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# *Recommendations of the Panel on Cost-Effectiveness in Health and Medicine*

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## *Section A*

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What a Reader of a CEA  
Should See

Established to support the conduct and interpretation of cost-effectiveness studies in prevention

★ *Eventually expanded to CEA in general*

Improve and standardize methodology

Set of guidelines were called a “reference case”

While guidelines help, the field continues to develop and debates continue to occur

Background of the problem

General framing and design of the analysis

Target population for the intervention

Other program descriptors

Description of comparator programs

Boundaries of the analysis

Statement of the perspective of the analysis

Description of the “event pathway”

Identification of outcomes of interest

Description of the model used

Modeling assumptions

Description of the “event pathway”

Identification of outcomes of interest

Description of the model used

Modeling assumptions

Diagram of “event pathway”/model

Software used

Complete information of sources of effectiveness data, cost data, preference weights



Methods for obtaining estimates of effectiveness, cost, and preferences

Critique of data quality

Statement of year of costs

Statement of method used to adjust costs for inflation

Statement of type of currency

Source and methods for obtaining expert judgment

Statement of discount rates

## Results of model validation

### Reference case results

- ★ *Discounted and undiscounted*
- ★ *Total costs and effectiveness*
- ★ *Incremental costs and effectiveness*
- ★ *Incremental cost-effectiveness ratios*

### Results of sensitivity analyses

## Results of model validation

### Reference case results

- ★ *Discounted and undiscounted*
- ★ *Total costs and effectiveness*
- ★ *Incremental costs and effectiveness*
- ★ *Incremental cost-effectiveness ratios*

### Results of sensitivity analyses

Other estimates of uncertainty, if available

Graphical representation of results

Aggregate cost and effectiveness information

Disaggregated results, as relevant

Secondary analyses using 0% and 5% discount rates

Other secondary analyses, as relevant

Summary of reference case results

Summary of sensitivity of results to assumptions and uncertainties in the analysis

Discussion of analytic assumptions with important ethical implications

Limitations of the study

Relevance of study results for specific policy questions or decisions

Results of related cost-effectiveness analyses

- ★ *Reporting on the previous literature*

Distributive implications of an intervention

- ★ *Are there winners and losers?*



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## *Section B*

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Panel on Cost-Effectiveness Recommendations



The list of alternative strategies should include all reasonable options and a baseline comparison

The definition of all reasonable is a non-negligible issue

- ★ *Should it be anything that can be dreamed up?*
- ★ *Should it be alternatives that are politically feasible?*
- ★ *Should it be limited to alternatives within a fixed budget?*

## Report Societal Perspective

Others may be the primary reason for undertaking a study

- ★ *Show the analysis from the perspective that is the primary function*

## **Also Show the Societal Perspective**

Having a portfolio of societal perspective studies will make it easier to compare across disease areas or treatments

# *What to Include in a Societal Perspective?*

All measurable opportunity costs, representing all groups affected by a program, should be included in the societal perspective

- ★ *Opportunity cost is often approximated by the market price*
- ★ *The technical definition is the value of the next best alternative use of the resources*

Capture the length of the program and the time during which all costs, harms, and benefits occur

- ★ *A program preventing under five mortality should be evaluated considering the five years of implementation during which mortality is to be prevented and the remainder of the lifetime of the children who do not die as a result of the program*

# *How to Characterize Costs and Effects?*

Costs can be referred to as average, incremental, or marginal

An average cost-effectiveness analysis would compare all alternatives to doing nothing or the least expensive to get an average cost per better outcome gained

# *How to Characterize Costs and Effects?*

Incremental analysis focuses on the cost per outcome for an alternative in comparison to the next most expensive and effective

Marginal analysis focuses on increasing the size of a program a small amount



# *How Comprehensive Should the Analysis Be?*

Include all benefits and harms that have a meaningful impact on the results

- ★ *Costs and effects may vary greatly or vary slightly*

# *How Comprehensive Should the Analysis Be?*

Include all benefits and harms that have a meaningful impact on the results

★ *Costs and effects may be large or small in magnitude*

- Highly variable and large in magnitude should be included
- Little variation and small in magnitude can be excluded
- Others must be considered individually

## **Univariate**

Change the value of one variable used in the analysis and see what happens to the results

## Multivariate

Change the value of more than one variable at a time and see what happens to the results

- ★ *Many variations on how to change the values of multiple variables in order to get some idea of how stable the results are*

## Distributional

- ★ *Who has higher costs?*
- ★ *Who saves money?*
- ★ *Who has better outcomes?*
- ★ *Does anyone have worse outcomes?*

## Ethical

- ★ *Are the effects distributed in a way that is fair?*
- ★ *How do the results match with standard ideas of values and ethics?*

All assumptions

All sources of information

Costs of a disease starting from the onset and continuing for the remainder of the person's life

Not all the costs are associated with a condition in a given year



Resource value rather than charges if they are different

Human capital approach to estimate productivity costs

Utility assessment should be preference-based and interval scaled on a scale with optimal health equal to one and death equal to zero

Generic health instrument

Community-based scoring algorithm

Discount future costs and health

Discount both future costs and health at same rate

Use discount rate of 3% with sensitivity analyses over a reasonable range, especially 0% and 5%

For CBA, capture all costs and benefits and report a net benefit

Use final health outcome measures in a CEA

The numerator should include only direct costs unless the quality of life instrument in the denominator does not include indirect costs

QALY measure should rely on community preferences and preference based weights that use an interval scale

The numerator of a CEA should include costs of the intervention, adverse health outcomes, and health outcomes averted by the intervention

★ *Medical, non-medical, possibly productivity*

Report total costs, total effect, incremental costs, incremental effects, and incremental cost-effectiveness ratios



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## *Section C*

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Panel on Cost-Effectiveness Recommendations  
in Action

Program set up in most socioeconomically disadvantaged areas of the city

Neighborhood canvassing for expectant mothers

Case management during pregnancy

Follow-up for mother, father, and children after pregnancy until children turn three



Avoiding very low birth weight

Help mother to get her life in order

- ★ *Complete education*
- ★ *Get a job*
- ★ *Avoid interaction with criminal justice system*
- ★ *Better parenting (less abuse and neglect)*
- ★ *Become economically independent*

## Help fathers

- ★ *Similar list of issues as for mothers*
- ★ *Emphasize playing a role in children's lives*

## Very low birth weight

- ★ *Easily tracked*

## Effects of very low birth weight

- ★ *No link to Medicaid*
- ★ *No plan (when program began) to link up with data for child abuse or early education programs*

Follow-up data on mothers and fathers other than simple administrative data was quite limited

# Healthy Start Time Horizon

Time Horizon	Appropriateness	Data Availability
One Year		
Three Years		
Lifetime		

# Healthy Start Perspective

Perspective	Appropriateness	Data Availability
Government (Levels???)		
Mothers		
Society		

# Healthy Start Perspective

Perspective	Appropriateness	Data Availability
Government (Levels???)		
Mothers		
Society		

Most readily available data and literature sources to look at one year costs related to very low birth weight avoided from a governmental perspective

Very low birth weight occurs in only 4% of the population at risk even without an intervention



Significant reduction in very low birth weight

However, even with an expensive condition like VLBW, the costs exceeded the benefits

Consider longer time periods

Think about other potential benefits

Treat as a cost-effectiveness analysis where the governmental calculations really represent only the numerator of the cost-effectiveness analysis