The Alberta Immunization Policy – WEB (AIP – WEB) contains information about immunization policies in Alberta and can be used as an information source for health professionals. The AIP-Web includes a list of vaccine products that are provided free-of-charge in Alberta, information about who is eligible to receive each vaccine, and links to other valuable sources of immunization information.

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Measles, Mumps, Rubella and Varicella Vaccines
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June 2015

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Introduction

1. **Background**
   - The *Alberta Immunization Policy* – [WEB](#) outlines information about immunization services provided in Alberta. The *Canadian Immunization Guide* recommendations should be consulted when further information about immunization is required. Individuals who administer vaccines should also be aware of the contents of the relevant biological product monographs.
   - Local public health service areas on immunization should be consulted on recommendations for special target populations, other non-routine immunization situations and other questions about immunization.

2. **Legislative Authority**
   - The *Public Health Act, Revised Statutes of Alberta 2000* and the *Communicable Diseases Regulation, Alberta Regulation 238/1985* provide the authority for Alberta’s Immunization Program. Under this legislation, the Chief Medical Officer of Health (CMOH) is responsible for monitoring the health of Albertans and making recommendations to the Minister of Health and Alberta Health Services (AHS) on measures to protect and promote the health of Albertans and to prevent disease and injury.
   - This legislation requires the CMOH to act as a liaison between the government and AHS, Medical Officers of Health (MOHs) and executive officers in the administration of the act. AHS is required to operationalize the Alberta Immunization Program. Public health nurses, under the auspices of the MOH, are accountable for the implementation of immunization programs according to provincial requirements.

3. **The Immunization Program**
   - The provision of routine immunization programs and targeted immunization programs is a vital public health service priority in Alberta.
   - Routine childhood immunization is provided by public health nurses in Alberta.
   - All provincially funded vaccines are provided for use in defined Alberta immunization programs only. An individual eligible for a provincially funded vaccine will not be charged for either the vaccine or the administration (injection and written record) of that vaccine. Charges for administration of a vaccine can be levied only to the individual who purchases his or her own vaccine or to the individual’s employer.
   - All individuals who administer provincially funded vaccines are expected to follow the Alberta Health policies and guidelines.

4. **Alberta Immunization Strategy (AIS)**
   - Alberta Health has developed a 10-year immunization strategy to minimize the risk of vaccine-preventable diseases by increasing immunization rates. The *Alberta Immunization Strategy: 2007–2017* (AIS) contains seven evidence-based directions to achieve this goal. For details on these seven directions, the AIS can be accessed at: [www.health.alberta.ca/newsroom/pub-immunization.html](http://www.health.alberta.ca/newsroom/pub-immunization.html)
Cooperative efforts among public health professionals, acute care institutions, long-term care institutions, pharmacists and physicians are essential to the success of immunization programs.

5. **Benefits of Immunization**
- Immunization is one of the most effective medical interventions to prevent disease. In the last 50 years, immunization has saved more lives in Canada than any other health intervention. Many vaccines result in a benefit to health and a savings in direct medical costs. Therefore, the establishment of the provincially funded Immunization Program improves health and saves money. However, some newer vaccines result in health benefits but do not save costs, due to the significant rise in vaccine cost. As new vaccines are developed, they will need to be evaluated to ensure that they deliver the greatest benefit for the least cost.
- Immunization recommendations are based on scientific knowledge about the vaccine and immune system, epidemiology and burden of disease, vaccine safety, and cost analysis of preventive measures.
- Benefits of vaccines include complete or partial protection against vaccine-preventable diseases for the individual and society as a whole, prevention of outbreaks and reduction of health-related costs. However, as the incidence of vaccine-preventable diseases is reduced by increasing immunization coverage, adverse events following immunization (both those caused by the vaccine and those associated with the vaccine by coincidence) become more frequent. Recommendations for immunization balance the individual and societal benefits against the potential costs and risks of the vaccine.

