

Immunization Guidelines

General Guidelines

- Updated guidelines for immunization schedules can be found in the Immunization Manual from the BC Centre for Disease Control website. Please visit the website (<http://www.bccdc.org/content.php?item=193>) for details of the following:
Section II: Immunization Schedules
Chapter 2.0 Schedule A: Basic Immunization
Chapter 3.0 Schedule B: Children ≥ 1 year but < 7 years
Chapter 4.0 Schedule C: Children 7 years to ≤ 18 years
Chapter 8.0 Vaccines recommended for high risk clients
Chapter 9.0 Adult/Child HSCT recipients: list of free vaccines
Chapter 11.0 Worksheet for child HSCT recipients
- Documentation: It is very important to keep an accurate immunization record of the patient and all household members.
- Patients not receiving chemotherapy can be assumed to be normal and receive regular scheduled immunization.

Immunosuppressed Patients

Definition:

- Oncology patients receiving chemotherapy should be regarded as immunosuppressed during and for 3 months post chemotherapy.
- Allogeneic HSCT patients not on immunosuppressive therapy should still be regarded as immunosuppressed for 2 years post transplant.
- Autologous HSCT patients are regarded as immunosuppressed for 1 year post transplant

Guidelines:

- Live attenuated vaccines must be avoided, i.e oral polio, BCG, MMR (Measles, Mumps, Rubella), Varicella.
- Killed vaccines may be given as per schedule to immunosuppressed children without extra risk but may not be effective. Killed vaccines are best given when the Absolute Neutrophil Count (ANC) and Absolute Lymphocyte Count (ALC) are $> 1.0 \times 10^9/L$.
- Influenza vaccine should be given on an annual basis to children > 6 months of age when ALC $> 1.0 \times 10^9/L$.
- Acute lymphoblastic leukemia patients:
It is best to wait until they reach the maintenance phase of chemotherapy and give scheduled immunization prior to steroid pulse.
- Passive Immunization for exposed patients:

Hepatitis A	Immunoglobulin 0.02 mL/kg IM (max dose 2 mL)
Hepatitis B	HBIG 0.06 mL/kg IM (max dose 5 mL) in previously unvaccinated patients
Measles	Immunoglobulin 0.5 mL/kg IM (max dose 15 mL); give within 6 days of exposure regardless of previous immunization status
Varicella	VZIG 1 vial/10 kg IM (max 5 vials); give within 48 hours of exposure in susceptible individuals
- High Risk Hematology Patients:
Refer to Section II Chapter 8.0 of the BC Centre for Disease Control Immunization Manual

- Splenectomy or Sickle cell patients (Hb SS, SC, Sb-thal)
One month before splenectomy or when diagnosed (on top of all the regular immunizations):
 - ~ Pevnar*, Pneumovax-23 (then q5 years), Menjugate-C (*No Pevnar if patient is fully immunized with the most current immunization schedule containing Pevnar)
 - ~ Hepatitis B vaccine (if patient likely to need blood products)
 - ~ Influenza vaccine (annually) for sickle cell patients only
- Hemophilia patients
In addition to regular immunizations, give Hepatitis A and Hepatitis B vaccines subcutaneously in the first year of life.
- b-Thalassemia Major
In addition to regular immunizations, give Hepatitis A and Hepatitis B vaccines before starting transfusions.

Household Members of Immunosuppressed Individuals

- Oral polio vaccine is the only live attenuated vaccine which should NOT be given to household members of an immunosuppressed child as the virus is shed for up to 12 weeks post immunization.
- Immediate family (parents and siblings) and household members should receive all currently recommended vaccines to reduce the risk of exposure of the immunosuppressed patient.
These include:
 - ~ Varicella vaccine for anyone with a negative history of varicella zoster virus (VZV) infection
 - ~ Influenza vaccine on an annual basis
 - ~ Meningococcal C conjugate vaccine
 - ~ Pneumococcal conjugate vaccine

Post Treatment Patients

- For all patients except allogeneic transplants, active immunization should be continued. Many patients will have diminished titres. We recommend evaluating the immunity status six months after completing all chemotherapy. Measure antibody titres for polio, tetanus, measles, mumps, rubella, HSV, VZV, Hepatitis B. Boosters including live vaccines to be given depending on immune status.
- Allogeneic HSCT patients should still be regarded as immunosuppressed for two years post transplant. A complete re-immunization with exception of no live viruses should be started according to Section II Chapter 11.0 of the BC Centre for Disease Control Immunization Manual. Live vaccines should not be given until two years post treatment.
- Immunization recommendations may change. Please refer to the Immunization Manual from the BC Centre for Disease Control website (<http://www.bccdc.org/content.php?item=193>) for the most current updates.

For more information:

Sung L. et al, Practical Vaccination Guidelines for Children with Cancer.

Pediatr Child Health 2001;6;379-383.