

Pharmacoeconomic Evaluation of National Immunization Program Realisation in Algeria

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INTRODUCTION & OBJECTIVE

The objective of this study was to estimate the pharmacoeconomic impact, of the switch from the current immunization schedule with a tetravalent vaccine (DTwP-Hib)+HBV+IPV to a new schedule with an aP hexavalent (DTaP-HBV-HiB-IPV) vaccine in Algeria from Ministry of Health (MoH) and societal perspective (Fig.1).

METHODS

- A Cost Minimization Analysis (CMA) was designed with a 1-year time horizon for all vaccination eligible cohorts in Algeria, based on micro-costing of activities associated with vaccination.
- Demographic data references were taken from the national register, current immunization schedule and the new schedule from the MoH decree.
- The costs considered are summarized in figure 2.
- All costs were reported in euros and collected locally.
- Data on resources used and costs were collected from:
 - ✓ Literature (Zhang & al) metanalysis concerning the adverse effects.
 - ✓ Validated questionnaires addressed to Pasteur institute of Algeria and vaccination centers
- A panel of local pediatric vaccination and health economics experts were consulted and validated the study design and results.
- A one-way sensitivity analysis was performed.

RESULTS

- In this study, we estimated and compared the difference in costs generated by two schemes with similar expected efficacy but differences in the costs and safety, which were largely associated with logistics and adverse events management.
- The overall cost associated to the national immunization program was found to increase by +26 M€ (+58%) per year versus the current program.
- Except for vaccine acquisition costs, which would increase, we found -19 M€ savings per year in the other costs considered (Figure 4).

Figure 1: National immunization programme schedules in Algeria

Current vaccination program							
Age	Birth	2 mo	3 mo	4 mo	12 mo	6 Y	11-13 Y
Vaccines							
HBV	+	+		+	+		
OPV	+	+		+	+	+	+
DTwP-HiB		+		+	+		
IPV			+				
DT(P)						+	



New vaccination program							
Age	Birth	2 mo	3 mo	4 mo	12 mo	6 Y	11-13 Y
Vaccines							
HBV	+						
OPV		+		+	+		
DTaP-HiB-HVB-IPV		+		+	+		
IPV-DTaP						+	
DT (P)							

Acronyms
OPV: oral polio vaccine/IPV: injectable polio virus/HiB Haemophilus influenzae type B vaccine/HBV : hepatitis B vaccine/DTaP : Diphtheria, Tetanus, and acellular Pertussis/DTwP : Diphtheria, Tetanus, and whole cell Pertussis/Mo:months/Y:Years

