

40% PCV dose and its cost saving potential

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The expanded program on immunisation was launched by the ministry of national health service and regulation in 1978. Initially this included commonly communicable diseases such as tuberculosis (TB), diphtheria, pertussis, tetanus and measles but later also introduced newer vaccines, namely those for hepatitis B, haemophilus influenzae type B and pneumococcal infections¹. The complete immunisation rates, however, remain low at 48.4% with the partially vaccinated population at 45.4% and the completely unvaccinated population being 6.2%². The PCV has good administration rates showing a positive trend from 65% in 2013 rising to 86% in 2023³. The cost effectiveness figures for the pneumococcal conjugate vaccine are \$225 per disability adjusted life years (DALY). Furthermore, the financial cost of procurement of these vaccines remains high with the cost of the pneumococcal and rota vaccines estimated to be 40% of the total national immunisation expenditure⁴.

Recently, a randomised trial carried out in 2 counties of Kenya, assessed the efficacy of different doses PCV 10 and PCV 13 vaccines based on a pre-set criterion. The vaccine was deemed effective if it produced a response to 8 out of 10 serotypes for the PCV10 and 10 out of 13 serotypes for the PCV13 vaccine. The results of the trial showed that immunogenicity of the PCV 13 vaccine when given at 40% of the full dose was non inferior to the full dose, eliciting an immune response against 12 of 13 serotypes. PCV10, however, did not meet the pre-set criteria at 40% and 20% of the full dose but 2 full doses rather than 3 full doses were proven to be effective.

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Submission complete: 05-05-2025 **First Revision received:** 21-06-2025

Acceptance: 13-09-2025

Last Revision received: 12-09-2025

This opens new avenues for cost-saving and optimisation of already limited healthcare funds in Pakistan. A reduced dose along with the use of a lower-cost alternative would save resources that can potentially be employed in other more demanding sectors of healthcare such as in combatting the polio endemic, tuberculosis screening and management, as well as dengue and malaria prevention, all of which result in significant effects on the well-being of the Pakistani population. Given the current on-going economic crisis, these benefits could be game-changing for the Pakistani healthcare system.

DOI: <https://doi.org/10.47391/JPMA.31084>

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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AUTHOR'S CONTRIBUTION:

RI: Literature search and drafting.

MJ: Made the structure, writing and literature search.

MDT: Concept, review, upon completion for vocabulary and grammar check.