

ImmunizeBC Progress Report: *April 1, 2007 – March 31, 2012*

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ImmunizeBC

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EXECUTIVE SUMMARY

In 2007, the Ministry of Health released *ImmunizeBC: A Strategic Framework for Immunization in B.C.* (*ImmunizeBC*). This progress report summarizes the province's progress towards the four goals originally outlined in *ImmunizeBC*.

GOAL 1: *Increase the uptake of current and future recommended vaccines to reach select Provincial and National Immunization Strategy targets by 2010.*

Since ImmunizeBC was released in 2007,

- » Coverage rates have remained constant despite anecdotal reports of increases in anti-immunization sentiments; and
- » B.C. has surpassed national targets for seniors and residents living in long-term care facilities for the influenza vaccine.

GOAL 2: *Ensure the immunization program is supported by the most current, evidence-based information on the status of vaccine-preventable infectious diseases in B.C. and on emerging sources of infectious disease risk from other parts of the world.*

Since 2007,

- » The provincial government has invested approximately \$3.9 million dollars in applied research and evaluation activities to support optimal reach for provincial immunization programs across the lifespan;
- » Careful provincial monitoring of B.C. and beyond has led to evidence-based program changes, including the implementation of two new vaccines (HPV vaccine in 2008 and rotavirus vaccine in 2012), the offer of hepatitis A vaccine to Aboriginal peoples between the ages of six months and 18 years, and a second dose of varicella vaccine provided to children upon school entry;
- » Preliminary results from a clinical trial led by the Vaccine Evaluation Centre demonstrate that an extended dose schedule of the HPV vaccine Gardasil™ is comparable in protection to the three-dose schedule in adolescents. This led to a program change reflecting these findings; and
- » As a result of the H1N1 pandemic, and to allow for future outbreak management, a preliminary plan for outbreak response has been drafted to include lessons learned.

GOAL 3: *Build the capacity of the immunization program to ensure long-term sustainability.*

Since 2007,

- » The province has extended its immunization program to include community-based providers (pharmacists and LPNs) and expanded access to publicly funded vaccines;
- » The BCCDC immunization program team has expanded to include additional full-time staff; and
- » Identified and implemented efficiencies to reduce costs, such as dropping from four to three doses for Prevnar and the two-dose HPV vaccines.

GOAL 4: *Promote quality across the immunization system to achieve improved system performance.*

Since 2007,

- » Improvements have been made to the provincial registry system; and
- » Wastage rates have decreased from 7% to 3%.

Despite these successes, several areas require refocused efforts. Key challenges identified include the need for a rapid data entry immunization registry system, improved and varied means of communication among immunization stakeholders, and addressing barriers to immunization directly. This includes new, innovative promotion strategies as well as methods for measuring their outcomes.

INTRODUCTION AND BACKGROUND

ImmunizeBC: A Strategic Framework for Immunization in B.C. (ImmunizeBC) was created in 2007 through the collaborative efforts of multiple immunization stakeholders in the province. Within the framework is a set of objectives, goals and priority actions which assist in monitoring the progress made toward improving health and quality of life through immunization in B.C.

Serving a population approaching 4.5 million, B.C.'s immunization program has increased in complexity over recent years. *ImmunizeBC* was developed to guide immunization programming within the context of evolving challenges; the strategies in the document were informed by the 2003 National Immunization Strategy and extensive, province-wide consultation.

The four goals have provided a framework for program planning, policy, delivery, management and evaluation since 2007. Several provincial working groups dedicated to addressing aspects of the framework have been constituted. These goals are essential to the foundation of work that is to be done in the next 5 years, and implementation of *ImmunizeBC* through these priority actions has been documented through annual reports.

The role of the Ministry of Health is to act as a steward for the health care system, including leadership and support. The Ministry sets strategic direction for the health system, provides appropriate legislative and regulatory frameworks, plans for capacity, and monitors provincial progress towards achieving both system and population goals and outcomes. The Ministry also monitors the health of the population.

The BC Immunization Committee (BCIC) facilitates coordination among all parties involved in delivering immunization in B.C., including:

- » the BC Centre for Disease Control;
- » the five regional health authorities;
- » First Nations & Inuit Health;
- » family physicians;
- » pediatricians;
- » LPNs;
- » midwives;
- » pharmacists; and
- » other service provider representatives.

Regional Health Authorities are responsible for the planning, delivery and evaluation of preventative health services.

The BC Centre for Disease Control (BCCDC), an agency of the Provincial Health Services Authority, is responsible for management of B.C.'s immunization program which includes vaccine procurement, warehousing and distribution, evidence-based policy and guideline development, program delivery support, program monitoring and evaluation, and applied research.

This progress report summarizes the first five years (2007 to 2012) following the establishment of *ImmunizeBC*. Progress in implementing *ImmunizeBC* will be summarized at the local, regional and provincial levels to guide future directions in the continual improvement of immunization services in B.C.

GOAL 1: Increase the uptake of current and future recommended vaccines to reach select Provincial and National Immunization Strategy targets by 2010.

Progress since April 2007:

Immunization coverage rates (also referred to as uptake) are one of the most important measures of success in immunization program planning. Assessment of annual coverage rates provides insight into:

- » a population's level of protection against vaccine-preventable diseases;
- » the completeness of immunization records within the provincial registry; and
- » public awareness and support of immunization and its associated benefits.

Immunization coverage data in B.C. are collected through several sources, including aggregated data rolled up to the province from the regional level and electronic registries [the integrated Public Health Information System (iPHIS) and Primary Access Regional Information System (PARIS)].

