

Vaccinations Recommended for Both Autologous and Allogeneic HCT Recipients¹

Patient Name:	6 MONTHS	8 MONTHS	12 MONTHS	14 MONTHS	18 MONTHS	24 MONTHS	At 2 years & 4 years	Every 4-5 years
BMT Date:	Date: ____	Date: ____	Date: ____	Date: ____	Date: ____	Date: ____	Date: ____	Date: ____
Influenza Inactivated² - IM (Annually between September and November)	❖							
Hepatitis B Inactivated³ - IM (If not previously given or if titers are inadequate)			❖	❖	❖			
Tetanus, Diphtheria, Acellular Pertussis⁴ – IM			❖	❖	❖			
Heamophilus Influenza B Conjugate Vaccine - IM			❖	❖	❖			
Inactive Polio Vaccine – IM or SQ			❖	❖		❖		
Prevnar 13 (13-valent pneumococcal conjugate)⁶ – IM	❖	❖	❖					
PPSV23 (23-valent pneumococcal polysaccharide)⁶ IM (preferred) or SQ					❖			
Meningococcal Conjugate Vaccine⁷ – IM			❖					
LIVE ATTENUATED VIRUS (Contraindicated in patients with active GVHD or on immunosuppression)								
Measles, Mumps, Rubella (MMR)⁵ – LIVE - SQ						❖		
Chickenpox (Varivax)¹⁰ – LIVE - SQ						See footnote		
ANTIBODY LEVEL TESTING								
Pneumococcal antibody level⁸							❖	
Test for maintenance of antibody levels to HBV, measles, tetanus, diphtheria, and polio⁹								❖

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- ¹ Patients may not receive vaccines at time points listed here due to other clinical issues.
- ² Do NOT use the live intranasal influenza vaccine. If given prior to 6 months after transplant consider a second dose.
- ³ High-risk persons and all adults wishing to be protected. Testing for response to hepatitis vaccination should be done 1 month or later after the third vaccine dose. A second 3-dose vaccination schedule is recommended in non-responders. The interval between the first and second series has to be determined individually because nonresponsiveness to the vaccine can have different causes (eg, cGVHD, in which case it may be prudent to revaccinate only after the GVHD has abated)
- ⁴ DTaP is preferred, however if only Tdap is available administer Tdap. Acellular pertussis is preferred, but the whole-cell pertussis vaccine should be used if it is the only pertussis vaccine available. For patients ≥ 65 , give Td only.
- ⁵ Vaccinate for measles only if patient has tested seronegative. Patient should not have active GVHD. Contraindicated in patients receiving immunosuppressive therapy and in those with primary and acquired deficiency states. Individuals with thrombocytopenia may develop more severe thrombocytopenia. Vaccination should be deferred three months or longer following blood or plasma transfusions, or administration of immune globulin (human). See package insert for full list of contraindications and warnings.
- ⁶ Response may be diminished if given on the same day as influenza vaccine. Following the primary series of 3 Prevnar 13 doses, a dose of the 23-valent polysaccharide pneumococcal vaccine (PPSV23) to broaden the immune response might be given. For patients with chronic GVHD who are likely to respond poorly to PPSV23, a fourth dose of the PCV should be considered instead of PPSV23. Prevnar dose in adults is equivalent to children (0.5 mL)
- ⁷ Recommended for persons with functional asplenia or with persistent complement component deficiency.
- ⁸ Retest at 2 and 4 years. Test 1 month or later after the last dose of pneumococcal vaccine.
- ⁹ The need for revaccination has to be assessed on an individual basis.
- ¹⁰ Vaccination for shingles/chickenpox post HCT transplant is not a CDC recommendation due to insufficient data regarding safety in these recipients. If vaccination is desired, the shingles vaccine (Zostavax) should not be used because of the much higher viral titers. Contraindicated in patients receiving immunosuppressive therapy and in those with primary and acquired deficiency states. Patient should not have active GVHD. Vaccination should be deferred five months or longer following blood or plasma transfusions, or administration of immune globulin (human). See package insert for full list of contraindications and warnings.

References:

1. Tomblyn M, Chiller T, Einsele H, Gress R, Sepkowitz K, Storek J et al. Guidelines for Preventing Infectious Complications among Hematopoietic Cell Transplantation Recipients: A Global Perspective. *Biol Blood Marrow Transplant*. 2009;15:1143-1238
2. Centers for Disease Control and Prevention. Recommended Adult Immunization Schedule – United States, 2009. *MMWR* 2008;57(53).
3. Recommended Adult Immunization Schedule – United States, 2009. *MMWR Quick Guide* 2009;57(53).
4. Centers for Disease Control and Prevention. General Recommendations on Immunization – Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55(RR-15).
5. Summary of Recommendations for Adult Immunization. Available at: www.immunize.org/catg.d/p2011.pdf
6. Product Information: Liquid PedvaxHIB®, Haemophilus b Conjugate Vaccine. Merck & Co, INC., West Point, PA, 2001
7. Product Information: Adacel®, Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine Adsorbed. Sanofi Pasteur, Swiftwater, PA, 2008.
8. Product Information: INFANRIX®, Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed. GlaxoSmithKline, Research Triangle Park, NC, 2009.
9. Product Information: IPOL®, Poliovirus Vaccine Inactivated. Sanofi Pasteur, Swiftwater, PA, 2005
10. Product Information: M-M-R®II, Measles, Mumps, and Rubella Virus Vaccine Live. Merck & Co, Inc, Whitehouse Station, NJ, 2004.
11. Product Information: Prevnar 13®, Pneumococcal 13-valent Conjugate Vaccine. Wyeth Pharmaceuticals, Inc., Philadelphia, PA, 2010.
12. Product Information: PNEUMOVAX®23, Pneumococcal Vaccine Polyvalent. Merck & Co, Inc, Whitehouse Station, NJ, 2009.
13. Product information: VARIVAX, Varicella Virus Vaccine Live. Merck&Co, Inc, Whitehouse Station, NJ, 2012.