

Program Evaluation Tip Sheet: Economic Evaluation

This tip sheet is intended for programs funded through the Centers for Disease Control and Prevention's (CDC) Division for Heart Disease and Stroke Prevention. This document defines economic evaluation, offers types of economic analyses, and provides steps to complete an economic evaluation. This tip sheet is not intended as a comprehensive guide to economic evaluation.

What is Economic Evaluation?

Economic evaluation is an effort to use analytic methods to identify, measure, value, or compare the costs and consequences of one or more alternative programs or interventions.¹ Consequences could be disease cases averted, quality-adjusted life years, or cost-savings because of disease prevention.

Purposes of economic evaluation may include the following:

- ✦ To understand cost and to find ways to reduce program costs.
- ✦ To monitor, record, or evaluate program effectiveness, particularly in relation to program costs.
- ✦ To inform decision makers about alternative interventions regarding both costs and health outcomes.

What are the Different Types of Economic Evaluation?¹

- ✦ Cost Analysis involves the systematic collection, categorization, and analysis of the net costs of a program, calculated by subtracting the cost-of-illness from the program cost. The cost-of-illness is defined as the value of the resources that are expended as a result of a health problem, and can include health sector costs, the value of lost productivity by the patient (indirect cost), and the cost of pain and suffering (intangible costs).
- ✦ Cost-Benefit Analysis is a form of economic evaluation that provides both the costs and consequences of the interventions in dollar terms.
- ✦ Cost-Utility Analysis is a form of cost-effectiveness analysis using quality-adjusted life years as a health outcome.
- ✦ Cost-Effectiveness Analysis examines costs and health outcomes of interventions.

Key Considerations to Determine Which Form of Economic Evaluation to Use: Identify Audience and Purpose¹

Type of Economic Evaluation	Economic Summary Measure ¹	Audience and Purpose
Cost Analysis	Net cost	For those who want to minimize cost for the program. For those who want to do cost-benefit, cost-utility, or cost-effectiveness analysis.
Cost-Benefit Analysis	Net benefit or cost Cost to benefit ratio	For those who want to make a decision between health outcomes and other type of outcomes (e.g., health vs. defense).
Cost-Utility Analysis	Cost per quality-adjusted life-year	For those who want to make a decision between different types of health outcomes (e.g., stroke mortality vs. disability due to injury).
Cost-Effectiveness Analysis	Cost-effectiveness ratio Cost per case averted Cost per life-year saved	For those who want to make a decision between interventions that generate the same health outcomes or whether an intervention is effective.



Four Steps of an Economic Evaluation^{1,2}

Step 1: Frame an Economic Evaluation

Define the problem, intervention options, audience and purpose, time frame, and analytic horizon.

Define	Examples of Items To Consider
Problem	What is the problem to be analyzed? What aspects of the problem need to be explained? What questions need to be answered?
Intervention Options	Describe the nature of the intervention(s), target population(s), delivery site(s), personnel, technology, and timing.
Audience and Purpose	Who will use the results of the evaluation? How will the results be used?
Time Frame and Analytic Horizon	Is the time frame long enough to account for program start-up costs, maintenance costs, seasonal variations, and cost of intervention, including unintended consequences? Is the analytic time horizon long enough to capture the full costs and effects of programs?

Step 2: Develop a Cost Inventory

Identify and categorize resources for a program. Choose one categorization system or combine multiple categorization systems to develop a cost inventory.

Categorization System	Examples of Main Items To Consider
Line Item or Functional System	Personnel, facilities, equipment, supplies, travel, incentives, etc.
Levels of Responsibility	Federal, state, or local, etc.
Sources of Funding	Private for profit, private nonprofit, public, etc.
Activity Areas	Central office, district offices, or county clinics, etc.
Cost Types	Program costs, participant costs, costs to others, etc.

Step 3: Evaluate Resources Used

Using the categorization system from Step 2, measure the quantity of the resources used and assign value to them. Examples of sources to assess the resources used include the following:

- Primary data collection that includes questionnaire surveys, observational surveys, medical records, accounting, and payroll systems.
- Published literature or professional guidelines.

Step 4: Calculate Economic Evaluation Results

- Calculate the total program or intervention costs based on the information from Step 3.
- From a cost-of-illness analysis, calculate cost-savings caused by interventions.
- Calculate net cost by subtracting the cost-savings from total intervention costs.
- For Cost Analysis: Calculate average cost and marginal cost by using the net cost information.
- For Cost-Benefit Analysis, Cost-Utility Analysis, or Cost-Effectiveness Analysis: Calculate benefit to cost ratio (cost-benefit analysis), cost per quality-adjusted life years (cost-utility analysis), or cost-effectiveness ratio (cost-effectiveness analysis) by using net cost information and health outcome changes as a result of the intervention (from a program or effectiveness evaluation).

References

1. Task Force on Community Preventive Services. Understanding and using the economic evidence. In: Zaza S, Briss PA, Harris KW, eds. The Guide to Community Preventive Services: What Works to Promote Health? Atlanta (GA): Oxford University Press; 2005:449-63. <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780195151091.001.0001/acprof-9780195151091>
2. CDC. Five-Part Series on Economic Evaluation Web site. http://www.cdc.gov/dhdspp/programs/spha/economic_evaluation/index.htm. Accessed June 18, 2014.

