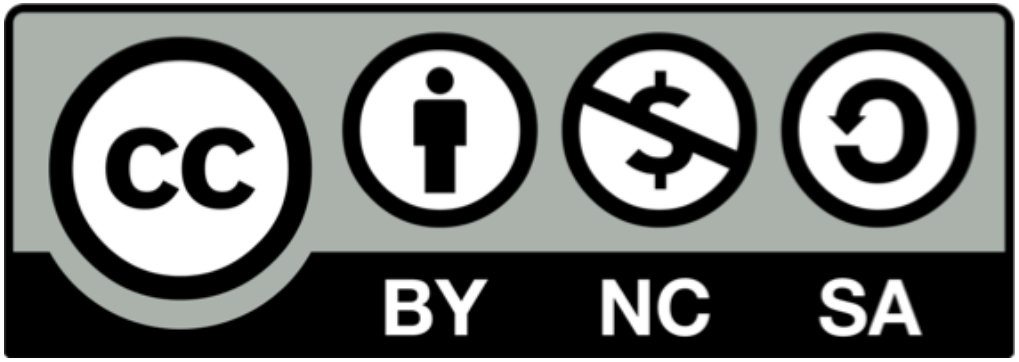
Costing in Vaccine Planning and Programming

Costing New Vaccine Introduction (NUVI)

Application & Illustration of Costing Methodology

TVEE
TEACHING VACCINE ECONOMICS EVERYWHERE



Importance of Costing NUVI

- Understanding the full scope of the cost and implications of introducing a new vaccine is essential to ensure **adequate planning** and **resource mobilization**.

- In the medium to long-term introducing new vaccines requires **a commitment of significant resources** over a long period of time. These costs, having implications for the nation's fiscal space, **ought to be carefully assessed**.

- NOTE: **Incremental costing approach** is commonly used when costing NUVI.
  - Only **additional costs** relating to the introduction of the new vaccine are considered. Costs of pre-existing resources / inputs with extra capacity **are excluded**, implying that the full economic costs of NUVI are usually not estimated.

Incremental Cost Focus – Economic Or Fiscal?

- CEA need full incremental economic costs not just financial or fiscal costs
- Financial costs (depreciated) and fiscal (full purchase cost) for government planning and donor budgeting

Line item	Economic Costs	Financial Costs	Fiscal Costs
Paid labour	✓ Time of existing or new staff	✓/✗ Only extra staff hired	✓/✗ Only extra staff hired
Volunteers	✓ Economic Value	✗	✗
Per diems	✓	✓	✓
Vaccines	✓ Full economic value	✓ Purchase cost	✓ Purchase cost
Injection supplies	✓ Full economic value	✓ Purchase cost	✓ Purchase cost
Fuel & other transport	✓ Full economic value	✓ Purchase cost	✓ Purchase cost
Cold storage	✓ Economic value of current and new space used by new vaccine – *discount & annualise*	✓ Purchase cost of *extra* storage equipment - *depreciated*	✓ Full Purchase cost of *extra* storage equipmen
Vehicles	✓ Economic value of vehicle use for new vaccine + activities – *discount & annualise*	✓ Value of vehicles used for NUVI - *depreciated*	✓ Full Purchase cost

Source: Common Approach 2014

Costing Considerations for NUVI

1. Prospective or retrospective costing?
   - **Prospective:** usually ingredients-based, plus secondary data needed - what could possibly go wrong…..?
2. Need for clear description of the intervention
   - Information from: EPI managers; Pilot sites; well informed service managers and staff; Gavi New Vaccine Application guide
   - Develop common, detailed understanding of practicalities of vaccine (e.g, storage, reconstitution, administration), additional workload implications etc.
   - Clarify scale-up strategy (Gavi assumption of 2 years for 60% coverage; some costs e.g. cold chain may be incurred in years before)
     - May affect cost and effectiveness estimates
3. Startup and once-off costs
   - Once-off costs e.g. planning, vaccine distribution, training, systems
   - Capital items e.g. cold chain

