and communications campaign to the public, through daily media briefings, news releases, a dedicated H1N1 website, social media and more standard advertising avenues, were as timely, accurate and proactive as we could make them. I believe these efforts resulted in more British Columbians being aware of the role they could play in minimizing the risk to themselves and to others by hand washing, staying home when feeling ill and getting immunized. I also believe the information campaign contributed significantly to B.C.'s experience of milder illness.

As this was a new virus, knowledge was generated and evolving on an ongoing basis – and sometimes multiple times – and I can understand why people may have been confused about when or where to get the vaccine, or about which vaccine they should receive.

What I can say is that my colleagues and I did our best to be available on a regular, daily basis to media to answer and clarify any questions in real time as they arose. I believe the daily briefings we held did much to assist this information sharing and, in the future, we must and will ensure that the health system continues to work closely with media to effectively convey this kind of information to help manage public awareness and expectations.

We will continue to develop and enhance how we communicate to all British Columbians – and further incorporate modern technology such as social media tools like the Twitter and Facebook sites we created during the pandemic. As well, web sites and resources for health care providers proved effective and provided timely and useful information to clinicians, and we intend to continue to maintain and enhance these resources for future events.

LESSONS LEARNED

Looking back at our entire response, I believe B.C. managed well. We did not experience some of the problems that arose in other jurisdictions and, by and large, our vaccine delivery program went as smoothly as could be expected when the unavoidable delays and initial organizational challenges had been overcome.

An electronic system to track vaccine uptake and delivery is essential in the event of a future pandemic. In that respect, B.C. has been the lead on the build of the Panorama application which is currently being configured to meet its specific jurisdictional requirements. With its expected operational launch and roll out to health authorities in the spring of 2011, our province is well on the way to having such an electronic surveillance system in place.

Globally, we need better assurances of vaccine production, with regard to both supply and timing. We also need to look at how to deliver large quantities of vaccine at the same time.

I am also aware that a range of messages about H1N1 and the response approach continued to present challenges for both health professionals and the public. Early on we made what I

believe to be the correct decision to keep the public and health professionals informed with the most current – and best – information we had at any given time.

While there were challenges and lessons to be learned, there were also many successes. Once again it was evident how essential it is to have an agency such as the BCCDC, where lab-testing, epidemiology analysis, program guidelines, mathematical modelling and expert research are brought together to focus on the problem.

As well, we learned the strengths of B.C.'s current regional health care model which allows health authorities to respond in a way that is best suited for the specific needs of communities. However, our experience with this pandemic indicates that we could, and should, do better next time.

While Ontario's Chief Medical Officer of Health has called for additional powers for Public Health officials during a pandemic, B.C.'s new Public Health Act (2008) provided us with the necessary tools, had we needed them.

CONCLUSION

When I look at our response in this province, I can say with confidence that it was measured and reasoned. The proactive work of the Province and our communities meant we could better anticipate and mitigate the impact of this virus.

That said, we should not become complacent – we had to be prepared for something that might have been considerably worse and we should still maintain that cautionary stance. In fact, some of the steps we took to mitigate the situation – such as releasing our antiviral stockpile – probably kept the virus from seeming as bad as it may have otherwise been.

It is important to recognize that experts insist we must expect the unexpected with influenza. Influenza is notoriously unpredictable. This pandemic has proved that for us and it is likely that the next one will also have unexpected features.

We should not let down our guard. BCCDC is still vigilantly monitoring for a possible resurgence of seasonal or pandemic influenza in B.C., or elsewhere in Canada and across the globe.

It is expected that a similar strain of the pandemic H1N1 influenza virus will be circulating in British Columbia this fall. It is also expected that this fall's seasonal influenza vaccine will include protection against H1N1. As such, I would encourage all British Columbians who have not yet been immunized against this influenza virus and who have not had lab-confirmed H1N1, to receive this seasonal flu shot when it's available in October.

Moving forward, and as is the case following any significant public health event, the Office of the Provincial Health Officer will continue to work with the Province, health authorities and our partner agencies to review and identify any ways to improve B.C.'s response to a future pandemic.



Office of the
Provincial Health Officer

