A Budget Impact Analysis of newer pneumococcal conjugate vaccine use in all US adults aged 50-64 years old compared to current recommendations from US Payer Perspective

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BACKGROUND

The US CDC recommends the 20-valent (PCV20) or 15-valent (PCV15)/ 23-valent (PPSV23) pneumococcal vaccines for those aged 19-64 years old with chronic conditions.

However, there is substantial pneumococcal disease burden in healthy adults aged 50-64 years, particularly in Black populations due to structural inequities.

OBJECTIVES

To evaluate the budget impact of introducing PCV20 or PCV15/PPSV23 vaccines in all adults aged 50-64 years old compared to current recommendations for pneumococcal vaccination.

METHODS

Model : A deterministic Markov model.

Perspective: Payer

Target Population: Medicaid

Time Horizon: 3-year

Input Data:

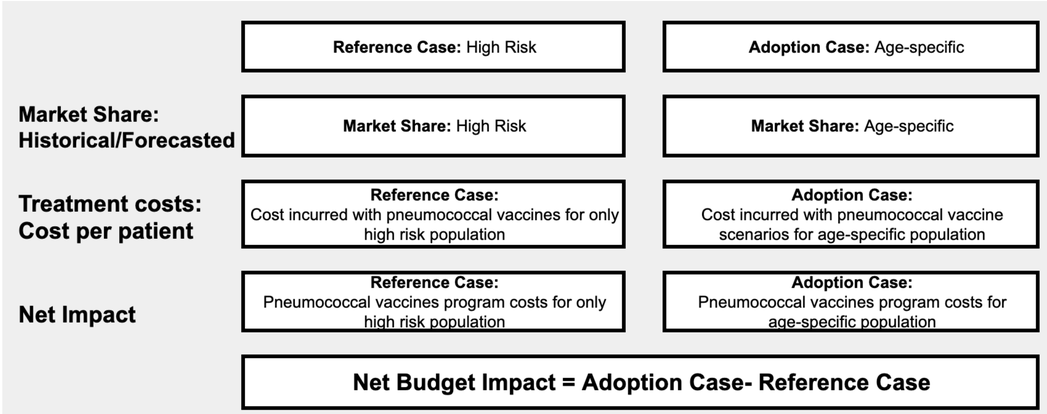
- Direct costs associated with vaccine and pneumococcal disease treatment included
- All costs were stated in 2022 US$
- No discounting applied

Scenario Analyses:

- One-way sensitivity analyses to assess vaccine uptake and ⬆️ / ⬇️ treatment costs.
- Subgroup analyses: Black cohorts vs. non-Black cohorts.

RESULTS

Figure 1: Model Schematic



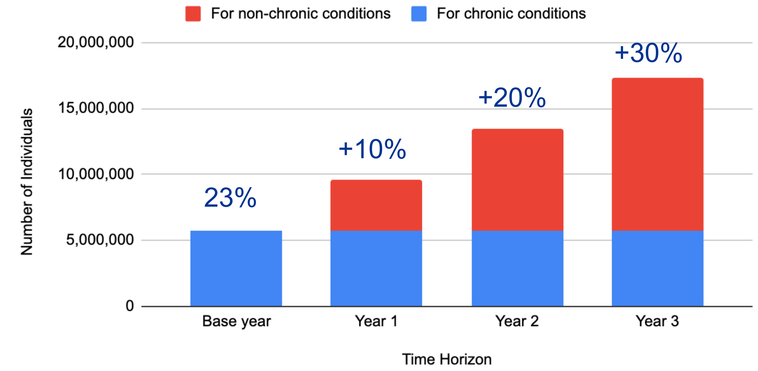
Base case: All adults aged 50-64 years should receive either a single dose PCV20 or a two-dose series PCV15 followed by PPSV23 (PCV15/PPSV23) compared to only high risk populations.

Table 1: Summary of net budget impact for PCV20 alone vs PCV15/PPSV23

	Reference Case (for chronic conditions)	Adoption Case (for age-specific)	Net Budget Impact
PCV20	$6,294,491,363	$12,749,477,015	**$6,454,985,653**
PCV15/PPSV23	$8,859,039,487	$17,943,963,031	**$9,084,923,545**

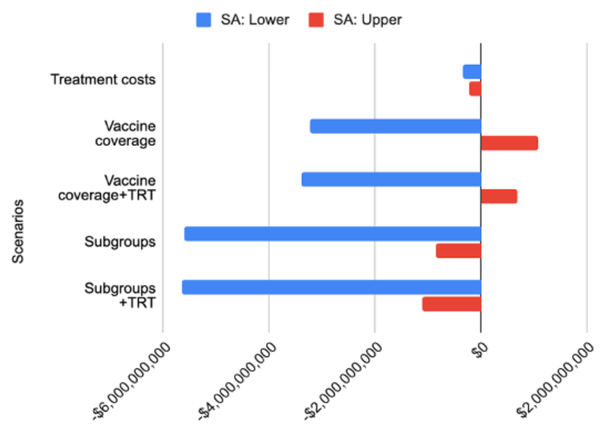
Incorporating either PCV20 or PCV15/PPSV23 vaccines had an incremental budget impact of $6.5 and $9 billion, respectively, over three years.

Figure 2: Comparison of vaccine eligible patients under different scenarios



Baseline vaccine coverage is at 23%, year-on-year increase was assumed to be 10%.

Figure 3: Sensitivity Scenarios



TRT includes pneumococcal disease treatment costs.

The budgetary impact was sensitive to vaccine doses, vaccine coverage and pneumococcal treatment cost for both vaccine scenarios.

DISCUSSION

- Despite available vaccines against pneumococcal disease, there remains a gap in protecting the vulnerable 50-64-year-old population, especially among Black populations.
- We did not consider several new vaccines in the pipeline that could increase pneumococcal serotype coverage in adults.

CONCLUSIONS

- A one-dose strategy is likely to improve vaccination uptake and help reduce pneumococcal disease burden and associated health inequities in the Black population.
- Given the higher disease burden from pneumococcal disease, a universal adult pneumococcal program for all Black adults aged 50-64 years would have considerable health benefits with a small increase in budget.

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