



Republic of the Philippines

DEPARTMENT OF SCIENCE AND TECHNOLOGY



CALL FOR STAKEHOLDER COMMENTS ON THE PRELIMINARY RECOMMENDATION OF THE HEALTH TECHNOLOGY ASSESSMENT (HTA) COUNCIL ON PNEUMOCOCCAL CONJUGATE VACCINES (PCV) FOR ADULTS 60 YEARS OLD AND ABOVE

Published as of 19 September 2025

As of 19 September 2025, the Health Technology Assessment (HTA) Council has completed the evidence appraisal on the assessment of pneumococcal vaccines for the prevention of disease caused by *Streptococcus pneumoniae* in elderly adults 60 years old and above, including the following vaccine regimen: (1) pneumococcal conjugate vaccine 13 (PCV13) in sequence to pneumococcal polysaccharide vaccine (PPSV23), (2) pneumococcal conjugate vaccine 15 (PCV15) in sequence to PPSV23, and (3) PPSV23 alone, for possible government financing. The HTA Council hereby makes public its preliminary recommendation on the said health technologies for stakeholder feedback/comments from 19 September to 03 October 2025.

The population, intervention, comparator (PIC) set by the HTA Council for the said evaluation are shown in the table below, for your reference:

	Pneumococcal vaccines, including the following vaccine regimen: (1) PCV13 in sequence to PPSV23, (2) PCV15 in sequence to PPSV23, and (3) PPSV23 alone for the immunization of elderly adults 60 years old and above against diseases caused by <i>Streptococcus pneumoniae</i>
Population	All elderly adults 60 years old and above
Intervention and Comparator	All pneumococcal vaccines available in the market for the prevention of invasive pneumococcal disease, and pneumonia caused by <i>Streptococcus pneumoniae</i> : <ul style="list-style-type: none"> - PCV13 in sequence to PPSV23 - PCV15 in sequence to PPSV23 - Pneumococcal polysaccharide vaccine (PPSV23) alone <p>compared to each other and compared to no vaccination</p>

As a preliminary recommendation, the HTA Council recommends the government to finance the pneumococcal polysaccharide vaccine (PPSV23) for all adults 60 years old and older.

This recommendation is based on key considerations, upon review of evidence. All vaccine regimens (i.e., PPSV23 alone, PCV13+PPSV23, PCV15+PPSV23) have established safety profile, potential to substantially mitigate household financial burden, and ability to lessen the impact of pneumococcal disease among the elderly. However, clinical efficacy/effectiveness on sequential regimens (PCV13+PPSV23 and PCV15+PPSV23) remains limited.

While all regimens are cost-effective versus no vaccination, when compared to each other, PPSV23 alone is both less costly and more effective than sequential regimens. Therefore, adding PCV to the existing implementation of PPSV23 may not justify the additional cost and effort.

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Budget impact analysis indicates that implementing PPSV23 alone to reach the target vaccination coverage of 95% for adults aged 60 years and above may place a considerable burden on the National Immunization Program (NIP) Budget. The HTA Council therefore urges the DOH to increase the NIP budget and explore strategies to reduce costs, such as price negotiation, to ensure that the implementation of PPSV23 alone is sustainable and affordable.

This preliminary recommendation was based on the following evidence:

C1. Responsiveness to Disease Magnitude and Severity

Pneumococcal diseases (PD) caused by *Streptococcus pneumoniae* is one of the leading causes of morbidity and mortality among the elderly population worldwide and in the Philippines. However, there is limited global and no local data on invasive pneumococcal disease (IPD) and non-bacteremic pneumococcal pneumonia (NBPP). Available evidence on burden is mainly on broader indications such as lower respiratory infections (LRI) and acute respiratory infections (ARI).

- **Global Burden**
 - Globally in 2021, LRI was the fifth leading cause of mortality and morbidity worldwide. *S. pneumoniae* was responsible for the highest proportion of LRI episodes and deaths, with an estimated 97.9 million episodes (95% UI: 92.1 to 104.0) and 505,000 deaths (95% UI: 454,000 to 555,000) globally across all age groups. [Global Burden of Disease Study (GBD), 2021a; GBD study 2021b]. There is no recent global data available to provide a comprehensive epidemiological profile of invasive pneumococcal disease.
- **Local Burden**
 - In the Philippines, ARI was the top cause of morbidity in 2024, with pneumonia ranking fifth and acute LRI ranking seventh. Pneumonia was also the fourth leading cause of mortality in 2023 and 2024. The age group with the highest incidence and mortality rate of LRI was in elderly adults 70 years and above, followed by 50–69 year olds. However, there is currently no local surveillance to identify the specific etiology of local pneumonia and LRI cases. The available sentinel surveillance does not accurately represent or measure the incidence of IPD cases in the Philippines.

