VACCINE ECONOMICS FOR PUBLIC HEALTH PROFESSIONALS

COSTING MODULE: COSTING OF ROUTINE IMMUNIZATION PROGRAM AND NEW VACCINE INTRODUCTION

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Course Description

Costs and costing information is an important and useful input to the routine planning, budgeting, management, and implementation or rollout of an effective immunization program. This information is also needed when conducting economic evaluation studies to determine what, when and how to introduce new vaccines or which implementation approach/strategy would achieve better and effective coverage. The costs are not generalizable from one country to another as vaccine schedules, target populations, strategies etc. vary by country. For this reason, costs are country-specific and should be obtained and estimated locally. This module provides information on the cost profiles of routine immunization programs and supplementary immunization activities (SIA) using different country examples. We will learn how to cost existing programs, specific interventions, new vaccine introduction, and possible data sources to conduct such analysis and how to report and use the results for policy decisions.

Learning Objectives

By the end of this module, participants should be able to:

- Define different costs and other concepts as used in costing and costing studies
- Identify and describe different costs and cost components involved in routine immunization programs
- Distinguish between vaccine and non-vaccine costs (supply versus operational or service delivery costs)
- Categorize costs based on varying criteria and demonstrate their use in planning and budgeting
- Estimate costs and resource requirements for routine immunization or vaccine program or incremental costs of new vaccine introduction.
- Demonstrate how to present costing results and data for use in planning and decision making
- Review and discuss potential country level data sources and assumptions for estimating routine program cost and incremental costs due to new vaccine introduction.
- Apply different costing techniques or approaches in evaluating different immunization strategies or vaccines
- Discuss which line-item and activity costs tend to be most significant for immunization programs and new vaccine introduction in low and middle income countries

Overall course expectations

- Complete pre-readings (Text Book and Papers) and prepare for class
- Complete all course assignments and milestones on-time
- Actively participate in class discussions

Textbooks/Required Readings:

- 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
- Brenzel, Logan, Darwin Young, and Damian G. Walker. "Costs and financing of routine immunization: approach and selected findings of a multi-country study (EPIC)." Vaccine 33 (2015): A13-A20.
- Schütte, Carl, et al. "Cost analysis of routine immunisation in Zambia." Vaccine 33 (2015): A47-A52.
- Griffiths, Ulla Kou, et al. "Costs of introducing pneumococcal, rotavirus and a second dose of measles vaccine into the Zambian immunisation programme: Are expansions sustainable?." Vaccine 34.35 (2016): 4213-4220.33 (2015): A47-A52.
- Le Gargasson, Jean-Bernard, et al. "Costs of routine immunization and the introduction of new and underutilized vaccines in Ghana." Vaccine 33 (2015): A40-A46.
- Usuf E, Mackenzie G, Lowe-Jallow Y, et al. 2014. Costs of vaccine delivery in the Gambia before and after, pentavalent and pneumococcal conjugate vaccine introductions. Vaccine 32, 1975-81.

Reference cases

EPIC Immunization Costing (www.immunizationcosting.org)

- EPIC Phase 1 (data from Benin, Ghana, Honduras, Moldova, Uganda and Zambia; country reports on immunization cost and financing flow)
- EPIC Phase 2 (Pooled data analysis and findings on routine immunization delivery; white paper regarding potential improvement in collecting cost and financing)
- Country case studies: India, Uganda, Zambia, Ghana

Materials

- A laptop computer with Microsoft excel

Unit 1: Cost and Cost Classification

- Defining costs and rationale for costing
- Taxonomy of costs (categorizations and micro typology)
- General steps in undertaking costing
- More cost concepts for managerial decisions

Exercise: Exercise on Cost Classification

Unit 2: Using Cost Data for Managerial Decision

- Making a choice
- Accountability-Keeping Track

- Choosing Efficient Policies
- Choosing Equitable Policies
- Choosing Priorities
- Projecting Cost Consequences of a Choice
- Choosing Methods of Cost Recovery

Unit 3: Cost Data: sources, process and quality

- Sources – primary and secondary sources
- Data collection process and procedures
- Creating system of accounts and financial reporting
- Data management, quality assessment and quality control
- Using data of limited completeness or quality

Unit 4: Costing methodology and perspective

- Different perspectives in costing and rationale for each (Prospective and retrospective costings methods and implications, provider, societal, program perspectives)
- Discounting
- Annualization
- Time preference, inflation and exchange rates in costing

