Economic Evaluation Abstraction Form
Version 4.0
(last update: June 2010)

Introduction

This economic abstraction form is used for the *Guide to Community Preventive Services* (the *Community Guide*) to systematically abstract data from economic evaluation studies and to adjust results when appropriate to allow for greater comparability between studies employing differing methodologies. Two reviewers will read each article, and each reviewer will complete a copy of the form. Once differing responses are reconciled by members of the Economic Review Team for the *Community Guide*, the data from these forms will be summarized and included in economic evaluation summary tables and databases. One of the objectives of the review is to make economic evaluations of community-based interventions more comparable within an acceptable degree of uncertainty. As such, adjustments to cost-effectiveness analyses (CEAs) and cost-utility analyses (CUAs) will be made when feasible and appropriate to approximate the study to standards set by the reference case of the Panel on Cost-Effectiveness in Health and Medicine (PCEHM). Similarly, all the standards pertaining to costs and quantification of benefits in the reference case will also apply to cost analyses (CAs) and cost-benefit analyses (CBAs).

The major elements of the reference case include —

- societal perspective;
- discount rate of 3% for costs, savings, health improvements, and health harms;
- health outcomes measured in QALYs, including mortality and morbidity;
- inclusion of harms resulting from the services;
- inclusion of all costs of services, medical and nonmedical, including the value of patient time and unpaid caregiver time;
- inclusion of all savings from averted services, medical and nonmedical, including the value of patient time and unpaid caregiver time;
- exclusion of valuation of lost time, both productivity and leisure, caused by death or disability when QALYs are used as the health outcome of interest; and
- a time horizon long enough to capture all important health benefits and harms.

In addition to the PCEHM reference case methods, the following principles will also be considered to facilitate comparisons:

- The base-case or comparator should be "common practice" or "status quo" in the absence of the intervention.
- The cost of additional healthcare caused by extended years of life should NOT be included in the costs of preventive services. Note: Although there is no clear consensus in the field on this point, these additional costs should not be included for comparative purposes only.

Sections I and II will be completed by a member of the *Community Guide's* Economic Review Team. Subsequent reviewers who are asked to complete the remainder of the abstraction form should assess this information and make corrections where information is either incorrect or insufficient. Section III deals with details of study design and execution. Section IV addresses the adjustments for differences in intervention definitions or methodology affecting the type of costs and benefits included in the analysis. Section V addresses those differences in methodology or intervention definition that influence the final value of the summary measure and for which adjustments are not possible. Section VI deals with applicability. The Task Force on Community Preventive Services (the Task Force) defines *applicability* as "a judgement on the extent to which the populations, settings, and other conditions employed in intervention studies demonstrated the range in effectiveness of the intervention for other populations, settings, or conditions." Section VII presents a summary table allowing the reviewer to check the calculations and adjustments made. Section VIII assesses the study for quality in five areas: study design, costs, outcome measure, effects, and analysis. Appendixes A–F contain data to assist the reviewer in performing abstractions.

To the Reviewer: Throughout this booklet, your instructions are on the left-hand (even-numbered) pages, and you are to indicate the corresponding answers on the right-hand (odd-numbered) pages. Examples have been provided in italics. These examples are intended to assist you in being consistent. If you have any questions during the data abstraction process, please contact a member of the Economic Review Team for the *Community Guide* activity (770-488-8185) for clarification. **You may use the additional space provided throughout this booklet for notes and calculations. Please retain a copy of this booklet, including your answer form, until a *Community Guide* staff member has contacted you to resolve any questions regarding the data you have provided.**

Abbreviations Used

AC	Averted costs
CA	Cost analysis
CBA	Cost-benefit analysis
CEA	Cost-effectiveness analysis
CPI	Consumer price index
CPI-U	Consumer price index–urban
CUA	Cost-utility analysis
DALY	Disability-adjusted life year
LY(s)	Life year(s)
MCPI	Medical component of the Consumer Price Index
NB	Net benefits
NPV	Net present value
PC	Program costs
PCEHM	Panel on Cost-Effectiveness in Health and Medicine (Gold et al. Oxford Publishing: 1996)
QALY	Quality-adjusted life-year
US$	United States dollars
WTA	Willingness to accept
WTP	Willingness to pay
Y$	Year dollars

Contents

Appendixes

INSTRUCTIONS

I. CLASSIFICATION INFORMATION

Sections I and II have been completed by a member of the Economic Review Team for the *Community Guide*. Review Section I and revise any information that is incorrect or insufficient. Economic evaluation studies might contain analyses beyond those suggested by the title (e.g., an economic evaluation as part of a public policy analysis) or a different analysis might have been conducted than the one implied in the title. Likewise, economic evaluation studies frequently include more than one summary measure pertaining to different interventions or different modeling assumptions. To facilitate the evaluation of the study, those who previously completed this information have chosen the summary measure(s) that best correspond(s) to the interventions reviewed in the *Community Guide*. This summary measure(s) might not be the one primarily reported in the study. Recalculation of the summary measure will be done whenever that action is considered more appropriate for the intervention under consideration in the *Community Guide*.

1. Specify the general area of study or *Community Guide* review under consideration.

2. Many *Community Guide* reviews contain group interventions under subsections. The subtopic item refers to the section of the *Community Guide* review under consideration.

3. Specify the type of intervention. A full description of the intervention is contained in Section II of this form.

4. Name of reviewer and date review completed.

5. Author(s), title of article, and publication date.

    5.1 Studies are identified with a tracking number composed of letters and numbers. The letters refer to the *Community Guide* review under consideration. The numbers refer to the order in which the article was received or ordered.

6. Author(s)' affiliation(s) and funding sources.

7. Study type. Reviews are conducted principally on peer-reviewed, published articles. However, non-peer reviewed published work (e.g., *Morbidity and Mortality Weekly Report*) and unpublished work (e.g., dissertation) are considered for review when such works add relevant information to the *Community Guide* topic under consideration.

8. Study design. This item is composed of two elements — analytic method and summary measure.

    8.1 Under analytic method, you will find the four analytic methods being considered for review; cost-effectiveness analysis (CEA), cost-utility analysis (CUA), cost-benefit analysis (CBA) or cost analysis (CA). Each type of economic evaluation can be executed as an average, marginal, or incremental analysis. In average analyses, the comparator (i.e., the alternative that the intervention, program or cost is compared with) is the baseline, status quo, or a "no program" option. In marginal analyses, the comparator is the same program or intervention, expanded or downsized by some marginal amount (e.g., from one more hour of operation or from one more day of screening). In incremental analyses, Marginal CEAs, CUAs, or CBAs compare one alternative with the next best viable alternative. To provide the reader with a clear description of how the ratios were calculated, the economic summary table in the corresponding *Community Guide* review will contain not only the value of the summary measure but also the alternatives compared.

    8.2 The summary measure(s) component includes all possible summary measures for each analytic method. A member of the Economic Review Team of the *Community Guide* staff will have checked the summary measure(s) chosen from the study. This is the summary measure(s) reported or recalculated from data provided in the study and might not coincide with the summary measure(s) originally reported by the

authors.

I. CLASSIFICATION INFORMATION

***Community Guide* Review Information**

1. Topic _____

2. Subtopic _____

3. Intervention Title _____

Tracking Information

4. Reviewer's Name: _____ 4.1. Review Completion Date: _____

5. Author(s), Title and Publication Date 5.1. Tracking Number: _____
_____
_____
_____

6. Author(s) Affiliation(s) and Funding Sources:
_____
_____

7. Study Type
- ☐ Published Article, Peer-Reviewed
- ☐ Published Article, Non-Peer Reviewed
- ☐ Abstract/Presentation
- ☐ Unpublished Dissertation/Thesis
- ☐ Technical Report
- ☐ Book/Book Chapter
- ☐ Other *(Specify)* _____

8. Study Design

8.1 Analytic Method	8.2 Summary Measure(s)
☐ Cost-Effectiveness Analysis (CEA)	
☐ Average CEA	☐ Dollars per Case or Injury Averted
☐ Marginal CEA	☐ Dollars per Person Reached by Intervention
☐ Incremental CEA	☐ Dollars per Life Saved
	☐ Dollars per Life Year (LY) Saved
	☐ Other *(Specify)* _____
☐ Cost-Utility Analysis (CUA)	
☐ Average CUA	☐ Dollars per Quality-Adjusted Life Year (QALY)
☐ Marginal CUA	☐ Dollars per Disability-Adjusted Life Year (DALY)
☐ Incremental CUA	☐ Dollars per Healthy-Year Equivalent (HYE)
	☐ Other *(Specify)* _____
☐ Cost-Benefit Analysis (CBA)	
☐ Average CBA	☐ Net-Benefits (NB) or Net Present Value (NPV)
☐ Marginal CEA	☐ Benefit/Cost (B/C) Ratio
☐ Incremental CBA	☐ Other *(Specify)* _____
☐ Cost Analysis (CA)	
☐ Total CA	☐ Dollars
☐ Average CA	☐ Dollars per Unit of Service Rendered
☐ Marginal CA	☐ Other *(Specify)* _____
☐ Incremental CA	

INSTRUCTIONS

II. INTERVENTION DESCRIPTION

Section II profiles characteristics of the study population and the relevant intervention; this process is used to evaluate the applicability of the study to the intervention under consideration. Review the information recorded in this section and, as appropriate, correct or add information.

9. Provide the major characteristics of the study population (e.g., sex, urban or rural, or persons at high or low risk).

10. Provide the age range of the study population.

11. Provide any other characteristics of the study population relevant to the applicability or validity of the results.

12. Describe the intervention in terms of what was done, where it was done, how it was done, and any other characteristic of the intervention relevant to the applicability or validity of the results.

13. Provide a description of the comparator(s) to which the intervention was compared. The comparator(s) can be the usual practice (status quo), no program, or some other alternative.

14. Describe other alternative interventions included in the analysis. It may be useful to include a short description of the alternative intervention, in addition to the longer technical definition, and to refer to this shorter description throughout the use of the abstraction form.

15. Describe whether the analysis included only intermediate outcomes, final outcomes, or both, as defined by the analytical framework developed for the particular *Community Guide* review. For example, an intervention designed to increase vaccination coverage will yield an intermediate outcome measure — additional immunizations achieved through the program. An intervention can also examine intermediate and final links, and consequently, intermediate and final outcomes. A patient reminder or recall system to increase the use of mammography to detect early stages of breast cancer can also yield an intermediate outcome (an increased number of mammographies) and a final outcome (early-stage–cancer cases detected or late-stage cancer cases averted).

16. Effect size.

    16.1 Specify the effect size measure(s), i.e., level of effectiveness, supported by evidence in the *Community Guide* review.

    16.2 Specify the effect size measure(s) used in the study, where applicable. It is typical that CBAs do not include effect size as this measure is not necessarily relevant to monetizing benefits. If the effect size reported in the study is markedly different from the effect size supported by evidence found in the *Community Guide* review, the applicability of the study may be questionable.

    16.3 Specify the source for effect size measure(s) incorporated in the study. Was effect size estimated in the same economic study? Did effect size come from another single reported study? Was effect size the result of a compilation of studies, meta-analysis, or other systematic effectiveness review?