C2. Safety and effectiveness

A. Clinical effectiveness

Overall, evidence on clinical effectiveness against invasive pneumococcal disease (IPD), including IPD-related incidence and mortality, as well as non-bacteremic pneumococcal pneumonia (NBPP) and nasopharyngeal carriage in older adults, were only available for PPSV23 alone and PCV13 in sequence to PPSV23 (PCV13+PPSV23), and are mostly from observational studies. Meanwhile, evidence for PCV15 in sequence to PPSV23 (PCV15+PPSV23) is limited to immunogenicity studies.

I. Invasive pneumococcal disease (IPD)

i. Prevention of IPD

- **PPSV23 alone vs no vaccination:** The only RCT found showed a PPSV23 vaccine efficacy of 79% (CI: -0.8 to 98) compared to no vaccination (low certainty of evidence). The 25 observational studies generally showed mixed results. However, the majority of these (15 out of 25 studies: 7 indirect cohort, 5 matched case-control, 3 cohort), with moderate to very low certainty evidence, favored PPSV23 alone.
- **PCV13+PPSV23 vs no vaccination/ PPSV23 alone:** PCV13+PPSV23 reduced the risk of IPD compared to no vaccination based on 2 observational studies (1 indirect cohort, 1 cohort) with very low certainty evidence. When PCV13+PPSV23 was compared to PPSV23 alone, one study showed inconclusive results in preventing pneumococcal meningitis.

ii. Reducing the risk of IPD-related Mortality

- In terms of reducing IPD mortality, there are generally mixed results on the effect of PPSV23 alone compared to no vaccination among older adults based on 1 impact study and 2 observational studies (1 cohort, 1 indirect cohort) with very low certainty evidence. It can be noted however, that majority of the studies (2 out of 3 studies) favored PPSV23 alone.

II. Non-bacteremic pneumococcal pneumonia (NBPP)

i. Prevention of NBPP

- **PPSV23 vs no vaccination:** Four RCTs on the vaccine efficacy of PPSV23 alone vs no vaccination showed mixed results (i.e., 3 studies reporting inconclusive results while 1 study showed conclusive favorable results for PPSV23). The 15 observational studies also showed mixed results, with the majority (9 out of 15) also reporting inconclusive results.
- **PCV13+PPSV23 vs no vaccination/ PPSV23 alone:** One test-negative study with very low certainty evidence showed inconclusive results on the use of PCV13+PPSV23 compared to no vaccination in terms of effectiveness against NBPP. When PCV13+PPSV23 was compared to PPSV23 alone, one study with very low certainty evidence favored PCV13+PPSV23.

ii. Reducing the risk of NBPP-related Mortality

- In terms of reducing the risk of mortality due to NBPP, 1 RCT showed inconclusive results when compared to no vaccination (moderate certainty of evidence). The results of the 3 cohort studies also consistently showed inconclusive results (very low certainty of evidence).

III. Prevention of nasopharyngeal carriage

In older adults with or without risk factors, 1 cohort study with low certainty evidence showed that both PCV13+PPSV23 and PPSV23 alone are more effective compared to no vaccination in terms of preventing nasopharyngeal carriage.

B. Immunogenicity

Based on three RCTs, one month after vaccination, the sequential vaccinations of PCV13 followed by PPSV23 elicited significantly higher response compared to PPSV23 alone for the majority of serotypes included in the PCV13 vaccine. One RCT further showed that one year post-vaccination, the sequential regimen continued to have significantly higher IgG titers in majority of the serotypes in the PCV13 vaccine, although there was inconclusive evidence for OPA titers.

Upon comparison of different sequential vaccination strategies, based on one RCT, the PCV15+PPSV23 regimen was found to be non-inferior to PCV13+PPSV23 in terms of immune response against most serotypes present in PCV15. Moreover, PCV15+PPSV23 regimen induced significantly higher responses in serotypes 1, 14, and 23F, as well as serotype 22F, which is present in PCV-15 but not in PCV-13. Except for serotype 1, these other serotypes were not among the most common serotypes in adults >50 years old in the Philippines based on data from passive surveillance. Local surveillance of pneumococcal STs remains limited and may not be precisely representative of the population, as only limited isolates are serotyped from selected sentinel sites.

