

III. Using cost analysis to better design global health interventions

Lessons from introducing HPV vaccination in Peru, Uganda, India and Vietnam

Build on learning
from formative
research to design,
implement, and
evaluate cervical
cancer vaccine
delivery to young
adolescent girls



Study objective for cost analysis

- Estimate the incremental operational **program** costs associated with innovative HPV vaccine delivery strategies to reach young adolescent target group in Peru, Uganda, Vietnam, and India.
 - Incremental cost per dose
 - Incremental cost per girl fully vaccinated

Perspective and cost definitions

- Payer perspective (Ministry of Health)
- **Incremental cost** to existing immunization services
 - Start-up costs represent investment in first year only
 - Recurrent costs -HPV vaccination is integrated into existing national immunization program
- **Financial costs** that represent actual project expenses paid for by the project to deliver goods and services
- **Economic or opportunity costs** value all resources used to provide HPV immunization, even if not paid for in the current project budget
 - Donated goods or services, volunteer labor, contribution of goods and services by MOH

Method

- Micro-costing
- Bottom up approach
 - Combined activity based costing, ingredients approach and review of budget expenditure (Mixed methods)

Cost categories

| Activity or input | Start-up | Recurrent |
|---|----------|-----------|
| Microplanning | √ | |
| IEC activities | √ | |
| Training | √ | |
| Personnel | | √ |
| Supplies (does not include vaccine) | | √ |
| Transport (depreciation and operating expenses) | | √ |
| Cold chain (depreciation and operating expenses) | | √ |
| Waste management | | √ |

Cost input/activity categories

Variable costs

- Supplies
- Transport
 - Fuel, parking, maintenance, repairs, taxis, tolls, insurance)
- Personnel
- Office facilities
- Management meetings
- Training/supervisory meetings
- Overhead costs