II. INTERVENTION DESCRIPTION

9. Description of the Study Population:
_____

10. Age Range(s) of Study Population: _____

11. Other Characteristics of Study Population Potentially Important to the Effectiveness of the Intervention

*(Specify)*_____

12. Intervention Description:
_____
_____
_____

13. Comparator ☐ Status Quo *(Specify)*_____

☐ No Program *(Specify)*_____

☐ Other *(Specify)*_____

☐ No Comparator ☐ Cannot Determine ☐ Does Not Apply

14. Other Interventions Included in the Analysis *(Use additional pages if needed)*

14.1 _____
_____

14.2 _____
_____

15. Portions of a Community Intervention Included in the Analysis

☐ All Links — Community Intervention with Health Outcomes Analyzed

☐ Initial Links Only — Community Intervention with an Intermediate Outcome Analyzed

☐ Final Links Only — Clinical Intervention or Behavior Change with Health Outcomes Analyzed

16. Effect Size

16.1 Specify Effect Size Measure(s) Supported by the *Community Guide* Review Evidence _____

16.2 Specify Effect Size Measure(s) Used in the Study _____

16.3 Source(s) of Data for Effect Size Measure(s)

☐ Single Original Study ☐ Single Reported Study ☐ Compilation of Studies
☐ Expert Opinion ☐ Meta-analysis ☐ Other *(Specify)* _____
☐ Cannot Determine

INSTRUCTIONS

III. STUDY INFORMATION

You will complete Sections III–VIII. Section III provides essential information regarding framing of the study, data sources, and costs. These study components affect not only the type of costs and benefits that are included in the analysis, but also the final value of the summary measure and how it is used and interpreted.

Framing of the Study

17. Specify the actual or modeled location(s) to which the economic analysis was applied in the study. Specify whether the study was conducted in a High Income Country. For locations in the United States, Canada, or the United Kingdom, please specify cities, provinces, or states whenever possible. High Income Countries, as defined by the World Bank, include —

Andorra	Greenland	Denmark	Portugal
Australia	Hong Kong, China	Estonia	Puerto Rico
Austria	Hungary	Finland	Singapore
Belgium	Iceland	Luxembourg	Slovak Republic
Canada	Ireland	Macao, China	Slovenia
Croatia	Israel	Malta	Spain
Cyprus	Italy	Monaco	Sweden
Czech Republic	Japan	Netherlands	Switzerland
France	Korea, Rep.	New Zealand	United Kingdom
Germany	Liechtenstein	Norway	United States
Greece			

18. Check all that apply. The audience can be defined as the consumers of the study results; therefore, a study might have diversified audiences. Specifying the audience of the study provides a better understanding of the approach used in conducting the study. A well-framed study provides useful information regarding the audience.

19. Specify the setting of the study to assist in the evaluation of the applicability of the study results.

20. Check the perspective(s) used in conducting the study. The perspective of the study influences the type of costs and benefits included in the analysis. The perspective stated by the authors might not actually be the one followed when the study was conducted. The reviewer should indicate the accurate perspective(s) of the study based on his or her assessment of the costs and benefits included in the analysis.

    20.1 Please indicate if the author accurately specified the perspective of the analysis. If the author inaccurately specified the perspective, please provide the perspective that was indicated by the author.

III. STUDY INFORMATION

Framing of the Study

17. Location

- ☐ United States *(Specify state[s] and/or city[ies])*_____
- ☐ Other High Income Country *(Specify states[s], city[ies] and/or province[s])*_____
- ☐ Other Country *(Specify)*_____

18. Audience *(Check all that apply)*

- ☐ Managed Care Organization
- ☐ Practitioners or Healthcare Providers
- ☐ Other Clinical Organization
- ☐ Community-Based Organization
- ☐ Congress
- ☐ State Legislature
- ☐ Academic Organization
- ☐ Other Audience(s) *(Specify)*_____
- ☐ Cannot Determine
- ☐ Does Not Apply
- ☐ Public Health Agency
  - ☐ Federal ☐ State ☐ Local
  - *(Specify)* _____
- ☐ Other Governmental Department/Organization
  - ☐ Federal ☐ State ☐ Local
  - *(Specify)*_____

19. Setting *(Check all that apply)*

- ☐ Hospital
- ☐ Clinic or Healthcare Provider Office
- ☐ Nursing Home
- ☐ Child Care Center
- ☐ Drug Treatment Facility
- ☐ Mental Health Setting
- ☐ Community-Based Organization
- ☐ School
- ☐ Workplace
- ☐ Religious Institution
- ☐ Home
- ☐ Prison
- ☐ Street
- ☐ Shelter
- ☐ Community-wide *(Specify)*_____
- ☐ Other Setting (s) *(Specify)*_____
- ☐ Cannot Determine
- ☐ Does Not Apply

20. Perspective(s)

- ☐ Societal
- ☐ Patient and Patient Family
- ☐ Healthcare Provider
  - ☐ Health Maintenance Organization (HMO)
  - ☐ Non-HMO
- ☐ Self-insured Employer
- ☐ Private Insurer
- ☐ Other Perspective(s) *(Specify)* _____
- ☐ Cannot Determine
- ☐ Does Not Apply
- ☐ Public Health Agency Program
  - ☐ Federal ☐ State ☐ Local
  - *(Specify)*_____
- ☐ Other Governmental Department/Organization Program
  - ☐ Federal ☐ State ☐ Local
  - *(Specify)*_____

20.1 Was perspective accurately stated in the study? ☐ Yes ☐ No ☐ Not stated

If No, what perspective was stated? _____

INSTRUCTIONS

(Section III, Study Information, Continued)

21. The time frame is the specific period in which the intervention was actually applied and should include the time when follow-ups occur. The analytic horizon is the period over which costs and benefits of the health outcomes resulting from the intervention are measured. The analytic horizon of the study should be long enough to include all significant costs (positive and negative), health effects, and harms. Both time frame and analytic horizon influence the type and value of costs and benefits included in the analysis.

22. Check all that apply. Note that two categories of costs are included: intervention or program costs and participants' cost-of-illness.

    22.1 Intervention or program costs have been categorized into explicit costs (financial) and implicit costs (economic costs). Economic costs refer to reductions in welfare or other welfare costs that do not explicitly appear in program budgeting but are very important in assessing the true cost of running a program or conducting an intervention.

    22.2 Participants’ cost-of-illness or cost-of-injury have been categorized into medical costs, nonmedical costs, and productivity losses.

(Section III, Study Information, Continued)

21. Time Frame and Analytic Horizon

21.1 Time Frame

☐ Yes *(Specify time frame and note follow-up period)*
_____

☐ No
☐ Cannot Determine ☐ Does Not Apply

21.2 Analytic Horizon

☐ Yes *(Specify)* _____
☐ No
☐ Cannot Determine ☐ Does Not Apply

22. Cost Data

22.1 Intervention or Program Costs Included *(Check all that apply)*

Type of Cost	Description
Explicit	❑ Vaccines
	❑ Medication
	❑ Labs/Diagnostic Procedures
	❑ Personnel
	❑ Communications
	❑ Transportation
	❑ Advertising
	❑ Overhead
	❑ Capital Equipment
	❑ Real Estate (Property/Space)
	❑ Follow-up
	❑ Home Visit
	❑ Other _____
Implicit	❑ Volunteer Time
	❑ In-kind
	❑ Other _____

22.2 Participants' Cost-of-Illness Included *(Check all that apply)*

Type of Cost	Description
Medical	❑ Medication
	❑ Labs/Diagnostic Procedures
	❑ Inpatient Costs
	❑ Outpatient Costs
	❑ Rehabilitation Services
	❑ Home Care Costs
	❑ Ancillary Services/Ambulance
	❑ Equipment/Home Devices
	❑ Side Effect Costs
	❑ Disease Sequelae Costs
	❑ Disease Complication Costs
	❑ Follow-up Costs
	❑ Self-care Training/Education
	❑ Other _____
Non-Medical	❑ Caregiver Out-of-pocket Costs
	❑ Time Lost and Travel Costs
	❑ Other_____
Productivity Losses	❑ Income foregone due to illness
	❑ Income foregone due to death
	❑ Income foregone by caregiver
	❑ Other_____

INSTRUCTIONS

(Section III, Study Information, Continued)

22.3 Results from the analysis are doubtful if data sources are not specified. Ideally, the study should be able to be reproduced from the information provided in that study. Check all the sources used to obtain cost data for the study.

23 For *CBAs only*, check all that apply. Note that two categories of costs averted are included: program costs averted and participants' cost-of-illness averted. In most cases, benefits will only include cost-of-illness averted.

23.1 Program costs averted have been categorized into explicit costs (financial) and implicit costs (economic costs). Economic costs refer to reductions in welfare or other welfare costs that do not explicitly appear in program budgeting but are very important in assessing the true cost of running a program or conducting an intervention.

23.2 Participants' cost-of-illness or cost-of-injury averted have been categorized into medical costs, nonmedical costs, and productivity losses.

(Section III, Study Information, Continued)

22. Cost Data *(Continued)*

22.3 Cost Data Sources *(Check all that apply)*

- ❑ Estimated Directly in Study
- ❑ Commercially-insured Claims Database
- ❑ Published Related Study
- ❑ Unpublished Related Study
- ❑ Expert Opinion
- ❑ Physician Fee and Coding Guide
- ❑ Diagnostic-related Group
- ❑ Insurance Company
- ❑ Medicare Data
- ❑ Medicaid Data
- ❑ U.S. Statistical Abstract
- ❑ Health United States
- ❑ Cannot Determine
- ❑ Does Not Apply
- ❑ National Hospital Discharge Survey
- ❑ National Medical Care Utilization and Expenditure Survey
- ❑ National Ambulatory Medical Care Survey
- ❑ National Mortality Follow-Back Survey
- ❑ National Health Interview Survey
- ❑ National Health and Nutrition Examination Survey
- ❑ American Hospital Association Survey
- ❑ Agency for Health Care Research Quality (AHRQ)
- ❑ Health Insurance Association of America (HIAA)
- ❑ Health Care Financing Administration (HCFA)
- ❑ HCFA Relative Value Units (RVU)
- ❑ HCFA Fee Schedule
- ❑ National Testing Center
- ❑ Health Resources Services Administration (HRSA)
- ❑ Managed Care Data (*Specify*): _____
- ❑ Other Private Sector Data (*Specify*): _____
- ❑ Other Government Data (*Specify*): _____
- ❑ Other (*Specify*): _____

23. Benefit Data *(for CBA only)*

23.1 Program Costs Averted *(Check all that apply)*

Type of Cost	Description
Explicit	❑ Vaccines
	❑ Medication
	❑ Labs/Diagnostic Procedures
	❑ Personnel
	❑ Communications
	❑ Transportation
	❑ Advertising
	❑ Overhead
	❑ Capital Equipment
	❑ Real Estate (Property/Space)
	❑ Follow-up
	❑ Home Visit
	❑ Other _____
Implicit	❑ Volunteer Time
	❑ In-kind
	❑ Other _____

23.2 Participants' Cost-of-Illness Averted *(Check all that apply)*

Type of Cost	Description
Medical	❑ Medication
	❑ Labs/Diagnostic Procedures
	❑ Inpatient Costs
	❑ Outpatient Costs
	❑ Rehabilitation Services
	❑ Home Care Costs
	❑ Ancillary Services/Ambulance
	❑ Equipment/Home Devices
	❑ Side Effect Costs
	❑ Disease Sequelae Costs
	❑ Disease Complication Costs
	❑ Follow-up Costs
	❑ Self-care Training/Education
	❑ Other _____
Non-Medical	❑ Caregiver Out-of-pocket Costs
	❑ Time Lost and Travel Costs
	❑ Other_____
Productivity Losses	❑ Income foregone due to illness
	❑ Income foregone due to death
	❑ Income foregone by caregiver
	❑ Other_____

INSTRUCTIONS

(Section III, Study Information, Concluded)

23.3 Results from the analysis are doubtful if data sources or methods for assessing benefits are not specified. Ideally, the study should be able to be reproduced from the information provided in that study. Check the method used to obtain a valuation of benefits for the study.