6. **Immunization in Alberta**
- Alberta has one of the most comprehensive publicly-funded immunization programs in Canada. Although Alberta has a strong immunization program, the proportion of Albertans who are adequately immunized continues to be below provincial targets. As vaccine-preventable diseases are less common now due to the success of immunization, some people have become complacent about immunization.
- Routine immunization in Alberta is voluntary and it is not mandatory for parents to have their children immunized. Parents or guardians and individuals must make a choice whether or not to immunize or be immunized. They must give consent before vaccines are administered. The only exception is a rubella vaccine, which is compulsory for all staff of daycare facilities and persons with face-to-face contact with patients in a health care facility.
- Immunization programs continue to be a valuable tool to reduce vaccine-preventable disease in Alberta. It is a safe and successful health care measure to prevent communicable disease.
7. **Inadequate Immunization Records**

- While written documentation of immunization is preferable, in some instances telephoned information from the previous health care provider with the exact dates of immunization may be sufficient to proceed with immunization.
- A verbal history of immunization or disease obtained from the individual or parent does not provide acceptable information to assess immunization status.

3.1 **Individuals New to Canada**

- Immunization records available should be reviewed carefully and compared to Alberta immunization schedules.
- Only written records of immunization given at ages and intervals comparable to Canadian schedules should be considered as acceptable documentation of immunization.

**References**


1. **General Guidelines**

- The *Alberta Immunization Policy-WEB* is designed for use in conjunction with the *Canadian Immunization Guide* and recommendations from the current supplementary statements by the National Advisory Committee on Immunization (NACI). Individuals administering provincially-funded vaccines should also be aware of the contents of the relevant product monographs.
- The immunization schedules are designed to achieve the best levels of immunity and to increase compliance. The timing should be adhered to as closely as possible with some exceptions. When changes are necessary, the individual administering vaccine should document the reason for the departure from the schedule.
- Vaccine-specific information for each vaccine is included in the Biological Products section.
- The following information should be considered when planning immunization schedules:

1.1 **Age and Weight**

- Routine primary immunization begins at two months of age for all infants including those who are premature or have low birth weight.
- When an infant is going to be at particularly high risk for disease (e.g., travel), routine primary immunization may be started at six weeks of age with the exception of meningococcal conjugate C vaccine (minimum age is eight weeks).

1.2 **Altered Schedules and/or Doses**

- Recommended doses for a vaccine should not be changed. Smaller doses than those recommended may result in inadequate protection. Exceeding the recommended dose may also be harmful.
- Interrupted immunization schedules should not be restarted, regardless of time lapse since the previous dose. Immunization should be brought up to date as quickly as possible by continuing the age-appropriate schedule.
- Doses administered at less than the recommended interval may result in a lower response. Case-by-case assessments must be made as to whether or not the dose will need to be repeated. Consult with your local public health service area.

1.3 **Concurrent Administration of Vaccines**

- All the vaccines for which a child is due should be administered at the same visit. This increases the probability that the child will be fully immunized at the appropriate age.
- Administration of more than one vaccine at the same visit does not result in decreased response or increased rates of adverse events following immunization.
- Inactivated vaccines can be administered at the same time or at any time before or after other inactivated or live vaccines.
• Different formulations of a vaccine against the same disease (e.g. pneumococcal conjugate and pneumococcal polysaccharide vaccines) cannot be administered simultaneously.
• Live vaccines can be administered at the same time as other live vaccines. However, if not administered on the same day, live vaccines generally must be separated from other live vaccines by at least four weeks.\(^1\)
• Unless specified by the manufacturer, vaccines should never be mixed in the same syringe.\(^1\)
• Immune globulin and blood products can interfere with the response to live viral vaccines.
• Live viral vaccines may need to be delayed by varying lengths of time depending upon the type of immune globulin or blood product administered and the dose used. Refer to section titled: Recent Administration of Human Immune Globulin Products in the Canadian Immunization Guide.\(^1\)

1.4 Documentation of Previous Immunization
• When immunization history is uncertain, individuals without written documentation of immunization or serologic proof of having had the disease (except those with a history of chickenpox disease) should be offered age-appropriate immunization according to the routine immunization schedule for their age.

1.5 Previous Disease
• Disease does not always result in long-term protection from the disease. Routine immunization should continue following the infection for many of the vaccine-preventable diseases.

