

PCV vaccines indicator

Benefits of the intervention

Serogroup or serotype coverage by vaccines considered (for serogroup- or serotype-specific vaccines)

All vaccines cover >70% of serotypes which were circulating between 1980 and 2007 (before wider PCV use).

10-valent Synflorix[®] (GSK) and PCV13-Biomanguinhos covering serotypes 1, 4, 5, 6B, 7F, 9V, 14, 18C, 19F and 23,

10-valent Pneumosil[®] (SII) covering serotypes 1, 5, 6A, 6B, 7F, 9V, 14, 19A, 19F and 23F

13-valent Prevenar-13[®] (Pfizer), PCV13-Sinergium, Weuphoria[®] (Walvax), Beijing Minhai and Pneumotex[®] (Nanolek) covering serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F and 23F

14-valent Pneumobevax[®] (Biological E) covering serotypes 1, 3, 4, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F, 33F

15-valent Vaxneuvance[®] (Merck/MSD) covering serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F, 33F

20-valent Prevenar-20[®] (Pfizer) covering serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 23F, 8, 10A, 11A, 12F, 15B/C, 22F, 33

Cross-protection has been observed against serotype 6A for Synflorix[®] and against serotype 6C for Prevenar-13[®]. 1

Efficacy and effectiveness estimates (e.g. against infection, disease, hospitalization, death), including in different populations

The effectiveness of PCV10-GSK and PCV13-PFZP against vaccine serotypes have been demonstrated across multiple schedules, including 3p+0, 2p+1 and 3p+1, with evidence supported by multi-country systematic reviews at global and regional levels. [1](#), [2](#), [3](#), [4](#) Both vaccines provide direct protection in vaccinated individuals and indirect protection to unvaccinated members of the community through reduced transmission (i.e., herd protection). There is limited protection against serotype 3 in PCV13-PFZP.

PCV10-SII was licensed based on immunobridging studies showing non-inferiority to PCV10-GSK and PCV13-PFZ. [5](#), [6](#) Data on the effectiveness and impact of PCV10-SII are limited. PCV10-SII was introduced in Kenya in late 2022, replacing PCV10-GSK, which had been used for 11 years at high coverage, in a 3p+0 schedule. Preliminary results of a study that compared data from the PCV10-GSK period (2012-21) to the PCV10-SII period (2022-23) indicate that overall carriage prevalence remained stable between the two periods. These preliminary results suggest that PCV10-SII has a comparable effect on IPD and nasopharyngeal carriage as PCV10-GSK and PCV13-PFZ. [7](#)

All three licensed extended valency products, i.e., PCV14, PCV15 and PCV20, were licensed based on immunobridging studies; no real-world clinical data are available on their efficacy or effectiveness against clinical outcomes. [8](#), [9](#), [10](#), [11](#)

Duration of protection and waning of immunity in general and risk groups

Vaccines provide protection against acquisition of vaccine-serotype pneumococcal carriage for several years with differences across serotypes and PCV schedules. [12](#) No sustained population-level immunity with 3p+0 schedule was seen in Malawi. [13](#) A study in the UK that compared the 2p+1 with 1p+1 schedule with PCV13 found no significant difference in breakthrough infections and vaccine failure rates between the schedules. [14](#) All PCVs result in some degree of serotype replacement, whereby non-vaccine serotypes increase in prevalence in carriage and disease; however, in general among children, reductions in vaccine-type disease are greater than increases in non-vaccine-type disease, resulting in overall reductions in pneumococcal disease.

Sources

1.

World Health Organization (2025). Pneumococcal conjugate vaccines in infants and children under 5 years of age: WHO position paper – September 2025.

2.

Bennett JC, Deloria-Knoll M, Kagucia EW, Garcia Quesada M, Zeger SL, Hetrich MK et al. (2024). Global impact of ten valent and 13 valent pneumococcal conjugate vaccines on invasive pneumococcal disease in all ages (the PSERENADE project): a global surveillance analysis. *Lancet Infect Dis.* 2024. doi: 10.1016/S1473-3099(24)00588-7.

3.

Ngocho JS, Magoma B, Olomi GA, Mahande MJ, Msuya SE et al. (2019). Effectiveness of pneumococcal conjugate vaccines against invasive pneumococcal disease among children under five years of age in Africa: a systematic review. *PLoS One.* 14:e0212295. doi: 10.1371/journal.pone.0212295.

