## Abstract

**Title:** Costs of introducing pneumococcal, rotavirus and a second dose of measles vaccine into the Zambian immunisation programme: Are expansions sustainable?

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For **ORAL** presentation

**Abstract (word count; (maximum of 400))**

**Background**-

Introduction of new vaccines in low- and lower middle-income countries has accelerated since Gavi, the Vaccine Alliance was established in 2000. Introducing new vaccines requires substantial investments, not only in vaccine supplies, but also in ‘systems costs’, such as cold chain expansion, staff training and social mobilization. Some of these costs can be considered as ‘one-time’ while others are recurring costs to the health system.

**Objectives**

This study sought to i) estimate the costs of introducing pneumococcal conjugate vaccine (PCV), rotavirus vaccine (RV) and a second dose of measles (MSD) vaccine in Zambia; and ii) assess affordability of the new vaccines in relation to Gavi’s co-financing and eligibility policies.

**Methods-**

Data on ‘one-time’ costs of cold storage expansions, training and social mobilisation were collected from the government and development partners. A detailed economic cost study of routine immunisation based on a representative sample of 51 health facilities provided information on labour and vaccine transport costs. Gavi co-financing payments and immunisation programme costs were projected until 2022 when Zambia is expected to transition from Gavi support. The ability of Zambia to self-finance both new and traditional vaccines was assessed by comparing these with projected government health expenditures.

**Findings**

‘One-time’ costs of introducing the three vaccines amounted to US$ 0.28 per capita. The new vaccines increased annual immunisation programme costs by 38%, resulting in economic cost per fully immunised child of US$ 102. 2. Vaccines and injection equipment accounted for 65% of annual, incremental economic costs of introducing the three new vaccines. Human resources comprised 18%. Zambia is predicted to transition from Gavi support in 2022 and needs to increase annual co-financing from US$ 1.3 million in 2014 to the full vaccine costs of US$ 18.3 million in 2022. Co-financing payments on average increased by 10% during 2008-2017, but must increase 49% annually between 2017-2022. In 2014, the government spent approximately 6% of its health expenditures on immunisation. Assuming no real budget increases, immunisation would account for around 10% in 2022. Vaccines represented 1% of government, non-personnel expenditures for health in 2014, and would be 6% in 2022, assuming no real budget increases.

**Conclusions**

While the introduction of new vaccines is justified by expected positive health impacts, long-term affordability will be challenging in light of the current economic climate. The government needs to both allocate more resources to the health sector and seek efficiency gains within service provision.