

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.⁵⁻⁹If 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	Dose #2		
day 1	4 weeks	8 weeks	
Haemophilus 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	

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Pneumococcal conjugate 20-valent	n/a	n/a
[PCV20 (Prevnar 20®])*		

† 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.
- 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
 - This document will be reviewed every three years and as required by change of law or practice
- D. Revision/Review History
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Lina Meng, PharmD, BCPS 3/29/2017, 7/31/2018

David Epstein, MD 7/31/2018, 11/15/2021

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- E. Approvals
 - 1. Antimicrobial Subcommittee 2/29/2016, 8/17/2017
 - 2. Vaccine Subcommittee 4/5/2017, 8/2018, 11/2021, 11/2022
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Stanford Health Care Stanford, CA 94305

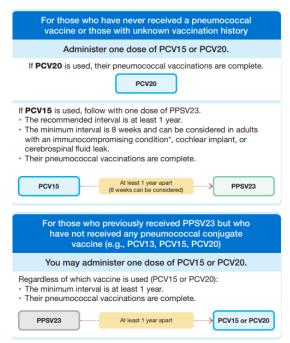
Appendix A: How to order in EPIC

1. Type "splenectomy" or "asplenia"



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



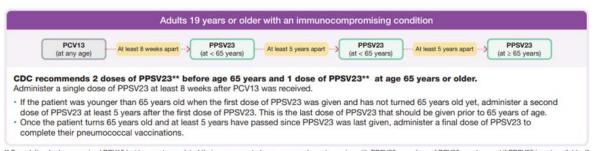


Appendix B: Pneumococcal vaccination recommendations and timing of administration for adult patients with asplenia

Pneumococcal vaccines PCV13: 13-valent pneumococcal conjugate vaccine (Prevnar13®) PCV15: 15-valent pneumococcal conjugate vaccine (Vaxneuvance™) PCV20: 20-valent pneumococcal conjugate vaccine (Prevnar20®) 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.



[&]quot; 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.