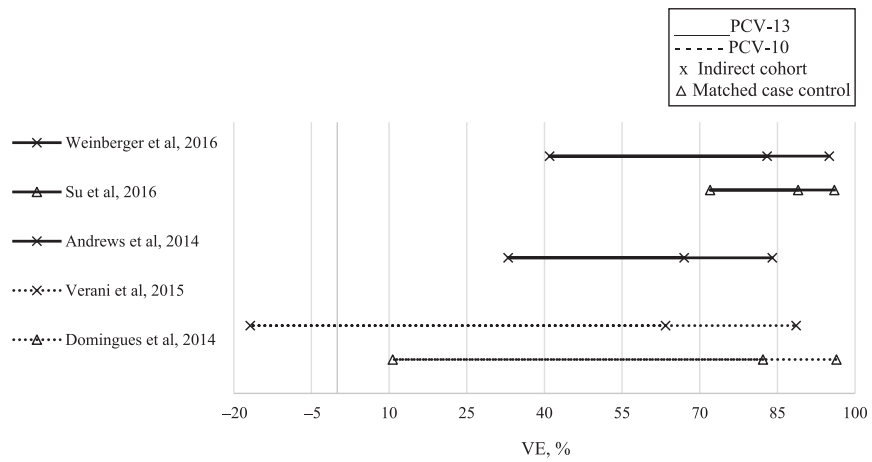


## Supplemental Information

Sample search strategy (Web of Science database). The search strategy included free-text search terms for the concepts of “PCV13” AND “PCV10” AND (“AOM” OR “IPD” OR “efficacy” OR “effectiveness” OR “safety”).

1. “thirteen valen\*” OR “pcv13\*” OR “pcv 13\*” OR “13 valen\*” OR “prevnar 13\*” OR “prevnar13\*” OR “prevenar 13\*” OR “prevenar13\*”;
2. “pcv10\*” OR “pcv 10\*” OR “ten valen\*” OR “10 valen\*” OR “PHiD-CV\*” OR “synflorix\*”;
3. “efficacy” OR “effect\*” OR “safe\*” OR “impact” OR “otitis media” OR “invasive pneumococcal disease”;
4. 1 AND 3;
5. 2 AND 3;
6. 4 OR 5; and
7. 4 OR 5 refined by languages (English) and publication years (2009–2016).



**SUPPLEMENTAL FIGURE 3**

Effectiveness of PCV-13 or PCV-10 against serotype 19A IPD in children <5 years who were up to date with the schedule of vaccine for age at the time of assessment.

**SUPPLEMENTAL TABLE 3** Reported VE for PCV-13 Against IPD, Stratified by Schedule, Age Group, Doses, and by Serotypes Included in Effectiveness Estimation

	Dose					
	Taken at <12 mo of Age			Taken at ≥12 mo of Age		
	≥1 dose	≥2 doses	Post-Primary Series	≥1 Dose	Post-Primary Series	Postbooster
PCV-13 IPD VE (95% CI); cases (if reported, vaccinated/unvaccinated): controls (if reported, vaccinated/unvaccinated) or No. discordant pairs (if reported, vaccinated/unvaccinated)						
VT-IPD						
3 + 1						
Van der Linden et al <sup>17</sup>	—	—	85 (62 to 94); (10/22): (74/20)	—	—	91 (61 to 99); (2/13): (33/16)
PCV-13–non-PCV-7						
3 + 1						
Van der Linden et al <sup>17</sup>	—	—	80 (46 to 93); (10/16): (74/20)	—	—	90 (54 to 98); (2/12): (33/16)
Weinberger et al <sup>20</sup>	79 (6 to 95); (3/20): (8/11)	100 <sup>a</sup> (60 to 100); (0/9): (11/8)	—	—	—	60 (–109 to 92); (5/3): (29/7)
Moore et al <sup>21</sup>	30.2 (–165.6 to 81.7); 11	—	—	90.3 (71.2 to 96.7); 33	—	—
2 + 1						
Andrews et al <sup>22</sup>	60 (12 to 82); (28/43): (48/24)	—	80 (43 to 93); (23/34): (118/20)	73 (50 to 85); (28/112): (65/56)	—	79 (25 to 94); (13/112): (71/56)
19A						
3 + 1						
Van der Linden et al <sup>17</sup>	—	—	73 (18 to 92); (8/9): (74/20)	—	—	88 (25 to 99); (1/7): (33/16)
2 + 1						
Andrews et al., <sup>22</sup>	—	—	62 (–55 to 90); (14/17): (118/20)	—	—	—
Serotype 3						
3 + 1						
Van der Linden et al <sup>17</sup>	—	—	80 (–68 to 98); (1/2): (74/20)	—	—	63 (–393 to 97); 3: 49
2 + 1						
Andrews et al <sup>22</sup>	—	—	66 (–322 to 92); (3/2): (118/20)	—	—	—

Children receiving 2 doses/3 doses in jurisdictions with a 2 + 1/3 + 1 schedule were considered and are presented here under “Post-Primary Series.” Postbooster VE was included for the children ≥12 mo strata when the jurisdiction’s schedule mandated the booster dose at an age ≥12 mo. PCV-13 includes serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, and 23F; PCV-10 includes serotypes 1, 4, 5, 6B, 7F, 9V, 14, 18C, 19F, and 23F. Up to date for age indicates the VE for children who were up to date with the vaccine given by their jurisdiction schedule at time of assessment. Unique to PCV-13 refers to the serotypes unique to the PCV-13 formulation (1, 3, 6A, 7F, and 19A). PCV-10’s VE against serotypes unique to its formulation could not be estimated because of low prevalence of the serotypes 1, 5A, and 7F among IPD cases. Therefore, PCV-10’s estimates of VT-IPD across studies reflect the effectiveness of the vaccine against PCV-7 serotypes. —, not applicable.

