

Issues in the Costing of Large Projects in Health and Healthcare

Centre for Health Economics Research and Evaluation

June 2008



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SHPN (CHA) 080269

ISBN 978 1 74187 275 0

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February 2009

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Acknowledgements

The authors would like to acknowledge the advice and assistance of the following:

Andrew Milat	Manager, Strategic Research and Development Branch, Centre for Health Advancement, NSW Health
Elizabeth Develin	Director, Centre for Health Advancement, NSW Health
Robyn Newson	Senior Policy Officer, Strategic Research and Development Branch Centre for Health Advancement
Sarah Thackway	Director, Centre Epidemiology and Research, NSW Health
Lesley King	Executive Officer, NSW Centre for Overweight and Obesity,
Louise Farrell	Munch and Move Coordinator, NSW Prevention Research Centres
Luke Wolfenden	Research Manager - Good for Kids. Good for Life, Hunter New England AHS

This work was undertaken as part of the Costing for Health Economic Evaluation Program (CHEEP). NSW Health and the Cancer Institute have contracted the Centre for Health Economics Research and Evaluation (CHERE), through the SAX Institute, to develop CHEEP. The objectives of CHEEP are to:

- Provide evidence regarding the cost and consequences of health interventions, services and systems that is useful to NSW Health and the Cancer Institute NSW,
- Develop a model for defining and producing policy relevant deliverables for these stakeholders;
- Develop and report new methods for studying, and knowledge regarding, the costs and consequences of health interventions, services and systems in the course of its work for the stakeholders; and
- Build skills and capacity for undertaking these types of analyses in New South Wales.

Terms and Definitions Used in This How to Guide

Activity	An activity is a specific task, process or function that converts inputs (resources) into outputs (goods or services).
Activity based costing	Activity Based Costing (ABC) is a costing method used to assign costs associated with inputs to the production of goods and/or services (outputs). Outputs are measured in unit costs, which is the average cost of producing one unit of a good or service and may be goods, services, activities etc. ABC can be used with either the top-down or bottom-up approach to estimating unit costs.
Bottom-up approach	The bottom-up approach builds standard unit costs based on standard level of inputs and standard input prices, rather than using actual levels of inputs or prices. This approach is a forward looking costing method as the development of standard unit costs considers current/best practice, activities, cost drivers and service level specifications.
Cost driver	A cost driver is a factor that has an effect on costs (either immediately or over a given time span), e.g. the level of activity or the volume of goods produced or services rendered.
Costing	Costing is the process used for determining the cost of performing a given activity, e.g. manufacturing a good, rendering a service or performing a function.
Direct Cost	A direct cost is a cost that is easily traceable to a particular cost object.
Economic Cost	Economic costs include all financial costs, but also include non-financial costs e.g. the external costs to the community of increased crime.
Economies of Scale	Economies of scale occur as unit costs decrease in response to increases in the level of activity or output of an organisation.
Effective service hours	Effective service hours are the working hours for direct client activities excluding weekends, public holidays, all types of leave, training and non client related activities.
Establishment Cost	An establishment cost is an up-front capital and/or operating cost that is incurred to set up the provision of a new good or service or expand the provision of an existing one. Establishment costs may be classified as direct or indirect costs.
Full time equivalent	A statistic representing the number of full-time employees that could have been employed if the reported number of hours worked by part-time employees had been worked by full-time employees. This statistic is calculated by dividing the "part-time hours paid" by the standard number of hours for full-time employees and then adding the result to the number of full-time employees.
Indirect Cost	An indirect cost is a cost that is not easily traceable to a particular cost object, generally because the cost is associated with more than one cost object.
Input	An input is a resource used in an activity to produce a good or service, e.g. labour, materials and capital.
Output	An output is a final good or service that is provided for external consumption, e.g. to children, young people, families and/or communities.
Overhead cost	An overhead cost is a type of indirect cost associated with support services that contribute to the operation of goods or service provider. These costs can be significant and need to be allocated to cost objects.
Primary costs	The primary costs associated with program management are related to the client support caseworker labour located at a central location and their associated costs, including motor vehicle, IT communications and other overheads.

Introduction

This document is a guide for all health promotion and public health experts. It looks at a range of issues facing professionals with relatively little experience in the area of costing, identifying what questions they need to ask, what they need to consider, and how they should evaluate costing reports.

Some questions this document seeks to address are:

- How should an activity be defined?
- Which costs should be considered in a costing report?
- How should these costs be collected?
- How should these costs be developed to produce a transparent and useful indication of the costs of an activity?
- How should a costing report deal with uncertainty?
- If there is any issue regarding how to evaluate or construct a costing report, what sources of information are likely to be most helpful?

Costing in terms of public health and health promotion programs is the collection of financial resource use associated with an intervention or a program. Costing of a program or intervention is important for two reasons. The first, which can be loosely termed the accounting and planning reason, is that it is important to be able to identify where resources are flowing within a program and whether the various arms are receiving money as was intended in the original plan. The second reason is that accurate and transparent costing analysis plays a significant role in economic evaluation of health and healthcare interventions. The way the analysis is undertaken depends largely on the reason that a costing exercise is being undertaken. The type of analysis may differ according to the depth of the analysis, and the costs that are included in the final figures. The work presented here focuses primarily on the second of these issues (ie costing required for inclusion in an economic evaluation). It will highlight the key areas of divergence between the economic evaluation side of costing and the accountancy side.