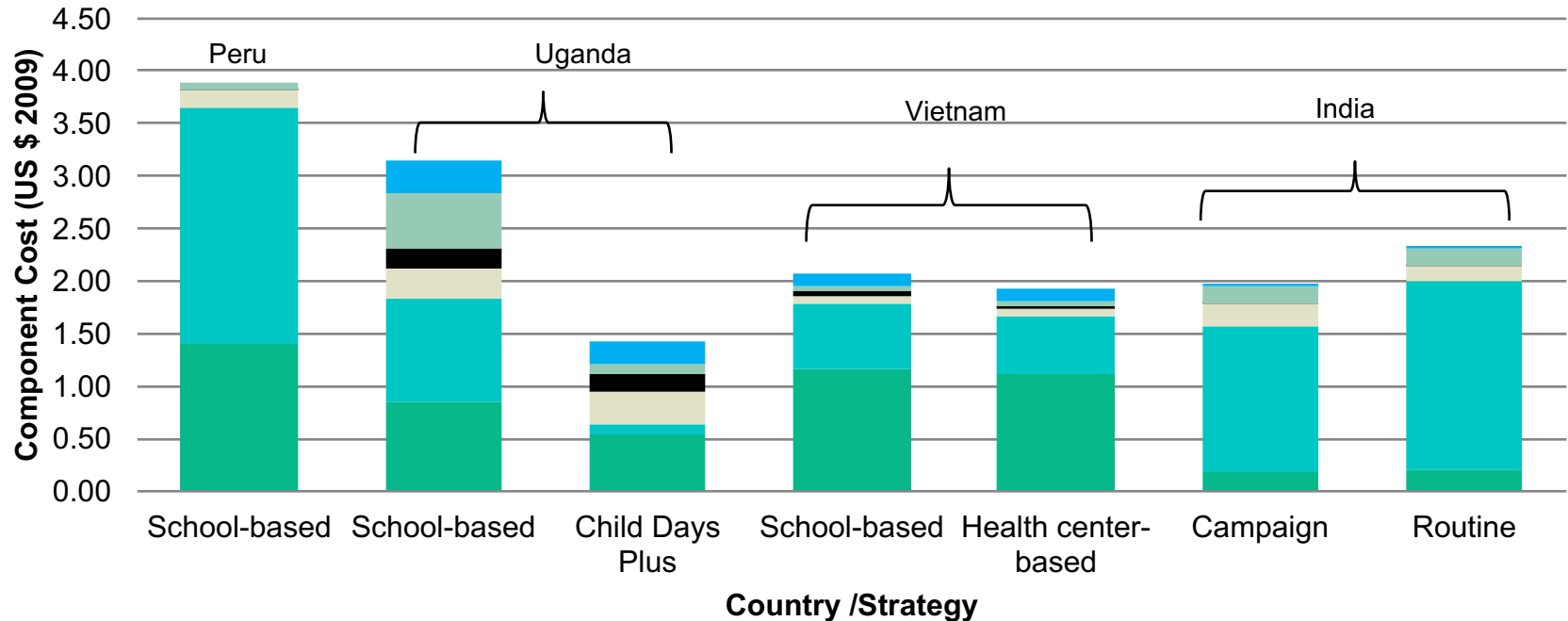
Fixed or capital goods

- Vehicles
- Equipment
 - Cold chain for storing vaccines
- Start-up activities
 - Microplanning
 - Developing materials
 - Training
 - Sensitization and awareness raising

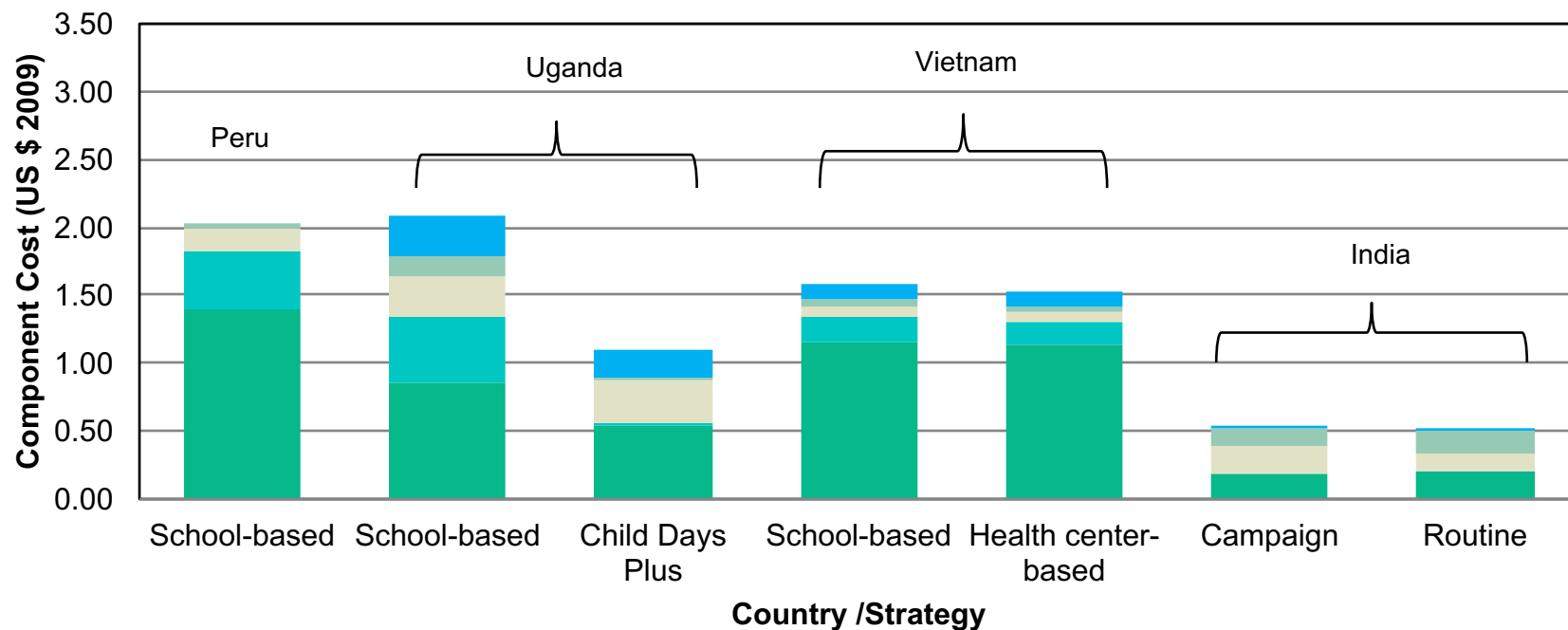
Cost outcomes

- Total intervention cost
- Cost profile (share of costs to inputs or activities)
- Cost per dose delivered
- Cost per fully immunized girl

