

Approach to immunization in off-therapy patients

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Publicly Funded Immunization Schedules for Ontario – December 2016

Publicly funded vaccines may be provided only to eligible individuals and must be free of charge

Routine Schedule: Children Starting Immunization in Infancy													
Vaccine	Age	2 Months	4 Months	6 Months	12 Months	15 Months	18 Months	4-6 Years [^]	Grade 7	14-16 Years [!]	24-26 Years [†]	≥34 Years [‡]	65 Years
DTaP-IPV-Hib Diphtheria, Tetanus, Pertussis, Polio, <i>Haemophilus influenzae</i> type b		◆	◆	◆			◆						
Pneu-C-13 Pneumococcal Conjugate 13		◆	◆		◆								
Rot-1 Rotavirus		▲	▲										
Men-C-C Meningococcal Conjugate C					◆								
MMR Measles, Mumps, Rubella					■								
Var Varicella						■							
MMRV Measles, Mumps, Rubella, Varicella								■					
Tdap-IPV Tetanus, diphtheria, pertussis, Polio								◆					
HB Hepatitis B									●				
Men-C-ACYW Meningococcal Conjugate ACYW-135									●				
HPV-4 Human Papillomavirus									●				
Tdap Tetanus, diphtheria, pertussis										◆	◆		
Td (booster) Tetanus, diphtheria												◆	Every 10 years
HZ Herpes Zoster													■
Pneu-P-23 Pneumococcal Polysaccharide 23													■
Inf Influenza													

* Every year in the fall



Vaccine questions (off-therapy period)

1. Is the child up-to-date as per the routine schedule?
2. Do vaccines given during chemotherapy 'count'?

Vaccines given during chemo

“Inactivated vaccines should be administered to people with malignant haematologic disorders according to routine immunization schedules.”

“Inactivated vaccines may need to be repeated when the person is no longer immunosuppressed.”

Canadian Immunization Guide (update 2017)

Vaccine questions (off-therapy period)

1. Is the child up-to-date as per the routine schedule?
2. Do vaccines given during chemotherapy 'count'?
3. Is there still sufficient residual immunity from vaccines administered prior to the initiation of chemotherapy?

Guidance re: reimmunization

- Canadian Immunization Guide: **not addressed**
- Infectious Disease Society of America: **no reimmunization**
- UK Royal College of Paediatrics and Child Health: **Tdap + IPV + MMR + Hib + MenC**
- Australian Technical Group on Immunization: **Tdap + IPV + MMR + HBV + HPV + PCV13 + Varicella**



Chemotherapy effects

- immunologic defects persist months-years after completion of chemo for ALL

J Pediatr 2005; 146: 654-61

- ALL chemotherapy associated with loss of pre-diagnosis immunity to numerous vaccine-preventable diseases (VPDs)

J Pediatr Hematol Oncol 2004; 26: 727-34

Leukemia 2006; 20(10): 1717-22

What to do with vaccines given prior to diagnosis

- a) Ignore potential ramifications of chemotherapy
- b) Redo/restart immunization (HSCT paradigm)
- c) Selectively revaccinate with/without checking vaccine titres

SHORT REPORT

Immunization practices in acute lymphocytic leukemia and post-hematopoietic stem cell transplant in Canadian Pediatric Hematology/Oncology centers

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Table 2. Characteristics of Survey Respondents and their Oncology or HSCT Programs.

	n	%
Position (N = 12)		
Division Head/Chief	2	17
Attending Physician*	9	75
Other	1	8
Time in current position		
<10 years	6	50
≥10 years	6	50
Immunization practice guideline		
ALL	7/11	64
Post-HSCT	8/9	89
ALL Programs (N = 11)		
New patients per year		
<10	1	9
10–24	6	55
≥25	4	36
Programs performing HSCT (N = 6)	6	67
Autologous HSCT performed per year		
<10	2	33
≥10	4	67
Allogeneic HSCT performed per year		
<10	1	17
10–19	3	50
≥20	2	33
Number of patients followed long-term post-HSCT (N = 9)		
1–19	4	44
20–29	2	22
≥30	3	33
Where immunizations are administered [†]	ALL n (%)	HSCT n (%)
Hematology/Oncology/HSCT clinic	4 (36)	4 (44)
Public Health clinic	4 (36)	2 (22)
Primary care physician	6 (55)	4 (44)

Results (ALL)

- no centres vaccinate during intensive chemo
- 3/11 centres vaccinate during maintenance
- after chemo:
 - 5/11 do not revaccinate
 - 4/11 recommend full revaccination
 - 1/11 recommend selective revaccination based on antibody titres
 - 1 centre varies practice by physician

McMaster current clinical practice

- titres now routine: tetanus, diphtheria, measles, mumps, rubella, (varicella)
 - pneumococcus, Hib, polio, pertussis, meningococcus not checked!
- selective revaccination...for now

Vaccinating children after chemo for ALL

- Canadian Immunization Research Network
- 10 sites across Canada
- objectives:
 1. to identify risk factors for low post-chemo titres against common VPDs
 2. to assess immune responses to PCV13+PPSV23
 3. to assess immune responses to DPTaP-Hib
 4. to measure AEFI frequency in kids post-ALL

Vaccinating post-ALL

- target n = 150, enrolment active since 2016
- cases enrolled 4-8 months after chemo completion
- baseline: immunology workup, PCV13, DPTaP-Hib
- + 2 months: immunology workup, PPSV23
- +12 months: immunology workup



Thank you!