This document aims to provide guidance in costing programs and interventions for public health and health

promotion professionals and health sector managers.

It aims to:

- Outline the different kinds of costs a program might incur and how they might be estimated accurately.
- Illustrate the implication of choice of perspective when costing programs.
- Identify how accurate costing is an important aspect of economic evaluation, the aim of which is to identify the best use of scarce societal resources.

The structure of the report is as follows:

1. The issue of direct versus indirect costs is considered, as well as the nature of costs (fixed, variable and combinations of the two).
2. Costing approaches to develop unit costs are considered. Top-down and bottom-up methods are discussed and contrasted, identifying the relative merits of the two.
3. The role of costing as part of economic evaluation of programs is discussed. Specifically, how accuracy in the collection and interpretation of cost data is important in balancing competing demands for limited financial resources. This section deals with the important issue of perspective.
4. A schematic representation of how to estimate unit costs for a program is provided. While different programs will use different methods to obtain costings based on the availability of data and the configuration of the service or program, this section aims to provide a system for costing which is applicable across health promotion, public health and clinical interventions and programs.
5. This approach is then illustrated with an example: costing the National Cervical Cancer Screening Program.
6. A means of evaluating the quality of proposed and existing costing reports is provided using a series of questions.
7. Finally, some ideas about undertaking data collection for large scale public health or health promotion programs, and a sample data collection sheet are provided.

Cost Classifications

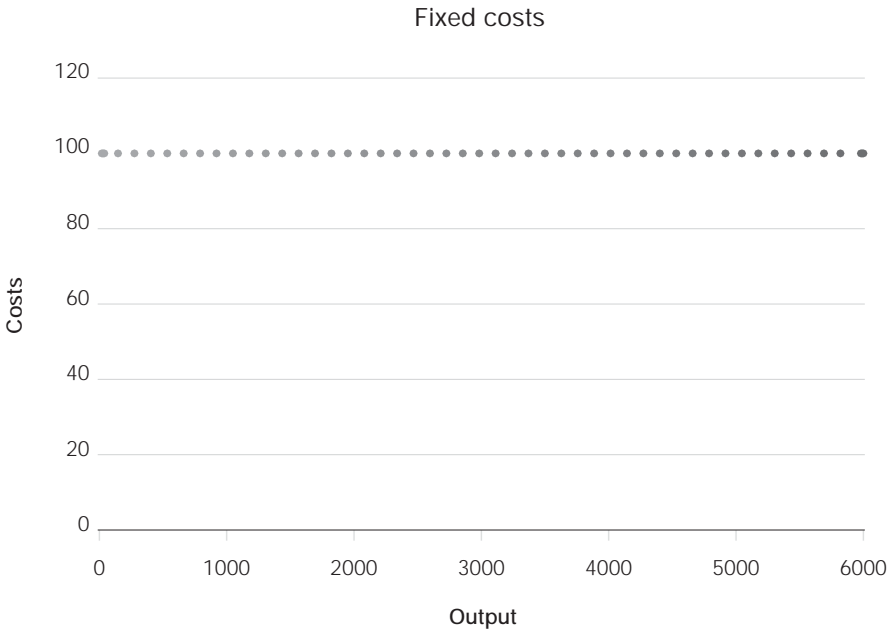
To track and compare types of costs, either over time or between different organisations, it is essential to have a good understanding of how costs should be classified. This section will outline the most common dimensions along which costs can be broken down and analysed.

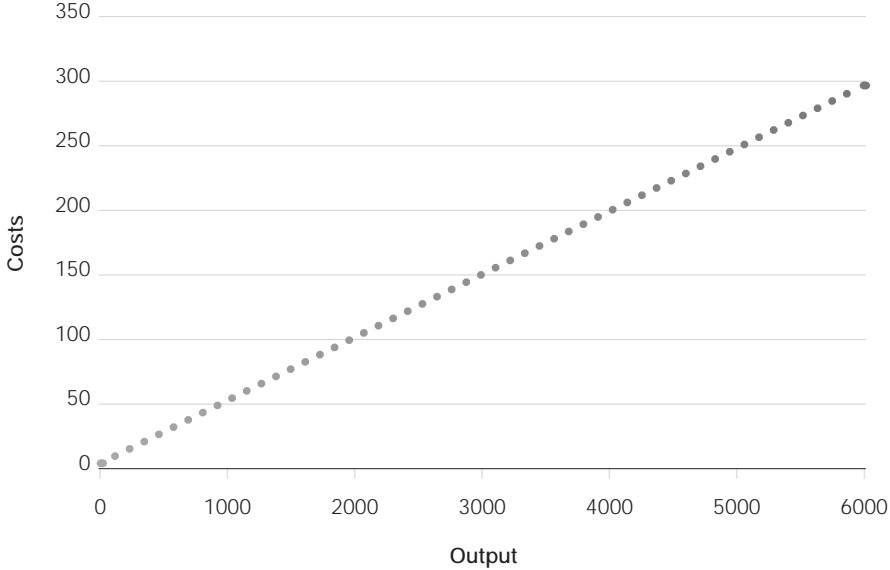
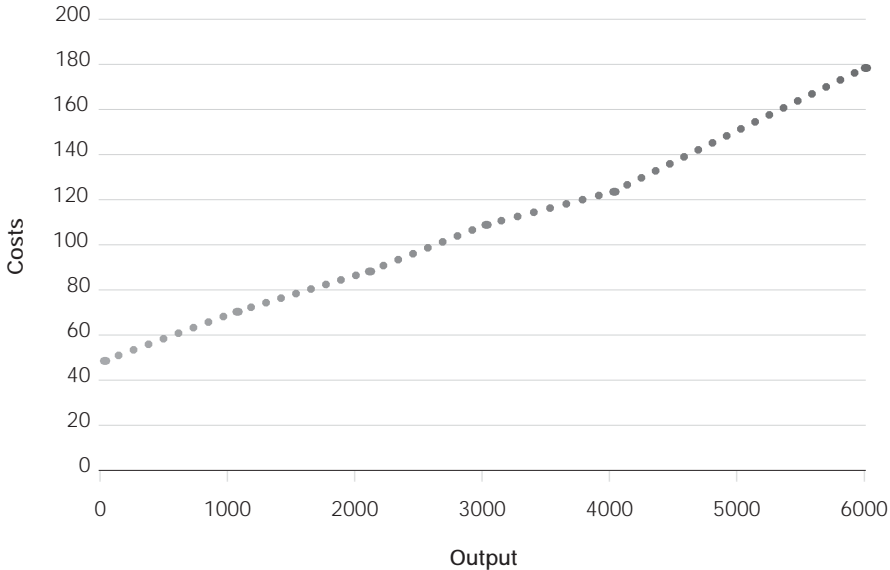
Direct costs and indirect costs