Unit 5: Cost profiles of routine immunization programs

- Familiarity with main resource and cost categories in routine immunization programs
- Understand application of general costing processes to immunization programs and services
- Know of various sources of cost and denominator data
- Identifying different costs for a routine immunization, by administrative level, by type of service site and by input category (i.e. vaccine, supply, cold chain, transportation, personnel, infrastructure)
- Categorization of costs for routine immunization
- Sampling issues
- Cost analysis (facility, district/province, national levels)

Exercise: Uganda EPIC exercise

Readings:

- 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

- Brenzel, Logan, Darwin Young, and Damian G. Walker. "Costs and financing of routine immunization: approach and selected findings of a multi-country study (EPIC)." Vaccine 33 (2015): A13-A20.
- WHO guidelines on health service and program costing

Unit 6: Costing new vaccine introduction (NUVI) (Application 3)

- Steps involved in estimating the cost of new vaccine introduction
  - Describing interventions/services
  - Perspective and key assumptions
  - Defining resources
  - Assigning values
- Once-off vs recurring costs; incremental vs average costs
- Key perspectives from previous studies

Exercise: Contagia Exercise

Readings:

- Griffiths UK, Bozzani FM, Chansa C, et al. 2016. Costs of introducing pneumococcal, rotavirus and a second dose of measles vaccine into the Zambian immunization programme: Are expansions sustainable? Vaccine 34, 4213-20.
- Le Gargasson, Jean-Bernard, et al. "Costs of routine immunization and the introduction of new and underutilized vaccines in Ghana." Vaccine 33 (2015): A40-A46.
- Usuf E, Mackenzie G, Lowe-Jallow Y, et al. 2014. Costs of vaccine delivery in the Gambia before and after, pentavalent and pneumococcal conjugate vaccine introductions. Vaccine 32, 1975-81.
- EPIC country studies

Readings (non-exhaustive)

1) Brenzel L. 2013. Common approaches for the costing and financing of routine immunization and new vaccines. Working Paper. Available at: https://static1.squarespace.com/static/556deb8ee4b08a534b8360e7/t/55970258e4b03cf942da51ac/1435959896232/WEBSITE_Common+Approach.pdf
2) Brenzel L, Young D, Walker DG. 2015. Costs and financing of routine immunization: Approach and selected findings of a multi-country study (EPIC). Vaccine 33S: A13–20.
3) EPIC immunization costing studies. http://www.immunizationcosting.org/.
4) Gargasson JBL, Nyonator FK, Adibo M, et al. 2015. Costs of routine immunization and the introduction of new and underutilized vaccines in Ghana. Vaccine 33S, A40–46.
5) Janusz CB, Orjuela CC, Aguilera IBM et al. 2015. Examining the cost of delivering routine immunization in Honduras. Vaccine 33S, A53–59.
6) Goguadze K, Chikovani I, Gaberi C et al. 2015. Costs of routine immunization services in Moldova: Findings of a facility-based costing study. Vaccine 33S, A60–65.

7) Schutte C, Chansa C, Marinda E, et al. 2015. Cost analysis of routine immunisation in Zambia. Vaccine 33S, A47-52.
8) Chatterjee S, Das P, Nigam A, et al. 2016. Cost of delivering routine immunization services in India. New Delhi: Public Health Foundation of India.
9) Ahanhanzo CD, Huang XX, Le Gargasson JB, et al. 2015. Determinants of routine immunization costing in Benin and Ghana in 2011. Vaccine 33S, A66-71.
10) Maceira D, Goguadze K, Gotsadze G. 2015. The drivers of facility-based immunization performance and costs. An application to Moldova. Vaccine 33S, A72-78.
11) Usuf E, Mackenzie G, Lowe-Jallow Y, et al. 2014. Costs of vaccine delivery in the Gambia before and after, pentavalent and pneumococcal conjugate vaccine introductions. Vaccine 32, 1975-81.
12) Griffiths UK, Bozzani FM, Chansa C, et al. 2016. Costs of introducing pneumococcal, rotavirus and a second dose of measles vaccine into the Zambian immunization programme: Are expansions sustainable? Vaccine 34, 4213-20.
13) Levin C, Minh HV, Odaga J, et al. 2013. Delivery cost of human papillomavirus vaccination of young adolescent girls in Peru, Uganda and Viet Nam. Bulletin of the World Health Organization 91, 585-92.