Contingent Valuation uses survey methods to present respondents with hypothetical scenarios about a program or health state to reveal the maximum the consumer is willing to pay (WTP) or willing to accept (WTA) to reduce the risk of death or illness.

Conjoint Analysis asks individuals to choose between different options through which the relative importance of attributes of those options, such as cost or waiting time, is revealed.

Required Compensation estimates the value of a statistical life by looking at the difference in wages for persons in occupations associated with higher risks than in other occupations.

Human Capital Approach assesses productivity losses from illness or injury as measured by income forgone because of morbidity or mortality. The value of death or disability is based on the present value of future earnings.

Expert Opinion is arrived at by achieving consensus from experts in the field. It can be used to determine the "best estimate" of the value of a health outcome.

Implied Values of Death and Injury: Previous legislative decisions and court cases provide an estimate of the value of human life and intangibles such as pain and suffering.

24 Summary Measure(s): This section assists you in identifying the value of the summary measure(s) (i.e., the cost-effectiveness or cost-utility ratios for CEAs or CUAs , net benefits (NB) or net present value (NPV) for CBAs, or costs for CAs) that will be abstracted and adjusted. When the original study reports summary measures as a range, recalculated summary measures should also be reported in a range.

24.1 Specify the value of the summary measure(s).

24.2 Indicate whether the summary measure(s) will be recalculated from data provided in the article rather than abstracted as reported in the article. If the summary measure(s) is recalculated from data provided in the article, please show the calculations in the space provided here.

24.3 Specify the location of the value of the summary measure(s) in the article.

(Section III, Study Information, Concluded)

23.3 Methods for Valuing Monetary Benefits *(for CBAs only)*

Stated Preferences
- ❑ Contingent Valuation (Willingness-to-pay or Willingness-to-accept)
- ❑ Conjoint Analysis
- ❑ Other *(Specify)* _____

Revealed Preferences
- ❑ Required Compensation (Wage Risk Study)
- ❑ Other *(Specify)* _____

Cost-of-Illness Approach
- ❑ Human Capital Approach
- ❑ Expert Opinion
- ❑ Implied Values of Death (from litigation)
- ❑ Other *(Specify)* _____

Other *(Specify)* _____

24. Summary Measure(s)

	Summary Measure I	Summary Measure II	Summary Measure III
24.1 Value of Summary Measure (CUA or CEA Ratio, Net Benefits or Net Present Value, OR Costs)	_____	_____	_____
24.2 Specify whether value is identified from study or recalculated.	❑ Identified from study ❑ Recalculated	❑ Identified from study ❑ Recalculated	❑ Identified from study ❑ Recalculated
24.3 Location *(Specify page and table #)*	_____	_____	_____

INSTRUCTIONS

IV. ADJUSTMENTS

The following adjustment process is sequential. You should begin with the value(s) specified in item 24.1. Items 25–33 provide entries for numerator and denominator adjustments.

25. Adjustment I — Currency

    25.1 Specify whether the study used US$ or some other currency for costs. If US$ were used, SKIP to question #26.

    25.2 Enter the original summary measure(s) used in the study, from item 24.1.

    25.3 Convert ratio, net benefits or net present value, or costs into U.S. dollars (US$), using Appendix A (note that in the following example, the base year for currency was 1992 for both U.S. and Canadian dollars). *Example: 1992 Canadian$: $100,000/LYs × 0.81 ⇒ 1992 US$: $81,000/LYs*

26. Adjustment II — Base Year

    26.1 Specify whether the study used 2008$ or some other year for the base year to express costs and benefits. If 2008$ were used, SKIP to question #27. If the base year is not specified, estimate the year from the sources for cost information and year of publication of the article. Typically, the base year will be 2–4 years before the year of publication.

    26.2 Enter the adjusted summary measure(s) I, from item 25.3.

    26.3 Appendix B provides specific rules about when to use the Consumer Price Index (CPI) or the Medical component of the CPI (MCPI) for converting costs to base year 2008$. The CPI reflects spending patterns in two population groups: urban consumers (CPI-U) and clerical workers (CPI-W), which is a subset of the CPI-U. We use the CPI-U because it represents 87% of the total U.S. population, whereas the CPI-W only represents 32% of the U.S. population. Following the rules specified in Appendix B, update the value to base year 2008$ using the CPI-U and MCPI in Appendix C.

    The equation for adjusting for inflation is: $Y_B = Y_P (CPI_B / CPI_P)$, where Y_B = base year value, Y_P = past year value, CPI_B = index value of base year, and CPI_P = index value of past year.

    a. Example of rule 1: *The study examines the cost effectiveness of an outreach program to increase childhood varicella vaccination rates. Costs included by the authors — medical personnel labor, printing, mailing, vaccine administration — are a mixture of medical and nonmedical costs, as are costs averted — parental time, physician visits, hospital stays; therefore,1992 US$: $81,000 /LYs (215.3 / 140.3) = $81,000 × 1.535 ⇒ 2008 US$: $124,300 /LYs*

    b. Example of rule 2a: *1992 US$: $1,000 / seat belt worn × (364.1 / 190.1) = $1,000 x 1.915 ⇒ 2008 US$: $1,915 / seat belt worn*

    c. Example of rule 2b: *The data in the article indicate outreach costs of $60/additional immunization achieved (AIA), vaccine administration costs of $20, and cost-savings of $10 per vaccination. The majority of costs are nonmedical; therefore, 60/(60 + 20) = 75%. Costs averted/costs = 10/(60 + 20) = 12%. Hence, adjustment by the CPI is appropriate.*

    d. Example of rule 2c: *The data in the article indicate outreach costs of $60/AIA, vaccine administration costs of $20, and cost-savings of $70 per vaccination, primarily because of averted medical expenditures. The majority of costs are nonmedical, 60/(60 + 20) = 75%; and costs averted/costs = 70/(60 + 20) = 88%. Hence, adjustment by 0.5 × MCPI is appropriate. Therefore, 1990 $10/AIA × (0.5 × MCPI) = 1990 $10 × (2.236/2 = 1.118) = 2008$11.18/AIA*

    26.4 Specify which index is used to convert costs to base year 2008$.

IV. ADJUSTMENTS

25. Adjustment I — Currency

25.1 Currency Used in the Study

☐ US$ *(SKIP to 26)* ☐ Other *(Specify)* _____

25.2 Original Summary Measure(s) Presented in Study, (from 24.1) _____

25.3 Adjusted Summary Measure I, Adjusted for US$ _____

26. Adjustment II — Base Year

26.1 Base Year Used in Study

☐ 2008$ *(SKIP to 27)* ☐ Other *(Specify)* _____

26.2 Adjusted Summary Measure I, (from 25.3) _____

26.3 Adjusted Summary Measure II, Adjusted for Base Year 2008$ _____

26.4 Inflation Adjustment Factor Used *(Specify)*

☐ Consumer Price Index–Urban (CPI-U)
☐ Medical Component of the CPI (MCPI)
☐ None

INSTRUCTIONS

(Section IV, Adjustments, Continued)

27. Adjustment III — Discount Rate

Following the PCEHM reference case, the recommended discount rate is 3% for both numerator and denominator variables. The equation for discounting a stream of future dollars (or future nonmonetary values) into present value dollars (or present nonmonetary values) is as follows:

$$PV = \sum_{t=0}^{T-1} FV_t (1+r)^{-t} \quad \text{or}$$

$$PV = FV_0 + \frac{FV_1}{(1+r)^1} + \frac{FV_2}{(1+r)^2} + ... + \frac{FV_{T-1}}{(1+r)^{T-1}}$$

where *PV* = present value of resource; *FV* = future value of resource; *r* = discount rate; *t* = time period, and T = time stream or analytic horizon. Note that $(1 + r)^{-t}$ represents the discount factor. For a given discount rate (r) and for a given year (t), the discount factor, $DF_{r,t}$ can be obtained from Appendix D, such that Equations 1 and 2 can be modified as follows:

$$PV = \sum_{t=0}^{T-1} FV_t * DF_{r,t} \quad \text{or}$$

$$PV = FV_0 + FV_1 * DF_{r,1} + FV_2 * DF_{r,2} + ... + FV_{T-1} * DF_{r,T-1}$$

These formulas assume a constant discount rate over time and assume that monetary and nonmonetary outcomes occur at the beginning of each time period; i.e., costs and benefits are not discounted in the first year of the time stream or analytic horizon.

27.1 Specify whether the study used 3% or some other discount rate to adjust costs and benefits. If a 3% rate was used, SKIP to question #28. Enter the discount rate used in the study, if other than 3%.

27.2 Enter the adjusted summary measure(s) II from item 26.3. Assessing the impact of the discount rate on the numerator and denominator together might be easier when the same discount rate is used for both and when sensitivity analysis on the discount rate is reported in the study.

27.3 Specify if the new value has been obtained by adjusting the discount rate in the numerator or the denominator or both. Frequently, alternate discount rates are reported in a sensitivity analysis. A value from the sensitivity analysis can be reported rather than the value obtained from the base-case model using the original discount rate. Also specify any other information, assumption, and special calculation used as the basis for the adjustment.

27.4 Enter the new value discounted at 3%. Appendix D provides the effect of discounting one unit (whether $1 or one outcome unit) over various time periods for discount rates ranging from 0% to 10%.

Example:

27.1 Discount Rate Used in Study: *0%*

27.2 Adjusted Summary Measure(s) II: *$4,000/LYs*

27.3 Basis for Discount Rate Adjustment (Numbers, Assumptions, or Calculation): Account for 3-year time horizon, such that costs and outcomes initiated in the 3 years are: year 1: $10,000 and 2 life years saved; year 2, $12,000 and 3 life years saved; and year 3, $14,000 and 4 life years saved, at a 3% discount rate. The PV of the future stream of program costs is calculated as: PV = $10,000 + $12,000 / $(1.03)^1$ + $14,000 / $(1.03)^2$ = $34,858. The PV of the future stream of outcomes is calculated as: PV = 2 + 3 / $(1.03)^1$ + 4 / $(1.03)^2$ = 8.68 life years saved.