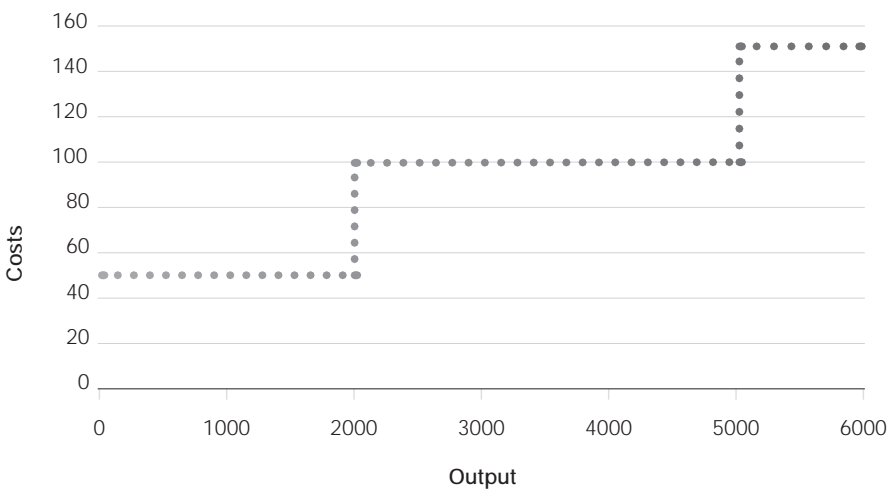
<i>Direct costs</i>	A direct cost is a cost that is easily traceable to a particular cost object. For example, the salary of a health professional can be traced to the program they are employed on. If the individual works across programs, the direct cost can be broken down in proportion to the amount of time the person spends on the programs.
<i>Indirect costs</i>	An indirect cost is one which is not easily traceable to a particular cost object. An example of this might be meeting costs incurred by individuals from various projects at different points in time.

Clearly, there is a grey area between direct and indirect costs since many indirect costs can be transformed into direct costs if investigation is undertaken. The person responsible for allocating costs to direct or indirect cost categories must therefore consider the value in investigating and apportioning indirect costs more accurately. It should be noted that, depending on the budget under consideration, a cost can be both direct and indirect. An example of this might be the cost of a Human Resources manager supporting a Public Health program. This cost is a direct cost for the Human Resources budget, but an indirect cost for each of the Public Health programs the individual supports.

Fixed costs and variable costs

<i>Fixed costs</i>	<p>A fixed cost is one which does not change in response to the level of activity in the short term. For example, office rental is a fixed cost for a Public Health program as, if the program increases its activities by 50%, the spending on office space remains constant. In the longer-run, the number of staff required to support the increase in activity may lead to a higher use of office space (and therefore make it a non-fixed cost) but, in the short-run, it is likely to remain constant.</p> 
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<p>Variable costs</p>	<p>A variable cost is one which does change as activity changes in the short run. If a Public Health program involves providing information packs to children, and, as a result of program expansion, the supply of information packs increases by 50%, the total cost of supplying information packs will increase by 50%.</p> <p style="text-align: center;">Variable costs</p>  <p>As with the distinction between direct and indirect costs, there is uncertainty regarding whether certain costs are truly fixed or variable. There is a class in the middle known as semi-fixed costs, a subset of which is step costs.</p>
<p>Semi-fixed costs</p>	<p>A semi-fixed cost has both fixed and variable components. In the previous example it was suggested that providing information packs to children was a variable cost. However, if the cost of the entire process of supplying these packs to children includes the salaries of the Public Health professional/s involved and the office space and creative input used in designing the packs, then the cost associated with the supply of the information packs is semi-fixed. A subset of semi-fixed costs is step costs. These are also made up of fixed and variable costs, but the total cost does not increase smoothly as activity increases. Rather, it is constant as activity increases over a particular range, and then increases dramatically at a point and then remains constant as activity continues to increase. Using the information pack example, a step cost would be transport costs for Public Health professionals involved in the Program. If they travel by car, a maximum of four can fit in a car. As activity increases to a point at which a fifth member is needed, the travel costs will increase significantly (they will approximately double) as a second car will be required.</p> <p style="text-align: center;">Semi-fixed costs</p> 

