



## PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

**DOCUMENT NUMBER:** PBMT-GEN-070

**DOCUMENT TITLE:**

Pediatric Post Transplant Vaccination Schedule

**DOCUMENT NOTES:**

### Document Information

**Revision:** 02

**Vault:** PBMT-General-rel

**Status:** Release

**Document Type:** General

### Date Information

**Creation Date:** 12 Mar 2018

**Release Date:** 17 Apr 2018

**Effective Date:** 17 Apr 2018

**Expiration Date:**

### Control Information

**Author:** ALLIS006

**Owner:** ALLIS006

**Previous Number:** PBMT-GEN-070 Rev 01

**Change Number:** PBMT-CCR-169

**PBMT GEN-070**  
**PEDIATRIC POST TRANSPLANT VACCINATION SCHEDULE**  
*Post-HSCT Immunizations Record & Guidelines*

Schedule	Vaccine	Brand	Series #	Date
<b>Annually</b> (Sept – March) <i>*give if &gt; 100d post</i>	<b>Influenza</b> injections	<i>*injections are killed. Flumist is a "LIVE" vaccine*</i>	1 per year (unless naïve, then boost after 2 months)	Initial: <i>boost (if needed):</i> Yearly:
<b>Initial Round</b> (1 year post-Tx or as per PBMT attending)	DTaP (preferred or Tdap)	Pediarix	1 of 3	
	IPV		1 of 3	
	Hepatitis B		1 of 3	
	HiB		1 of 3	
	PCV-13	Prevnar	1 of (3/4)	
	Hepatitis A		1 of 2	
<b>≥2 months</b> (from initial round)	DTaP (preferred or Tdap)	Pediarix	2 of 3	
	IPV		2 of 3	
	Hepatitis B		2 of 3	
	HiB		2 of 3	
	PCV-13	Prevnar	2 of (3/4)	
<b>≥4 months</b> (from initial round)	DTaP (preferred or Tdap)	Pediarix	3 of 3	
	IPV		3 of 3	
	Hepatitis B		3 of 3	
	HiB		3 of 3	
	PCV-13	Prevnar	3 of (3/4)	
	MCV4	<i>*do not give Menactra at same time as Prevnar*</i>	1 of 2	
<b>≥6 months</b> (from initial round)	Please check Tetanus and Pneumococcal titers			
	MCV4		2 of 2	
	Hepatitis A		2 of 2	
<b>**Only give live vaccines after 2-8-1 rule and criteria below have been met**</b>				
<b>≥12 months</b> (from initial round)	Please check Tetanus and Pneumococcal titers			
	MMR (live)		1 of 2	
	Varicella (live)		1 of 2	
	PCV-13 or PPSV-23	Prevnar or Pneumovax	4 of 4 1 of 1	
<b>15 months</b>	Varicella ( <i>live</i> )		2 of 2	
	MMR ( <i>live</i> )		2 of 2	
<b>Males and Females &gt; 9 yo</b>	HPV	Use Gardasil-9 if possible 1 <sup>st</sup> two doses separated by 2 mo; 2 <sup>nd</sup> and 3 <sup>rd</sup> doses separated by 4 months	1 of 3	
			2 of 3	
			3 of 3	
<b>Before college</b>	MCV4	Boost if > 4-5y since last MCV dose	1 of 1	
	Men B	2 doses (Besero) separated by ≥ 1 month	2 doses	/
<b>Every 10 years</b>	Tdap booster		1 dose	



## *Fast Facts and More Detailed Explanations*

- The re-immunization process for patients who have had allogenic HSCT's typically begin at 1 year post-transplant with the **killed/inactivated** vaccines, *AND* when patients are: a) off of all immunosuppressive medications, b) they have a CD4+ count of > 400 cells/uL and an ANC of > 800 cells/uL, c) and they have not received an IVIG infusion in the past 3 months (can be > 8 weeks for these inactivated vaccines).
- ALL post-HCST patients should be viewed as "*never vaccinated*," with an infant-like immune system... thus pediatric vaccinations with higher antigen/toxin doses are preferred for these patients regardless of age.
- Therefore, combination vaccines are a good option and can be given to these patients also regardless of age. DTaP rather than (Td or Tdap) is preferred for patients even over 7 yo. There is currently no evidence that there are significant more side effects.
- If unable to get the preferred DTaP, the Tdap vaccine is an acceptable, although it is likely a less effective alternative.
- The *Menactra* brand MCV4 vaccine and the *Pprevnar (PCV-13)* vaccine should *NOT* be administered at the same time (as it will decrease the effectiveness of the Pprevnar) and should be separated by at least 4 weeks. The *Menveo* brand MCV-4 vaccine can be given at the same time as Pprevnar.
- It is recommended that the first 3 doses of pneumococcal vaccine be with Pprevnar (PCV-13) as these patients will have a better response to its antigen presentation. For the 4<sup>th</sup> dose, it is ideal to boost with the Pneumovax (PCV23) vaccine which will cover more strains. However, a 4<sup>th</sup> dose of Pprevnar (PCV-13) is also acceptable.

- It is important to get diphtheria (+/- tetanus) and pneumococcal titers after 3 rounds (about 6 months after starting immunizations) to document response to the vaccines. They should be checked again at the 1 year mark prior to starting live vaccinations
- It is safe to begin **live vaccinations (MMR, Varicella)** following the 2-8-1 rule: a) no sooner than 2 years post-HSCT, b) at least 8 months after the last IVIG dose, and c) 1 year off of all immunosuppressive therapy. They should also have a documented response to the killed vaccines per diphtheria and pneumococcal titers.
- The minimum time between the 1<sup>st</sup> and 2<sup>nd</sup> MMR/Varicella doses is 1 month

- It is recommended that all males and females receive HPV vaccinations (with Gardasil-9 if possible). Recent studies have suggested that 2 doses may be adequate.
- For high risk patients (ie. students living in college dorms) it is recommended that the get a boost with an MCV 4 vaccine if >5 yrs since last dose. 2 doses of the newly approved Men B vaccine will provide further protection.

\*\*Please see: Carpenter PA & Englund, JA. *How I vaccinate blood and marrow transplant recipients*. Blood. 2016 Jun 9;127(23):2824-32 for an excellent Q&A format review of current evidence and guidelines.

**Signature Manifest****Document Number:** PBMT-GEN-070**Revision:** 02**Title:** Pediatric Post Transplant Vaccination Schedule

All dates and times are in Eastern Time.

**PBMT-GEN-070 Pediatric Post Transplant Vaccination Schedule****Author**

Name/Signature	Title	Date	Meaning/Reason
June Allison (ALLIS006)		27 Mar 2018, 03:32:33 PM	Approved

**Medical Director**

Name/Signature	Title	Date	Meaning/Reason
Joanne Kurtzberg (KURTZ001)		27 Mar 2018, 06:18:32 PM	Approved

**Quality**

Name/Signature	Title	Date	Meaning/Reason
Bing Shen (BS76)		28 Mar 2018, 12:34:06 PM	Approved

**Document Release**

Name/Signature	Title	Date	Meaning/Reason
Betsy Jordan (BJ42)		04 Apr 2018, 06:42:15 AM	Approved