

# An economic assessment of incorporating an acellular hexavalent vaccine as part of the national immunization program of Peru

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## INTRODUCTION

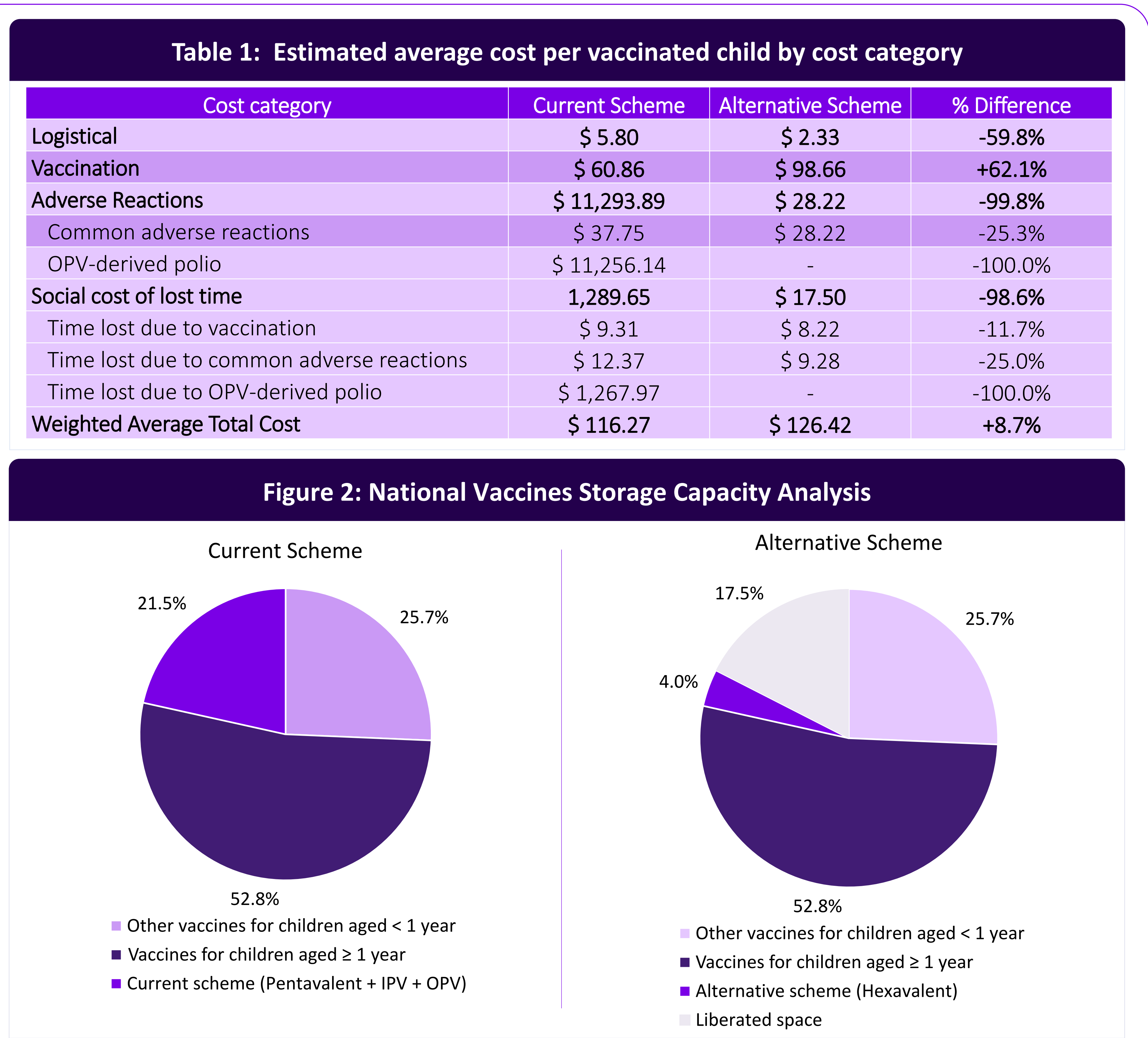
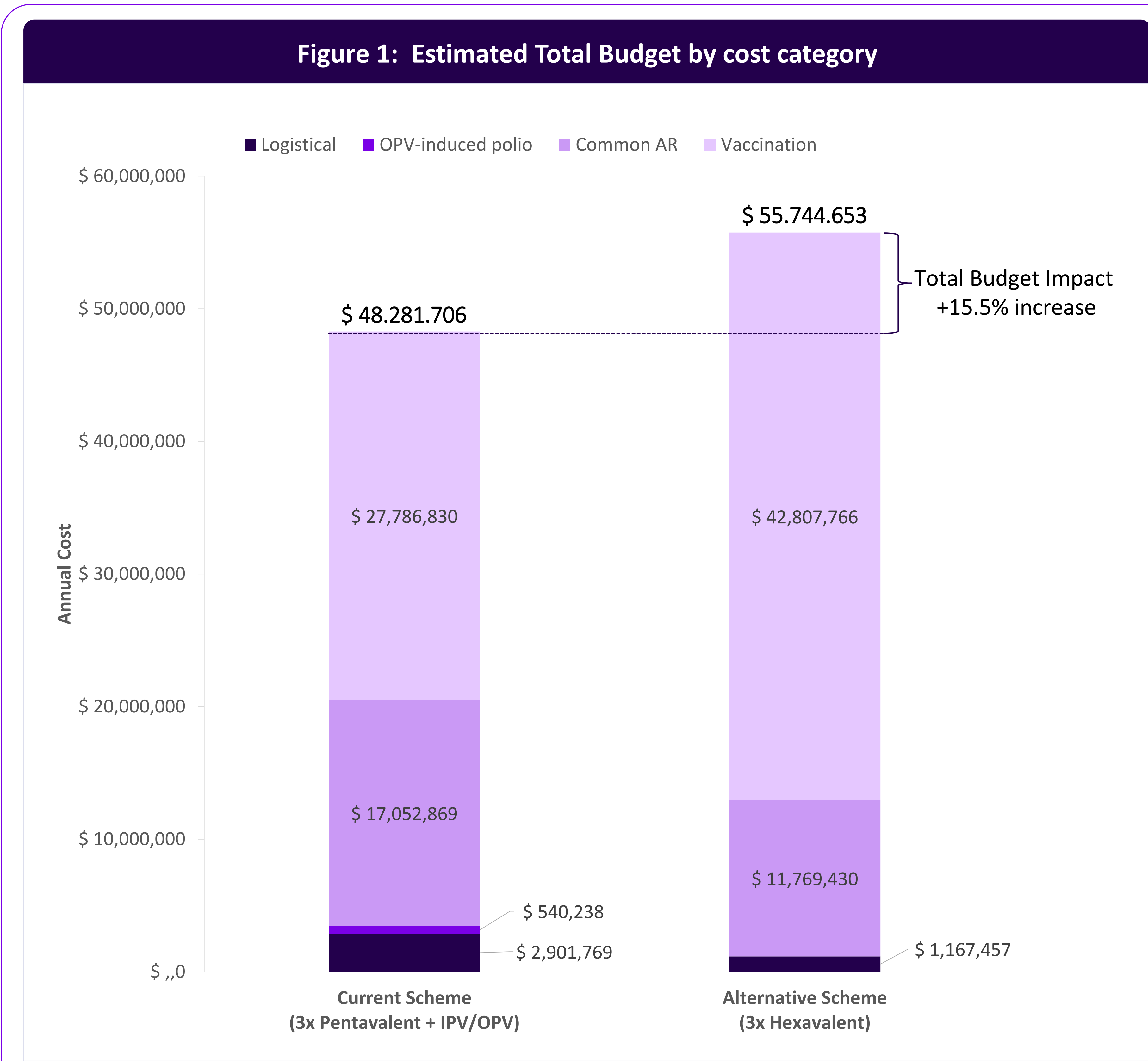
Acellular multivalent vaccines have been associated with favorable impact on coverage, reduced adverse events, time for vaccination and number of required injections. The switch from the current whole cell pentavalent vaccine (DTwP-Hib-HepB) + inactivated/oral polio vaccine (IPV/OPV) scheme for an acellular hexavalent vaccine (DTaP-IPV-Hib-HepB) has the potential to improve health outcomes for the Peruvian infant population.

