



Functional or Anatomical Asplenia Vaccine Guide

I. PURPOSE

To outline appropriate vaccines targeting encapsulated bacteria for functionally or anatomically asplenic patients, and to outline other critical aspects of care for asplenic patients. Routine vaccines that may also be indicated but not addressed here but include those for influenza, tetanus, herpes zoster, human papilloma virus, MMR (measles, mumps, rubella), and varicella.^{1,2,3}

II. Background

Functionally or anatomically asplenic patients should be vaccinated to decrease the risk of sepsis due to organisms such as *Streptococcus pneumoniae*, *Haemophilus influenzae* type B, and *Neisseria meningitidis*. Guidelines are based on CDC recommendations. Pre-emptive antibiotics and other practices are also recommended for asplenic patients.

III. Procedures/Guidelines^{1,2,3,6,7,8}

The regimen consists of **4 vaccines** initially, followed by repeat doses as specified:

1. *Haemophilus influenzae* type b conjugate vaccine (Hib) (ACTHIB®) IM once if they have not previously received Hib
2. Pneumococcal conjugate 20-valent vaccine (PCV20) (PREVNAR 20®) IM once
Note: The above is valid for those who have not received any pneumococcal vaccines previously, or those with unknown vaccination history. If already received prior doses of PPSV23: give PCV20 at least 1 year after last PPSV23 dose. See Appendix B for more details for patients who received prior pneumococcal vaccination.
3. Meningococcal conjugate vaccine (MenACWY-CRM, MENVEO®) IM (repeat in ≥ 8 weeks, then every 5 years thereafter as long as risk remains)
4. Meningococcal serogroup B vaccine (MenB, BEXSERO®) IM (repeat in ≥ 4 weeks; 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains)

Timing of vaccination relative to splenectomy:

1. Should be given at least 14 days before splenectomy, if possible. Doses given during the 2 weeks (14 days) before surgery can be counted as valid.
2. If the doses cannot be given prior to the splenectomy, they should be given 14 days after surgery or at discharge, whichever is earliest.

Some data suggest poor vaccine responses within 14 days after splenectomy.⁵⁻⁹ If concerned about poor vaccine responses within 14 days post-splenectomy (based on limited data), can consider repeating these doses per provider discretion.

SHC Guidelines for Functional or Anatomical Asplenia (Adapted from CDC 2016)		
Dose #1 day 1	Dose #2	
	4 weeks	8 weeks
<i>Haemophilus</i> b conjugate [Hib (ActHIB®)]†	n/a	n/a
Meningococcal conjugate [MenACWY-CRM (Menveo®)]‡	n/a	Meningococcal conjugate (same product as Dose #1)
Meningococcal serogroup B [MenB (Bexsero®)]	Meningococcal serogroup B [MenB (Bexsero®)]	n/a



Pneumococcal conjugate 20-valent [PCV20 (Prevnar 20®)]*	n/a	n/a
† Applies to patients that have not previously received Hib (e.g. as part of routine childhood series) ‡ Menveo preferred over Menactra if coadministered with PCV20 * Applies to those who have no history of pneumococcal vaccines or PCV20, or those with unknown vaccination history (see appendix B)		

Outpatient care: 8-9

Patients with asplenia should be:

1. Counseled regarding their increased risk of life-threatening sepsis, and the need for them to proceed without delay to the emergency department in the event of fever or rigors.
2. Prescribed antibiotics active against *Streptococcus pneumoniae*, such as amoxicillin 2 g, amoxicillin/clavulanic acid 875/125 mg, cefuroxime axetil 500 mg, cefdinir 300 mg, levofloxacin 750 mg, or moxifloxacin 400 mg to take in the event they are unable to present to the emergency department within 2 hours from the onset of fever or rigors.
3. Advised to seek medical attention in the event of an animal bite given increased risk of severe disease due to *Capnocytophaga* infection.