27.4 Adjusted Summary Measure(s) III *$4,016/LYs*

(Section IV, Adjustments, Continued)

27. Adjustment III — Discount Rate

27.1 Discount Rate Used in Study

☐ 3% *(SKIP to 28)* ☐ Other *(Specify)* _____

27.2 Adjusted Summary Measure(s) II, (from item 26.3) _____

27.3 Basis for Discount Rate Adjustment (Numbers, Assumptions, or Calculation)

_____

_____

_____

27.4 Adjusted Summary Measure(s) III, Adjusted for Discount Rate _____

INSTRUCTIONS

(Section IV, Adjustments, Continued)

28. Adjustment IV — Intervention or Program Costs
Intervention or program costs should include all resources necessary to achieve the health improvement or intermediate outcome for the societal perspective. Differences in the type of costs included in a study are a common source of variability among economic evaluations. For a list of costs included in the study refer to items 22.1 and 22.2. An inventory of typical costs included in an economic evaluation is included in Appendix E. Any of these costs that have not been included in the analysis should be noted and adjustments made when applicable.

When the reviewer adjusts program or intervention costs to include one-time capital expenditures necessary for the early implementation stage of a program, these costs typically occur at one time whereas the benefits accrue over the useful life of the good. Because capital investments for such items as equipment are used over the duration of a project, the costs of capital expenditures may be spread out over that time period. This is done by annuitizing, that is, determining an annual value of the capital item for the life of the capital investment. The annual value can then be used with other annual costs to calculate costs for the duration of a project. This is especially useful for cost analyses for which it is desirable to show the annual value of resources in relation to level of output produced. The annuitizing of costs should be consistent with the present-value method of calculation used in the analysis. If 3% is used in the calculation of the discount factor to estimate the present value of future costs, then 3% should be used in the calculation of the annuity factor to estimate the equivalent annual cost of a one-time capital expenditure. Second, in annuitizing costs, the equivalent annual cost should yield a constant cost value for each year of the useful life of the capital. First, the PV of the scrap value should be subtracted from the original purchase cost; the result should then be divided by the appropriate annuity factor. Scrap value refers to the resale value of the capital expenditure at the end of the project. The equations for annuitizing a one-time capital expenditure are as follows:

$$C = \left[P - S \frac{1}{(1+r)^t} \right] * \left(AF_{r,t} \right)^{-1}$$

where C = calculated equivalent annual cost of the unit; P = cost of purchasing the unit; S = the scrap value (after t years of service) of the unit; r = discount rate; and $AF_{r,t}$ = annuity factor such that

$$AF_{r,t} = \left[1 - \frac{1}{(1+r)^t} \right] r^{-1}$$

Notice that in calculating the annuity factor, $1 / (1 + r)^t$, represents the discount factor and can easily be determined from Appendix D.

When it is necessary to adjust intervention or program costs to include lost wages for each hour spent by the patient while receiving services (e.g., travel and clinic time), consider using $20/hour, which is approximately the average hourly wage in 2008, regardless of the age, gender, and socioeconomic and employment status. For outreach programs to encourage the use of clinical preventive services, you can judge the percentage of patient time and travel costs that should be included. A single clinical preventive service is rarely the sole reason for an office visit, and attributing all patient time and travel costs to the service under consideration would be incorrect. You can also judge a reasonable range (e.g., 20%–50% of patient time and travel attributable to the particular service) and use the midpoint (e.g., 35%) in making adjustments.

In some instances, the cost estimates used in the study might not represent the setting. For example, authors sometimes intentionally use high or low costs to obtain "conservative" estimates of the CE value. Costs can also be misapplied. For example, if public sector costs are readily available, a study might inappropriately apply them to an intervention in a private setting. Remember that the goal of any cost estimate should be to estimate the opportunity cost of resources as measured in dollars.

28.1 Specify whether the study excludes important intervention or program costs. If No, SKIP to question #29. If Yes, describe the type of missing costs.

28.2 Enter the adjusted summary measure(s) III, from item 27.4.

28.3 Specify the assumptions and calculations that form the basis for the adjustment. Note: Future costs that are included in the adjustment should be discounted appropriately.

28.4 Enter the adjusted summary measure(s) IV

(Section IV, Adjustments, Continued)

28. Adjustment IV — Intervention or Program Costs

28.1 Missing Intervention or Program Costs

☐ No *(SKIP to 29)*

☐ Yes. Please describe: _____

28.2 Adjusted Summary Measure(s) III, (from item 27.4) _____

28.3 Basis for Intervention or Program Cost Adjustment (Numbers, Assumptions, Calculation)

_____

_____

_____

28.4 Adjusted Summary Measure(s) IV, Adjusted for Intervention or Program Costs _____

INSTRUCTIONS

(Section IV, Adjustments, Continued)

29. Adjustment V — Averted Illness/Injury Costs

Costs averted should include all resource savings that occur as a result of the intervention. These include:

- The value of medical care prevented, including unpaid caregiver time and patient time for treatment and recovery, but not time in chronic illness, long-term disability, or death (See item 30, Adjustment VI — Productivity Losses); and
- Nonmedical care prevented (e.g., the difference between special education costs and average education costs).

Note: For early detection, "net educational costs" are analogous to "net medical costs"; the difference between the costs with and without the service should be considered.

29.1 Specify whether the study excludes important averted illness or injury costs. If No, SKIP to question #30. If Yes, describe the type of missing costs.

29.2 Enter the adjusted summary measure(s) IV, from item 28.4.

29.3 Specify the assumptions and calculations that form the basis for the adjustment. Future costs that are included in the adjustment should be discounted appropriately.

29.4 Enter the adjusted summary measure(s) V.

INSTRUCTIONS

(Section IV, Adjustments, Continued)

29. Adjustment V — Averted Illness/Injury Costs

29.1 Missing Averted Illness/Injury Costs

☐ No *(SKIP to 30)*

☐ Yes. Please describe: _____

29.2 Adjusted Summary Measure IV, (from item 28.4) _____

29.3 Basis for Adjustment (Numbers, Assumptions, Calculation)

_____

_____

_____

29.4 Adjusted Summary Measure V, Adjusted for Averted Illness/Injury Costs _____

INSTRUCTIONS

(Section IV, Adjustments, Continued)

30. Adjustment VI — Productivity Losses *(Applicable to CUAs only)*

The reference case of the PCEHM does not include a valuation of time lost as a result of chronic illness, long-term disability, or death for CUAs. If a CUA study includes a valuation of time lost to illness, long-term disability, or death, determine the effect of this practice on the summary measure. Since many studies will report results with and without this valuation of time, refer to the article and check the value of the summary measure entered in item 24.1 before making any adjustment. If:

- the summary measure is for a CUA, or
- the value of productivity losses used by the authors cannot be determined, or
- the magnitude of the effect cannot be estimated from the sensitivity analysis,

approximate the value of time as $32,390/year, which was the median full-time equivalent earnings in May 2008 according to the Bureau of Labor Statistics (http://www.bls.gov/oes/oes_dl.htm). Use Appendix D to estimate the effect of discounting at 3%.

30.1 Specify whether the study includes productivity losses in the numerator for CUAs only. If No, SKIP to question #31. If Yes, describe the type of productivity losses included.

30.2 Enter the adjusted summary measure(s) V, from item 29.4.

30.3 Specify the assumptions and calculations that form the basis for the adjustment. Note: Future costs that are included in the adjustment should be discounted appropriately.

30.4 Enter the adjusted summary measure(s) VI .

INSTRUCTIONS

(Section IV, Adjustments, Continued)

30. Adjustment VI — Productivity Losses

30.1 Productivity Losses Included in the CUA Summary Measure

☐ No *(SKIP to 31)*

☐ Yes, Please describe: _____

30.2 Adjusted Summary Measure(s) V, (from item 29.4) _____

30.3 Basis for Productivity Loss Adjustment (Numbers, Assumptions, Calculation)

_____

_____

_____

30.4 Adjusted Summary Measure(s) VI, Adjusted for Productivity Losses _____

INSTRUCTIONS

(Section IV, Adjustments, Continued)

31. Adjustment VII — Conversion of the Health Outcome Measure (Denominator) to QALYs *(Applicable to CEAs or CUAs only)*

    The most important concern for this methodology item is whether the study includes both morbidity and mortality data. Assess whether the value of the outcome measure reflects relevant morbidity prevented. Do not assess the quality or appropriateness of the methods used to estimate QALYs, DALYs, or other measures that incorporate mortality and morbidity. Determining the importance of excluded morbidity data can be difficult. In fact, the study might provide an indicator of the extent of morbidity even though that information is not included in the analysis.

    When possible, approximate the life-year equivalence of morbidity by equating one year lived with a chronic disease or disabling condition to 0.7 healthy life years. Refer to Carande-Kulis, V et al. Am J Prev Med 2000;18(1S):75-91 for explanation about choosing this factor. See Appendix F for an example of conversion of the outcome measure to QALYs. Alternate weights should be considered in assessing uncertainty when appropriate. If the study used DALY(s) or other measures to incorporate morbidity and mortality, the resulting $/DALY summary measure can be converted to a QALY weight, such that: QALY weight = 1 - DALY weight.

    31.1 Specify whether the study used QALYs in the denominator for CEAs or CUAs. If Yes, SKIP to question #32. If No, specify the type of health outcome measure used in the study.

    31.2 Specify the QALY equivalent of the health outcome measure.

    31.3 Enter the adjusted summary measure(s) VI, from item 30.4.

    31.4 Specify the conversion factor, numbers, assumptions, and calculation that form the basis for the health outcome measure adjustment.

    31.5 Enter the adjusted summary measure(s) VII .

(Section IV, Adjustments, Continued)

31. Adjustment VII — Conversion of Health Outcome Measure (Denominator) to QALYs

31.1 QALYs Used as Health Outcome Measure (for CEAs and CUAs only)

- ☐ Yes *(SKIP to 32)*
- ☐ No. Please describe health outcome measure used: _____

31.2 QALY Equivalent of Original Outcome Measure *(Specify)*

_____

31.3 Adjusted Summary Measure(s) VI, (from item 30.4) _____

31.4 Basis for Health Outcome Measure Adjustment (Conversion Factor, Numbers, Assumptions, or Calculation)

_____

_____

_____

31.5 Adjusted Summary Measure VII, Adjusted for Health Outcome Conversion _____

INSTRUCTIONS

V. NONADJUSTABLE DIFFERENCES

Whenever possible, make adjustments to the summary measure(s) as defined in Section IV. However, in those instances where information is unavailable or no reasonable basis for making an adjustment is found, describe the nonadjustable difference in methodology in Item 32 and the nonadjustable difference in intervention definition in Item 33.

32. Nonadjustable Methodological Differences

    32.1 Specify whether there are nonadjustable methodological difference(s) that significantly affect the results of the study. If No, SKIP to question #33. If Yes, indicate the effects of the methodology differences that apply. Provide a brief description of the difference(s) in methodology.

    32.2 Indicate whether the adjusted summary measure(s) VII (from 31.5) is an under- or overstatement of the value that would have been observed had the methodological difference(s) not been present.

    32.3 Explain your choice of the direction and magnitude of the under- or overstatement. If the summary measure is a ratio, please indicate whether the numerator is under- or overstated, whether the denominator is under- or overstated, or both.

    32.4 Indicate whether the nonadjustable methodological difference(s) represents a fatal flaw in the study. Specification of a fatal flaw is the reviewer's subjective opinion that the study is not worthy of inclusion in the summary of evidence for the *Community Guide* chapter, due to some methodological difference that cannot be accounted for in Adjustments I through VII.

