



ACI NSW Agency
for Clinical
Innovation

Understanding the Use of Health Economics

An ACI Framework

A guide for ACI staff and networks on how health economics can support the development and implementation of ACI Models of Care and innovations.

Version 1.0, May 2013

AGENCY FOR CLINICAL INNOVATION

Level 4, Sage Building
67 Albert Avenue
Chatswood NSW 2067

PO Box 699
Chatswood NSW 2057
T +61 2 9464 4666 | F +61 2 9464 4728

E info@aci.health.nsw.gov.au | www.aci.health.nsw.gov.au

For further information contact:
Liz Hay, Health Economics & Analysis Manager
Email: liz.hay@aci.health.nsw.gov.au

Jennie Pares, Health Economist
Email: jennie.pares@aci.health.nsw.gov.au

Further copies of this publication can be obtained from the Agency for Clinical Innovation website at: www.aci.health.nsw.gov.au

Disclaimer: Content within this publication was accurate at the time of publication.

This work is copyright. It may be reproduced in whole or part for study or training purposes subject to the inclusion of an acknowledgment of the source. It may not be reproduced for commercial usage or sale. Reproduction for purposes other than those indicated above, requires written permission from the Agency for Clinical Innovation.

© Agency for Clinical Innovation 2013

HS13-032

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
1. INTRODUCTION	3
1.1 Purpose of this Guide	3
2. OBJECTIVES	4
3. PRINCIPLES	5
4. KEY HEALTH ECONOMICS FUNCTIONS	6
5. ROLE OF HEALTH ECONOMICS IN THE ACI MODEL OF CARE DEVELOPMENT PROCESS	7
6. HEALTH ECONOMIC TECHNIQUES	9
6.1 Key Health Economic techniques	9
6.2 Application of techniques	10
6.2.1 Types of Models of Care produced by ACI	10
6.3 Key Health Economic documents	11
6.3.1 Developing a Business as Usual Base Case (Base Case)	11
6.3.2 Developing an Economic Appraisal	11
6.3.3 Developing a Resourcing Strategy	12
6.3.4 Business Proposal	12
7. REFERENCES	13

ACKNOWLEDGEMENTS

The Health Economics and Analysis Team, ACI would like to acknowledge the following people for their contribution to the development of this paper:

Raj Verma, Director, Clinical Program Design and Implementation (CPDI)

James Dunne, Program Manager, Clinical Redesign Project Implementation, CPDI

Jennifer Parkin, Implementation Manager, CPDI

Ian Richards, Clinical Services Redesign Manager, Centre for Healthcare Redesign, CPDI

Chris Shipway, Director, Primary & Chronic Care

Frances Monypenny, Network Manager, Statewide Spinal Cord Injury Service

Daniel Comerford, Director, Acute Care

Mark Longworth, Network Manager, Statewide Stroke Services

Kate Lloyd, Acute Care Manager, Acute Care

Donald Maclellan, Director, Surgery, Anaesthetics and Critical Care (SACC)

Jill Morrow, Program Manager, SACC

Jan Steen, Manager Ophthalmology Statewide Service Network, SACC

Tracey Tay, ACI, Clinical Lead

Lea Kirkwood, Program Manager, Centre for Healthcare Redesign, CPDI

Sonia Wutzke, Research Manager, CPDI

Chris Ball, Implementation Manager, CPDI

Joanne Han, Data & Statistical Analyst, CPDI

Liz Hay, Manager, Health Economics & Analysis Team

Jennie Pares, Health Economist, Health Economics & Analysis Team

Sigrid Patterson, Evaluation Manager, Health Economics & Analysis Team

NSW Ministry of Health

Catherine Katz, A/Director, Inter-government & Funding Strategies & Integrated Care Branch

James Kemp, Manager, Financial Management & Efficiency Improvement

Jacqui Eldridge, Senior Financial Analyst, Financial Management & Efficiency Improvement

Neil Ackland, Project Manager, Financial Management & Efficiency Improvement

ABF Taskforce

Alfa D'Amato, Deputy Director, ABF Taskforce

Hirani Jayasinha, Manager, ABF Taskforce

1. INTRODUCTION

The Agency for Clinical Innovation (ACI) is responsible for developing and implementing clinician designed Models of Care (MoC) and other clinical innovations. These MoC reflect the needs of patients and are based on “best” evidence approaches to health service configuration and health care delivery.

