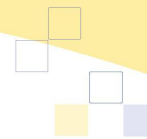


MCP²

Multidisciplinary
Collaborative Primary
Maternity Care Project

Projet de soins
primaires obstétricaux
concertés



The Multidisciplinary Collaborative

Primary Maternity Care Model

Module 7

Evaluating the Cost Implications of the MCPMC Model

Final Version - May 2006

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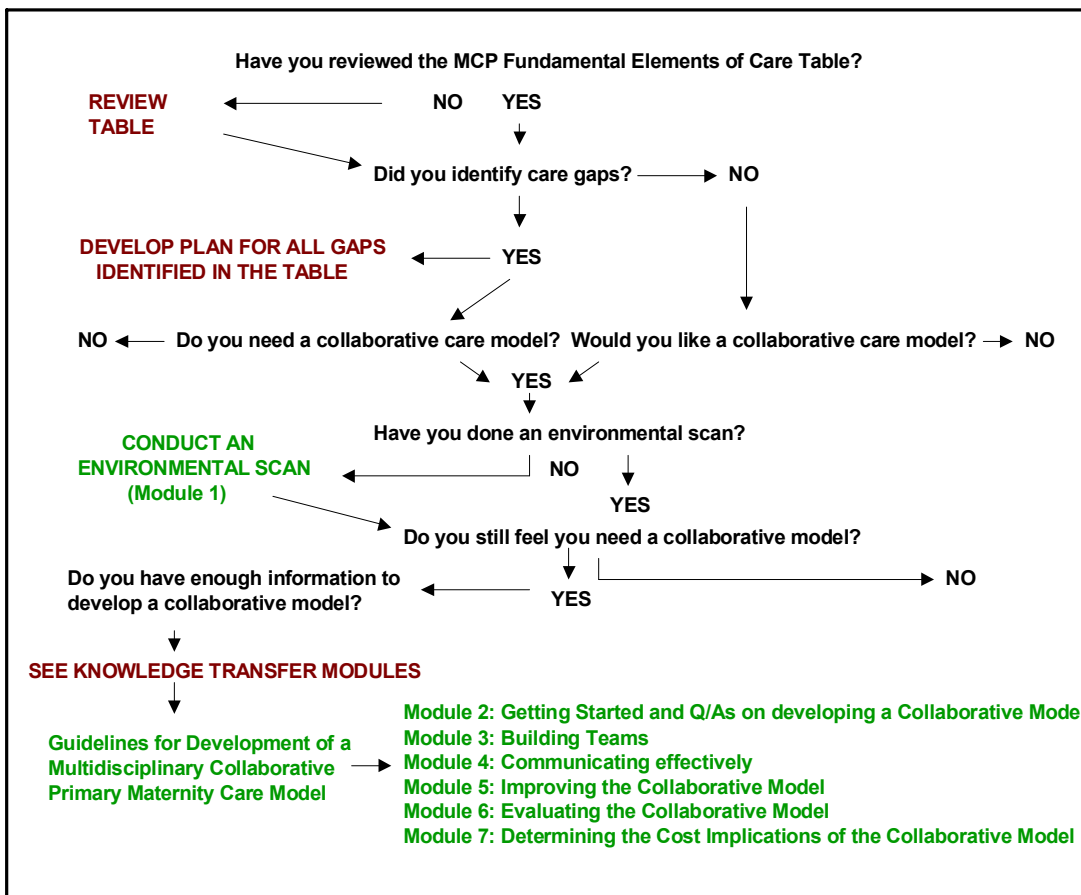
The analysis and conclusions presented in this report do not necessarily reflect the views of the members of the MCP² or their partner associations. Funding for the research was provided by Health Canada as part of the Primary Health Care Transition Fund. The views expressed herein do not necessarily represent the official policies of Health Canada.

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Evaluating the Cost Implications of the MCPMC Model

Introduction

The module is one of seven modules developed to support the implementation of a MCPMC model. The modules are inter-related. They are designed to guide decision-makers through a generic process of development, activities, reflection and improvement. The logic behind this module and the six other modules (shown in the diagram below) is that key stakeholders such as the professionals in the model and government decision-makers have a consistent frame of reference for the model's implementation in the respective communities.



Economic evaluations provide information in a systematic way which can be useful in deciding different uses for health care resources. These evaluations are used to make systematic comparisons of alternative courses of action in terms of their costs and their outcomes. When conducting economic evaluations the costs and outcomes of different options under consideration are identified, measured, valued, and compared.

Health care decision-makers are obviously interested in the financial effects of new programs. They want to compare these new programs with existing ways of providing care. In the context of collaborative primary maternity care models there will be interest in observing how these compare with existing delivery systems. Providers working in and with the new MCPMC models will also be interested in the financial implications.

