



## Functional or Anatomical Asplenia Vaccine Guide

### I. PURPOSE

To outline appropriate vaccines targeting encapsulated bacteria for functionally or anatomically asplenic patients. Routine vaccines that may also be indicated but not addressed here include influenza, Tdap, herpes zoster, HPV, MMR, and varicella.<sup>1,2,3</sup>

### 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. For additional information, see <https://www.cdc.gov/vaccines/schedules/hcp/imz/adult-conditions.html>.

### III. Procedures/Guidelines<sup>1,2,3,6,7,8</sup>

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

1. Haemophilus b conjugate (Hib) vaccine (ACTHIB®) IM once if they have not previously received Hib vaccine
2. Pneumococcal conjugate 13-valent (PCV13) vaccine (PREVNAR 13®) IM once
  - 2<sup>nd</sup> dose: Pneumococcal polysaccharide 23-valent (PPSV23) vaccine (PNEUMOVAX 23®) SQ/IM once given  $\geq 8$  weeks later, then 3<sup>rd</sup> dose as PPSV23  $> 5$  years later.<sup>4</sup>

*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 PCV13 at least 1 year after last PPSV23 dose.*
3. Meningococcal conjugate vaccine (MenACWY-CRM, MENVEO®) IM (repeat in  $\geq 8$  weeks, then every 5 years thereafter)
4. Meningococcal serogroup B vaccine (MenB, BEXSERO®) IM (repeat in  $\geq 4$  weeks)

#### 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 at least 14 days after surgery or prior to discharge, whichever is earliest.

*Some data suggest poor vaccine responses within 14 days after splenectomy.<sup>5-9</sup> 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
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
Pneumococcal conjugate 13-valent [PCV13 (Pneumovax 13®)]§	n/a	Pneumococcal polysaccharide 23-valent [PPSV23 (Pneumovax 23®)]
* non-applicable † Applies to patients that have not previously received Hib vaccine (e.g. as part of routine childhood series) ‡ Menveo preferred over Menactra if coadministered with PCV13 § Applies to those who have no history of pneumococcal vaccines or PCV13, 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 a single dose of an antibiotic active against *Streptococcus pneumoniae*, such as amoxicillin 2 g or levofloxacin 750 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 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: Antimicrobial Stewardship Program, 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: Stan Deresinski, MD, Aruna Subramanian, MD 2/18/2016, David Spain, MD, FACS 2/19/2016



Lina Meng, PharmD, BCPS 3/29/2017, 7/31/2018

David Epstein, MD 7/31/2018

E. Approvals

1. Antimicrobial Subcommittee 2/29/2016, 8/17/2017
2. Vaccine Subcommittee 4/5/2017, 8/2018 pending
3. P&T 9/15/2017

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### Appendix A: How to order in EPIC

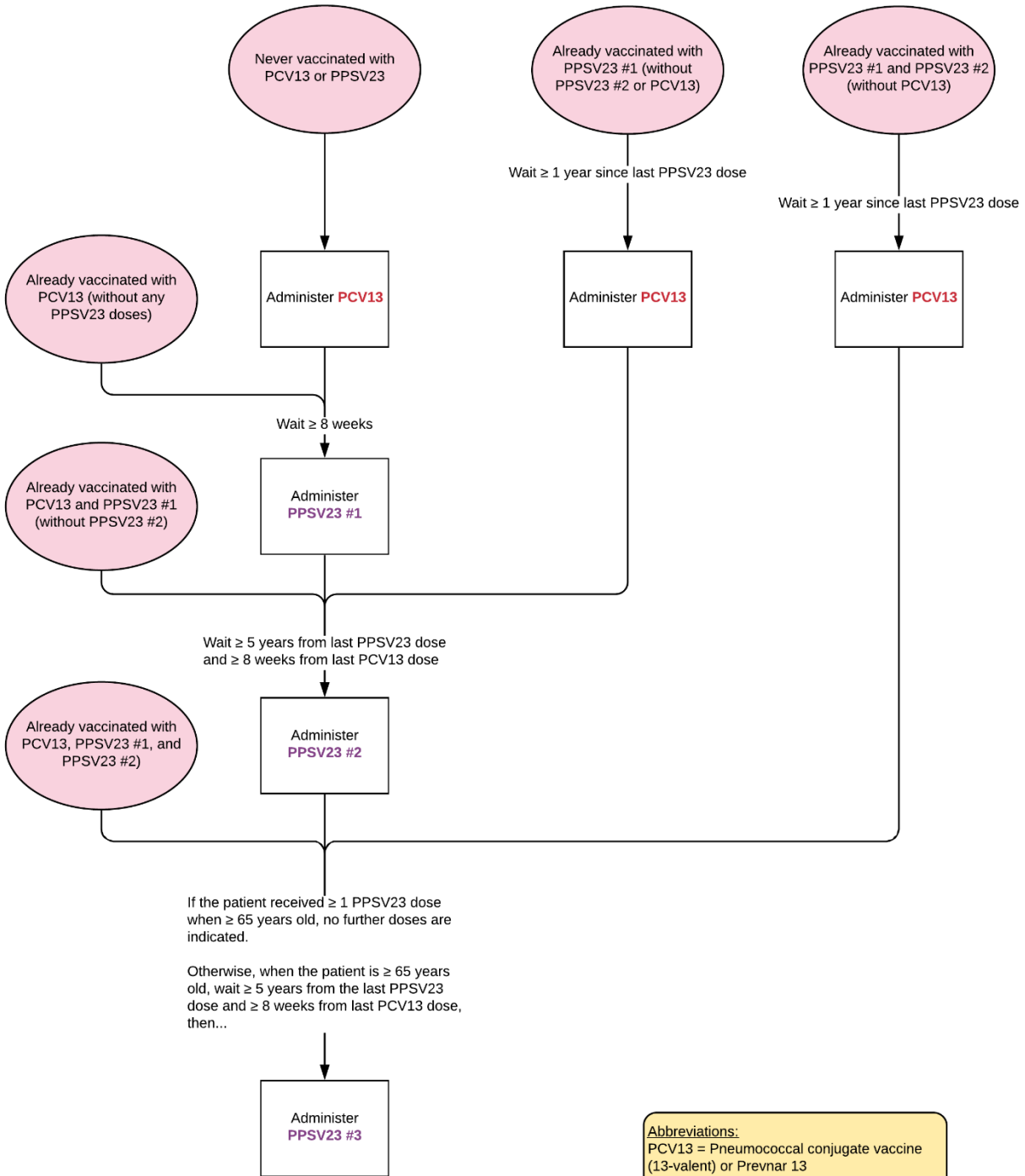
1. Type "splenectomy" or "asplenia"

Code	Name
O173049	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**



**Abbreviations:**  
 PCV13 = Pneumococcal conjugate vaccine (13-valent) or Prevnar 13  
 PPSV23 = Pneumococcal polysaccharide vaccine (23-valent) or Pneumovax 23

Everyone ≥ 65 years old should have received:  
**PCV13:** once  
**PSV23:** 2-3 doses, including ≥ 1 dose ≥ 65 years old