33. Nonadjustable Definitional Differences

    33.1 Specify whether there are nonadjustable definitional difference(s) that significantly affect the results of the study. If No, SKIP to Section VI. If Yes, indicate the definitional differences.

    33.2 Indicate the effects of the definitional differences that apply.

    33.3 Provide a brief description of the definitional difference(s).

    33.4 Indicate whether the adjusted summary measure(s) VII (from 31.5) is an under- or overstatement of the value that would have been observed had the definitional difference(s) not been present.

    33.5 Explain your choice of the direction and magnitude of the under- or overstatement. If the summary measure is a ratio, please indicate whether the numerator is under- or overstated, whether the denominator is under- or overstated, or both.

    33.6 Indicate whether the nonadjustable definitional difference(s) represents a fatal flaw in the study. Specification of a fatal flaw is the reviewer's subjective opinion that the study is not worthy of inclusion in the summary of evidence for the *Community Guide* review, because of some definitional difference that cannot be accounted for in Adjustments I through VII.

V. NONADJUSTABLE DIFFERENCES

32. Nonadjustable Methodological Differences

32.1 ☐ No *(SKIP to 33)*
☐ Yes. Please specify effects:

- ☐ Time Frame
- ☐ Analytic Horizon
- ☐ Intervention Costs
- ☐ Cost-of-Illness or Injury Averted
- ☐ Productivity Losses
- ☐ Cost of Harms
- ☐ Morbidity or Mortality Measure
- ☐ Other *(Specify)*_____

32.2 Description _____

32.3 Expected Direction of "Bias"

- ☐ Understates Summary Measure(s)
- ☐ Overstates Summary Measure(s)
- ☐ Unable to Predict

32.4 Explanation of Direction of Bias *(Specify)* _____

32.5 Bias Represents Fatal Flaw
☐ Yes
☐ No

33. Nonadjustable Definitional Differences

33.1 ☐ No *(SKIP to Section VI)*
☐ Yes. Please specify:

- ☐ Comparator
- ☐ Technology (Choice or Change Over Time)
- ☐ Intensity of Service (Frequency)
- ☐ Setting (Clinic versus Home/School, Etc.)
- ☐ Study Population *(Specify)*
- ☐ Other *(Specify)* _____
- ☐ Baseline Incidence/Prevalence
- ☐ Perspective
- ☐ Effectiveness
- ☐ Location (Urban/Rural)

33.2 Effects

- ☐ Time Frame
- ☐ Analytic Horizon
- ☐ Intervention Costs
- ☐ Cost-of-Illness or Injury Averted
- ☐ Other *(Specify)*_____
- ☐ Productivity Losses
- ☐ Cost of Harms
- ☐ Morbidity or Mortality Measure

33.3 Description _____

33.4 Expected Direction of "Bias"

- ☐ Understates Summary Measure(s)
- ☐ Overstates Summary Measure(s)
- ☐ Unable to Predict

33.5 Explanation of Direction of Bias *(Specify)* _____

33.6 Bias Represents Fatal Flaw
☐ Yes
☐ No

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VI. QUALITY ASSESSMENT

Quality assessment addresses the appropriateness of methods, the validity of results, and the completeness of the reporting of economic evaluations reviewed in the *Community Guide*. The quality assessment of economic evaluations described here has the purpose of providing the *Community Guide* audience with information about the strength of the results and their applicability to settings under consideration in the *Community Guide*. The quality assessment concentrates in five areas: study design, costs, benefit measurement, effects, and analysis.

Quality assessment is conducted by answering a series of questions about each of the five areas. Quality assessment is assigned a score. The perfect starting score is 100. Points are subtracted each time a question receives a negative answer. Points vary depending on the question. If the question is not applicable or the answer is yes, no points are subtracted. If the answer is "no," then all the points specified for that question are subtracted. Subtracting partial points for a question is not allowed. The resulting score is recorded in the far right column each time points are subtracted. The score is recorded at the end of each section. That score will be carried over to the next section. After all five sections are completed, the final score is recorded at the bottom of section 5.

The final score is then translated into one of the following quality categories: very good (90–100 points); good (80–89 points); satisfactory (60–79 points); and unsatisfactory (< 60 points). Studies falling into the unsatisfactory category are dropped from the review. The quality category of each study is included in the *Community Guide* review economic summary table.

The quality assessment presented here was designed specifically for the *Community Guide* and complements the inclusion, abstraction, and adjustment processes. Therefore, it should not be used as a stand-alone instrument to assess the quality of economic evaluations outside the context of the *Community Guide*. In addition, this instrument is subject to revision as needed to accommodate the *Community Guide* development process.

INSTRUCTIONS

VI-1. Study Design	Cross-Reference
A Was the study population well described? *The study population should be described by time, place, and person. Information about participants should include age and the relevant characteristics that are key to the study (e.g., socioeconomic status, sex, race, etc.).*	Item 9
B. Was the problem or question being analyzed well defined? *The problem or question being analyzed in the study influences the types of effects and costs included in the analysis and introduces the alternative interventions to be compared. Examples of questions that do not aid economic analysis include, "What is the effect of campaigns to increase use of child safety seats?" or, "Do mass campaigns to promote smoking cessation save money?" Examples of well-defined questions include, "From a societal perspective, is the distribution of child safety seats more cost-effective than legislation and enforcement campaigns in increasing the use of car seats for infants?" or, "From a societal perspective, are mass media campaigns more cost-effective than education-based campaigns in encouraging smoking cessation?"*	Article
C. Were alternative interventions, including comparator, well described? *Descriptions of alternative interventions are important because they influence the type of costs and effects included in the analysis and give the reader a sense of the degree of applicability of results for the reader's own setting. The description of the comparator is especially important because cost-effectiveness, cost-utility, and cost-benefit are relative measures and the costs and effects of the comparator influences the final value of the summary measure.* ***Note:*** *The appropriateness of the alternative intervention included in the analysis is not included as a criterion for quality assessment because that element was addressed previously in the inclusion criteria.*	Items 12–14
D. Did the study specify the perspective? *The perspective of the study determines the type of costs and benefits included in the analysis. Did the authors specify the perspective used in conducting the study? Perspectives could be societal, public health department, program, healthcare provider, or other.*	Item 20
E. Did the study use a societal perspective? *Most community intervention studies should use the societal perspective, which means that all benefits of a program and all costs, no matter who receives the benefits or who receives the program, should be analyzed. Studies using other than a societal perspective might be acceptable if they describe in detail the costs and benefits included in the analysis so that a restricted secondary analysis could be done with the data provided. Conducting a restricted secondary analysis might include adding costs or benefits with the purpose of converting the perspective of the study to societal.*	Item 20
F. Did the study define the time frame? *Time frame refers to the period and date when the intervention was applied. The reporting of the time frame is important because it allows the reader to evaluate the appropriateness of the resources assigned to the intervention.*	Item 21.1
G. Did the study define the analytic horizon? *Analytic horizon refers to the period of time over which health effects benefits and costs are measured. The analytic horizon should be long enough to capture all costs and benefits originated by the intervention.*	Item 21.2

Starting Score: 100

VI-1. Study Design	N/A[1]	Yes[2]	No	Score
A. Was the study population well described?			-6	
B. Was the problem or question to be analyzed well defined?			-5	
C. Were alternative interventions, including comparator, well described?			-6	
D. Did the study specify the perspective?			-4	
E. Did the study use a societal perspective?			-3	
F. Did the study define the time frame?			-3	
G. Did the study define the analytic horizon?			-3	

Forwarding Score

[1] Do not subtract points if the question does not apply.
[2] Do not subtract points if answer is yes.

INSTRUCTIONS

VI-2. Costs	Cross-Reference
A. Were data sources for all costs reported? *The study might have used cost data as calculated in the study or might have taken the data from the literature, reimbursement records, or expert opinion. Consult the listing provided in the abstraction form.*	Item 22.3
B. Are the data sources of program and averted illness or injury costs appropriate in terms of applicability for the intervention and population under consideration in the *Community Guide*? *For example, if the intervention under consideration in the Community Guide specifies a public health program and the program costs specified in the article were taken from a private clinic, how representative and how applicable are the results from this study to the intervention under consideration?*	Item 22.3 and Items 28–30
C. Were the quantities of resources used by the intervention and those allocated to the averted illness or injury reported separately from the prices? *A good analysis will list the different components of the resource category involved. For example, a community immunization program should not only list the dollar amount but also the amount of personnel involved, the amount of hours dedicated by the personnel to the program, the amount of rental equipment (e.g., vehicles or computers), the portion of overhead resources (e.g., electricity or telephone costs) involved, the subcontractor time, and thecost of advertising (e.g., television, radio, or newspaper announcements).*	Article
D. Did the analysis include the relevant program costs for the interventions under consideration? *For example, the cost-effectiveness analysis of a peer counseling program to promote the use of mammography to detect breast cancer for women at high risk who are aged ≥50 years when compared with no peer counseling must include the time spent by the peer (e.g., a cancer survivor) providing counseling even though that counselor might be a volunteer. The analysis would include this comparison because the peer counselor time has opportunity costs that, in this case, are important because peer counseling is the intervention.*	Item 28
E. In the case of *Community Guide* interventions with final outcomes, did the analysis include the most relevant cost-of-illness or cost-of-injury averted in relation to the intervention under consideration? *A cost-utility analysis of an intervention to reduce the incidence of cardiovascular disease with the use of patient reminders for cholesterol screening must include the most important costs for the illness averted (e.g., hospitalization for myocardial infarction or congestive heart failure).*	Item 29
F. Were costs that would occur in the future discounted? *Because costs and health outcomes occur during different time periods, discounting is used to reduce the stream of costs and benefits to a single time period. Therefore, discounting costs as well as benefits is important.*	Item 27
G. Was the base-year for resource prices reported? *Most studies report the currency used to express costs, but many studies fail to report the year for the prices reported. This information is necessary before being able to adjust costs to the standardized 2008 base-year adopted for the Community Guide.*	Item 26

Forwarded Score:

VI-2. Costs	**N/A[1]**	**Yes[2]**	**No**	**Score**
A. Were the data sources for all costs provided?			-4	
B. Are the data sources of program and averted illness or injury costs appropriate in terms of applicability for the intervention and population under consideration in the *Community Guide*?			-4	
C. Were the quantities of resources used by the intervention and those allocated to the averted illness or injury reported separately from the prices?			-4	
D. Did the analysis include the relevant program costs according to the interventions under consideration?			-4	
E. In the case of *Community Guide* interventions with final outcomes, did the analysis include the most relevant cost-of-illness or cost-of-injury averted in relation to the intervention under consideration?			-4	
F. Were costs that would occur in the future discounted?			-6	
G. Was the base-year for resource prices reported?			-3	

Forwarding Score

[1] Do not subtract points if the question does not apply.
[2] Do not subtract points if answer is yes.