Figure 2: Study design

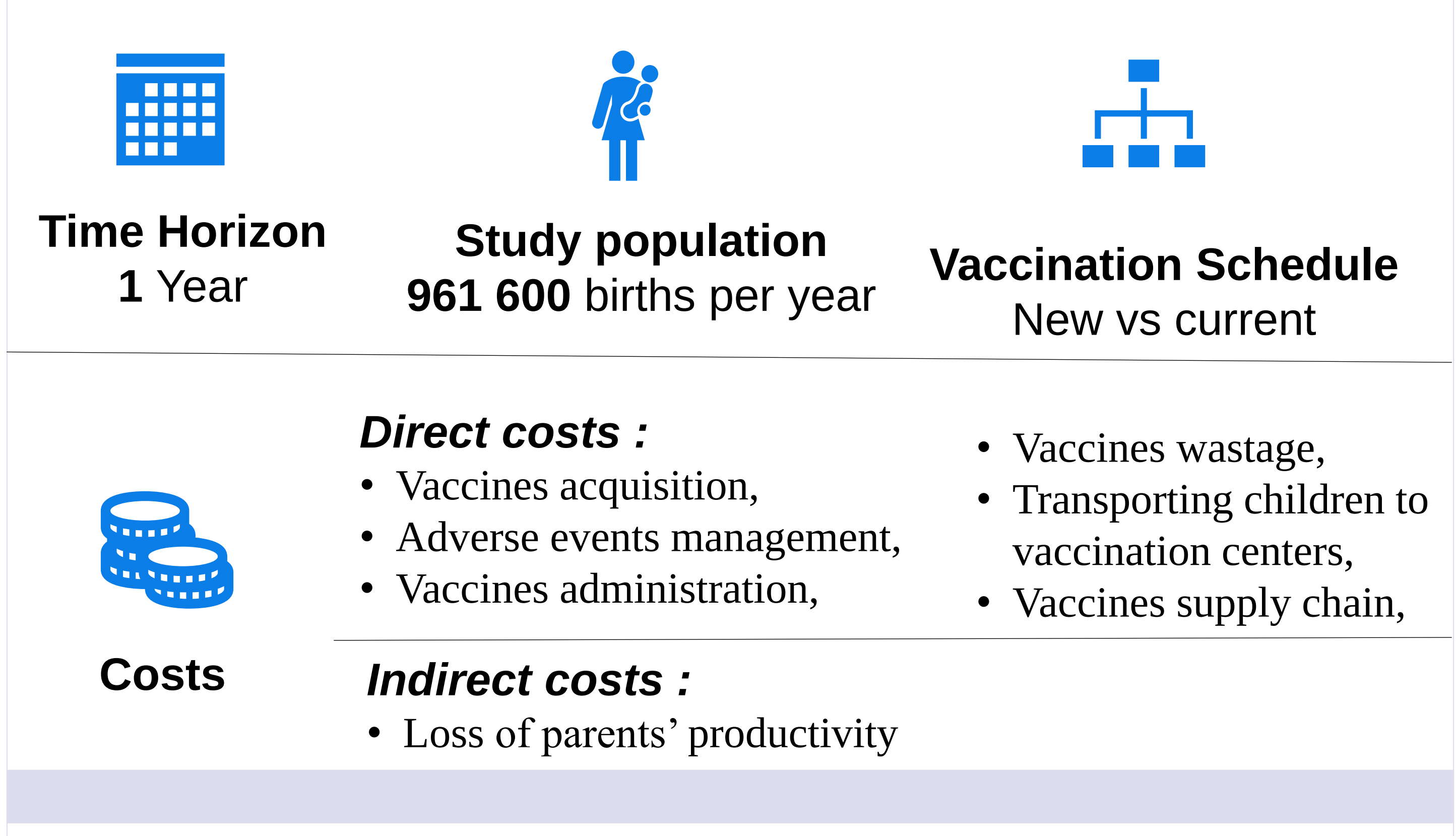


Figure 3: Data collection & validation

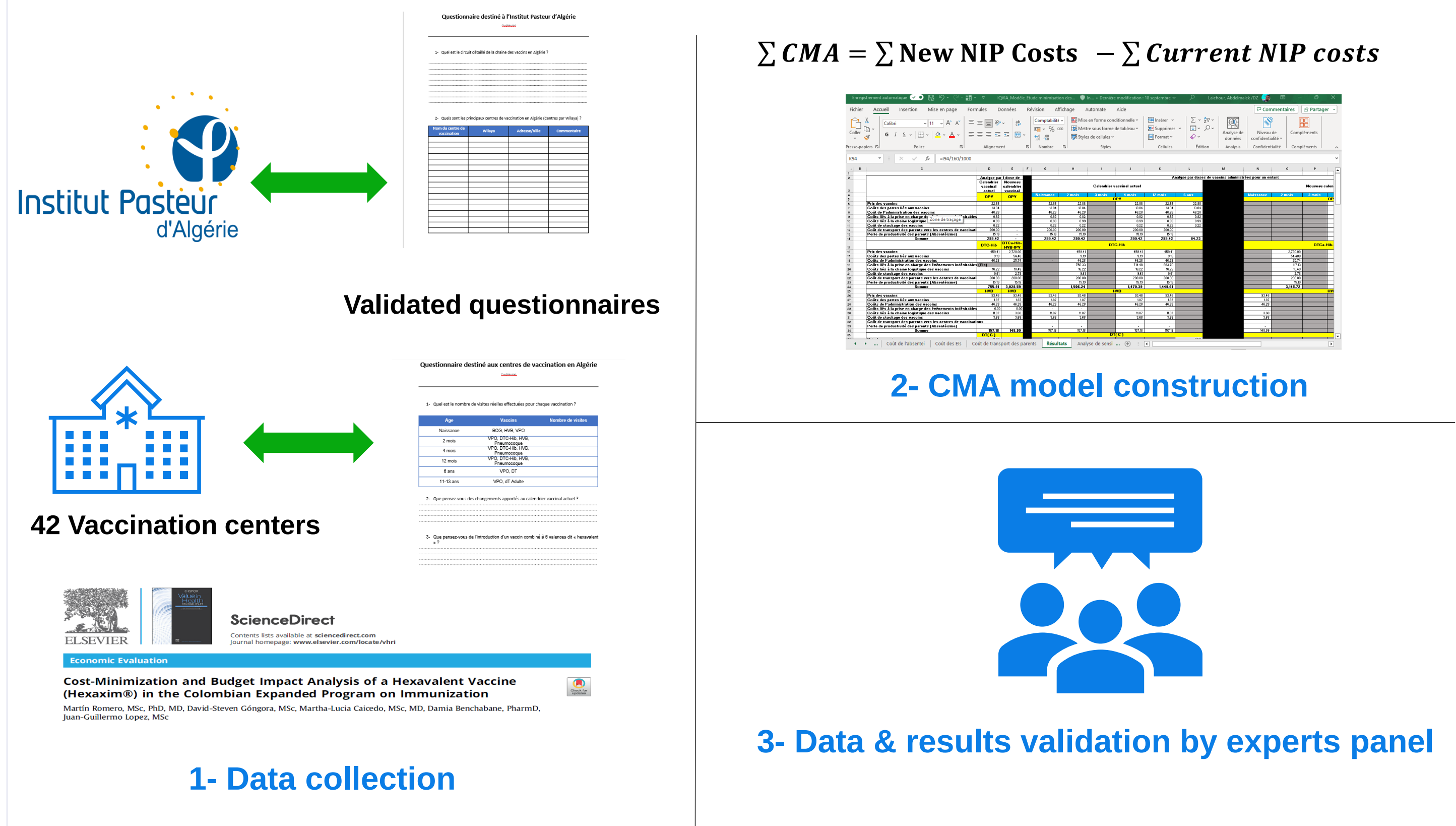
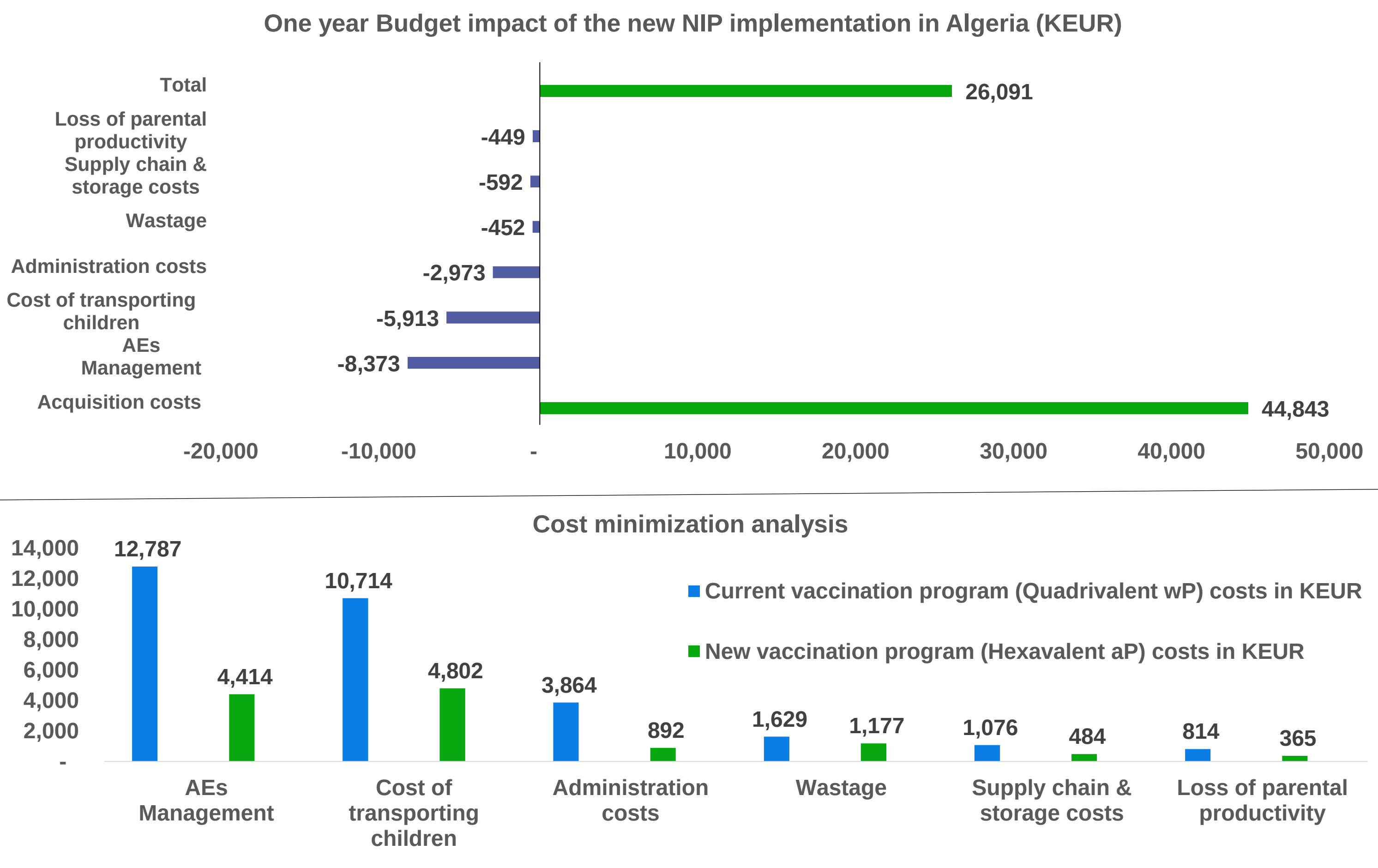


Figure 4: Results



- From the sensitivity analysis the cost drivers were found to be vaccine prices, the probability of use of medication for adverse events, the price of children transport.

LIMITATIONS & PERSPECTIVES

- This CMA study does not consider the added value due to the potential improvement of vaccination coverage and therefore herd immunity with a hexavalent aP vaccine.
- Generation of VCR real-world data will provide a more exhaustive picture of the added value of introducing a hexavalent vaccine in Algeria.

CONCLUSION & DISCUSSION

- The implementation of an aP hexavalent vaccine in Algeria is likely to be a sustainable alternative to the current immunization program, due to the savings on the management of adverse events and programmatic costs.
- In addition to the cost-savings, the introduction of an aP hexavalent vaccine, offering convenience and reducing the number of visits by 36%, may contribute to VCR increase and thus control of targeted diseases.
- Future studies may provide insights on the VCR, epidemiological and economic impact of this implementation in Algeria.

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DISCLOSURES

The authors are employees of Sanofi and may hold shares and/or stock options in the company.

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