C. Safety

Overall, the majority of reported adverse events related to pneumococcal vaccinations were local and systemic reactogenic reactions of mild to moderate severity and transient duration. Evidence on serious adverse events (SAEs) and deaths related to the vaccine also showed a low number of events. Across different outcomes and subpopulations, results were generally not significantly different between groups.

I. Local and Systemic Reactogenicity in older adults

Based on two open-label RCTs, PPSV23 alone had significantly lower risk of local injection-site reactions compared to sequential vaccination with PCV13+PPSV23 in older adults with or without risk factors ([Azuma et al. 2023](#), *low COE*) and no risk factors ([Juergens et al 2014](#), *very low COE*). In terms of systemic reactions, the study on patients with risk factors ([Azuma et al. 2023](#), *low COE*) showed low rates of (<5%) in both PPSV23 and PCV13+PPSV23 arm with no significant difference between arms, while the other study on patients with no risk factors ([Juergens et al 2014](#), *very low COE*) had inconclusive results.

Based on one Phase III RCT ([Song et al 2021](#), *moderate COE*) that examined sequential vaccination of PCV13+PPSV23 and PCV15+PPSV23, 1st dose of PCV13 had significantly lower risk of local and systemic reactions compared to the 1st dose of PCV15, while the 2nd dose of PPSV23 after PCV15 is comparable to or worse than the 2nd dose of PPSV23 after PCV13.

II. Serious Adverse Events (SAEs) and Deaths in older adults

No SAE and death was reported in one open label RCT ([Azuma et al. 2023](#), *low COE*) that compared PCV13+PPSV23 vs PPSV23 in older adults with or without risk factors. On the other

hand, one RCT on older patients with risk factors ([Juergens et al 2014](#), *very low COE*) reported SAEs and deaths, however, these were deemed as not related to the vaccine.

One RCT ([Song et al 2021](#), *moderate COE*) compared sequential vaccinations with PCV15+PPSV23 and PCV13+PPSV23 in older patients with no risk factors. No deaths were reported in the study and there were inconclusive results on the risk of SAEs.

One observational study ([Tseng et al 2018](#), *low COE*) compared single dose vaccines of PCV13 vs PPSV23. Some of the nine pre-identified SAEs examined showed inconclusive results (i.e., bell's palsy, guillain-barre syndrome, erythema multiforme, thrombocytopenia I and anaphylaxis). The risk of any cardiovascular events (i.e. acute myocardial infarction and cardiomyopathy; heart failure) after PCV13 is comparable to or worse than the PPSV23 arm. The risk for atrial fibrillation was significantly higher in the PCV13 arm, while the risk of having syncope, thrombocytopenia II, and allergic reactions were significantly higher in the PPSV23 arm.

C3. Cost-Effectiveness

All pneumococcal vaccination strategies were found to be cost-effective compared to no vaccination in both the base case and alternative scenarios, assuming a cost-effectiveness threshold of 0.75x the GDP per capita in 2024. In the probabilistic sensitivity analysis, all vaccine regimens (PPSV23, PCV13+PPSV23, PCV15+PPSV23) were cost-effective in >99% of 1,000 simulations compared to no vaccination.

When compared with each other, PPSV23 alone was cost-saving relative to the sequential PCV+PPSV23 vaccination strategies. Between PCV15+PPSV23 and PCV13+PPSV23, the estimated QALYs gained were equal, but PCV13+PPSV23 was less costly. The ICER results of all pneumococcal vaccine strategies are most sensitive to the vaccination coverage, vaccine effectiveness against IPD cases, and discount rate.

Note: No threshold set in the Philippines yet.

C4. Affordability and viability

Assuming that the DOH will cover all the eligible target population for five years, pneumococcal vaccination in the elderly population 60 years old and above, including vaccination and treatment costs, ranges from Php 21.24 B to Php 40.78 B. Implementing PPSV23 over a 5-year time horizon will avoid additional expense or incur savings of around Php 2.49B compared to no vaccination due to averted cases of pneumococcal infection. On the other hand, implementing PCV13+PPSV23 and PCV15+PPSV23 will incur additional Php 13.00 B and Php 17.05B, respectively.