The purpose of this module is to outline some of the key variables for evaluating the cost implications of a new model of collaborative primary maternity care. It is designed in a workbook format. Following a short discussion of the types of costs that must be considered and the four main types of economic evaluation¹, The workbook then takes the reader through a step-by-step process that identifies:

- ☞ The costs that should be measured, and why;
- ☞ An approach for measuring these costs

Decision-makers considering the cost implications of the collaborative model will need material that identifies the various cost elements and the nature and extent of cost-effectiveness. This module breaks down the various cost components of different model options. It infers cost based on previous research of other models' known cost values for various components and of the cost estimates on variables not previously examined.

¹ It is not the intent to review in detail the different types of economic evaluations. For more information on these, especially as they can be quite technical, please refer to selected references at the end of the Module document.

Different Viewpoints of Costs

It is important to specify the viewpoint of the cost analysis as this will influence, indeed, determine the items which will be used in the analysis. An example of this would be the decision that must be taken to decide as to whether the consumer's out of pocket expenses (e.g., for travel related expenses) should be included in the analysis or not. Possible points of view include:

- Collaborative Model
- Individual Providers
- Society
- Provincial Ministry, or Department of Health
- Federal Government
- Consumers
- Regional Health Authority/Board
- Others

Team members in the model may be interested only in variables which include comparing their level of compensation with existing patterns of care. For example, while a provincial government may be interested in all the costs of the new collaborative model, it could then become a question of which data are feasible to be collected, by whom, and at which time periods. This will be explained later in the document.

If an economic evaluation is being conducted from the widest perspective – society – then three main categories of costs should be considered.

Three Main Categories of Costs

1. Health Service Costs

These may include...

- ☞ Providers' compensation
- ☞ Support Staff time
- ☞ Medical supplies

- ☞ Hospital and non-hospital services
- ☞ Use of capital equipment
- ☞ Overhead, such as heating and lighting

These items can be divided into different categories yet again.

- ☞ **Variable costs** – which vary according to the level of activity (e.g., professional time or support staff time)
- ☞ **Fixed costs** – which are incurred whatever the level of activity (e.g., heating).

How far an assessment of the financial implications of a new model goes depends upon the level of detail and rigour the evaluation adopts. It could be as simple as measuring costs associated with providers' time or as detailed as considering every possible cost associated with the provision of the model and/or primary maternity care more generally. These are the questions decision-makers must decide on.

To a large degree, the level of detail will depend on what decisions need to be made based on the analysis.

2. Costs Borne by Expecting Mothers and their Families

These may include **direct costs** such as:

- ☞ Out-of-pocket expenses
- ☞ Any costs of care giving that may be associated with the pregnancy or events following the birth of the child.

And they may also include **indirect costs** such as income lost due to absences from work.

3. External Costs

External costs occur when people not directly involved in a program (or new model) experience increased costs because of the new model. In most economic evaluations, however, these

external costs are excluded because there are very few new programs or models in which these costs are significant.

If an economic evaluation is being conducted from a perspective other than that of society, the evaluation will consider only those categories of costs relevant to the viewpoint chosen. For example, an economic evaluation from a consumer's point of view will consider only the costs borne by the consumers and their families, while an economic evaluation from just a health organization's point of view will consider only health service costs.

Valuation of Costs

Once the viewpoint for the analysis has been determined and the relevant cost categories identified, individual cost items must be given values.

Direct Costs

Most direct costs are readily available, especially the hourly or professional rate of compensation for those working in the MCPMC model. Two types of direct costs that are difficult to value are capital costs and overhead costs.

Capital costs: These are the costs of a model's capital assets, if any, such as buildings and equipment. In strict economic evaluations these capital assets should be depreciated over time.

Overhead costs: Determining overhead costs may be difficult because they may originate from many different parts of an organization as well as from the MCPMC model. There will need to be 'apportionment values' calculated for these shared costs. Again, the level of detail required would depend on the needs of the decision-makers who use the information.

Indirect costs

Indirect costs, for which there are no 'market prices', cannot be easily valued in an economic evaluation. Volunteer time, for example, is an indirect cost, which is often neglected in resource allocation decisions, even though it may be a significant component.

Discounting costs

Consideration may have to be given to costs if the evaluation is spread over time. Discounting is based on the assumption that costs incurred in the immediate future are of greater importance to the analysis than costs incurred in the far future (a dollar spent now affects an organization more significantly than a dollar spent ten years from now).