HPV **economic** program cost per dose and cost components



HPV **financial** program cost per dose and cost components



- Other
- Transportation
- Supplies
- Personnel allowances
- Start up activities (microplanning, awareness raising, training)

Summary of HPV vaccination costing methods

- Micro-costing approach
- Bottom up approach
 - Combine activity based costing, ingredients approach and budget expenditure data
- Payer perspectives
 - Ministry of Health
- Multi-level:
 - State, district, health facility, community
- Sub-sample of project intervention health facilities
- Incremental cost to existing expanded program on immunization (EPI)

Limitations of micro-costing data

- Using data from demonstration projects may have limited information on cost of actual nationwide introductions
 - Depends on scope of demonstration project
 - How coordinated project is with national program
 - Assumes HR and capital requirements are in place
- Projections of cost of scaling-up are based on assumptions
 - Need information on eligible population, health system infrastructure
 - Identify resource gaps

Factors affecting cross-country results

- Methodological
 - Specific included and excluded items—not significant
- Contextual
 - Scope and scale: number of girls vaccinated by country
 - Strategy: campaign, school-based, health facility, CDP
 - Differences in national income levels and related public health cost, infrastructure, and salary structures
 - Health system policies and programs that influence specific implementation plans affect resource use and costs across the countries

Important observations from the HPV cost analyses

- Costs are likely to be lower where:
 - HPV activities are Integrated with other health service delivery
 - Population density is high
 - Health centers are close to target population or schools served
- Cost are likely to be higher where:
 - Health facilities have small catchment area and communities are geographically dispersed
 - Health centers are far from schools
 - Outreach per diems are high
- Important cost driver is:
 - IEC and social mobilization to get high coverage for three doses

Use financial analysis for national scale up

- Cost analysis can inform budgetary requirements of donors and national governments:
 - Provides useful information about the actual resource needs or inputs required to provide this intervention.
 - Estimates the financial resources needed to expand the intervention into new districts.
 - Assesses the likely sustainability of the intervention nationally over time.

Financial considerations

Projected total HPV vaccination costs, including cost of vaccine, by country and strategy (2009 US\$)

| Strategy by country | Estimate of eligibles (80% of all 10-year-olds) | Vaccine cost | Program delivery cost | Total financial costs | Non-vaccine program costs as a share of total costs | 2009 national immunization budget (2009 US\$) | Percentage of 2009 national immunization budget |
|-------------------------------------|--|-----------------|-----------------------------|-----------------------------|---|---|---|
| Peru | | | | | | 113,963,713 | |
| School-based | 228,480 | 13,047,076 | 1,391,443 | 14,438,519 | 10% | | 13% |
| Uganda | | | | | | 35,672,010 | |
| School-based | 351,200 | 230,683 | 2,212,560 | 2,443,243 | 91% | | 7% |
| Integrated outreach | | 230,683 | 1,169,496 | 1,400,179 | 84% | | 4% |
| Vietnam | | | | | | 28,083,812 | |
| School-based | 534,720 | 351,227 | 2,598,739 | 2,949,966 | 88% | | 11% |
| Health center-based | | 351,227 | 2,486,448 | 2,837,675 | 88% | | 10% |
| India | | | | | | N/A | |
| Pulsed campaign (Andhra Pradesh) | 586,080 | 384,962 | 911,911 | 1,296,873 | 70% | | N/A |
| Routine monthly (Gujarat) | 407,040 | 267,361 | 660,983 | 928,344 | 71% | | N/A |

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Questions? Thank you!

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