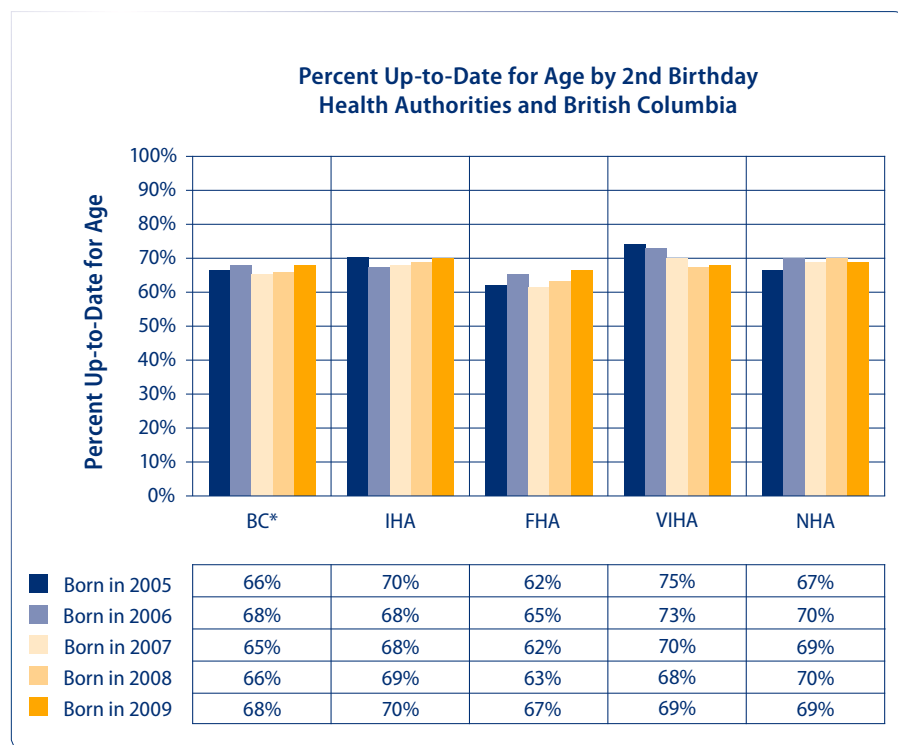
In 2007, *ImmunizeBC* set provincial targets to increase immunization uptake year over year. Two-year-old coverage assessments are long standing important measures of uptake of infant vaccines and results are made public on a quarterly and annual basis on www.bccdc.ca.

In 2010, the decision was made to assess coverage rates of children at seven years of age, after they had entered school, rather than at the end of kindergarten, starting in spring 2012. This allows for a review of all infant and school entry doses, which is consistent with national processes and facilitates comparison between provincial coverage rates.

Comparison data for benchmarking BC performance on immunization coverage by 2nd birthday are not readily available. A national survey conducted in 2009 reports on individual antigens and not complete "up to date" immunization. For the single antigens, national results are: Hib (77%), measles (92%), mumps (92%), rubella (92%), polio (83%), varicella (86%), pneumococcal (55%), and meningococcal C (88%). BC compares favorably to these national results, recognizing that the methods of ascertainment are not comparable.

COVERAGE RATES AT A GLANCE

Overall, immunization coverage rates have remained relatively constant in B.C. from April 1, 2007 to March 31, 2012, despite anecdotal reports of increases in anti-immunization sentiments. These sentiments are difficult to measure, but there has been a marked increase due to social media sites such as Twitter and YouTube. Anti-immunization sentiments remain one of the biggest barriers to increasing coverage rates in B.C.'s immunization program.



About two-thirds of B.C. children are completely up-to-date for all routine infant and toddler immunizations by the time they turn two years of age (see chart below*). The proportion of up-to-date two-year-olds varies around the province with a low of 54% and a high of 77%¹ depending on Health Service Delivery Area (HSDA). Inconsistencies in methodology for record keeping may contribute to this variation and are under review.