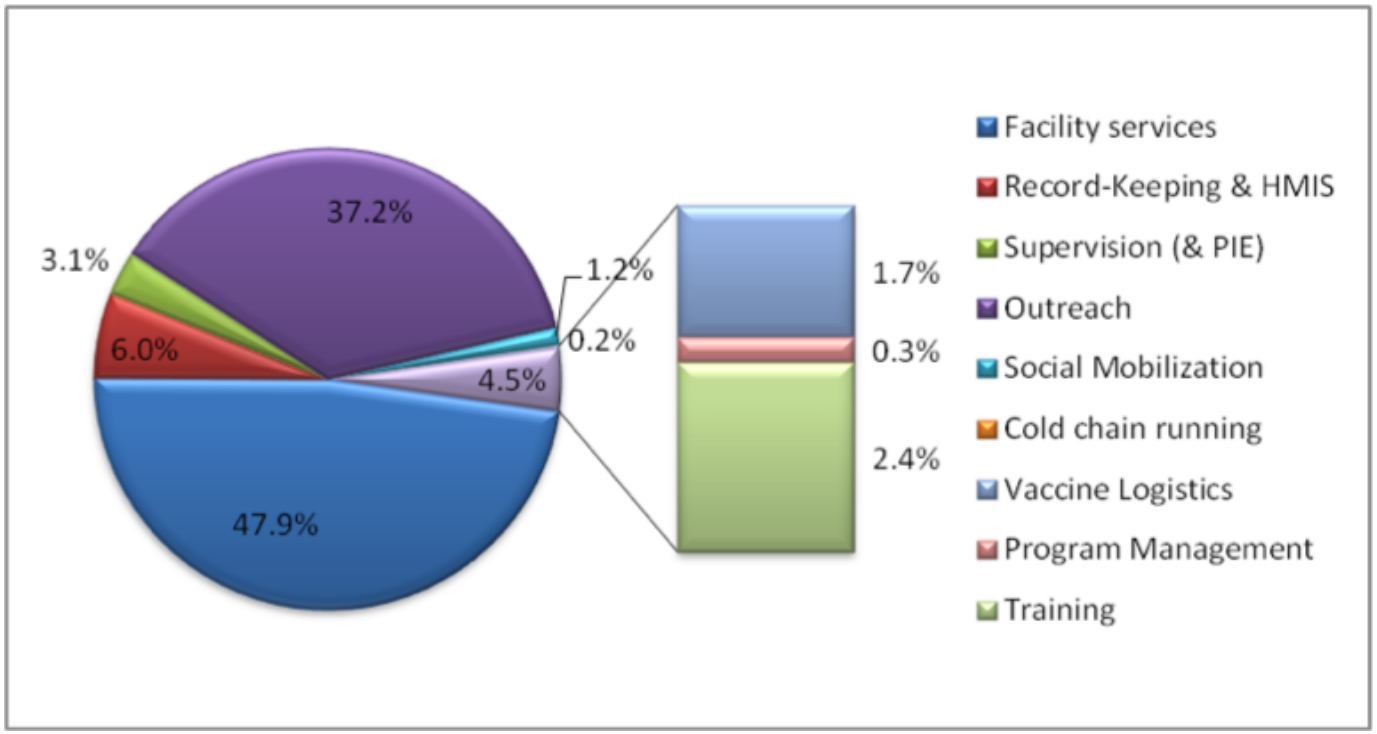
QUIZ

Which incremental costs do you expect to be the largest for new vaccine introduction?

1) Which Activities?
2) Which Line items?

Why? (and which vaccine do you have in mind?)