The establishment of a formalised economic function within NSW Health is relatively new¹ and health economics is a key component of the new approach being undertaken by the ACI to designing, implementing and evaluating innovation in health care in NSW

The ACI aims to ensure its MoC achieve a balance between improving patient outcomes and ensuring efficient and effective use of limited health resources. Health economics can assist in achieving this balance by helping to answer the questions “*is this the right thing to invest in to create more good?*”, “*did we do the right thing?*” and “*is there a better alternative?*”

Utilisation of the ACI health economics function evidence can:

- inform the decision making process associated with developing options in MoC
- assist in deciding whether a project should be implemented
- improve resource allocation
- support the prioritisation of projects within the ACI
- enhance program evaluation

1.1 Purpose of this Guide

The use of economics by the ACI will result in improved decision making to support the delivery of sustainable, system-wide change proposals to drive continuous improvement in the NSW health system. This Guide has been prepared for all ACI staff including Network Chairs and members to:

- describe how the health economics function will be integrated into the work of the ACI
- ensure that the ACI networks have more complete quantitative and qualitative information available for the assessment of the innovative projects they develop
- articulate the objectives and principles of the ACI economics function and existing team
- show how the economics function supports the development and implementation of ACI models of care
- provide a high level explanation of key economic techniques and documents.

¹ The role of health economics was recently recognised by both the Special Commission of Inquiry Acute Care Services in NSW Public Hospitals (the Garling Report) and the Future Arrangements for Governance of NSW Health (Report of the Director-General).

2. OBJECTIVES

The ACI has a team² dedicated to providing specialist technical economic expertise and advice for ACI staff and networks to inform and support the development of innovative MoC and improvements in health service delivery.

Economics in the ACI will:

- Focus on determining the level of **efficiency and effectiveness** of proposed MoC as well as providing advice to guide the allocation of scarce health resources.
- Be used as a **decision making tool** to guide MoC development and implementation by providing a comparative analysis of:
 - quantifiable and qualitative costs and benefits to patients, clinicians, the health system, and other stakeholders of proposed innovations
 - the impact³ of changes to clinical practice, service configurations, settings of care on a system-wide, Local Health District (LHD) and where appropriate, facility basis.
- Assist in determining the relative efficiency and effectiveness of different projects to be undertaken by the ACI and on the **appropriate mix of projects** to be pursued.
- Provide evidence based information to LHDs and the Ministry of Health to assist in their funding decisions with the **dual aim of achieving a cost effective allocation of resources and the greatest benefit for patients**
- Support **advocacy of new health interventions** which are based on strong clinical evidence
- Inform **disinvestment** and resource reallocation decisions
- Be used as a tool to **assist in evaluating** the effectiveness and efficiency of implemented innovations.

² The Health Economics and Analysis Team which is part of the Clinical Design and Program Implementation portfolio.

³ The measure of impact will be determined with networks and clinicians but examples include changes to service utilisation (demand and supply levels, pattern of supply), cost, patient outcomes.

3. PRINCIPLES

Principles underpinning the way health economics will be undertaken in the ACI are:

- **Evidence Based:** Economic analysis will be:
 - consistent with NSW Treasury Guidelines for Economic Appraisals and Business Cases and other relevant policies
 - reflect national and international health economic best practices and guidelines
 - cognisant of contemporary funding and cost estimation approaches including Activity Based Funding.
- **Collaborative:** to ensure that the economics function supports the needs of clinicians and that information provided is valid, reliable and accepted, those involved in health economics will work closely with :
 - ACI network managers, clinicians and other ACI staff
 - other NSW Health staff including the Centre for Epidemiology & Evaluation (Ministry of Health), NSW ABF Taskforce, LHDs
 - external stakeholders (such as Medicare Locals).
- **Transparent:** Economic analysis will include details on:
 - the methodology and make explicit all assumptions used in the analysis
 - areas of uncertainty (around both internal and external validity) - these will be discussed fully with all stakeholders and be addressed through the use of sensitivity analysis (and, where data allows, statistical analysis)
 - any limitations of the approach and methods taken.
- **Sustainable:** Economic analysis will:
 - be undertaken prior to implementation of MoC. This will ensure that decisions to “implement” are based on the best available evidence
 - assess the effectiveness and efficiency of MoC including alternative options contained in the MoC or external to it
 - be one of the measures used to evaluate the sustainability of innovations developed by the ACI that have been implemented in the NSW Health system
 - be also used to highlight benefits and improvements beyond the traditional activity based measurements including the potential of integrating these measures as key performance indicators in the performance management framework for NSW.