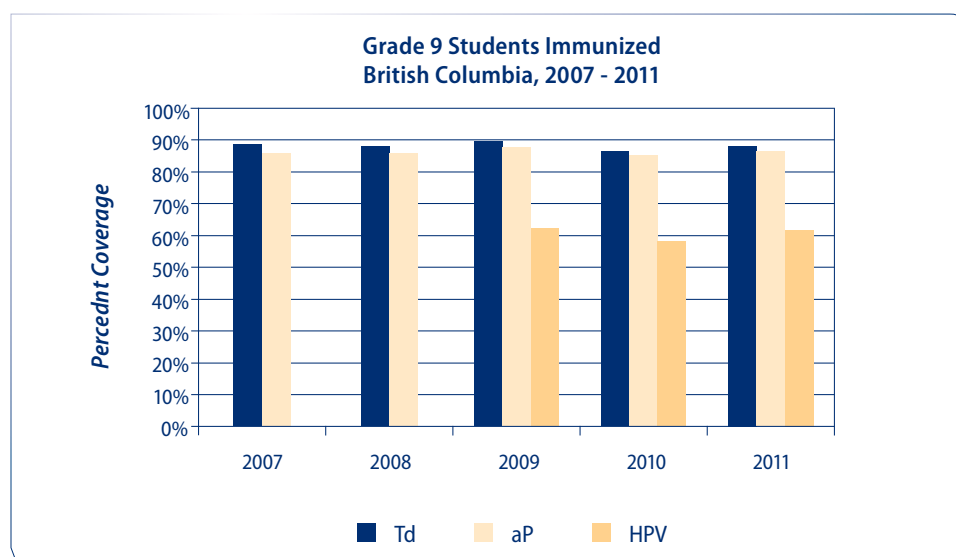
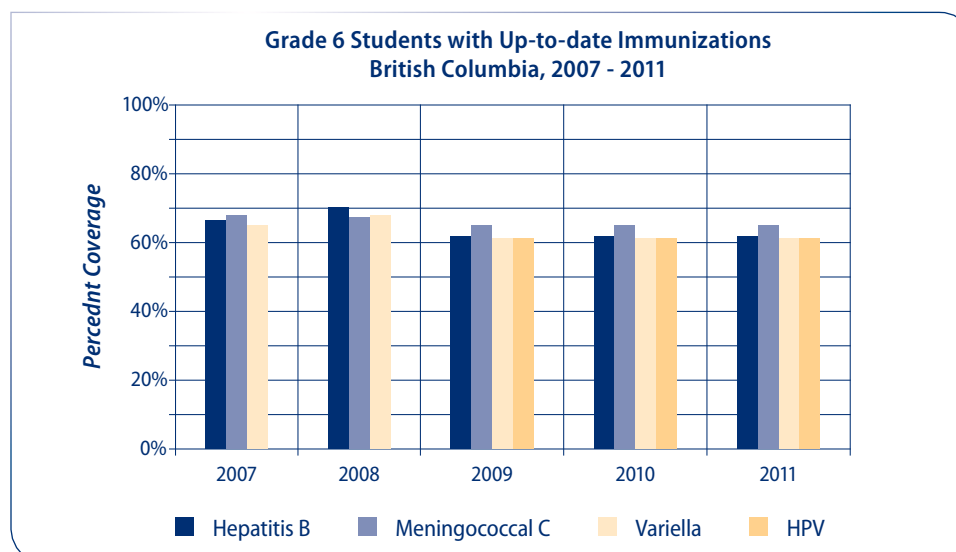
* Note: data excludes Vancouver Coastal Health (VCH) as they use a different data collection system (PARIS) than the other Health Authorities (iPHIS). Most immunizations of young children in Vancouver Health Service Delivery Area are given by family physicians and not entered into the VCH system until school entry. A 2008 survey of the 2006 birth cohort in VCH (includes Richmond, Vancouver and North Shore/Coast Garibaldi) indicated an up-to-date coverage rate of 76.7%. The VCH coverage estimates, obtained via a combination of immunization registry data and telephone interviews, should not be directly compared to the iPHIS results for the rest of the province as the methods for obtaining immunization records were dramatically different. For the VCH survey, a random sample of children living in VCH was identified from the Ministry of Health client registry. Immunization coverage was first assessed using existing PARIS/iPHIS records. Telephone interviews for children with incomplete PARIS/iPHIS records were then conducted until the target sample size of 1,051 was reached. 57% of records were considered up-to-date without contact. 798 children in the sample were replaced due to: refusal to participate (114), loss to follow-up (193), incorrect contact information (361) or other reasons (130) in order to obtain the target sample size.

Almost 80% of kindergarten students are up-to-date for their preschool DTaP-IPV (diphtheria, tetanus, pertussis, polio) booster (see below chart). This rate dropped in 2010 and 2011 to 77% and 76%, respectively and is being monitored. HSDAs reported a range of coverage rates from 62% to 92%.

¹ Source: BCCDC, 2011 annual data

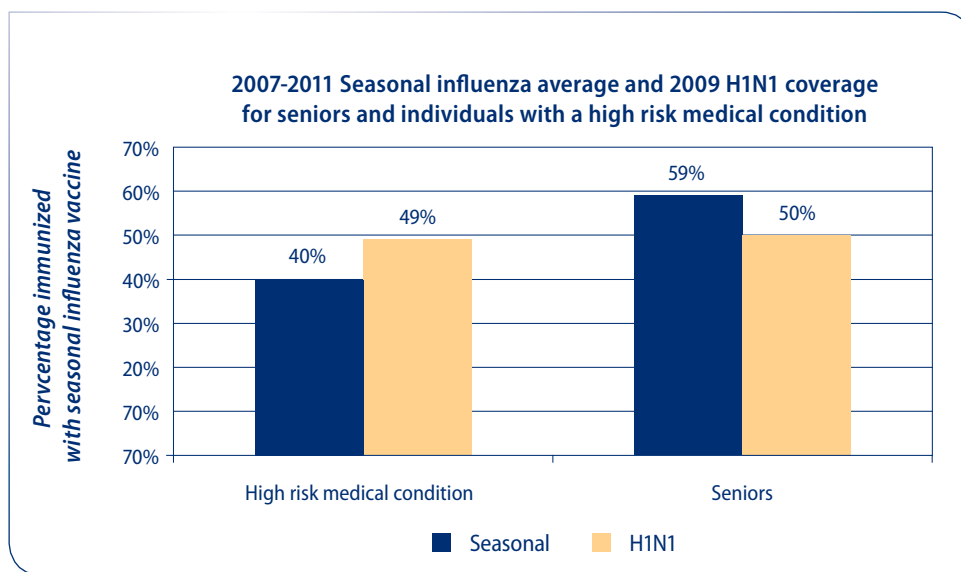
| | | Year of Birth | | | | |
|--|---|---------------|------|------|------|------|
| | | 2005 | 2006 | 2007 | 2008 | 2009 |
| British Columbia (BC), excluding Vancouver Coastal Health (VCH) | <i>Up-to-date for age</i> | 66% | 68% | 65% | 66% | 68% |
| | <i>Up-to-date minus booster</i> | 70% | 76% | 74% | 75% | 77% |
| | <i>Specific agents included in "Up-to-date for age"</i> | | | | | |
| | D/T/aP/IPV | 76% | 77% | 74% | 74% | 75% |
| | D/T/aP/IPV/Hib | 76% | 77% | 74% | 74% | 75% |
| | Hep B | 87% | 87% | 83% | 83% | 84% |
| | Hib | 81% | 82% | 79% | 78% | 79% |
| | MMR | 76% | 78% | 75% | 74% | 75% |
| | Polio | 80% | 81% | 77% | 77% | 78% |
| | Varicella | 83% | 85% | 83% | 83% | 84% |
| | Pneumococcal conjugate | 79% | 83% | 82% | 84% | 85% |
| | Meningococcal C conjugate | 88% | 87% | 86% | 86% | 87% |

