# PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

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# PBMT GEN-070

**PEDIATRIC POST TRANSPLANT VACCINATION SCHEDULE**

*Post-HSCT Immunizations Record & Guidelines*

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Vaccine</th>
<th>Brand</th>
<th>Series #</th>
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| **Anually** *(Sept – March)*  
  *give if > 100d post*    | Influenza injections | *injections are killed. *Flumist* is a "LIVE" vaccine* | 1 per year (unless naive, then boost after 2 months) | Initial: *boost (if needed): Yearly:*
| **Initial Round** *(1 year post-Tx or as per PBMT attending)*    | DTaP (preferred or Tdap)  
  IPV  
  Hepatitis B  
  HiB  
  PCV-13  
  Hepatitis A | Pediarix  
  Pediarix  
  Pediarix  
  Pediarix  
  Pediarix | 1 of 3  
  1 of 3  
  1 of 3  
  1 of 3  
  1 of 2 | |
| **≥2 months** *(from initial round)* | DTaP (preferred or Tdap)  
  IPV  
  Hepatitis B  
  HiB  
  PCV-13 | Pediarix  
  Pediarix  
  Pediarix  
  Pediarix | 2 of 3  
  2 of 3  
  2 of 3  
  2 of 3 | |
| **≥4 months** *(from initial round)* | DTaP (preferred or Tdap)  
  IPV  
  Hepatitis B  
  HiB  
  PCV-13  
  MCV4 | Pediarix  
  Pediarix  
  Pediarix  
  Pediarix  
  *do not give Menactra at same time as Prevnar* | 3 of 3  
  3 of 3  
  3 of 3  
  3 of 3  
  1 of 2 | |
| **≥6 months** *(from initial round)* | MCV4  
  Hepatitis A | 2 of 2  
  2 of 2 | Please check Tetanus and Pneumococcal titers |
| **≥12 months** *(from initial round)* | MMR (live)  
  Varicella (live)  
  PCV-13 or PPSV-23 | 1 of 2  
  1 of 2  
  4 of 4  
  1 of 1 | Please check Tetanus and Pneumococcal titers |
| **15 months** | Varicella (live) | 2 of 2 | |
| **Males and Females > 9 yo** | HPV | Use Gardasil-9 if possible  
  1" two doses separated by 2 mo; 2" and 3" doses separated by 4 months | 1 of 3  
  2 of 3  
  3 of 3 | |
| **Before college** | MCV4 | Boost if > 4-5y since last MCV dose | 1 of 1 | |
| **Every 10 years** | Tdap booster | 1 dose | |

**Only give live vaccines after 2-8-1 rule and criteria below have been met**
**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/μL and an ANC of > 800 cells/μL, 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 Prevnar (PCV-13) vaccine should NOT be administered at the same time (as it will decrease the effectiveness of the Prevnar) and should be separated by at least 4 weeks. The Menevo brand MCV-4 vaccine can be given at the same time as Prevnar.
- It is recommended that the first 3 doses of pneumococcal vaccine be with Prevnar (PCV-13) as these patients will have a better response to its antigen presentation. For the 4th dose, it is ideal to boost with the Pneumovax (PCV23) vaccine which will cover more strains. However, a 4th dose of Prevnar (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 1st and 2nd 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

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All dates and times are in Eastern Time.

## PBMT-GEN-070 Pediatric Post Transplant Vaccination Schedule

### Author

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### Quality

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