INSTRUCTIONS

VI-3. Outcome Measure	Cross-Reference
A. Was the primary outcome measure clearly specified? *Outcomes need to be explicitly defined. Although a study might consider more than one outcome measure, the outcome measure used to calculate the final ratio or summary measure must be appropriate for the intervention under consideration. The outcome measure might be an intermediate marker rather than a final outcome as, for example, in the case of a nutrition program intended to reduce the incidence of diabetes where the intermediate benefit outcome is the reduction of blood sugar levels.*	Item 24
B. Were outcome measures consistent with the study perspective? *Although many studies report that a societal perspective was taken, the authors did not include outcomes reflecting that perspective. For example, an economic evaluation of a program intended to increase the use of child safety seats must measure the outcome as the increase of child safety seats and not as a decrease in emergency room admissions.*	Items 20 and 24
C. Were outcomes that would occur in the future discounted? *The PCEHM has recommended that outcomes that would occur in the future be discounted before comparing costs and health outcomes for a single time period, and we are following that recommendation in the Community Guide. For example, an economic evaluation of a physical exercise program to reduce blood pressure that considers the final outcome measure of QALYs must discount the QALYs gained in averting a stroke.*	Item 27
D. Did outcomes include other effects or unintended consequences of the program? *Programs might have other substantial effects or unintended consequences. The costs and health outcomes of these other effects can be significant. For example, increasing the unit price of tobacco products through taxation has other important effects such as (a) smuggling of cigarettes to avoid taxation; (b) diversion of consumption from higher to lower taxed cigarettes, lower cost cigarettes, or smokeless tobacco; or (c) altering cigarette consumption in such a way that smokers might smoke each cigarette longer or inhale more deeply. To the extent that these unintended consequences are germane to the scope of the study and bear a significant cost, they should be included in the analysis.*	Item 31

Forwarded Score:

VI-3 Outcome Measure	N/A[1]	Yes[2]	No	Score
A. Was the primary outcome measure clearly specified?			-4	
B. Were outcome measures consistent with the study perspective?			-4	
C. Were outcomes that would occur in the future discounted?			-4	
D. Did outcomes include other effects or unintended consequences of the program?			-3	

Forwarding Score

[1] Do not subtract points if the question does not apply.
[2] Do not subtract points if answer is yes.

INSTRUCTIONS

VI-4. Effects	Cross-Reference
A. If the effectiveness data used in the analysis came from a single effectiveness study, does the article provide enough information about the effectiveness study to assess the applicability of the results to the intervention under consideration in the *Community Guide*? *This question addresses issues of applicability. If the analysis took the effectiveness data from, for example, a clinical trial, were details regarding allocation of subjects, characteristics of the cohort, effect size, and confidence intervals reported in the article?*	Item 16.2
B. If the analysis used effectiveness data based on a compilation of effectiveness studies, were the criteria for inclusion of studies, method of synthesis, and range of effectiveness reported? *This question also refers to applicability of the results to the intervention under consideration in the Community Guide. If the study took the effectiveness data from a compilation of studies or compiled a number of studies, the article should discuss the criteria and the methods for compiling the studies. Citing the range of effectiveness is also important. The study should also report a sensitivity analysis on the effectiveness range.*	Item 16.2
C. If the study used expert opinion, do the assumptions taken by the experts correspond to the intervention characteristics under consideration in the *Community Guide*? *This question also addresses issues of applicability. Data taken from a Delphi process or expert opinion usually have an underlying set of assumptions. Does the article describe, even briefly, those assumptions? Do the assumptions correspond to the characteristics of the intervention under consideration?*	Item 16.2

Forwarded Score:

VI-4. Effects	N/A[1]	Yes[2]	No	Score
A. If the effectiveness data used in the analysis came from a single effectiveness study, does the article provide enough information about the effectiveness study to assess the applicability of the results to the intervention under consideration in the *Community Guide*?			-3	
B. If the analysis used effectiveness data based on a compilation of effectiveness studies, were the criteria for inclusion of studies, method of synthesis, and range of effectiveness reported?			-3	
C. If the study used expert opinion, do the assumptions taken by the experts correspond to the intervention characteristics under consideration in the *Community Guide*?			-3	

Forwarding Score

[1] Do not subtract points if the question does not apply.

[2] Do not subtract points if answer is yes.

INSTRUCTIONS

VI-5. Analysis	Cross-Reference
A. Was the analytical model reported in a explicit manner? *If the intervention was modeled, was the analytical model properly explained with the use of a flow diagram, decision tree, or other tool?*	Article
B. Was a sensitivity analysis performed on the discount rate? *Sensitivity analysis conducted on the discount rate in the same study is the best way to convert those results from studies using other than a 3% discount rate to results calculated using a 3% discount rate. The reporting of sensitivity analysis on the discount rate facilitates the adjustment process and contributes to reducing uncertainty in standardizing results.*	Item 27
C. Was a sensitivity analysis performed on the effect size? *Careful analysts identify critical assumptions or variables with uncertainty and address the effect of the uncertainty on the model results. A good analysis should contain alternative results for changes in important variables and assumptions. Effect size is usually the most important variable and studies should include a sensitivity analysis on effect size.*	Item 16
D. Was a sensitivity analysis performed on any other important parameter of the model? *Important parameters are incidence (when applicable), test cost, treatment costs, and so forth. If large variations in assumptions or variables do not produce changes in the results, the reader can have confidence in the strength of the results. If the opposite occurs, applicability of the results to other settings, under different assumptions or circumstances, is greatly reduced.*	Article
E. Did the study actually report the summary measure indicated in the title? *For example, the title of an article might indicate a cost-effectiveness analysis. However, the article reports a summary measure other than a cost-effectiveness ratio. Or the authors call it a cost-effectiveness, cost-utility, or cost-benefit ratio when, in fact, they calculated programmatic costs (i.e., the value of the benefits of costs averted were not included in the analysis).*	Items 5 and 24

Forwarded Score:

VI-5. Analysis	N/A[1]	Yes[2]	No	Score
A. Was the analytical model reported in a explicit manner?			-3	
B. Was a sensitivity analysis performed on the discount rate?			-4	
C. Was a sensitivity analysis performed on the effect size?			-4	
D. Was a sensitivity analysis performed on any other important parameter of the model?			-4	
E. Did the study actually report the summary measure indicated in the title?			-2	

Final Score

[1] Do not subtract points if the question does not apply.
[2] Do not subtract points if answer is yes.

Quality Category *(Choose one)*

☐ Very Good (90–100 points) ☐ Good (80–89 points)

☐ Satisfactory (60–79 points) ☐ Unsatisfactory (< 60 points)

INSTRUCTIONS

VII. SUMMARY TABLE

The summary table lists the economic information interpreted and summarized in the body of the *Community Guide* for each particular intervention. Information is summarized about the study and study results, including type of analytic method used in the study or used by the reviewer to obtain the summary measure from data reported in the study. It also lists the type of summary measure, original currency, costs included in the analysis, the results of the study before and after adjustments, characteristics of the study population, and estimates of effectiveness used in the evaluation.

VII. SUMMARY TABLE

Reviewer's Name: _____Review Completion Date: _____

Category	Cross-Reference	Value
Author(s) and Author(s) Affiliation	5, 6	
Funding Source	6	
Publication Date	5	
Study Period (Time Horizon)	21	
Analytic Method	8.1	
Reported (or Calculated) Summary Measure Type	8.2	
Study Location and Setting Type	17, 19	
Population Description	9	
Follow-up Period	21.1	
Intervention Studied	12	
Comparisons	13	
Reported Currency and Base Year	25.1, 26.1	
Costs Included	22	
Benefits Included (for CBAs)	23	
Perspective	20	
Discount Rate	27.1	
Effect Size (for CUAs and CEAs)	16	
Reported Summary Measure	24	
Adjusted Currency and Base Year (Adjustments I and II)	25,26	
Adjusted Discount Rate (Adjustment III)	27	
Intervention or Program Cost Adjustments (Adjustment IV)	28	
Averted Illness or Injury Adjustments (Adjustment V)	29	
Productivity Loss Adjustments, CUA only (Adjustment VI)	30	
QALY Adjustments, CUA and CEA only (Adjustment VII)	31	
Final Adjusted Summary Measure	*	
Quality Score	Page 41	
Quality Category	Page 41	
Fatal Flaw Specified?	32.5, 33.6	☐ Yes ☐ No

***** The Final Adjusted Summary Measure can be located in any one of the following locations: 24.1, 25.3, 26.3, 27.4, 28.4, 29.4, 30.4, 31.5.

Appendix A. Purchasing Power Parity Rates: U.S. Dollars per Foreign Currency Unit

Year	Australia	Austria	Belgium	Canada	Cyprus	Denmark	Estonia	Finland	France	Germany	Greece	Iceland	Ireland	Israel	Italy	Japan	Luxem-bourg
1980	1.004	0.983	0.926	1.160	0.276	7.628	0.068	0.808	0.835	1.137	0.084	6.577	0.633	0.004	0.401	229.474	0.873
1981	1.026	0.958	0.890	1.174	0.283	7.701	0.064	0.824	0.850	1.083	0.094	8.970	0.680	0.008	0.436	219.071	0.856
1982	1.066	0.952	0.902	1.201	0.294	7.992	0.058	0.848	0.898	1.068	0.112	12.990	0.738	0.017	0.483	210.910	0.894
1983	1.106	0.947	0.917	1.218	0.298	8.257	0.058	0.883	0.946	1.056	0.130	22.156	0.786	0.042	0.535	207.685	0.918
1984	1.117	0.957	0.931	1.212	0.310	8.435	0.056	0.924	0.978	1.038	0.153	27.095	0.806	0.198	0.571	206.563	0.924
1985	1.145	0.956	0.945	1.213	0.318	8.536	0.051	0.945	1.001	1.029	0.177	34.722	0.823	0.693	0.605	205.041	0.924
1986	1.198	0.963	0.951	1.222	0.324	8.572	0.051	0.969	1.031	1.036	0.206	42.315	0.857	1.005	0.636	203.918	0.903
1987	1.266	0.958	0.941	1.244	0.327	8.742	0.051	0.984	1.031	1.021	0.230	49.392	0.853	1.168	0.656	199.005	0.880
1988	1.339	0.941	0.929	1.257	0.327	8.784	0.051	1.025	1.028	1.004	0.260	58.802	0.851	1.374	0.676	193.874	0.874
1989	1.362	0.936	0.938	1.266	0.330	8.882	0.053	1.049	1.023	0.995	0.287	69.608	0.865	1.598	0.692	191.098	0.876
1990	1.358	0.928	0.929	1.258	0.335	8.805	0.068	1.069	1.011	0.991	0.333	77.183	0.827	1.783	0.722	188.409	0.865
1991	1.337	0.931	0.923	1.251	0.336	8.735	0.153	1.052	1.001	0.987	0.386	80.815	0.814	2.038	0.750	187.392	0.851
1992	1.324	0.943	0.933	1.239	0.348	8.682	1.457	1.035	1.000	1.013	0.433	81.721	0.818	2.262	0.766	186.160	0.863
1993	1.306	0.947	0.949	1.229	0.357	8.543	2.633	1.032	0.992	1.027	0.484	81.349	0.841	2.417	0.778	182.943	0.894
1994	1.295	0.952	0.949	1.217	0.368	8.495	3.601	1.024	0.985	1.029	0.527	81.743	0.837	2.667	0.789	179.330	0.906
1995	1.298	0.951	0.941	1.220	0.389	8.430	4.637	1.051	0.978	1.028	0.567	82.510	0.845	3.084	0.811	174.860	0.909
1996	1.290	0.943	0.928	1.216	0.391	8.438	5.658	1.030	0.975	1.014	0.598	82.972	0.848	3.354	0.838	170.619	0.918
1997	1.285	0.927	0.923	1.211	0.394	8.465	6.146	1.035	0.969	1.000	0.628	84.045	0.864	3.595	0.845	168.821	0.886
1998	1.272	0.920	0.932	1.192	0.401	8.471	6.622	1.059	0.967	0.994	0.654	87.076	0.911	3.778	0.857	167.016	0.873
1999	1.280	0.912	0.922	1.196	0.405	8.491	6.820	1.053	0.953	0.984	0.664	88.613	0.934	3.948	0.856	162.515	0.906
2000	1.313	0.909	0.919	1.219	0.411	8.559	7.226	1.058	0.946	0.956	0.671	89.878	0.964	3.913	0.855	156.291	0.905
2001	1.319	0.903	0.915	1.203	0.415	8.566	7.428	1.064	0.942	0.945	0.674	95.327	0.993	3.888	0.859	150.738	0.884
2002	1.335	0.900	0.916	1.195	0.413	8.613	7.580	1.059	0.948	0.942	0.687	98.945	1.024	4.005	0.873	145.856	0.893
2003	1.351	0.893	0.912	1.210	0.425	8.572	7.589	1.033	0.946	0.932	0.696	97.477	1.028	3.910	0.881	140.530	0.917
2004	1.365	0.884	0.908	1.211	0.427	8.504	7.537	1.011	0.934	0.914	0.700	97.180	1.018	3.799	0.882	135.183	0.907
2005	1.388	0.874	0.899	1.214	0.424	8.517	7.813	0.983	0.923	0.893	0.702	97.064	1.023	3.717	0.875	129.552	0.922
2006	1.408	0.860	0.888	1.203	0.422	8.439	8.034	0.966	0.914	0.867	0.703	102.460	1.021	3.685	0.863	124.478	0.946