Grade 6 and 9 coverage rates remain at 83 – 90% except for the new HPV vaccine program which is still gaining momentum, with an increase to 68% for girls in grade 6 and 62% for girls in grade 9 during the third year of the program (see below charts; data excludes Vancouver Coastal Health).



Between 2007 and 2011, seasonal influenza vaccine coverage for those aged 12 to 64 with high risk medical conditions (including asthma requiring medical attention, diabetes, heart disease, cancer, chronic bronchitis and/or emphysema or chronic pulmonary obstructive disease) was approximately 40% and for community seniors (aged 65 and over) was 59%.²²

During the 2009/10 H1N1 pandemic, vaccine coverage for the pandemic H1N1 virus for those aged 12 to 64 with higher risk medical conditions was approximately 49% and for community seniors (aged 65 and over) was 50%.



Finally, influenza vaccine coverage among health care workers employed in acute care facilities was 40% for the 2011/12 flu season; coverage among those employed in residential care facilities in B.C. was 57%.

INNOVATIVE PROVINCIAL PROMOTION

The B.C. Immunization Committee (BCIC) Immunization Promotion Working Group has spearheaded four main projects since 2007:

ImmunizeBC Brand Awareness

The *ImmunizeBC* brand launch and ongoing awareness campaign began soon after the release of *ImmunizeBC* with the objective of increasing public knowledge and confidence in www.immunizebc.ca as a reliable source of immunization information. The website has since become the main platform for the program and brand. As a repository for resources, it has a role in providing evidence-based information about vaccine safety controversies, particularly as the presence and influence of anti-immunization groups continues to spread on the internet.

²² Source: '2007 & 2008,' '2009 & 2010' and '2010' Canadian Community Health Survey Public Use Microdata Files

Two-Year-Old Campaign

In 2008, the “Two-Year-Old” campaign was introduced to promote immunization in children less than two years of age. Parents were encouraged to consider protecting their

children from the unseen dangers of vaccine-preventable diseases in the same way they protect children from injuries with infant car seats and baby gates.

Following the campaign, parents reported more knowledge of and support for immunization; coverage rates for all vaccines increased to 66.5% in 2008 from 64.9% in 2007 for up-to-date by 2nd birthday; up-to-date coverage rates for the infant doses increased 6.2% over the same period.



Human Papillomavirus Virus (HPV) Vaccine Campaign

The introduction of the HPV vaccine in school immunization programs was conducted with active messages targeted toward young women in B.C., parents, and public health staff. Unlike vaccines that prevent well-known infectious diseases, the HPV vaccine prevents cancer of the cervix and is still poorly understood by the public. The status of HPV as a sexually transmitted infection and focus on protection of girls fueled misinformed media coverage in the year prior to introduction in B.C. The campaign objective was to make accurate information accessible.

Influenza Immunization Campaigns

British Columbia’s annual influenza campaign is designed to protect against the continuously evolving influenza virus and to increase awareness of the benefits of publicly-funded vaccination among those at highest risk. Following regulatory changes in 2009 to allow pharmacists to immunize, endorsement has been obtained from the B.C. Pharmacy Association for the provincial influenza campaign. During the fall of 2009, the H1N1 pandemic influenza promotion campaign targeted young adults who were susceptible to the pandemic virus and unaccustomed to being immunized against seasonal influenza.

GOAL 2: *Ensure the immunization program is supported by the most current, evidence-based information on the status of vaccine-preventable infectious diseases in B.C. and on emerging sources of infectious disease risk from other parts of the world.*

Progress since April 2007:

Operational and program-specific immunization research must keep pace with the changing dynamics of immunization program delivery. The BCIC funds pilot projects and applied research activities that address *ImmunizeBC*’s goals. Ultimately, the provincial immunization research priorities seek to better understand the barriers to vaccine uptake and adapt this knowledge to make immunization more accessible.

Two-Dose HPV Project

Funded by the Ministry of Health, the Vaccine Evaluation Centre at the B.C. Children's Hospital led a one-time \$1.6 million multi-centre clinical trial to examine the immune response to two doses of HPV vaccine instead of three doses originally recommended by the manufacturer in its submission to Health Canada. A reduction in vaccine dose will result in a less intrusive immunization program for girls and significant savings to the health care system; achieving non-inferior outcomes with a two-dose program frees up the cost of the third dose for investment in other public health priorities.

Results at 24 months' follow-up indicated that two doses of vaccine given to 9 – 13 year old girls six months apart provides protection that is comparable to that obtained in older girls who receive three doses. This is due to the robust immune system characteristics of younger individuals. Final study results determined that two doses of the HPV vaccine given in grade 6 provides the same protection as three doses.