1.6 Miscellaneous
• Intramuscular injections should be administered with care to individuals with bleeding disorders.
• Immunization may not protect 100% of healthy individuals.
• Immunocompromised persons may have a lower immune response to immunization.
• The manufacturer’s product monograph or product insert should be reviewed before a vaccine is administered. Vaccine components and doses may differ between manufacturers.
• All immunization visits provide an opportunity to review the individual’s immunization history and ensure that all age-appropriate vaccines are up-to-date.
• Individuals requesting vaccines not included in provincially funded immunization programs will be responsible for the purchase of the vaccine. These vaccines can be obtained by physician prescription or through local public health service area specialty immunization clinics. Reimbursement for the vaccine is not available if a parent or individual chooses to purchase the vaccine.
2. **Routine Immunization Schedule for Infants**

<table>
<thead>
<tr>
<th>Age</th>
<th>Vaccine(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two months</td>
<td>DTaP-IPV-Hib&lt;sup&gt;a&lt;/sup&gt;&lt;br&gt;Pneumococcal conjugate 13&lt;sup&gt;b&lt;/sup&gt;&lt;br&gt;Rotavirus&lt;sup&gt;i&lt;/sup&gt;</td>
</tr>
<tr>
<td>Four months</td>
<td>DTaP-IPV-Hib&lt;sup&gt;a&lt;/sup&gt;&lt;br&gt;Pneumococcal conjugate 13&lt;sup&gt;b&lt;/sup&gt;&lt;br&gt;Meningococcal conjugate C&lt;sup&gt;c&lt;/sup&gt;&lt;br&gt;Rotavirus&lt;sup&gt;k&lt;/sup&gt;</td>
</tr>
<tr>
<td>Six months</td>
<td>DTaP-IPV-Hib&lt;sup&gt;a&lt;/sup&gt;&lt;br&gt;Pneumococcal conjugate 13&lt;sup&gt;b&lt;/sup&gt; (for high-risk children only)</td>
</tr>
<tr>
<td>Six months and older</td>
<td>Influenza&lt;sup&gt;a&lt;/sup&gt; (one or two doses)</td>
</tr>
<tr>
<td>12 months</td>
<td>Meningococcal conjugate C&lt;sup&gt;c&lt;/sup&gt;&lt;br&gt;Pneumococcal conjugate 13&lt;sup&gt;b&lt;/sup&gt;&lt;br&gt;MMR-Var&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td>18 months</td>
<td>DTaP-IPV-Hib&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Four to six years</td>
<td>dTaP-IPV&lt;sup&gt;f&lt;/sup&gt;&lt;br&gt;MMR-Var&lt;sup&gt;g&lt;/sup&gt;&lt;br&gt;Pneumococcal conjugate (PCV13) only for children up to 71 months (catch up program)</td>
</tr>
<tr>
<td>Grade five</td>
<td>Hepatitis B&lt;sup&gt;h&lt;/sup&gt; (three doses)</td>
</tr>
<tr>
<td>Grade nine</td>
<td>dTap&lt;sup&gt;i&lt;/sup&gt;&lt;br&gt;MCV4&lt;sup&gt;j&lt;/sup&gt;&lt;br&gt;HPV&lt;sup&gt;k&lt;/sup&gt; (3 doses – catch up program for boys)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Diphtheria, tetanus, acellular pertussis, inactivated polio and *Haemophilus influenzae* type b combined vaccine.

<sup>b</sup> Pneumococcal conjugate 13 vaccine.

<sup>c</sup> Meningococcal conjugate C vaccine.

<sup>d</sup> Provided annually throughout the influenza season to children six months of age and older (one or two doses).

<sup>e</sup> Measles, mumps, rubella and varicella vaccine.

<sup>f</sup> Diphtheria, tetanus, acellular pertussis and inactivated polio combined vaccine.

<sup>g</sup> Hepatitis B vaccine is routinely offered to students in grade five and recommended for children at risk.

<sup>h</sup> Human papillomavirus vaccine.

<sup>i</sup> Diphtheria, tetanus and acellular pertussis combined vaccine.

<sup>j</sup> Meningococcal conjugate vaccine (groups A, C, W-135,and Y) routinely offered to grade nine students.

<sup>k</sup> Rotavirus vaccine first dose should not be administered to children who are delayd starting immunization if older than 19 weeks sex days of age. The second dose is ideally completed by 24 weeks of age but if immunization is delayed the second dose must be administred before eight months of age.

