

ESTIMATING THE IMPACT OF THE PCV10 PROGRAM ON REDUCING PNEUMOCOCCAL-ASSOCIATED HOSPITALIZATIONS AND FINANCIAL RISK PROTECTION AMONG NEPALI CHILDREN UNDER-FIVE

Authors: Cristina Garcia, Arun Sharma, Krishna Bista, Laxman Shrestha, Dagna Constenla

Abstract (word count: 200/200 without headings)

Background: Pneumococcal disease has substantial economic impact on families. Vaccination can prevent disease and provide financial risk protection (FRP). We performed an extended cost-effectiveness analysis of PCV on reducing hospitalizations and catastrophic health expenditures (CHE) in Nepali children.

Methods: We used a decision tree model to assess consequences of PCV10 versus no PCV10 on health gains and FRP benefits (CHE averted) for households by wealth quintile. Out-of-pocket (OOP) spending and CHE probability were derived from empirical data. Vaccine program costs and disease burden parameters were obtained from secondary sources. Scenarios were modeled varying vaccine coverage. One-way and probabilistic sensitivity analyses were performed.

Results: PCV10 is estimated to avert 52% of hospitalizations and CHE from pneumococcal pneumonia, meningitis, and sepsis. For every US\$1 million spent on PCV10 program, hospitalizations averted was highest among the wealthiest quintiles with greater access to care, but FRP benefits were concentrated among the poorest quintiles (85% of CHE averted). Vaccine price, hospitalization rates, and care-seeking had the greatest impact on model outcomes.

Conclusion: PCV10 can significantly reduce catastrophic spending from pneumococcal disease. When evaluating health and FRP benefits, PCV10 was most cost-effective in poorer populations with higher risks of death, reduced access to effective care, and bear significant treatment costs.