These findings have prompted a schedule change during the 3rd year of the program in B.C. to move from a 3-dose schedule in grade 6 to a two-dose schedule. The province will be leading a national evaluation to monitor the impact of this schedule change, and a booster may be provided five years later if required based on these additional evaluations.

This change has harmonized the HPV schedule in grade 6 with the two-dose hepatitis B schedule, and has allowed reallocation for up to \$1.4 million in averted funds for other immunization program costs.

Outbreaks

Lessons learned during the H1N1 pandemic in 2009 are informing the development of a provincial pandemic immunization response plan. Phase one has been completed, with a comprehensive plan drafted by the Ministry of Health, BC Centre for Disease Control and Regional Health Authorities along with other ministry partners; these partners are working collaboratively on next steps before completing the final plan.

The principles guiding the development of the document of the pandemic immunization response plan are:

- » The priority in the case of a pandemic influenza is to reduce the impact on the health of the public (i.e. reduce illness and save lives). Interventions are to be applied in a fashion that achieves maximum health benefits;
- » Essential services will need to be maintained. Should there be a conflict between these two aims, values-based decisions will need to be made regarding intervention priorities;

BCIC Projects

Funding is provided to the BCIC to foster the development and exchange of immunization knowledge, skills, and practice as per the *ImmunizeBC* goals, objectives, and priority actions. In order to ensure B.C.'s immunization program is supported by timely, local information and new knowledge, *ImmunizeBC* supports short term applied research and evaluation projects that support reaching the goals and implementing priority actions presented in *ImmunizeBC*, spur innovation, and complement core program expectations.

- » At the core of a pandemic influenza is a virus that has not been seen before. Because the impacts of a pandemic influenza are hard to predict, the plan requires flexibility;
- » Existing vaccination delivery models, distribution systems, communication and decision making forums are the easiest to bolster and deploy during a pandemic. Additional delivery models should be added when existing delivery models are at capacity; and
- » During the inter-pandemic period, the health care sector should work together to increase the number of community vaccine providers.

The draft plan outlines the assumptions and trends of pandemics, the roles and responsibilities of stakeholders, logistics, resource management, data collection, management of mass immunization clinics, security, promotion and education, and related provincial legislation.

GOAL 3: *Build the capacity of the immunization program to ensure long-term sustainability.*

Progress since April 2007:

Support is required from service providers and health leaders to reinforce messaging, to provide information to clients to facilitate informed decisions about their health, and to engage in a thorough feedback process to address stakeholder concerns. Between April 1, 2007 and March 31, 2012, \$400,000-\$500,000 was allocated per year to the BCIC for the promotion of immunization in the province.

Expansion of Community Vaccine Providers

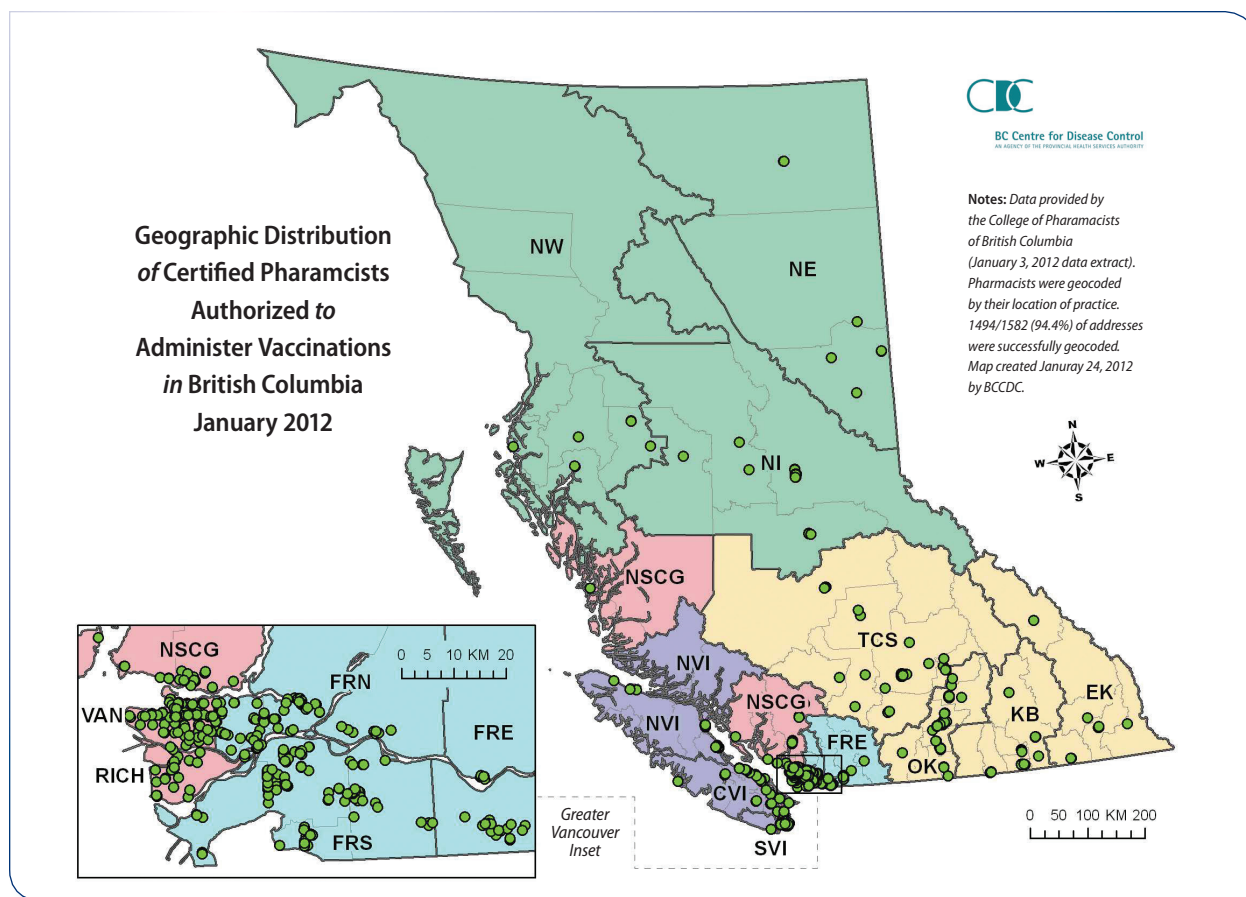
The 2009 influenza pandemic tested British Columbia's ability to efficiently immunize its population during such a time-sensitive event. The need for access to an increased capacity of trained immunizers led to the incorporation of vaccine administration into the roles of licensed practical nurses (LPNs) and pharmacists, necessitating the need for regulatory changes.