... Key Questions to Consider So Far

- What is the purpose of the economic evaluation?
- Whose viewpoint(s) will the evaluation be using?
- Who will conduct the analysis?
- What will be done with the results when the evaluation is completed?

Types of Economic Evaluation

There are four main types of economic evaluation.

1. Cost-minimization analysis
2. Cost-effectiveness analysis
3. Cost-utility analysis
4. Cost-benefit analysis

☞ Cost-Minimization Analysis

This form of economic evaluation is conducted when it is believed that outcomes of the programs, treatments, or models of care being compared *are the same*. Because outcomes are considered to be the same, it is not necessary to measure them explicitly. A cost minimization analysis measures and compares only the costs of the different options whereas other forms of economic evaluations measure both the costs *and* the consequences. ***A cost minimization analysis is a cost comparison.***

Cost-effectiveness analysis

In this approach both costs and outcomes are measured. It is an appropriate method to use when there is one single outcome of interest which is common to different models being examined. The common outcome is expected to vary in magnitude between the different options. If the outcomes of the different options are not expected to vary, it would not be necessary to measure them explicitly and the analysis would be reduced to a cost minimization analysis (see above).

Cost-utility analysis

This approach is similar to a cost-effectiveness approach except that it attempts to measure quality of life, whereas cost-effectiveness approaches do not. Thus, different levels of inputs will contribute to different levels of outcomes and these will be converted into what would be the incremental health improvement associated with that intervention. **Cost-utility looks at both length of life and quality of life.**

Cost-Benefit Analysis

Like cost-effectiveness and cost-utility analyses this approach measures both costs and outcomes. The difference, though, is that the outcomes of different options are expressed in terms of monetary units instead of clinical units or quality of life measurements.

The four types of economic evaluation are summarized and their advantages and disadvantages described in the following tables:

Type	Measurement of Costs	Identification of Outcomes	Measurement of Outcomes
Cost-minimization	Dollars	Identical in all respects	No measurement as outcomes are assumed to be the same
Cost-effectiveness	Dollars	Single outcome of interest, common to both alternatives, but achieved to different degrees	Clinical or natural units
Cost-utility	Dollars	Single or multiple outcomes, not necessarily common to both alternatives, and common outcomes may be achieved to different degrees	Quality adjusted life years (QALYs) or other measures (which include both length of life and quality of life considerations)
Cost-benefit	Dollars	Single or multiple outcomes, not necessarily common to both alternatives and common outcomes may be achieved to different degrees	Dollars

Type	Major Benefits	Major Disadvantages
Cost-minimization	Relatively easy to conduct	Requires some evidence indicating that outcomes are the same
Cost-effectiveness	Provides a good comparison of alternatives with a single, common outcome of differing magnitude	Cannot compare programs, treatments or models that do not have common outcomes of interest
Cost-utility	Includes a quality of life dimension Wide range of possible comparisons as different outcomes are expressed in common terms (e.g., the QALY)	Measuring quality of life is difficult
Cost-benefit	Wide range of possible comparisons as different outcomes are expressed in common, monetary terms	Using monetary values for some outcomes is controversial

Making Comparisons

There are important considerations to be made with regard to the analysis. From a research perspective, the ideal approach would be to have several different modes of comparison as this will enhance the validity of the evaluation. Specifically, comparisons would be done using the following criteria:

- ☞ **Time Series:** Over time, at several different points, (including baseline, which is the costs prior to implementing the collaborative model)
- ☞ **Control:** With other service provision options (e.g., within the same community, with provincial data, national data, and/or other collaborative models)

The critical point with both time series and control criteria would be to ensure that the same data is comparable across different times and sites. This is summarized in the adapted evaluation table shown below:

Designing an Evaluation

		WHO IS MEASURED		
		Experimental group only These designs can only answer questions related to the way one MCPMC model works	More than one group These designs can answer questions comparing the effects of the MCPMC model or experiment with some alternative	
			True Control	Non-equivalent Control
WHAT MEASURES ARE MADE	Pre-test and Post-test	Design 6	Design 1	Design 3
	Post-test only	Not recommended	Design 2	Not recommended
	Time Series	Design 4	Good, but unusual	Design 5

Titles of the Six Designs

Design 1: The True Control Group, Pre-test-Post-test Design

Design 2: The True Control Group, Post-test Only Design

Design 3: The Non-Equivalent Control Group, Pre-test-Post-test Design

Design 4: The Single Group Time Series Design

Design 5: The Time Series Design with a Non-Equivalent Control Group

Design 6: The Before-and-After Design

Evaluating the Cost Implications

The previous pages provided information on the types of approaches and different data that can be used. Much of the final decision made on the economic evaluation is contingent upon:

- ☞ the evaluation's purpose,
- ☞ the level of detail required, and
- ☞ the resources available to conduct the evaluation.