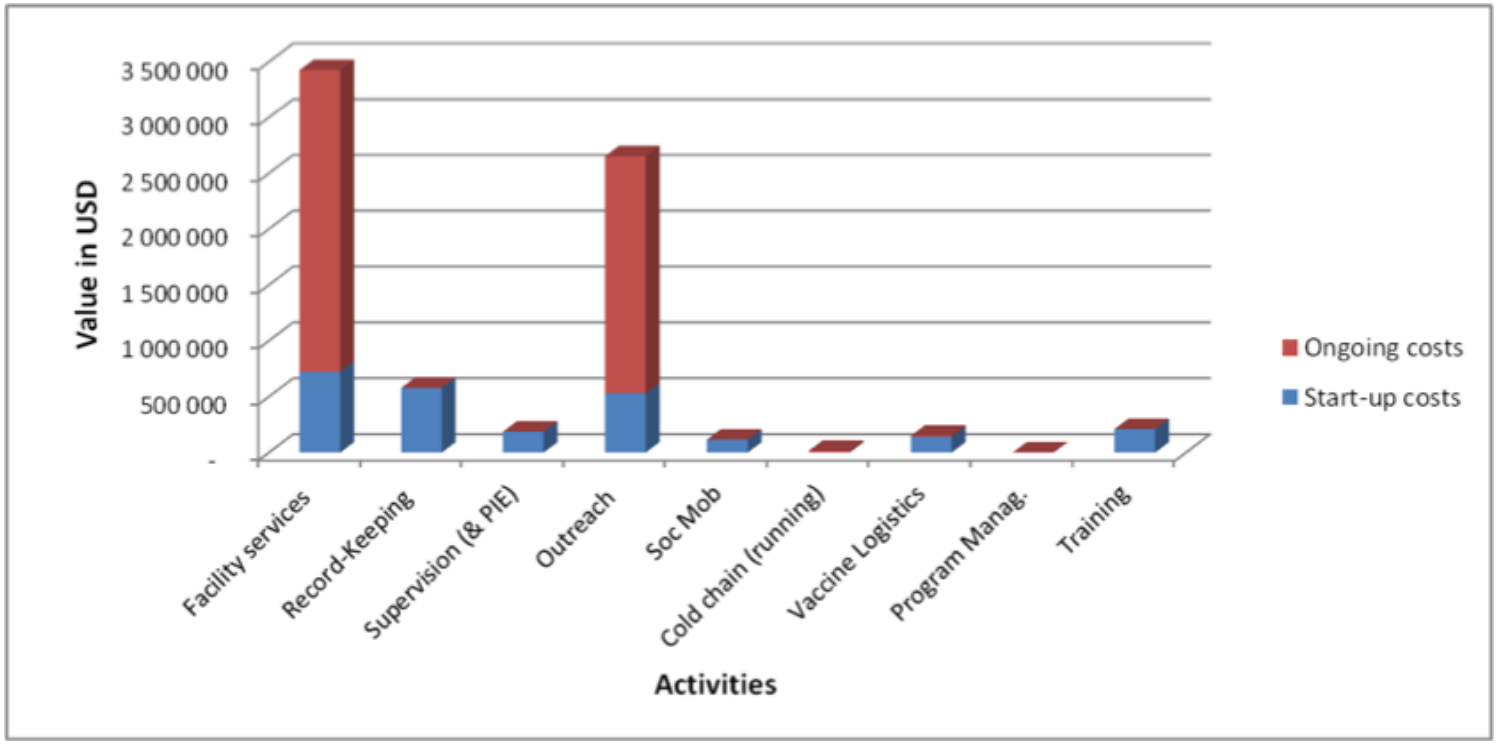
EXAMPLE: Distribution of total economic PCV and Rota introduction costs by function (Zambia)



Ongoing economic cost for 90% PCV coverage would add 27% to total RI cost of +/- $38 million

Incrementatal NUVI cost/dose higher than average RI cost/dose ($7.56 vs. $7.18);
Cost/child is an additional 42% of total RI cost/ child ($24.91 vs $59.32)

EXAMPLE: PCV and Rota Fiscal costs – start-up vs. on-going by function (Zambia)



This graph highlights the fact that what we should be concerned about is not the start-up costs but the on-going implementation costs.