<sup>a</sup> VE estimated without adjustment for year and age because of a cell containing 0.

SUPPLEMENTAL TABLE 4 PCV-10 and PCV-13 Vaccine Efficacy and/or Effectiveness Against AOM Across Studies Included in the Review

Vaccine Schedule	Study				PCV-13 3 + 1	Diagnosed clinically and microbiologically in MEF after tympanocentesis <sup>d</sup> ; recurrent AOM defined as 3 episodes within 6 mo or 4 episodes within 12 mo
	Palmu et al <sup>26</sup>	Palmu et al <sup>27</sup>	Vesikari et al <sup>25</sup>	Sáez-Llorens et al <sup>24</sup>		
AOM outcome definition	PCV-10 2 + 1 or 3 + 1 No. purchases of antibiotics recommended for otitis media <sup>b</sup>	PCV-10 2 + 1 or 3 + 1 No. TPP procedures	PCV-10 2 + 1 or 3 + 1 Physician-diagnosed AOM	PCV-10 3 + 1 Altered visual appearance of the tympanic membrane; presence of middle-ear effusion <sup>c</sup>	PCV-10 3 + 1 Altered visual appearance of the tympanic membrane; presence of middle-ear effusion <sup>c</sup>	
Age groups	Across all ages	Across all ages	Across all ages	<12 mo and >12 mo	Across all ages	
No. doses	≥1 dose	≥1 dose	Full course	≥1 dose	≥1 dose	
VE provided for	Reducing all outpatient purchases	Reducing any TPP	Preventing ≥1 and all AOM episodes	Preventing ≥1 and all AOM episodes	Preventing ≥1 AOM episode	Relative reduction of the 6 S <i>pneumoniae</i> serotypes unique to PCV-13 <sup>b</sup> in samples collected from a PCV-7 or PCV-13 cohort <sup>e</sup>
Reducing outpatient purchases	8 (-1 to 15)/8 (0 to 15) <sup>f</sup>	—	—	—	—	—
Reducing any TPP	—	14 (-4 to 29)/13 (-5 to 28) <sup>f</sup>	—	—	—	—
≥1 AOM episode	—	—	—	—	—	—
Bacteriologically confirmed	—	—	—	2-11 mo: 43.3 (1.7 to 67.3); 12-23 mo: 54.2 (9.3 to 76.9) <sup>f</sup>	33.6 (3.2 to 54.5) <sup>f</sup>	—
Clinically confirmed	—	—	6.1 (-2.7 to 14.1)/7.4 (-2.8 to 16.6) <sup>f</sup>	2-11 mo: 26.9 (5.9 to 43.3); 12-23 mo: 19.7 (-4.7 to 38.4) <sup>f</sup>	19.0 (4.4 to 31.4) <sup>f</sup>	—
Vaccine serotype	—	—	—	—	69.9 (29.8 to 87.1) <sup>f</sup>	—
<i>H influenzae</i> C-AOM	—	—	—	—	17.3 (249.8 to 54.3) <sup>f</sup>	—
All episodes	—	—	—	—	—	—
Bacteriologically confirmed	—	—	—	2-11 mo: 40.3 (-4.0 to 65.7); 12-23 mo: 52.1 (6.7 to 75.5) <sup>f</sup>	—	Serotype 19A: 91 (58, 97); Serotype 3: 15% (-181 to 72); Additional serotypes in PCV-13 <sup>g</sup> : 86% (61 to 94) <sup>h</sup>
Clinically confirmed	—	—	2.8 (-9.5 to 13.9)/10.2 (-4.1 to 22.9) <sup>f</sup>	2-11 mo: 23.7 (1.3 to 41.0); 12-23 mo: 16.1 (-8.1 to 34.8) <sup>f</sup>	—	—

C-AOM, clinically confirmed AOM; MEF, middle-ear fluid; TPP, tympanostomy tube placement; —, not applicable.

<sup>a</sup> AOM outcome studied in Panama only.

<sup>b</sup> Includes amoxicillin with/without clavulanic acid, phenoxymethylpenicillin, cefuroxime, cefaclor, sulfadiazine and trimethoprim, clarithromycin, and azithromycin.

<sup>c</sup> At least 2 of the following clinical symptoms within last 5 d also required: ear pain, ear discharge, hearing loss, fever, lethargy, irritability, anorexia, vomiting, or diarrhea.

<sup>d</sup> Episodes of AOM were defined according to the 2004 diagnostic criteria of the American Academy of Pediatrics.

<sup>e</sup> VE was calculated by comparing change in the PCV-13 cohort versus the PCV-7 cohort after calculating risk ratios (1 - relative risk × 100%).

<sup>f</sup> Data in this cell correspond to PCV-10 AOM VE % (95% CI) for the 3 + 1/2 + 1.

<sup>g</sup> Serotypes 1, 3, 6A, 7F, and 19A.

<sup>h</sup> Data in this cell correspond to PCV-13 AOM VE % (95% CI) for 3 + 1.