<p>Semi-fixed costs</p>	<p style="text-align: center;">Step costs</p>  <p>Some other cost terms which are useful in describing the flow of resources in a large-scale Public Health Program are establishment costs and full cost attribution.</p>
<p>Establishment costs</p>	<p>An establishment cost is one that is incurred in setting up the provision of a new Program or component of a Program (or an expansion of something already in place). These costs are one-off costs, and can be either direct or indirect costs.</p>
<p>Full cost attribution</p>	<p>Full cost attribution is the identification of all costs incurred by a Program on a cost object, including both direct and indirect costs.</p>

Unit costs

A unit cost is the cost of providing one unit of a particular product. This may be an entire Program, or only a component. In a Public Health information provision program, this might refer to a unit cost of a television campaign, or to the unit cost of supplying a school with healthy-eating guidance. Unit costs allow the benchmarking of costs across services, and therefore can be used in planning future expenditure. If it is known how much a component of a Public Health intervention cost in one program, that will help to determine how much it would cost in another. However, it is crucial that unit costs are calculated in the context of constant quality of the intervention under consideration as simple unit cost comparison can hide differences in the quality of the intervention.

For example, if an information provision intervention can be provided face-to-face, or electronically, the unit cost will differ. However, it is incorrect to automatically identify the more resource intensive approach as being relatively expensive as it does not account for the possibility that one approach may be more successful.

How do we estimate unit costs?

Top-down vs. bottom-up

There are two major approaches to generating unit costs. These are described here, and then contrasted below.

<p>Top-down approach</p>	<p>This approach brings together all relevant expenditure at the agency level (or program level), and divides it by units of activity. So, if a Public Health program has a budget of \$500,000, and is provided to cover a population of 200,000, the unit cost of providing the program to each person is $\\$500,000 / 200,000 = \\2.50. Top-down costing requires historical information or good quality budgetary information. The advantage of this approach is that it does not require the collection of financial information which exactly mirrors service models.</p>
<p>Bottom-up approach</p>	<p>This approach uses standard levels of inputs (for example staff numbers) and combines it with the standard costs of providing these inputs by multiplying them together. The advantage of this approach is that it encourages understanding of the activities and services being costed.</p>

In principle, the top-down approach and bottom-up approach should lead to the same answer, particularly if full cost attribution is available. However, it often occurs that the bottom-up cost approach leads to a lower unit cost than the top-down approach as it is difficult to capture at an aggregate level all of the resources that are used in developing and implementing a Public Health program.

Which Approach is Preferred?

Neither approach is intrinsically better than the other. Top-down costing is likely to provide more accurate costing details regarding the total resource use of an activity. On the other hand, bottom-up costing is likely to more accurately represent the cost per unit of activity. The choice of which tool to adopt is dependent on the needs of the project, the availability of detailed micro-level data and the availability of resources needed to analyse these data. The general rule is likely to be this: If you are more interested in the costs of a program as a whole, and are breaking it down into components for the purpose of further investigation only, top-down costing is likely to be preferable. However, if you are more interested in the costs of components of a program, bottom-up costing is likely to be preferable.

One additional advantage of bottom-up costing is that it is more useful when adjusting a program for a different population (for example if a school-based health promotion activity was extended to a different age group or a different geographic area). If the individual contribution of different areas of costs can be identified (which is the case when using bottom-up costing), it is relatively straightforward to identify what would happen to the total cost of the activity if certain aspects of it were to change in tailoring it for the new population group.

A flowchart for the estimation of unit costs is presented on the next page, followed by a practical example in a healthcare setting. The principles adopted in public health interventions are comparable with those of health promotion and clinical interventions.

The Role of Costing in Economic Evaluation

Economic evaluation in Public Health is designed to assist decision-makers in allocating scarce resources between competing programs. The simplified aim is to provide the best outcome within a fixed budget. Economic evaluation in health and healthcare contrasts the costs and outcomes of an intervention, service or program relative to a control. The intention of economic evaluation is to maximise health outcome for a fixed budget (or to minimise expenditure in achieving a desired level of health gain). The major tool for this is the Incremental Cost Effectiveness Ratio (ICER). To generate an ICER for an intervention, service or program relative to a control, the following formula is used:

$$\text{ICER} = \frac{\text{Cost (Intervention)} - \text{Cost (Control)}}{\text{Outcome (Intervention)} - \text{Outcome (Control)}}$$

The intuition behind this formula is straightforward. As shown in Table 1, if an intervention is less expensive and more effective than a control, the ICER is negative and this is termed dominance. That is, the intervention dominates the control. In the more usual case, where the intervention is both more effective and more expensive than the control, the ICER presents the cost for each extra unit of outcome provided. The aim of providing such information is to inform the decision-making process. Using such information may assist decisions about whether the additional resources required for the proposed intervention or program could be better allocated elsewhere.