Clarification of the scope of practice for LPNs was provided through the work of the Ministry of Health in association with the College of Licensed Practical Nurses of B.C. Already well-immersed in patient care, this put LPNs in an optimal position to provide immunizations to individuals 4 years or older after completion of appropriate immunization competency training.

The Ministry of Health additionally expanded the scope of practice for pharmacists to include the administration of injections to individuals 5 years or older; the development of immunization training and certification programs for this group soon followed. This opened up community pharmacies as venues for immunization services.

In the fall of 2009, approximately 400 pharmacists were authorized to immunize against H1N1. As of April 2012, 1,654 pharmacists are able to provide immunization in ~ 69% of all pharmacies in B.C.

The map graphic shows the geographic distribution of immunizing pharmacists throughout the province. Most recently, pharmacists have been involved as immunizers in the Pertussis (whooping cough) outbreak management within Fraser Health Authority.



It is the goal of the B.C. Pharmacy Association to have at least one immunizing pharmacist on staff in each of the province's pharmacies; as well, the Association is striving for 2,000 pharmacists to be trained and eligible for immunization authorization by December 2012. To assist in meeting this goal, the UBC Faculty of Pharmacy has incorporated immunization training into its pharmacist undergraduate program, which means all pharmacist-students will be trained by graduation.

New Vaccine Programs

Since 2007 there have been a number of changes to the immunization program in BC, including modifications to existing programs and the introduction of new programs. These changes have resulted in an increase in the value of vaccine distributed in BC from approximately \$33M to \$40M. A brief summary of some of the significant changes to the immunization program follows.

The human papillomavirus (HPV) vaccine was introduced during the 2008/09 school year for girls in grade 6 and 9 for the prevention of cervical cancer and genital warts. The program for grade 9 girls ran through the 2008/09-2010/11 school years and has concluded as girls who would have received the vaccine when they were in grade 6 had entered grade 9 in 2011/12.

Two new infant programs were introduced in January of 2012: rotavirus vaccine for the prevention of rotavirus gastroenteritis (diarrhea), and hepatitis A vaccine for the prevention of hepatitis A. The hepatitis A vaccine program was introduced for aboriginal infants, living on- or off-reserve, due to recurring outbreaks in aboriginal communities while the rotavirus vaccine is provided to all infants.

Changes have also been made to ongoing routine childhood vaccine programs. In June 2010, a new version of the pneumococcal conjugate vaccine was introduced for infants that protects against 13 types of pneumococcal bacteria compared to the 7 types covered by the previous vaccine.

As of January 2012, the varicella (chickenpox) vaccine program has increased the recommended number of doses for young children from 1 to 2 with the addition of a second dose of the vaccine at 4-6 years of age. A second dose of the varicella vaccine will also be provided to children in grade 6 beginning in the 2012/13 school year.

Finally, expansion of the seasonal influenza vaccine program has resulted in the inclusion of a number of new groups of people who are eligible for free vaccine due either to their high risk of serious illness from influenza or because they are able to spread influenza to those at high risk.

Awards

The immunization program in British Columbia has been recognized by a variety of awards since 2007:

- » The strategic framework, *ImmunizeBC*, won an internal Ministry of Health award for exceptional excellence.
- » Information inserted in the Child Tax Credit mail out promoting immunization for all children five years and younger was piloted in B.C. The pilot was expanded to a national level and immunization promotion is now included with the tax credit across Canada.
- » The BCIC Pharmacists and Immunization Working Group received a grant as the winners of the 3rd Annual B.C. Quality Award “Staying Healthy”, through the B.C. Patient Safety and Quality Council.

GOAL 4: Promote quality across the immunization system to achieve improved system performance.

Progress since April 2007:

A COLLABORATIVE APPROACH

Collaboration is a cornerstone of public health initiatives. An understanding of how valuable different perspectives and expertise are is well exemplified by the BCIC Professional Education Working Group and the Pharmacists and Immunization Working Group, whose collective memberships reflect representation from epidemiologists, nurse practitioners, medical health officers, family physicians, pharmacists, and midwives. Improvements to the immunization training programs rely on the incorporation of these stakeholders in decision-making and planning processes. For example, during a Pertussis outbreak in 2012, pharmacists in the lower mainland gave approximately 13,500 Pertussis vaccines to individuals within the Fraser Health Authority to assist with outbreak response.

Immunization Record Management

Improving immunization record management requires a two-pronged approach. Accurate immunization records are not only critical to ensure protection for individuals, but are also needed to respond to disease outbreaks at a population level.