4.

de Oliveira LH, Shioda K, Valenzuela MT, Janusz CB, Rearte A, Sbarra AN et al. Declines in pneumonia mortality following the introduction of pneumococcal conjugate vaccines in Latin American and Caribbean countries. *Clin Infect Dis.* 2020. doi: 10.1093/cid/ciaa614

5.

Clarke E, Bashorun A, Adigweme I, Badjie Hydara M, Umesi A, Futa A et al. Immunogenicity and safety of a novel ten-valent pneumococcal conjugate vaccine in healthy infants in The Gambia: a phase 3, randomised, double-blind, non-inferiority trial. *Lancet Infect Dis.* 2021;21:834-46. doi: 10.1016/S1473-3099(20)30735-0.

6.

Adigweme I, Futa A, Saidy-Jah E, Edem B, Akpalu E, Dibbasey T et al. Immunogenicity and safety of a 10-valent pneumococcal conjugate vaccine administered as a 2 + 1 schedule to healthy infants in The Gambia: a single-centre, double-blind, active-controlled, randomised, phase 3 trial. *Lancet Infect Dis.* 2023;23:609-20. doi: 10.1016/S1473-3099(22)00734-4.

7.

Report of the SAGE Working Group on Pneumococcal Vaccines, March 10-13, 2025. In: The SAGE Yellow Book March 2025

(https://terrance.who.int/mediacentre/data/sage/SAGE_eYB_March2025V1.pdf , accessed 25 April 2025).

8.

Matur RV, Thuluva S, Gunneri S, Yerroju V, Reddy Mogulla R, Thammireddy K et al. Immunogenicity and safety of a 14-valent pneumococcal polysaccharide conjugate vaccine (PNEUBEVAX 14) administered to 6-8 weeks old healthy Indian Infants: A single blind, randomized, active-controlled, Phase-III study. *Vaccine*. 2024;42:3157-65. doi: 10.1016/j.vaccine.2024.03.056

9.

Wagner G, Gartlehner G, Thaler K, Ledinger D, Feyertag J, Klerings I et al. Immunogenicity and safety of the 15-valent pneumococcal conjugate vaccine, a systematic review and meta-analysis. *NPJ Vaccines*. 2024;9:257. doi: 10.1038/s41541-024-01048-y.

10.

Senders S, Klein NP, Tamimi N, Thompson A, Baugher G, Trammel J et al. A Phase Three Study of the Safety and Immunogenicity of a Four-dose Series of 20-Valent Pneumococcal Conjugate Vaccine in Healthy Infants. *Pediatr Infect Dis J*. 2024;43:596-603. doi: 10.1097/INF.0000000000004334

11.

Korbal P, Wysocki J, Jackowska T, Kline M, Tamimi N, Drozd J et al. Phase 3 Safety and Immunogenicity Study of a Three-dose Series of Twenty-valent Pneumococcal Conjugate Vaccine in Healthy Infants and Toddlers. *Pediatr Infect Dis J*. 2024;43:587-95. doi: 10.1097/INF.0000000000004300.

12.

Le Polain De Waroux, O., Flasche, S., Prieto Merino, D., Goldblatt, D., & Edmunds, W.J. et al. (2015) 'The efficacy and duration of protection of pneumococcal conjugate vaccines against nasopharyngeal carriage: a meta regression model', *Pediatric Infectious Disease Journal*, 34(8), pp. 858 864. doi:10.1097/INF.0000000000000717

13.

Swarthout TD, Henrion MYR, Thindwa D, Meiring JE, Mbewe M et al. (2022). Waning of antibody levels induced by a 13 valent pneumococcal conjugate vaccine, using a 3+0 schedule, within the first year of life among children younger than 5 years in Blantyre, Malawi: an observational, population-level, serosurveillance study. *Lancet Infect Dis.* 22(12):1737–1747. doi: 10.1016/S1473-3099(22)00438-8.

14.

Hill, E. M., et al. (2023) Invasive pneumococcal disease 3 years after introduction of a reduced 1+1 infant 13-valent pneumococcal conjugate vaccine immunisation schedule in England: a prospective national observational surveillance study. *The Lancet Infectious Diseases*. DOI: 10.1016/S1473 3099(23)00706 5.