Table 1: Decision making Using the ICER

		<i>Outcome</i>	
		Intervention Better	Control Better
<i>Cost</i>	Intervention More Expensive	Does extra outcome justify cost? (positive ICER)	Intervention is dominated by control (negative ICER)
	Control More Expensive	Intervention dominates control (negative ICER)	Does extra outcome justify cost? (positive ICER)

The role of accurate costing in this process is clear.

However, it is important to raise the issue of perspective of the costing analysis, and to investigate the effect of choosing one perspective in preference to another. It is uncertain which components of cost should be included in this ICER formula. While it is clear that the cost of a drug or of healthcare provider time should be included, there remains methodological discussion regarding whether other costs which might be attributed to the provision of an intervention should be included. For example, if a member of the public incurs costs through being involved in the program (e.g. transport costs), this cost is incurred because of the program but does not accrue to the decision-maker. This is largely a question of perspective. Many economic evaluations take a narrow health sector perspective, in which only costs accruing to the health sector are considered. This excludes a variety of costs which might be considered important, such as productivity costs (does the program allow people to be more productive in the economy?), person-level costs (e.g. does the person spend a significant amount of time and money in receiving an intervention or attending a program), other government costs (e.g. does this program change expenditure in education?). The importance of the issue of perspective is two-fold. Firstly, costs incurred outside the health sector can often be significant, and a reduction in them might form a key output for the evaluation of a health program. Secondly, an inconsistent approach to the perspective employed might lead to erroneous conclusions regarding the relative costs of components of a program, the changing costs of a component over time, or both.

Table 2: Cost Inclusion Under Different Perspectives

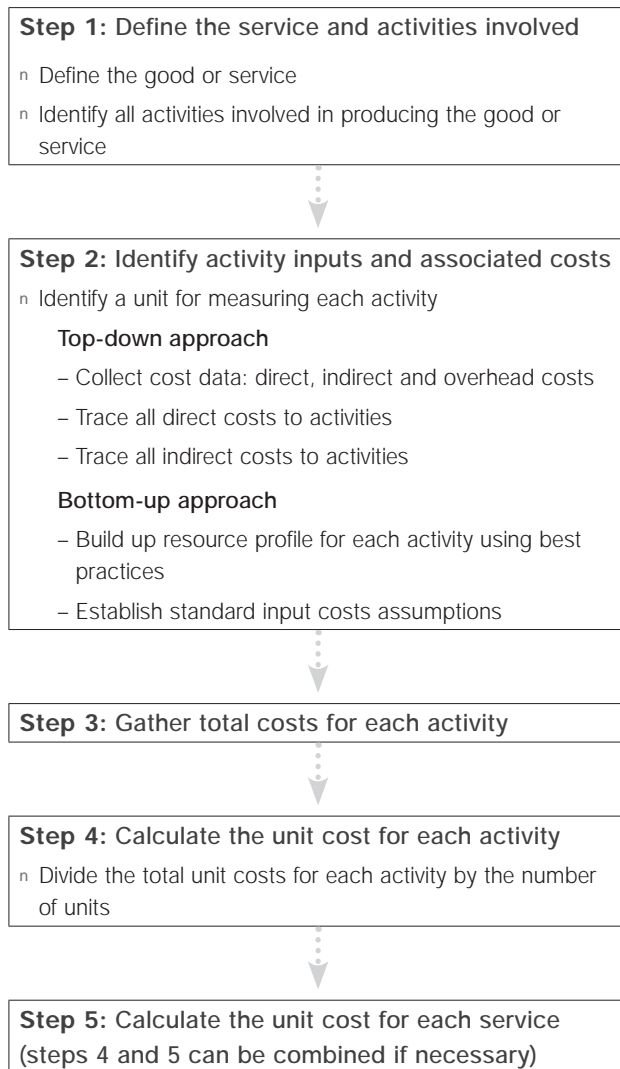
<i>Cost</i>	Societal perspective	Health sector perspective	Accountancy perspective
Public Health program material	Yes	Yes	Yes
Public Health professional time	Yes	Yes	Yes
Future costs to the health service	Yes	Yes	Probably not
The cost of individuals travelling to be involved in the program	Yes	No	No

The key advantage of using a societal perspective is that it includes all costs which are incurred, irrespective of where they occur. This prevents a situation occurring in which a program is recommended on the basis of cost-effectiveness, but appears cost-effective only because the costs are shifted from (for example) the program to the people participating in the program.

The counterpoint is noted by James Raftery, who describes the difficulty in fully presenting the societal perspective as there is a potentially large set of costs which need to be considered (Raftery, 2000). Therefore, the results of a costing analysis attempting to use a societal perspective will necessarily be highly sensitive to the components of societal cost considered.

Steps in Producing Unit Costs

Figure 1: Constructing Unit Costs



The Example of the National Cervical Cancer Screening Program (NCSP)

This section builds on the schematic diagram presented previously, outlining how to go about costing a program in reality. Some of the content below is based on an analysis undertaken within CHERE (Haas, Shanahan, & Anderson, 2007).

Background

The Australian NCSP, a joint program of the Commonwealth and State/Territory governments, commenced in 1991. The Program operates on the premise that organised regular screening using Pap tests is an effective means of reducing morbidity and mortality associated with cervical cancer. The program aims to achieve these outcomes through encouraging all States/Territories to meet agreed screening targets among eligible women (all women aged 20-69 years). The program was established against a background of existing service delivery with general practitioners providing most Pap tests. As a consequence, the focus of the program was on changing existing service delivery patterns and women's behaviour rather than establishing new health care services. However, some aspects of the screening program were the direct result of specific funding provided to the NCSP.