Decisions will have to be made on the choices for comparison data and who will be collecting these data.

While it is not appropriate for a module such as this to insist on one method, one set of data, and one approach to collecting, especially given the wide ranging contexts in which the MCPMC model may be introduced, it is still, nevertheless, important that the main dimensions of the economic evaluation be established.

What follows, therefore, are suggestions for the approach to be used and the type of data to be collected.

Important Things to Consider when Evaluating the Cost Implications

- ☞ **Simplicity:** The evaluation should be as straightforward as possible, with the flexibility to develop further indices which could be incorporated over time.

- ☞ **Cost-minimization:** That the outcomes are assumed to be the same, and, therefore, a cost minimization approach should be used. This is the simplest of approaches and can be used by the team members in the MCPMC model and/or decision-makers at the regional/ provincial levels.

- ☞ **Time Series:** That data be collected for a period of time (e.g., 6 months) prior to the implementation of the model, at baseline, and then at several time points over the first year.

- ☞ **Control Sites:** That data be collected from several control sites to increase the validity of the findings. The control sites should have a relatively similar mix of clients for comparison with the MCPMC model.

What Costs should be used?

The costs identified on the following page are recommended to be incorporated into the economic evaluation.

Cost Implications Data Framework

Cost Item	Description	Data Source	Collection Period
Compensation for Health Professionals	Monthly costs for each professional's time working in the MCPMC Team (and broken into specific functions as defined by the team itself, including admin. functions)	MCPMC Team administrative data	Monthly
Staff	Monthly wage/salary costs for each member of staff	MCPMC Team administrative data	Monthly
Labour/delivery	Monthly costs based on per case x number of births, including all other intervention costs at birth	MCPMC Team administrative data Hospital data	Monthly
On-call costs	Specific costs for respective members of the team who are on-call	MCPMC Team administrative data	Monthly
Clinic visits	Cost based on average number of hours per clinic visit x ___ visits	MCPMC Team administrative data	Monthly
Medical supplies and equipment	Costs of these used over a 1-month period broken down according to type	MCPMC Team administrative data	Monthly
Post-partum follow-up clinic visits	Cost based on average number of hours per post-partum follow-up clinic visit x ___ visits	MCPMC Team administrative data	Monthly
Administrative costs	Non-staff related costs including telephone, supplies, fax, etc.	MCPMC Team administrative data	Monthly
Other administrative costs not incurred by MCPMC team	Costs that may be absorbed by other departments, universities, health region etc Including, for example, payroll, accounting, etc.	Other administrative offices	Monthly
Start-up costs	May include IT set-up, development of electronic system for documentation, evaluation activities, protocol development costs	MCPMC Team administrative data	Monthly

The above costs would be calculated for total number of births (and pregnancies) over a given period (e.g., 6 or 12-months). This would provide the total costs per number of births, which could then be compared under....

- a) The control site(s)
- b) The previous 6 – 12 month period prior to the implementation of the collaborative primary maternity care team
- c) Other comparisons as determined by the team and/or provincial government

Summary

Evaluating costs requires close cooperation among team members and the provincial governments that are providing the funding. As such, there are anticipated varying perspectives on data needs, primary and secondary data availability, and resource commitment to conducting an examination of the cost implications of the model, depending on the context in which they are developed and implemented. It is hoped that the material in this module provides sufficient information for the collaborative models and other key stakeholders (i.e., funders) to examine the cost implications of the new model of care.

Recommended Website Resources

http://whqlibdoc.who.int/hq/2000/WHO_MSD_MSB_00.2i.pdf

Provides a good introduction on economic evaluations

http://www.ihe.se/english/publications/what_measurements.htm

Provides summary comments on an extensive overview of economic evaluations.

<http://www.cche.net/usersguides/economic.asp>

Reviews approaches used in conducting specific economic evaluations. Cites numerous research.

<http://dissertations.ub.rug.nl/FILES/faculties/medicine/1999/p.v.d.wijk/c8.pdf>

Examines the roles and problems associated with economic evaluations

file:///C:/Documents%20and%20Settings/Malcolm/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/2J6PUHQD/Dr_Gafni%5B1%5D.ppt#256,1,ECONOMIC EVALUATIONS OF PROGRAMS Slideshow presentation on economic evaluation by Dr. Amiram Gafni, McMaster University

Recommended Reading

Drummond, MF, O'Brien, B, Stoddart, G & Torrance, GW. *Methods for the Economic Evaluation of Health Care Programmes*. Oxford Medical Publication: Oxford, 1997.