Some Specific Considerations For New Vaccine Introduction

4. Cold chain costs
   - Identifying true incremental needs vs opportunistic replacement
   - WHO EPI Logistics tool & WHO volume calculator for capacities and volumes

5. Budget impact, sustainability and fiscal space
   - Often a key issue when translating evaluation into decisions
   - Consider costs at each level in the health system

Exercise: Which costs to include in incremental cost of new vaccines? (Adapted from WHO 2002)

New Monovalent vaccine	Combination vaccine with 1) fewer doses per vial than older vaccine and/or 2) extra vials for diluent	Combination vaccine with no change in vial size and no extra vials for diluent
Vaccines	Vaccines	Vaccines
Reconstitution syringes	Reconstitution syringes	Reconstitution syringes
Additional safety boxes	Additional safety boxes	Additional safety boxes
Vaccine distribution and storage	Vaccine distribution and storage	Vaccine distribution and storage
System to transport & store new vaccine	System to transport & store new vaccine	System to transport & store new vaccine
Waste management costs	Waste management costs	Waste management costs
Additional staff time	Additional staff time	Additional staff time
Disease surveillance related to new vaccine	Disease surveillance related to new vaccine	Disease surveillance related to new vaccine
Initial training	Initial training	Initial training
Social mobilization	Social mobilization	Social mobilization
Extra printing & other costs	Extra printing & other costs	Extra printing & other costs

1. Review vaccines and costs in groups – share team technical and economic expertise!
2. Identify costs NOT relevant to each of the new vaccines

New Monovalent vaccine	Combination vaccine with fewer doses per vial than older vaccine and/or extra vials for diluent	Combination vaccine with no change in vial size and no extra vials for diluent
✓ Vaccines	✓ Vaccines	✓ Vaccines
Reconstitution syringes	✓ Reconstitution syringes	Reconstitution syringes
✓ Additional safety boxes	Additional safety boxes	Additional safety boxes
✓ Vaccine distribution and storage	✓ Vaccine distribution and storage	Vaccine distribution and storage
✓ System to transport & store new vaccine	System to transport & store new vaccine	System to transport & store new vaccine
✓ Waste management costs	Waste management costs	Waste management costs
✓ Additional staff time	Additional staff time	Additional staff time
✓ Disease surveillance related to new vaccine	✓ Disease surveillance related to new vaccine	✓ Disease surveillance related to new vaccine
✓ Initial training	✓ Initial training	✓ Initial training
✓ Social mobilization	✓ Social mobilization	✓ Social mobilization
✓ Extra printing & other costs	✓ Extra printing & other costs	✓ Extra printing & other costs

Suggested readings

1. Common approaches for the costing and financing of routine immunization and new vaccines. Working Paper. Brenzel L. 2013. Available at: https://static1.squarespace.com/static/556deb8ee4b08a534b8360e7/t/55970258e4b03cf942da51ac/1435959896232/WEBSITE_Common+Approach.pdf

2. World Health Organization (2008). WHO guide for standardization of economic evaluations of immunization programmes. Geneva, Switzerland.

3. Gargasson JBL, Nyonator FK, Adibo M, et al. Costs of routine immunization and the introduction of new and underutilized vaccines in Ghana. Vaccine. 2015 May; 33S, A40–46.

4. Janusz CB, Orjuela CC, Aguilera IBM et al. Examining the cost of delivering routine immunization in Honduras. Vaccine. 2015 May; 33S, A53–59.

5. Geng F, Suharlim C, Brenzel L, et al. The cost structure of routine infant immunization services: a systematic analysis of six countries. Health Policy and Planning. 2017. Available at https://doi.org/10.1093/heapol/czx067

6. Griffiths Kalesha et al. *Costs of introducing pneumococcal, rotavirus and second dose measles vaccine into the Zambian Immunization program: are expansions sustainable?* Vaccine (2016)