A major component of the NCSP is the organisation and management within each State and Territory of a Pap Test Register (PTR). The role of the PTR is to record and monitor the outcome of Pap tests, ensure the appropriate follow-up occurs, remind women when their next Pap test is due and monitor the quality and standard of pathology services. Other aspects of the NCSP such as undertaking health promotion campaigns, establishment of standards and performance measures for the PTRs and for pathology laboratories are also directly funded by the NCSP.

Following the flow-chart produced previously, the first step is to define the service and activity involved:

Step 1: Define the service and activities involved

- Define the good or service
- Identify all activities involved in producing the good or service

To define the program, the following diagrammatic description of the program was devised. Through a description of the individual's pathway through the screening program, it is possible to identify the components likely to include costs (i.e. recruitment, education and communication, Pap test taking and reading, program co-ordination, quality assurance and monitoring, and follow-up).

A number of assumptions have been made in defining the activity. For example, it is clear that costs to the women have not been included. Therefore, time off work, or travel costs are not considered. As discussed in the section on perspective, this is a defensible position to take but must be made explicit in the costing analysis.

Step 2: Identify activity inputs and associated costs

- Identify a unit for measuring each activity

Top-down approach

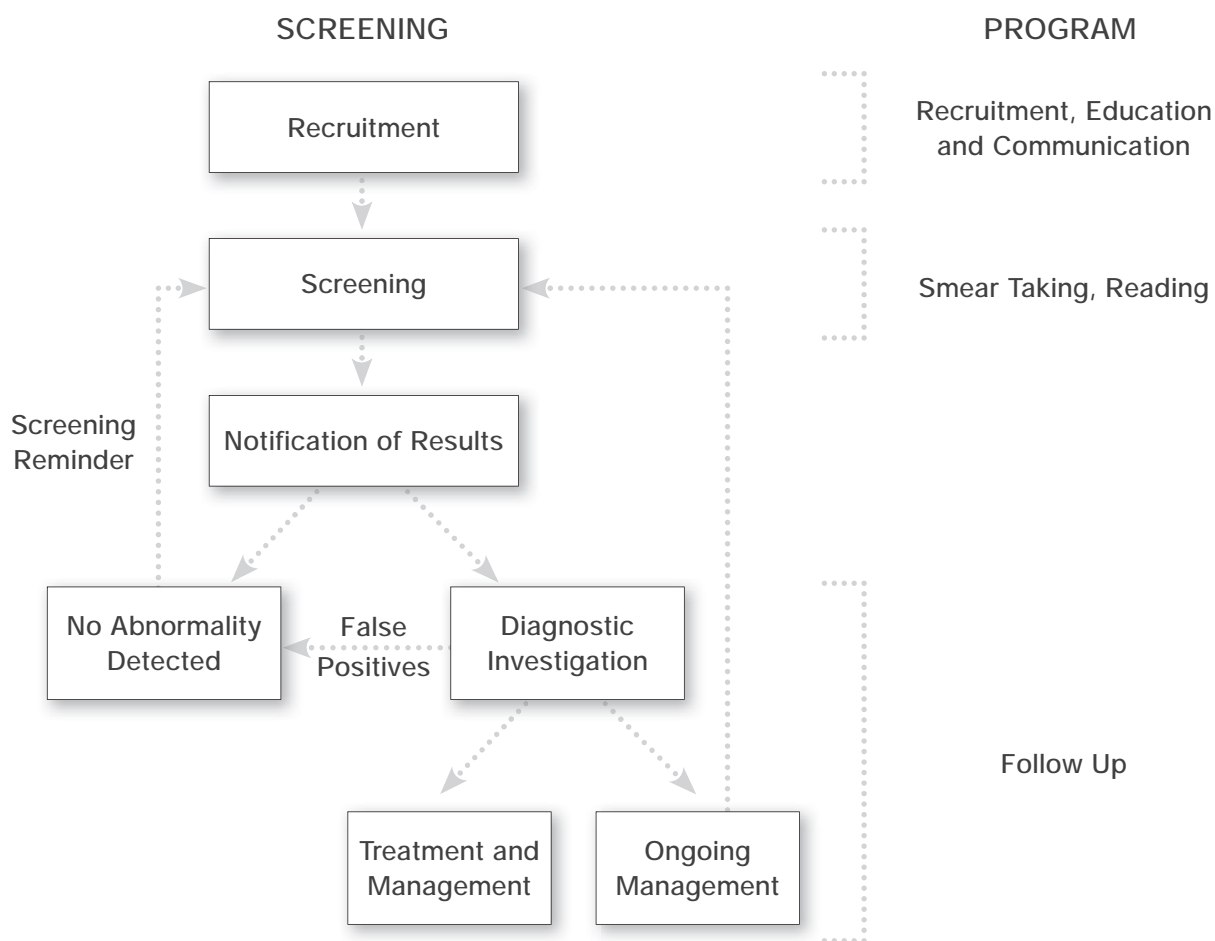
- Collect cost data: direct, indirect and overhead costs
- Trace all direct costs to activities
- Trace all indirect costs to activities

Bottom-up approach

- Build up resource profile for each activity using best practices
- Establish standard input costs assumptions

Step 2 involves identifying the types of costs accruing in the program. Some were mainly fixed costs (such as quality assurance), while some were variable (such as Pap test costs). This means that an increase in the size of the program will lead to an approximately proportional increase in the cost of Pap test, but a much less than proportional (or even zero) increase in the cost of quality assurance.