Developing an integrated, electronic immunization registry system is a long-term endeavour involving multiple partners. B.C. has made two major commitments with respect to immunization registries:

- » Examine potential sources of electronic immunization record data created by providers outside of public health.
- » Participate in the national development process of Panorama, a health data management system.

Improvements to B.C.'s Record System

MSP Billing Codes

In 2007, distinct codes for 17 different vaccines were established in the Medical Services Plan (MSP) fee-for-service billing scheme. This allows physicians to submit billings for those less than 19 years old and at the same time, provide data which could populate immunization registries. An evaluation is in progress to assess the accuracy of the billings data against paper-based records that continue to be collected by public health from physicians for entry into the registries.

PharmaNet

PharmaNet is a province-wide system that links B.C. pharmacies through a common prescription database. Its primary role is to ensure safety in drug management by tracking potential contraindications that may arise when a patient is prescribed multiple medications. Since each pharmacist regularly accesses PharmaNet, this system was adapted to track pharmacist-administered vaccines when their scope of practice was expanded to include immunization, and is now used in billing for the administration of publicly-funded vaccines as well. PharmaNet has been helpful for preliminary program assessment by providing initial reports on uptake.

Product Identification Numbers (PINs) are used to bill for administration of publicly-funded vaccines. In the future, this information may be used to populate immunization registry systems.

Panorama

The Integrated Public Health Information System (iPHIS) is the main registry system in B.C. used for recording immunization of infants and children. All regional Health Authorities use iPHIS except for Vancouver Coastal Health, which uses the Primary Access Regional Information System (PARIS). Currently, the two systems do not communicate with one another, causing gaps in provincial data reporting.

Panorama is an overall information system in development for the public health community as a response to the SARS experience, during which it was recognized that information systems available to public health require improvement. A portion of Panorama will be dedicated to immunization and will have the capability to manage vaccine inventory and record informed consent, vaccines administered and adverse events following immunization (AEFI).

Vaccine Wastage

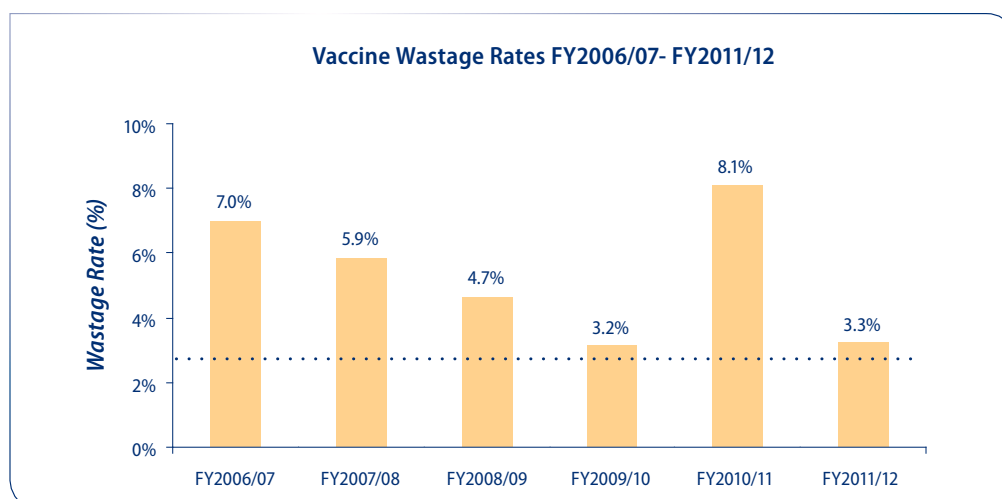
Improved management of vaccine inventory in British Columbia minimizes the amount of vaccine wasted, uses staff time effectively, and saves dollars.

Inventory management follows the lifetime of a vaccine from when it is first delivered to BCCDC from a manufacturer to its use for immunization or waste due to expiry or cold chain break. The goal of the BCIC Vaccine Wastage Reduction Working Group is to minimize wastage.

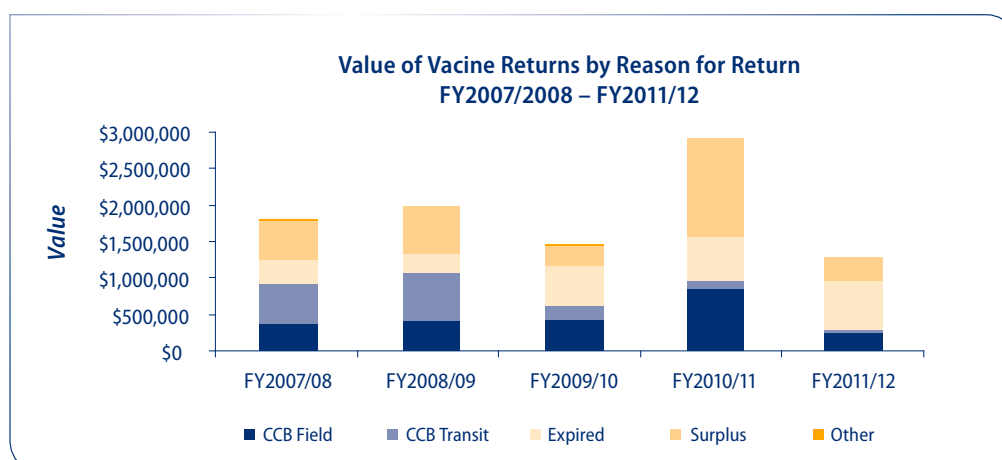
Vaccine wastage is defined as the monetary value of wasted vaccine returned to BCCDC as a proportion of the vaccine shipped from BCCDC in that time period. At the time of release of *ImmunizeBC* in 2007, B.C.'s vaccine wastage rate was 7%. Improvements to the province's vaccine inventory management system have since successfully reduced this rate to 3% and include the following:

- » Instead of insulated containers, BCCDC now mainly uses refrigerated trucks for vaccine transport. This has reduced cold chain failure costs in transit from over \$550,000 to less than \$50,000 per year.
- » Scheduled vaccine deliveries allow more precise vaccine management by each health unit and enables standardized routes and dates.
- » Information regarding available cold chain maintenance products has been made readily available on the BCCDC website.
- » BCCDC Immunization Guidelines are regularly revised to provide clarity on best practices for vaccine management, including redesign of forms to improve ordering and the reporting processes for cold chain incidents and vaccine wastage.
- » Better vaccine stability information has been made available through partnerships with vaccine manufacturers.
- » Panorama was introduced for inventory management and will allow for improved accuracy in forecasting vaccine requirements to minimize waste.

By March 31, 2012, these changes reduced the vaccine wastage rate from 7% to 3%, and saved an estimated \$2 million in discarded vaccines over a five year period. In the chart below, vaccine wastage rates represent the value of vaccine returned to BCCDC as a proportion of the value of vaccine shipped in a fiscal year. The dashed line represents the target wastage rate of 3%.



Vaccine wastage is defined as returned vaccine that is expired, has been compromised due to cold chain breaks, or has become obsolete. Vaccine that is not expired can also be returned to BCCDC; this is referred to as returned vaccine and not considered vaccine wastage. The chart below shows reasons for vaccine returns between April 1, 2007 and March 31, 2012.



CCB Field: vaccine returns resulting from cold chain breaks occurring at the vaccine provider level.

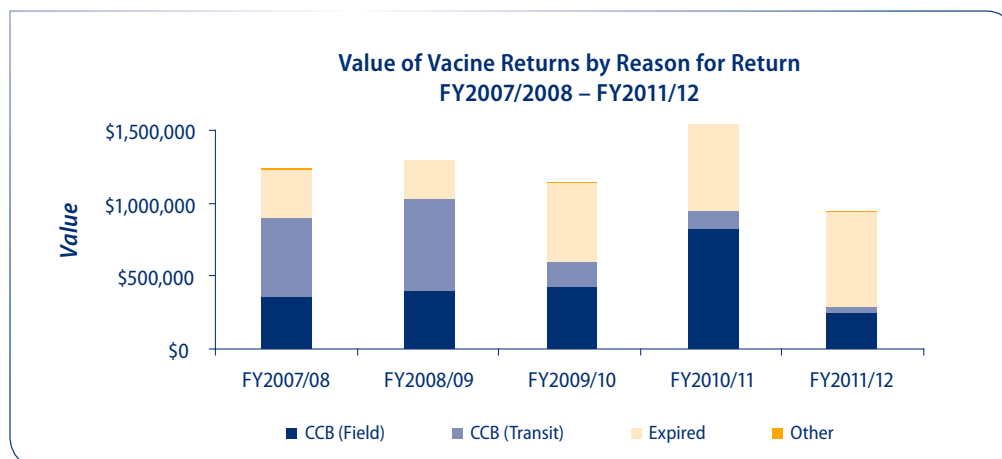
CCB Transit: vaccine returns resulting from cold chain breaks occurring during shipment of vaccine from BCCDC to the end user.

Expired: vaccine returns resulting from product having reached the end of its shelf-life.

Surplus: includes vaccine returned to BCCDC for redistribution within the province and returns of other vaccines which still have good shelf-life but will not/cannot be used. With the exception of FY2010/11 the value of surplus vaccine is predominantly due to returns of unused seasonal influenza vaccine. A substantial proportion of the total value of surplus vaccine in FY2010/11 was due to returns of Prevnar 7 that resulted from the change to Prevnar 13. Note that surplus vaccines can NOT be returned to the manufacturer for a refund and as a result expire in-house.

Other: vaccine returned due to incorrect product shipments or product that has been damaged during shipment.

The chart below shows reasons for vaccine returns between April 1, 2007 and March 31, 2012. Note that vaccine returned as surplus is NOT included in the chart below.



FUTURE DIRECTION OF IMMUNIZATION IN B.C.

In 2007, the Ministry of Health and its partners set out to implement *ImmunizeBC* within 10 years of its inception. Five years into implementation, this progress report illustrates that the infrastructure for continuing this work is in place.

The branding of *ImmunizeBC* as a social marketing tool in 2007 has become the provincial face of immunization and the standard nationally and internationally for innovative approaches in social marketing utilizing social media and search engine capability. Since the adoption of *the ImmunizeBC* brand, all Health Authority-led immunization promotion is universal and can be accessed by everyone in BC.

Access to health services continues to be a government priority. Continuous improvements are being made to vaccine provision and management as new vaccines become available to British Columbians. To better serve the needs of all British Columbians, accessing immunization services will soon be easier and will continue to improve in the coming years; for example, we can expect full access to all publicly funded vaccines (for ages 5 and older) to trained pharmacists by 2013. In addition, we are working toward more fully engaging LPNs in their immunization delivery role.

Immunization programs have expanded dramatically in the past decade and with new vaccines at all stages of the developmental pipeline, the expansion will continue. *ImmunizeBC's* task is to achieve and maintain quality of program delivery and public and professional support and confidence, ensure that the underlying evidence base and resulting guidelines for practice are sound, and ultimately ensure British Columbians are well-protected against vaccine preventable disease.