In terms of vaccination cost, none of the vaccines are considered affordable considering the 2025 PPSV23 budget and even the total NIP budget. The 2025 PPSV23 budget of the NIP will only cover 1.62% (PCV15+PPSV23) to 4.12% (PPSV23 alone) of the vaccination cost. In order to cover the target population, the budget should increase by 24.26x for PPSV23 and 51.73-61.73x for sequential administrations of PCV13+PPSV23 and PCV15+PPSV23 in 2025.

C5. Household financial impact

- Based on PhilHealth data from 2018 to 2024, the median cost of hospitalization due to pneumococcal diseases (i.e. septicemia, meningitis, pneumonia) for adults aged 18 years and above is at ₱93,224.18 per patient. The median claims paid amounts to ₱32,000.00, resulting in a median out-of-pocket cost of ₱59,771.32 per patient.
- Notably, older adults aged 60 and above accounted for a greater proportion of paid/approved PhilHealth claims compared to the younger adults 18-59 years old, comprising 55.99% of the total claims paid for adults. Furthermore, the median cost of hospitalization (₱107,790.96) and median out-of-pocket expense (₱74,120.60) were also higher in elderly adults compared to younger adults, whose median costs were ₱78,726.73 and ₱45,648.81, respectively.
 - It was also observed that the median hospitalization cost due to pneumococcal infections has increased by 194.2% from only ₱50,568.88 in 2018 to ₱148,803.54 in 2024. However, the median claims paid has only increased by 30% from ₱32,000 (2018-2023) to ₱41,600 in 2024.
 - Among the various illness categories, septicemia accounted for the highest number of PhilHealth claims paid, followed by pneumonia. However, it is important to note that the majority of these cases were of 'unspecified' origin, with only a small proportion of claims paid specifically attributed to *Streptococcus pneumoniae*.

- The highest median hospitalization costs was recorded for invasive pneumococcal diseases—specifically streptococcal meningitis (₱170,115.78) and septicemia of unspecified origin (₱105,598.13). These conditions also resulted in significantly higher out-of-pocket expenses: ₱144,415.78 for streptococcal meningitis and ₱71,051.03 for septicemia of unspecified origin. In contrast, other conditions such as pneumonia [*unspecified origin and if invasive or non-invasive*] had lower median hospitalization costs (₱24,281.48) and out-of-pocket expenses (₱8,385.83), while moderate risk pneumonia caused by *S. pneumoniae* had a slightly higher costs (₱29,697.29 hospitalization; ₱14,592.95 out-of-pocket).
- Overall, both the number of claims paid and the cost of hospitalization were generally higher among elderly patients across all illness categories with the exception for meningitis, which showed a higher number of claims paid and greater hospitalization costs among younger adults.

C6. Ethical, legal, social, health systems impact (ELSHI)

● **Ethical impact**

- Equity issues of accessibility and availability of healthcare services and facilities for vaccination were the key issues of the focus group discussion (FGD). Respondents support the free pneumococcal vaccination program for senior citizens and adults with comorbidities/risk factors as well as courses of action that will increase vaccine uptake.
- Additionally, the lack of specific guidelines on obtaining informed consent is an ethical issue. The HTA Council highlighted the importance of cascading complete information on potential risks and benefits of vaccination prior to obtaining informed consent when receiving the vaccine among the target population.

● **Legal impact**

- In terms of legal implications, provision of free pneumococcal vaccines for senior citizens is supported by RA 9994 or the Expanded Senior Citizens Act of 2010, and operationalized through the DOH AO 2011-0018 - “Implementing Guidelines on Influenza and Pneumococcal Immunization for Indigent Senior Citizens”.

● **Social impact**

- Based on the primary data gathered, acceptability of pneumococcal vaccination among elderly and at-risk adults is dependent on level of awareness of vaccine safety and benefits, beliefs about pneumonia, influence of social groups (e.g. family, community groups, healthcare workers), cost of services,, and adequacy of health information dissemination. This is aligned with the literature findings from international studies that social groups influence the adults’ healthcare decision-making (Zimmerman 2003 [US]; Kalgée 2017 [US]; Liu, 2014 [China]).
- Elderly adult respondents, in particular, have limited knowledge on pneumonia and pneumococcal vaccines. Their social groups help raise awareness and serve as their trusted sources of health advice which contributes to increasing vaccine confidence and willingness. On the other hand, out-of-pocket expenses due to lack of awareness for free vaccination and its limited availability is a key barrier to vaccine uptake. Furthermore, some misconceptions about the cause of pneumonia along with the widespread misinformation in social media and poor health information dissemination contributes to vaccine hesitancy among elderly respondents.