Due to data limitations, in this example, a combination of top-down and bottom-up costing was adopted. For example, the cost of committee support and project monitoring was costed using a top-down methodology, with the aggregate figure being divided by the total number of participating women to provide a unit cost. On the other hand, medical expenses covered by the Medical Benefits Schedule (MBS) were estimated using a bottom-up approach. The cost per expense item was



known from the MBS listing, and this was multiplied by the number of times each expense appeared within Health Insurance Commission (HIC) MBS claims data.

Step 3: Gather total costs for each activity

As shown in Table 3, the total costs were then collected using either bottom-up or top-down methods. It is important at this stage to identify all assumptions made in fitting sometimes imperfect data into the form required to generate an accurate costing estimate.

Step 4: Calculate the unit cost for each activity
 n Divide the total unit costs for each activity by the number of units

Step 5: Calculate the unit cost for each service (step 4 and 5 can be combined if necessary)

Steps 4 and 5 were not undertaken by Haas and colleagues. However, they reported the total cost of the program (i.e. \$122 Million in 1997, \$118 Million in 1998), and this can be combined with information from the Australian Institute of Health and Welfare (AIHW) (Australian Institute of Health and Welfare, 2000) to provide a cost per screened woman. The AIHW figures suggest that, over the two years, 2,721,650 women were screened, suggesting a unit cost of \$240 Million / 2.721 Million = \$88. This figure can easily be broken down by activity (e.g. the amount per woman spent on education, recruitment etc), and a good quality costing analysis would allow this breakdown to take place. Table 3, providing the costs of the NCSP is provided over:

Table 3: Costs of the NCSP

Costs to Government	Units	Annual expenditure \$'000s	Annual expenditure \$'000s	Estimation assumptions and other comments
Committee support/Projects monitoring	N/A	315		Maximum level of detail that could be supplied
Salaries and Administration	N/A	321		
Communication activities	N/A	186		
Total health services coordination – DOHA			822	A
Coordination of the program	N/A	1,802		From 7 of the 8 States and Territories
Monitoring and evaluation	N/A	364		From 7 of the 8 States and Territories
Registry functions	N/A	4,367		From all of the States and Territories
Education	N/A	970		Only available from 3 States and Territories
Recruitment of women	N/A	3,250		From all of the States and Territories
Other	N/A	1,710		From 5 of the 8 States and Territories
Total health services coordination (State/Territory)			12,463	B
GP/Specialist smear-taking	1,616,656 + 311,040 = 1,927,696 ¹	36,199		Annual counts of total smears ¹ (in private and public laboratories respectively) multiplied by weighted GP/specialist fee ² (= \$28.89), and adjusted for multi-cause attendances (estimated that for every 20 consultations including a Pap smear, 13 (65%) consultation fees could be attributed to the taking of the Pap smear ³).
Pathology (Cytology) examination for smears	1,927,676 ¹	30,313		Counts of total smears ¹ , multiplied by pathology fee (85% of \$18.50 MBS fee) of \$15.73
Patient episode initiation (PEI) fee claims	1,266,623	8,613		Counts of the number of PEI fees claimed ¹ , multiplied by the PEI fee (85% of \$8 MBS fee) of \$6.80
Total cost of Pap smears		75,125		
Medical procedures	various MBS items	9,169		Summing the counts of diagnostic services provided ¹ , multiplied by 85% of the relevant MBS fee
Specialist consultations	160,317	8,837		Number of different medical procedures carried out ¹ , multiplied by fee specialist for a specialist consultation of \$55.12 (= 85% of \$64.85)
Histopathology tests	various MBS items	3,054		Number of examinations of three different levels of complexity/biopsy sample type ¹ , multiplied by 85% of the relevant MBS fee
Hospital costs	various MBS items	9,257		Hospital and anaesthesia costs ¹ by MBS code or DRG (excluding expenditures relating to chemotherapy, radiotherapy and palliative care)
Total diagnosis and management		30,318		
Total health services provision			105,443,000	C
Total cost of the NCSP			118,729,000	(= A + B + C)

Sources:

1 Health Insurance Commission (HIC) MBS claims data

2 AIHW internal document

3 BEACH Study (Bettering the Evaluation And Care of Health, rolling survey of general practice activity)

Key facets of costing

Graves et al. identified four categories of questions that should be addressed for costing analysis to be transparent and thorough. (Graves, Walker, Raine, Hutchings, & Roberts, 2002) Therefore, in undertaking or in evaluating a costing, it is essential that these questions can be answered and the answers justified. The categories developed by Graves et al., with their constituent questions are presented below.

Category 1: General Costing Issues

Question 1: 'Was the perspective of the cost analysis stated?'

Question 2: 'Was the perspective of the cost analysis justified?'

Question 3: 'If the response to Question 1 was 'Yes', were cost data included that satisfied the stated perspective?'

Question 4: 'Did the authors make a distinction between short and long run costs?'

These questions target the transparency of the costing analysis. Due to the methodological issues discussed previously, it is uncertain which perspective is most appropriate. However, it is clear that any costing analysis should state a perspective, and follow the implicit inclusion / exclusion criteria.