**OBJECTIVE**  
Estimate the economic impact of replacing the current Peruvian primary immunization scheme for infants under 1 year old with an alternative scheme with similar efficacy, based on a hexavalent vaccine.

## METHODS

- A cost-minimization analysis from the societal perspective for a 1-year horizon time, compared the costs associated with vaccine administration, adverse reactions (AR) management, logistical activities, and indirect social costs associated with time spent by parents in 2 vaccination schemes:
  - Current Scheme<sup>1</sup>: 3 pentavalent vaccines (DTwP-HB-Hib) + 2 IPV + 1 OPV
  - Alternative Scheme: 3 hexavalent vaccines (DTaP-HB-Hib-IPV)
- Vaccination uptake rates were considered at 92.4%, 85.7% and 77.2% for the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> pentavalent doses, 94.8% and 87.7% for the 1<sup>st</sup> and 2<sup>nd</sup> IPV doses, and 78.6% for the OPV dose<sup>2</sup>. These same rates were and applied for the hexavalent vaccine.
- Deviation from simultaneous pentavalent and polio administration was also considered at ~5% of infants, receiving vaccination at separate visits<sup>2</sup>.
- Costs used for the calculations were estimated based on local sources and are expressed in \$USD using an equivalence of \$1 to S/3.374 Peruvian Soles<sup>3</sup>.
- The economic impact of the alternative scheme on the healthcare budget was assessed through a budgetary impact analysis, for an estimated target population of ~500,000 individuals<sup>4</sup>.
- One-way sensitivity analysis was performed for the cost of the hexavalent vaccine.

**POSTER HIGHLIGHT:** The introduction of the hexavalent vaccine into Peru's NIP represents an increase in the public healthcare budget that can be regarded as an investment to attain better health outcomes with reduced adverse events and increased social benefits.



## RESULTS

Introducing the hexavalent vaccine would result in a 15.5% net increase in healthcare budget expenditure (USD\$ 48,281,706 vs USD\$ 55,744,653) (**Figure 1**).

Vaccination costs (vaccine acquisition, medical personal, equipment, supplies, support services and administrative expenses) would increase by 54.1%, whereas logistical and adverse reaction costs would be reduced by 59.8% and 33.1%, respectively. Including indirect social costs results in a budgetary impact of 8.7% (**Table 1**).

Furthermore, the alternative scheme would enable the liberation of 17.5% of national vaccines storage capacity (**Figure 2**).

## CONCLUSIONS

- Including the hexavalent vaccine into the National Immunization Program would increase the public healthcare budget, despite the mitigation given the significant reduction of logistical and adverse reaction costs.
- Taking indirect costs into account would reduce the budgetary impact demonstrating the social value of the alternative scheme. Furthermore, the liberation of national vaccines storage capacity represents an opportunity for optimizing the use of current logistic resources.
- These considerations merit a comprehensive appraisal of new interventions in public policies regarding health prevention and promotion.

## REFERENCES

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