3. **Provision of Occupational Vaccines**

3.1 **Post-secondary Education Institutions**

- Individuals who have been accepted into post-secondary health care related programs are eligible for provincially funded vaccines according to the criteria described under the specific vaccine indications in the *Alberta Immunization Policy*. 

*Alberta Health*

*Alberta Immunization Policy – General Guidelines – Recommended Immunization*

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Policy-WEB. Students in programs related to animal health, equine science and wildlife officers are eligible for rabies vaccine.

- Ideally, immunization should be reviewed and completed during the training of health care workers.

3.2 Health Care and Laboratory Workers

- Health care workers (HCWs), including all hospital employees, other staff who work or study in hospitals (e.g., students in health care disciplines and contract workers) and other health care personnel (e.g., those working in clinical laboratories, nursing homes, home care agencies and community settings), are at risk of exposure to communicable diseases because of their contact with individuals or material from individuals with infections both diagnosed and undiagnosed.¹

3.2.1 Tetanus and Diphtheria Toxoids (Td)

- Primary immunization is indicated for HCWs who have not had a primary series. The 1st dose in the series should be dTap.
- As a high priority group, HCWs, that provide care to children younger than 12 months of age and have not received a dose of acellular pertussis vaccine previously, should receive a one-time dose of dTap. This dose should be given as soon as feasible, regardless of the interval from the last dose of Td vaccine.³
- All other HCWs, that have not received a dose of acellular pertussis, should receive a one time dose of dTap when presenting for a reinforcing dose of Td
- Td reinforcing doses are recommended every 10 years.
- For wound management, refer to the Canadian Immunization Guide: Guide to Tetanus Prophylaxis in Wound Management.¹

Note: Since September 2004, dTap has routinely been offered to Grade nine students. They should receive reinforcing doses of Td every 10 years.

3.2.2 MMR Vaccine

- Measles: Health care workers regardless of their year of birth should have two documented doses of a measles-containing vaccine, history of laboratory confirmed measles disease or laboratory evidence of measles immunity.
- Mumps: HCWs regardless of their year of birth without a documented history of two doses of mumps-containing vaccine, history of laboratory confirmed mumps disease or laboratory evidence of mumps immunity.²

- Rubella: Individuals (male and female) who do not have documentation of one dose of rubella vaccine or rubella immunity and who may, through face-to-face contact, expose pregnant women to rubella are required under the Communicable Diseases Regulation, Alberta Regulation 238/1985⁵ to have documented immunity to rubella.

Note: Monovalent vaccines for each disease are not available; therefore, individuals requiring only one antigen should receive MMR combined vaccine
3.2.3 Meningococcal Vaccine
- Laboratory workers who routinely work with Neisseria meningitidis should be offered meningococcal conjugate (groups A, C, W-135 and Y) vaccine.
- Meningococcal vaccine is not routinely recommended for HCWs.
- As of February 2011, all grade nine students will be offered meningococcal conjugate (groups A, C, W-135 and Y) vaccine.

3.2.4 Polio Vaccine
- Primary immunization is recommended for:
  - Laboratory workers handling specimens that may contain polio virus.
  - HCWs and student HCWs who may be exposed to patients excreting the wild or vaccine strains of polio virus.

3.2.5 Hepatitis B Vaccine

Pre-exposure
- Provincially funded hepatitis B vaccine is provided to HCWs, volunteers or students of health-related disciplines who have a reasonable anticipated risk of exposure to blood/bloody body fluids and/or sharps injuries during the course of their work, including:
  - Individuals who, in the course of performing their duties, puncture or cut another person’s skin. This includes HCWs who administer injections.
  - Individuals who handle or have contact with dirty sharps or blood and/or bloody fluids in the course of performing their duties.

Note:
- Post-immunization testing for hepatitis antibodies should be conducted on all HCWs and students in health care disciplines to establish antibody response and need for re-immunization should the first course of vaccine fail to provide protection. Testing should be done at least one month but not more than six months after the last dose.
- HCWs who have previously received a course of hepatitis B vaccine but were not tested for hepatitis antibodies following the vaccine series should be screened at the start of employment. If further vaccine is required, direction will be provided by the Occupational Health and Safety nurse.