Category 2: Methods Used to Determine the Quantities of Resources

Question 5: 'Were methods given for estimating the quantities of resources (that reflected variable costs) used per participant?'

Question 6: 'Were methods given for allocating the time of human resources (semi-fixed costs) between participants?'

Question 7: 'If relevant, were methods given for allocating the use of other resources (fixed costs) between participants?'

These questions are most concerned with the complete allocation of resources to the costing analysis. Thus, costing analyses should present all inputs and allocate them appropriately between participants.

Category 3: Methods Used to Determine the Value of Resources Consumed

Question 8: 'Were methods given for the estimation of any prices, unit costs or charges?'

Question 9: 'Were data other than program charges, or charges developed by third party payers used?'

Question 9 is important as it deals with the issue of opportunity cost. Opportunity cost, the preferred cost in economic evaluation, is the benefit foregone by choosing a particular approach compared with the next best alternative.

Category 4: Reporting of Data

Question 10: 'Was the year(s) reported in which the cost data were collected?'

Question 11: 'Was the base cost year reported?'

Question 12: 'Were adjustments made for costs incurred in different time periods?'

All costs within a costing analysis for an economic evaluation need to be estimated in a common base year. This is important as prices change (generally upwards) over time so using a relatively old cost figure for an item will underestimate the true cost. The adjustments referred to in Question 12 refer to both adjusting for inflation, and for time preference. Time preference (often called "discounting") is an important concept in economic evaluation as it reflects the relative importance of costs and outcomes that accrue sooner. For a fuller discussion of this issue, see Cairns.(Cairns, 2001)

Some lessons from existing costing analyses

In costing a large scale public health or health promotion program, it is usually preferable for the data collection of costs to occur in parallel with the measurement of outcomes (intermediate or final). With regard to how this is done, it is necessary to consider the specific nature of each program and the reason for collecting such information (as has been discussed previously). However, some general principles are applicable. The first is that it is important that cost data collection is considered at an early stage in the development of the program. Routine collection of cost-related data ensures that the developmental nature of the program in the early stages does not impede the accuracy of records in what is liable to be a large area of expense.

Secondly, for large scale programs, it is important to determine a clear pathway for the flow of data. For example, each team member should be aware of their responsibilities in relation to the collection of cost data, and to know to whom it should be sent and at what intervals. The method of data collection must be tailored to the requirements of the individual program, but an example of a data collection table is given as Appendix 1.

Thirdly, it is usually preferable to have one central data collection agent. The responsibilities of this agent are to ensure that all data is in the appropriate format, has considered costs using the correct perspective, and that data have been collected from all participants (either directly or indirectly).

References

- Australian Institute of Health and Welfare. (2000). *Cervical Screening in Australia 1997-98*. Canberra: Australian Institute of Health and Welfare.
- Cairns, J. (2001). Discounting in economic evaluation. In M. Drummond & A. McGuire (Eds.), *Economic Evaluation in Health Care*. Oxford: OHE.
- Graves, N., Walker, D., Raine, R., Hutchings, A., & Roberts, J. A. (2002). Cost data for individual patients included in clinical studies: no amount of statistical analysis can compensate for inadequate costing methods. *Health Econ*, 11(8), 735-739.
- Haas, M., Shanahan, M., & Anderson, R. (2007). *Assessing the costs of organised health programs: the case of the National Cervical Screening Program*. Sydney: Centre for Health Economics Research and Evaluation.
- Raftery, J. (2000). Costing in economic evaluation. *Bmj*, 320(7249), 1597.

Appendix 1: Data Collection for Large Scale Programs

Community-based Obesity Prevention Program

Program managers' reporting template

Report date:	Period covered (time since last meeting):
Stream:	
Report completed by:	
Contact number:	
If further clarification is required, please contact XXX	

Key tasks, milestones and process indicators

With reference to your stream's program plan, what key tasks, milestones and process indicators have been completed or were in progress during this period. For each, indicate whether completed or in progress.

Changes or delays to your stream's program plan during this reporting period

Key meetings / presentations / dissemination

Outline any key meetings, presentations or communications that occurred during this reporting period.

Meeting/ presentation	Audience/Target group	Approx no. in attendance/ reach	Purpose

Future tasks and assistance required

Please outline any tasks, major actions or promotions that are scheduled for the next reporting period, and any assistance, advice or areas for collaboration that your stream requires.

Tasks, major actions or promotions	Assistance required

Budgets (complete March, June, September and December meetings)

Outline how actual expenditure compares to what was forecast in your stream's budget, and if there are any actual or anticipated underspends or overspends. For each, indicate if actual or anticipated.

Data Collection for the Economic Evaluation

If further clarification is required, please contact XXX.

Staff Costs

Please complete the following table listing the staff employed as part of the Good for Kids programme. Where possible this should include staff employed by other agencies but involved with Good for Kids work. *A hypothetical example is included.*

Staff Member	Position Name	Whole Time Equiv. (WTE, e.g. if full-time, WTE = 1)	Percentage of time spent on data collection related tasks

Other Costs

Please complete this table with any large non-staff costs incurred in the past month. This will include the cost of equipment employed in the implementation of the Good for Kids program, and any non-staff related overheads. *Some (hypothetical) examples are included.* If you have any questions about which costs should be included in this table, please contact XXX

Description of Cost	Cost (\$)	When was this cost incurred? (if the cost is on-going, please indicate how long you expect it to exist)