● **Health systems impact**

- Based on primary data gathering with public practitioner respondents, there are existing limitations in vaccine supply, cold chain capacity, and human resources, particularly in rural areas. Additionally, direct correspondence with program implementers highlighted that challenges remain in ensuring consistent access due to procurement and delivery delays. They also emphasized the lack of centralized digital registry which is necessary for tracking national immunization coverage.
- From the primary data gathering, both public and private practitioner respondents stated that affordability, infrastructure gaps, and low patient awareness contribute to limited vaccine uptake and overall low vaccination coverage. While vaccines are free in some government facilities, indirect costs and inconsistent availability affect access. Private healthcare providers report similar barriers, especially regarding cost and patient hesitancy. Across settings, trust in healthcare providers and localized healthcare information dissemination efforts appear to influence vaccine acceptance, highlighting the complex interplay of systemic and community-level factors in implementing adult immunization programs.

Aside from the above evidence, the HTAC notes that the recommendations across the seven guidelines on pneumococcal vaccines scoped were varied depending on age and immune status. In terms of sequential vaccinations, the majority of guidelines with recommendations mentioned pneumococcal conjugate vaccines (i.e PCV13, PCV15) as the first dose followed by PPSV23.

I. Healthy adults aged 65 and older

PPSV23 was recommended by four guidelines – the Department of Health Omnibus Health Guidelines (DOH OHG) for Elderly (2023), Philippine Periodic Health Examination (PHEX) Guidelines (2023), Advisory Committee on Immunization Practices (ACIP, 2019), and Indian Clinical Practice Guidelines (Indian CPG, 2019). Among these, only ACIP explicitly recommended PPSV23 as a single dose regimen. PCV13 is also recommended by the DOH OHG for Elderly (2023) and PHEX (2023) for this population. ACIP (2019) also considers the use of PCV13 based on shared clinical decision-making between physician and patient. In terms of sequential vaccinations, only ACIP (2019) explicitly recommends PCV13+PPSV23 regimen for this population. The DOH OHG (2023) recommended PCV15+PPSV23 but did not explicitly recommend the PCV13+PPSV23 regimen.

II. Immunocompetent older adults with risk factors

Two guidelines - ACIP (2019) and Saudi Thoracic Society (STS) Guidelines (2016) recommended sequential vaccination with PCV13+PPSV23, on the other hand, the Indian CPG (2019) considers this sequential regimen for administration based on shared clinical decision-making. ACIP (2019) also recommended 1-dose PPSV23 for this population, but recommended 1-dose PCV13 specifically for those with cochlear implant and CSF leak and only be administered based on shared clinical decision-making for other risk factors. No recommendations were found for sequential PCV15+PPSV23 vaccination for this population.

III. Immunocompromised older adults

The Indian CPG (2019), ACIP (2019) and STS (2016) recommend the sequential use of PCV13 followed by PPSV23. ACIP (2019) also recommended 1 dose of PCV13 if no previous PCV13 vaccination. No recommendations were found for sequential PCV15+PPSV23 vaccination for this population.

IV. General Recommendations for all older adults

Indian CPG (2019) recommended PPSV23 in all adults above 65 years of age. It is unclear however, if it can be given as a single dose or sequential with PCV13. Lastly, PSMID (2020) recommended PPSV and PCV for both healthy and high risk adults 50 years old and older, however there is no statement on valency of vaccines.

A separate recommendation for pneumococcal vaccination of adults 18 to 59 years old shall be released.

For the supporting evidence reviewed and discussed by the HTA Council in coming up with this preliminary recommendation, please refer to: <https://tinyurl.com/HTACPRPCVElderly>. All comments, inputs, and/or appeals on the above preliminary recommendation may be submitted until **03 October 2025** for the consideration of the HTA Council, through email at hta@dost.gov.ph. Please use the prescribed form for appeals indicated in the official HTA Philippines website [<https://hta.dost.gov.ph/appeals-2/>]. **Appeals not following the prescribed format, and those submitted beyond the deadline shall not be entertained.**

Should you have any questions or concerns regarding the preliminary recommendation, please do not hesitate to contact us through the same email address or *via telephone call at (02) 8837 2071 loc. 4100*.

Thank you very much and best regards.

On behalf of the HTA Philippines:

for



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