Post-exposure
- Provincially funded hepatitis B vaccine is provided for post-exposure management in workplace settings. Contact the MOH in your local public health service area.
- Occupational exposures to potentially infectious material should be managed according to the occupational health and safety guidelines of the workplace where the incident occurred or by the worker’s personal physician.

3.2.6 Hepatitis A Vaccine
- Generally, HCWs are not eligible for hepatitis A vaccine.

3.2.7 Influenza Vaccine
- Since September 2009, Alberta has been offering provincially-funded seasonal influenza vaccine to all Albertans six months of age and older.
- An annual influenza vaccine is highly recommended for HCWs.
• HCWs and their employers have a duty to actively promote, implement, and comply with influenza immunization recommendations in order to decrease the risk of infection and complications in the vulnerable populations for which they care. 

3.2.8 Varicella (chicken pox) Vaccine
• Health care workers should be screened for immunity to varicella and offered a vaccine if unprotected. Immunity to varicella is defined as a reliable clinical history of chickenpox (after 12 months of age), positive varicella serology or documentation of age-appropriate varicella immunization.

3.2.9 Typhoid Vaccine
• Provincial laboratory workers who regularly work with Salmonella typhi should be offered typhoid vaccine.

4. Volunteers Working in Health Care Settings
Volunteers working in health care settings with face-to-face patient contact should be assessed as HCWs for the following vaccines: tetanus and diphtheria toxoids, acellular pertussis, measles, mumps, rubella, varicella and influenza. Some volunteers may also be at risk for hepatitis B through their volunteer work and if so should be assessed for this vaccine.

5. Animal Care and Control Workers
Some animal care and control workers would be more likely to be exposed to certain diseases because of the nature of their work. It is for this reason that the rabies vaccine in particular is offered to this group.

5.1 Rabies Vaccine
Pre-exposure:
• Workers caring for animals, including veterinarians, veterinary health technicians, veterinary assistants, Humane Society/SPCA workers.
• Animal research workers, including rabies laboratory workers and workers in other laboratories working with rabies-prone species.
• Animal control workers, including bylaw officers, dog pound workers, zoo workers and workers in animal shelters.
• Wildlife workers, including fish and wildlife workers and foresters.
• Spelunkers (cavers) – Albertans involved in work-related spelunking.
Note: Employees under federal jurisdiction, recreational spelunkers and those at risk due to international travel are not eligible to receive provincially funded vaccine
Post-exposure:
• Consult with the MOH or designate in your local public health service area.

5.2 Hepatitis A Vaccine
Hepatitis A vaccine is provided for specific occupational groups (e.g., zoo-keepers, researchers who handle non-human primates or are involved in hepatitis A virus research).
6. **Child Care Workers**
Child care workers are at risk of exposure to infectious diseases from the contact they have with children. Child care workers should be encouraged to receive all recommended vaccines for adults. Rubella vaccine is compulsory for all staff of daycare facilities.

7. **Other Occupational Groups at Risk**

7.1 **Hepatitis B Vaccine**
- Individuals who, in the course of their work, puncture or cut another person’s skin should receive hepatitis B vaccine.
- Handle or have contact with dirty sharps (needles and/or sharp instruments) should receive hepatitis B vaccine.

**References**


Management of Biological Products

The recommended temperature for vaccine storage and handling is +2.0°C to +8.0°C and some vaccines also need to be protected from exposure to light.

Vaccines are sensitive biological products that may become less effective or destroyed when exposed to temperatures outside the recommended range and inappropriate exposure to light. Exposure to temperatures outside the recommended range results in loss of potency with each episode of exposure. Repeated exposures to heat results in a cumulative loss of potency that is not reversible. Cold-sensitive vaccines experience an immediate loss of potency following freezing. It is not possible to look at a vaccine vial to determine if it has experienced temperature excursions; monitoring of temperature during transport and storage is required. Loss of potency may result in failure to stimulate an adequate immunologic response, leading to lower levels of protection against disease.

For guidance on the storage and handling of publicly-funded vaccine, see the Alberta Vaccine Cold Chain Policy\(^1\) here:


Refer to National Vaccine Storage and Handling Guidelines for Immunization Providers\(^1\) for further information. The resource section of this guide provides samples of forms and checklists that may be helpful in developing resources for vaccine management. www.phac-aspc.gc.ca/publicat/2007/nvshglp-lDemv/

References