IV. References

1. <http://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html>
2. <http://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM431447.pdf>
3. <http://www.cdc.gov/vaccines/adults/rec-vac/health-conditions/asplenia.html>
4. <http://www.cdc.gov/vaccines/vpd-vac/pneumo/downloads/adult-vax-clinician-aid.pdf>
5. Immunization Action Coalition Express, Issue 1194: July 15, 2015
6. Konradsen, H. B., et al. "Antibody levels against Streptococcus pneumoniae and Haemophilus influenzae type b in a population of splenectomized individuals with varying vaccination status." *Epidemiology and Infection* 119.02 (1997): 167-174.
7. Shatz, David V., et al. "Immune responses of splenectomized trauma patients to the 23-valent pneumococcal polysaccharide vaccine at 1 versus 7 versus 14 days after splenectomy." *Journal of Trauma and Acute Care Surgery* 44.5 (1998): 760-766.
8. Rubin LG, Schaffner W. Clinical practice. Care of the asplenic patient. *N Engl J Med*. 2014;371(4):349-356.
9. Di Sabatino A, Carsetti R, Corazza GR. Post-splenectomy and hyposplenic states. *Lancet*. 2011;378(9785):86-97.

V. Document Information

- A. Original Author/Date: Lina Meng, PharmD, BCPS, Abraham Chang, PharmD, BCOP: 2/5/2016
- B. Gatekeeper: Vaccination Subcommittee, Department of Pharmacy
- C. Review and Renewal Requirement
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Stanford Health Care
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1. Type "splenectomy" or "asplenia"

Code	Name
0173049	SPLENECTOMY/ASPLENIA VACCINES

2. All necessary vaccines will appear. Review before signing. Start dates will be auto-timed as specified in this guideline



Appendix B: Pneumococcal vaccination recommendations and timing of administration for adult patients with asplenia

For those who have never received a pneumococcal vaccine or those with unknown vaccination history

Administer one dose of PCV15 or PCV20.

If **PCV20** is used, their pneumococcal vaccinations are complete.

PCV20

If **PCV15** is used, follow with one dose of PPSV23.

- The recommended interval is at least 1 year.
- The minimum interval is 8 weeks and can be considered in adults with an immunocompromising condition*, cochlear implant, or cerebrospinal fluid leak.
- Their pneumococcal vaccinations are complete.

PCV15 → At least 1 year apart (8 weeks can be considered) → PPSV23

For those who previously received PPSV23 but who have not received any pneumococcal conjugate vaccine (e.g., PCV13, PCV15, PCV20)

You may administer one dose of PCV15 or PCV20.

Regardless of which vaccine is used (PCV15 or PCV20):

- The minimum interval is at least 1 year.
- Their pneumococcal vaccinations are complete.

PPSV23 → At least 1 year apart → PCV15 or PCV20

Pneumococcal vaccines

- PCV13:** 13-valent pneumococcal conjugate vaccine (Pneumovax[®])
- PCV15:** 15-valent pneumococcal conjugate vaccine (Vaxneuvance[™])
- PCV20:** 20-valent pneumococcal conjugate vaccine (Pneumovax²⁰)
- PPSV23:** 23-valent pneumococcal polysaccharide vaccine (Pneumovax[®])

Pneumococcal vaccine timing for adults who previously received PCV13 but who have not received all recommended doses of PPSV23

The previous pneumococcal recommendations remain in effect pending further evaluation. Use the following information for guidance on the number of and interval between any remaining recommended doses of PPSV23.

Adults 19 years or older with an immunocompromising condition

PCV13 (at any age) → At least 8 weeks apart → PPSV23 (at < 65 years) → At least 5 years apart → PPSV23 (at < 65 years) → At least 5 years apart → PPSV23 (at ≥ 65 years)

CDC recommends 2 doses of PPSV23 before age 65 years and 1 dose of PPSV23** at age 65 years or older.**

Administer a single dose of PPSV23 at least 8 weeks after PCV13 was received.

- If the patient was younger than 65 years old when the first dose of PPSV23 was given and has not turned 65 years old yet, administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23. This is the last dose of PPSV23 that should be given prior to 65 years of age.
- Once the patient turns 65 years old and at least 5 years have passed since PPSV23 was last given, administer a final dose of PPSV23 to complete their pneumococcal vaccinations.

** For adults who have received PCV13 but have not completed their recommended pneumococcal vaccine series with PPSV23, one dose of PCV20 may be used if PPSV23 is not available. If PCV20 is used, their pneumococcal vaccinations are complete.