Source: World Bank World Development Indicators, Development Data Group, World Bank, Washington DC, 2008.

Appendix A. Purchasing Power Parity Rates: U.S. Dollars per Foreign Currency Unit

Year	Nether-lands	Norway	Portugal	Singapore	Slovenia	Spain	Sweden	Switzer-land	Czech Republic	Hungary	Korea, Rep.	New Zealand	Poland	Slovak Republic	Turkey	United Kingdom
1980	1.083	6.151	0.148	1.504	..	0.356	6.766	2.128	..	13.109	410.3	0.917	..	..	0.00006	0.474
1981	1.043	6.349	0.159	1.466	..	0.365	6.772	2.055	..	12.601	443.5	0.985	..	..	0.00007	0.482
1982	1.037	6.612	0.181	1.437	..	0.391	6.901	2.062	..	12.555	445.9	1.002	..	..	0.00009	0.488
1983	1.018	6.804	0.217	1.432	..	0.421	7.312	2.037	..	12.677	455.6	1.041	..	..	0.00011	0.496
1984	0.995	6.963	0.261	1.390	..	0.450	7.581	2.035	..	12.992	465.4	1.080	..	6.157	0.00016	0.499
1985	0.983	7.104	0.308	1.330	..	0.474	7.837	2.023	..	13.350	473.1	1.196	..	6.076	0.00023	0.512
1986	0.962	6.902	0.363	1.280	..	0.514	8.167	2.043	..	13.547	488.3	1.385	..	5.945	0.00031	0.518
1987	0.930	7.200	0.389	1.253	..	0.530	8.332	2.038	..	14.271	502.0	1.509	..	5.786	0.00040	0.531
1988	0.906	7.300	0.418	1.283	..	0.543	8.567	2.026	..	16.216	522.3	1.569	..	5.692	0.00066	0.546
1989	0.885	7.431	0.445	1.290	..	0.559	8.914	2.014	..	18.550	532.1	1.590	..	5.637	0.00112	0.565
1990	0.865	7.428	0.485	1.293	8.57	0.578	9.337	2.025	5.150	22.443	566.1	1.569	0.253	5.800	0.00170	0.585
1991	0.862	7.333	0.516	1.310	16.14	0.597	9.832	2.068	6.777	29.430	605.4	1.533	0.380	7.544	0.00261	0.603
1992	0.864	7.117	0.562	1.307	48.63	0.623	9.706	2.065	7.481	34.955	636.8	1.530	0.514	8.217	0.00418	0.613
1993	0.858	7.117	0.590	1.327	65.17	0.636	9.774	2.067	8.650	41.441	662.1	1.520	0.656	10.492	0.00685	0.615
1994	0.857	6.955	0.620	1.338	78.24	0.647	9.831	2.055	9.780	48.496	699.2	1.515	0.878	11.657	0.01384	0.612
1995	0.858	7.023	0.628	1.342	96.00	0.666	9.978	2.031	11.217	60.232	735.8	1.514	1.211	12.554	0.02540	0.616
1996	0.853	7.180	0.633	1.335	104.64	0.676	9.886	1.992	12.145	71.622	759.0	1.505	1.401	12.756	0.04433	0.625
1997	0.861	7.260	0.646	1.322	111.58	0.680	9.893	1.957	12.947	83.454	781.0	1.513	1.570	13.127	0.07915	0.633
1998	0.868	7.125	0.663	1.284	117.90	0.690	9.847	1.930	14.223	92.970	817.4	1.516	1.724	13.646	0.13752	0.643
1999	0.870	7.488	0.675	1.199	123.63	0.698	9.797	1.915	14.420	99.366	805.0	1.506	1.803	14.464	0.21088	0.648
2000	0.887	8.475	0.680	1.217	127.54	0.706	9.720	1.889	14.324	109.772	793.6	1.525	1.892	15.524	0.30935	0.642
2001	0.910	8.419	0.689	1.167	135.40	0.719	9.692	1.856	14.669	116.253	802.4	1.545	1.910	15.922	0.46765	0.641
2002	0.929	8.128	0.703	1.133	143.52	0.737	9.678	1.853	14.823	123.163	810.8	1.523	1.919	16.368	0.66244	0.649
2003	0.929	8.194	0.710	1.098	148.61	0.751	9.664	1.836	14.650	127.618	815.5	1.533	1.885	16.787	0.79463	0.655
2004	0.910	8.390	0.709	1.107	149.29	0.760	9.412	1.795	14.879	129.504	814.4	1.536	1.908	17.306	0.84885	0.654
2005	0.898	8.840	0.707	1.079	147.04	0.768	9.243	1.741	14.395	128.508	788.9	1.535	1.898	17.196	0.86834	0.649
2006	0.884	9.204	0.705	1.048	145.80	0.772	9.117	1.712	14.226	129.118	761.8	1.507	1.858	17.121	0.93824	0.644

Source: World Bank World Development Indicators, Development Data Group, World Bank, Washington DC, 2008.

Appendix B. Criteria for Base-Year Adjustments

Rules	Condition	Index	Justification
1	Both program costs and costs averted[1] are primarily nonmedical, or Both program costs and costs averted are a mixture of medical and nonmedical resources	CPI-U	Reflects the fact that the CPI-U is already partially weighted by estimates of medical care inflation.
2A	Program costs are primarily nonmedical, costs averted are primarily medical, and net costs are negative (e.g., a cost-saving intervention)	MCPI	Although a mixture of costs exists, the negative net costs indicate that the medical prices in the costs averted probably play a larger role in changes to the net costs across a time period.
2B	Program costs are primarily nonmedical, costs averted are primarily medical; net costs are positive, and the reviewer can determine that the ratio of costs averted to program costs is <0.25.[1]	CPI-U	General price inflation is likely to be a more important factor in changes of net costs across a time period.
2C	Program costs are primarily nonmedical, costs averted are primarily medical; net costs are positive, and the reviewer can determine that the ratio of costs averted to program costs is >0.75.[1]	MCPI[2]	Medical costs are playing a substantial role, and net costs are probably decreasing across the time period rather than increasing because medical inflation is historically greater than general inflation.
2D	Program costs are primarily nonmedical, costs averted are primarily medical, net costs are positive, and (a) the ratio of costs averted to costs incurred falls between 0.25 and 0.75,[1] or (b) the ratio cannot be determined with a reasonable amount of certainty.	No Adjustment	Ratio is either relatively stable across a time period or the direction in which the adjustment should be made is too unpredictable.

Source: Carande-Kulis *et al.* Methods for Systematic Reviews of Economic Evaluations for the *Community Guide to Community Preventive Services.* Am J Prev Med 2000;18(1S):75-91.

CPI-U: Consumer Price Index-Urban
MCPI: Medical component of the Consumer Price Index

[1] Program costs (PC) include all positive costs caused by the intervention and averted costs (AC) include all saved costs resulting from the intervention. When AC are considerably smaller than PC, the AC/PC ratio is relatively small (<0.25) and the percentage change in net costs (PC - AC) caused by inflation across a time period approaches the economy-wide inflation rate. When AC approaches the magnitude of PC, the AC/PC ratio is relatively large (>0.75) and the percentage change in net costs caused by inflation across a time period approaches negative infinity. The percentage change in net costs will be approximately equal to the medical inflation rate when the AC/PC ratio equals 0.75. Reviewers are cautioned that the actual percentage change in net cost might be substantially larger (in absolute value) than the medical inflation rate in cases where rule 2C applies and that inflation might cause net costs to decrease to zero or become negative. When the AC/PC ratio equals 0.5, the percentage change in net costs caused by inflation across a time period is approximately zero. Using either rule 2B or rule 2C (adjusting for inflation with either the CPI-U or MCPI) is not likely to improve the estimate of net costs when AC/PC is between 0.25 and 0.75.

[2] Ratio or net costs should be decreased rather than increased by using the MCPI.

Appendix C. Consumer Price Index (CPI) Conversion Factors, 1980-2008

Year	All Items Consumer Price Index for Urban Workers (CPI-U)	Medical Care Component of the Consumer Price Index (MCPI)
1980	82.4	74.9
1981	90.9	82.9
1982	96.5	92.5
1983	99.6	100.6
1984	103.9	106.8
1985	107.6	113.5
1986	109.6	122.0
1987	113.6	130.1
1988	118.3	138.6
1989	124.0	149.3
1990	130.7	162.8
1991	136.2	177.0
1992	140.3	190.1
1993	144.5	201.4
1994	148.2	211.0
1995	152.4	220.5
1996	156.9	228.2
1997	160.5	234.6
1998	163.0	242.1
1999	166.6	250.6
2000	172.2	260.8
2001	177.1	272.8
2002	179.9	285.6
2003	184.0	297.1
2004	188.9	310.1
2005	195.3	323.2
2006	201.6	336.2
2007	207.3	351.1
2008	215.3	364.1

Sources: U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.; available at <http://www.bls.gov/data/#prices> (Accessed on 02/5/2009).