4. KEY ECONOMICS FUNCTIONS

The economics team in the ACI provides expert technical skill and advice in:

- data and statistical analysis
- costing and financial analysis
- economic appraisals and evaluations
- developing resourcing strategies
- preparing business proposals
- evaluation⁴.

The **team** will undertake economic analysis of all new MoC and innovations developed by the ACI *prior to adoption* in NSW. In doing this the team will:

- Work with ACI networks from the beginning of the MoC development phase, *commencing at problem identification*. In doing so, health service utilisation and demand analyses will be undertaken in consultation with networks, to help define and refine the patient cohort and inform problem identification.
- Participate in relevant Steering and other Committees established to oversee the development of MoC and implementation projects delivered by the ACI. It is important that the clinical, economic, evaluation, program redesign and implementation information be *bought together* at the beginning of each ACI project to ensure a comprehensive approach.
- Undertake *economic appraisals* that will inform the diagnostic and program solution phases of MoC development by providing comparative analysis of cost and benefits of proposed models with continuing business as usual.
- Prepare *business proposals to support implementation*. This will include, where relevant, the development of resource strategies that identify resource allocation, reallocation and disinvestment decisions when developing implementation strategies for ACI models of care. These will be used by LHDs and the Ministry of Health to inform decision making for implementation.

The need for **external consultants** to conduct economic analysis for ACI projects will be identified by the team in consultation with the ACI Executive. Each project will be considered on a case by case basis however, the type of factors that will influence the consideration of external consultants will include:

- whether there is a conflict of interest for the ACI to undertake the economic work internally
- the magnitude of the project and the resource availability of the ACI health economic team
- projects that involve systematic change that result in substantial costs likely to be transferred from one state/ agency to another.

Economic evaluations to support MBS or PBS registrations or health technology approval applications are outside the scope of the ACI health economics function.

⁴ Evaluation is the subject of a separate framework.

5. ROLE OF HEALTH ECONOMICS IN THE ACI MOC DEVELOPMENT PROCESS

The core function of the economics team is to support ACI networks to develop and implement innovative MoC for the NSW health system. The ACI⁵ has developed an agreed approach to developing MoC and health economics plays a key role in each of the stages. While the detail of each of these phases is described separately in the ACI guide on developing MoC, Diagram 1 below describes the role of economics in each of the phases.

Diagram 1: ACI Model of Care development flow chart



⁵ See Model of Care document produced by the Clinical Redesign Project Implementation Team

Health economic analysis and documentation can assist at all stages of the MoC process. Health economics can help guide project managers as to what projects to undertake, the best way to undertake them and the range of ways to fund them. The following sections describe these techniques and documentation so that ACI staff and network clinicians have an understanding of how these can assist them during development and implementation of models of care.

6. HEALTH ECONOMIC TECHNIQUES AND DOCUMENTS

There are 3 key types of economic techniques that will be used within the ACI when conducting economic analyses – Cost Benefit Analysis; Cost Effectiveness Analysis and Cost Utility Analysis. These are traditional economic analyses that enable decision makers to compare the costs and benefits of pursuing different courses of action to continuing business as usual. Within the ACI, economic analysis will guide decision making by identifying the most effective and efficient use of resources that will achieve the greatest gain in patient outcome.

6.1 Key Health Economic techniques

Cost Benefit Analysis (CBA)

- the most comprehensive or complete form of the approaches
- is used where all the major benefits and costs of a project can be valued in monetary terms
- compares the costs and benefits of continuing “business as usual” to alternative ways of providing a service to address health issues.
- allows for comparison of interventions both within a project that address a particular health issue and between projects to determine the most effective and efficient projects.

Cost Effectiveness Analysis (CEA)

- used where the major benefits cannot be valued in money terms. Instead, the costs involved in achieving some a desired outcome are compared eg comparing models that reduce mortality rates due to stroke
- only allows a decision maker to compare options which may differ in the size of their effect on a given health outcome. The outcome is one dimensional only.