Appendix D. Present Value of $1.00 or 1 Unit of a Health Outcome, Discounted to the nth year

N	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	1.000	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091
2	1.000	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264
3	1.000	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513
4	1.000	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830
5	1.000	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209
6	1.000	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645
7	1.000	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132
8	1.000	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665
9	1.000	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241
10	1.000	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855
11	1.000	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505
12	1.000	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186
13	1.000	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897
14	1.000	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633
15	1.000	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394
16	1.000	.8528	.7284	.6263	.5339	.4581	.3936	.3387	.2919	.2519	.2176
17	1.000	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978
18	1.000	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799
19	1.000	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635
20	1.000	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486
21	1.000	.8114	.6598	.5375	.4388	.3589	.2942	.2415	.1987	.1637	.1351
22	1.000	.8034	.6468	.5219	.4220	.3418	.2775	.2257	.1839	.1502	.1228
23	1.000	.7954	.6342	.5067	.4057	.3256	.2618	.2109	.1703	.1378	.1117
24	1.000	.7876	.6217	.4919	.3901	.3101	.2470	.1971	.1577	.1264	.1015
25	1.000	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923
26	1.000	.7720	.5976	.4637	.3607	.2812	.2198	.1722	.1352	.1064	.0839
27	1.000	.7644	.5859	.4502	.3468	.2678	.2074	.1609	.1252	.0976	.0763
28	1.000	.7568	.5744	.4371	.3335	.2551	.1956	.1504	.1159	.0895	.0693
29	1.000	.7493	.5631	.4243	.3207	.2429	.1846	.1406	.1073	.0822	.0630
30	1.000	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573
31	1.000	.7346	.5412	.4000	.2965	.2204	.1643	.1228	.0920	.0691	.0521
32	1.000	.7273	.5306	.3883	.2851	.2099	.1550	.1447	.0852	.0634	.0474
33	1.000	.7201	.5202	.3770	.2741	.1999	.1462	.1072	.0789	.0582	.0431
34	1.000	.7130	.5100	.3660	.2636	.1904	.1379	.1002	.0730	.0534	.0391
35	1.000	.7059	.5000	.3554	.2534	.1813	.1301	.0937	.0676	.0490	.0356
36	1.000	.6989	.4902	.3450	.2437	.1727	.1227	.0875	.0626	.0449	.0323
37	1.000	.6000	.4806	.3350	.2343	.1644	.1158	.0818	.0580	.0412	.0294
38	1.000	.6852	.4712	.3252	.2253	.1566	.1092	.0765	.0537	.0378	.0267
39	1.000	.6784	.4619	.3158	.2166	.1491	.1031	.0715	.0497	.0347	.0243
40	1.000	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221
41	1.000	.6650	.4440	.2976	.2003	.1353	.0917	.0624	.0426	.0292	.0201
42	1.000	.6584	.4353	.2890	.1926	.1288	.0865	.0583	.0395	.0268	.0183
43	1.000	.6519	.4268	.2805	.1852	.1227	.0816	.0545	.0365	.0246	.0166
44	1.000	.6465	.4184	.2724	.1780	.1169	.0770	.0509	.0338	.0226	.0151
45	1.000	.6391	.4102	.2644	.1712	.1113	.0727	.0476	.0313	.0207	.0137
46	1.000	.6327	.4022	.2567	.1646	.1060	.0685	.0445	.0290	.0190	.0125
47	1.000	.6265	.3943	.2493	.1583	.1009	.0647	.0416	.0269	.0174	.0113

N	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
48	1.000	.6203	.3865	.2420	.1522	.0961	.0610	.0389	.0249	.0160	.0103
49	1.000	.6141	.3790	.2350	.1463	.0916	.0575	.0363	.0230	.0147	.0094
50	1.000	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085
51	1.000	.6020	.3642	.2215	.1353	.0831	.0512	.0317	.0197	.0123	.0077
52	1.000	.5961	.3571	.2150	.1301	.0791	.0483	.0297	.0183	.0113	.0070
53	1.000	.5902	.3501	.2088	.1251	.0753	.0456	.0277	.0169	.0104	.0064
54	1.000	.5843	.3432	.2027	.1203	.0717	.0430	.0259	.0157	.0095	.0058
55	1.000	.5785	.3365	.1968	.1157	.0683	.0406	.0242	.0145	.0087	.0053
56	1.000	.5728	.3299	.1910	.1112	.0651	.0383	.0226	.0134	.0080	.0048
57	1.000	.5671	.3234	.1855	.1069	.0620	.0361	.0211	.0124	.0074	.0044
58	1.000	.5615	.3171	.1801	.1028	.0590	.0341	.0198	.0115	.0067	.0040
59	1.000	.5560	.3109	.1748	.0989	.0562	.0321	.0185	.0107	.0062	.0036
60	1.000	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033
61	1.000	.5450	.2988	.1648	.0914	.0510	.0286	.0161	.0091	.0052	.0030
62	1.000	.5396	.2929	.1600	.0879	.0486	.0270	.0151	.0085	.0048	.0027
63	1.000	.5343	.2872	.1553	.0845	.0462	.0255	.0141	.0078	.0044	.0025
64	1.000	.5290	.2816	.1508	.0813	.0440	.0240	.0132	.0073	.0040	.0022
65	1.000	.5237	.2761	.1464	.0781	.0419	.0227	.0123	.0067	.0037	.0020
66	1.000	.5185	.2706	.1421	.0751	.0399	.0214	.0115	.0062	.0034	.0019
67	1.000	.5134	.2653	.1380	.0722	.0380	.0202	.0107	.0058	.0031	.0017
68	1.000	.5083	.2601	.1340	.0695	.0362	.0190	.0100	.0053	.0029	.0015
69	1.000	.5033	.2550	.1301	.0668	.0345	.0179	.0094	.0049	.0026	.0014
70	1.000	.4983	.2500	.1263	.0642	.0329	.0169	.0088	.0046	.0024	.0013
71	1.000	.4934	.2451	.1226	.0617	.0313	.0160	.0082	.0042	.0022	.0012
72	1.000	.4885	.2403	.1190	.0594	.0298	.0151	.0077	.0039	.0020	.0010
73	1.000	.4837	.2356	.1156	.0571	.0284	.0142	.0072	.0036	.0019	.0010
74	1.000	.4789	.2310	.1122	.0549	.0270	.0134	.0067	.0034	.0017	.0009
75	1.000	.4741	.2265	.1089	.0528	.0258	.0126	.0063	.0031	.0016	.0008

Appendix E. Examples of Typical Program or Intervention Costs

DIRECT COSTS
Institutional inpatient care
- terminal care
- hospice
- hospitalization specialized units (e.g., ICU, CCU)
- nursing home

Institutional outpatient services
- clinic
- HMO
- emergency room

Home health care
Physician services
- primary care physicians
- medical specialists
- psychiatrists

Ancillary services
- psychologists
- social workers
- nutritionist
- physical and occupational therapy
- ambulance
- volunteer

Overhead allocated to technology
- fixed costs of utilities
- space
- storage
- support services: laundry, housekeeping, administration
- capital costs (depreciated over life of equipment)
- construction of facilities
- relocation expenses
- device or equipment cost

Variable costs of utilities
Medications (prescription and nonprescription)
- drug costs
- treating side effects or toxicity of medications
- prophylaxis of side effects
- ordering and inventorying preparation
- training in new procedures
- dispensing and administration
- monitoring

Devices and appliances
- prostheses
- glasses
- hearing aids
- ostomy supplies

Direct Costs (Continued)
- hypodermic needles
- home urine- or blood-testing equipment
- ordering and inventorying

Drugs, supplies, devices provided by household
Research and development: basic and applied research
Diagnostic tests
- community screening program
- consumable supplies, personnel time, equipment
- imaging
- laboratory testing
- costs of false-positive and false-negative cases
- treating sequelae of undetected disease

Treatment services
- surgery, initial and repeat
- recovery room
- anesthesia services
- pathology services
- acquisition costs for organ transplants
- consumable supplies, personnel, time, equipment
- treatment of complication
- blood products
- oxygen
- radiation therapy
- special diets

Prevention services
- screening space
- vaccination, prophylaxis
- disease prevention in contacts of known cases

Rehabilitation
Training and education
- health education
- self-care training for patients
- life support skills for general population
- public awareness programs

Care provided by family and friends
Transportation to and from medical services
Child care
Housekeeping
Modification of home to accommodate patient

Direct Costs (Continued)
Social services
- family counseling
- retraining, reeducation
- sheltered workshops
- employment services

Program evaluation
- monitoring impact of program or technology
- data analysis

Repair of property destruction (alcoholism, psychiatric illness, drug addiction)
Law enforcement costs

INDIRECT COSTS
Wages/Time(quantified in monetary terms)
Change in productivity resulting from change in health status
- morbidity
- mortality
- averted illness

Lost productivity while on the job
- absenteeism

Income lost by family members
Foregone leisure time
Time spent by patient seeking medical services
Time spent by family and friends
- attending patient (e.g., hospital visitations)

Intangible
Psychosocial costs
- apprehension, anxiety
- grief and loss of well-being
- associated with:
  - impending death
  - disfigurement
  - disability
  - economic and physical dependence
  - loss of job
  - loss of opportunity for promotion and education
- social isolation
- family conflict

Valuations others put on patient's health and well-being
Pain
Changes in social functioning and activities of daily living

Source: Luce BR and Elixhauser A. (1990). Int J of Technology Assessment in Health Care, Vol. 6.

Appendix F. Example of a Cost-Effectiveness Ratio Conversion from Dollars per Year of Life Saved to Dollars per Quality-Adjusted Life Year for a Vaccination Program To Immunize Infants Against Hepatitis B

Item	Parameter	Source	Value[1]
A	Cost of program to vaccinate infants, 1993 US$, millions	Table 4, medical costs[2]	47.0
B	Medical cost without program, 1993 US$, millions	Table 4, chronic medical costs[2]	9.5
C	Medical cost with program, 1993 US$, millions	Table 4, chronic medical costs[2]	3.1
D	Medical costs averted, 1993 US$, millions	(B - C)	6.4
E	Net cost, 1993 US$, millions	(A - D)	40.6
F	Net cost, discounted, US$, millions	(E) Discounted 50 years at 3%	9.3
G	Years of life saved, number	Table 5[2]	18,879
H	Years of life saved, discounted, number	(G) Discounted 50 years at 3%	4,306
I	Chronic infections prevented, number	Table 5[2]	4,702
J	Quality-adjusted life-years from morbidity, number	(I) x 10 years of chronic infection x 0.3 QALYs	14,106
K	Quality adjusted life-years from morbidity, discounted, number	(J) Discounted 50 years at 3%	3,218
L	Quality-adjusted life-years from morbidity and mortality, number	(H + K)	7,524
M	Cost-effectiveness ratio in 1993 US$ per quality-adjusted life years	(F / L)	1,236

Source: Adapted from: Carande-Kulis *et al.* Methods for Systematic Reviews of Economic Evaluations for the *Guide to Community Preventive Services.* Am J Prev Med 2000;18(1S):75-91.

[1] Rounded to better reflect precision of adjustments.

[2] Margolis HS, Coleman PJ, Brown RE, Mast EE, Sheingold SH, Arevalo JA. Prevention of hepatitis B virus transmission by immunization: an economic analysis of current recommendations. JAMA 1995;274(15):778–92.