Cost Utility Analysis (CUA)

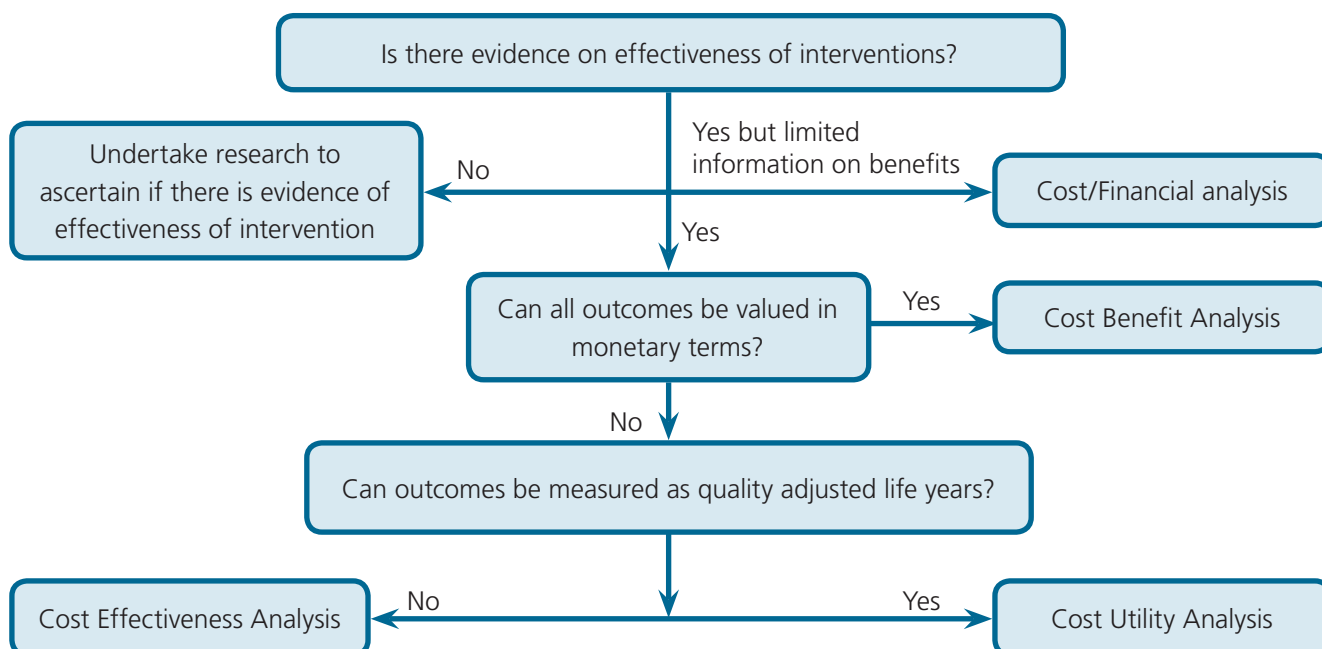
- is a form of CEA and enables comparison of interventions with multi-dimensional outcomes. That is, interventions which improve the quality of life can be compared with interventions that extend life by reducing the outcome to a single *health utility* index
- The most common measures are Quality Adjusted Life year (QALY) and the Disability Adjusted Life Year (DALY). These are non-monetary measures of the benefits of interventions.

The health economics team will also undertake **financial/costing analysis** to inform decisions at different points in the MoC development process. This is the simplest form of analysis as it compares revenues and expenditures but does not take into account any measure of patient benefits. As such, it is not an economic technique and no broader societal impacts are considered. A financial/costing analysis is sufficient when it is clear that the resource implications are modest in relation to the expected health gains.

6.2 Application of techniques

The decision as to which economic analysis approach will be used will be determined on a project by project basis and will reflect the range and quality of information and data available to undertake the analysis. The following figure illustrates the decision making process that will be used by the health economics team to determine the most appropriate economic tool.

Diagram 2: Process for deciding on appropriate health economic technique⁶



6.2.1 Types of Models of Care produced by ACI

The following table summarises the key types of projects undertaken by the ACI and provides an indication of the most appropriate economic analysis technique.

Table 1: Types of models of care

TYPE OF MODEL OF CARE	KEY FEATURES	TYPE OF ANALYSIS
Category 1	Low/moderate volume of patients Low cost Limited implementation sites	Financial analysis of intervention – cost minimisation.
Category 2	Low/moderate volume of patients High Cost High patient benefits Limited implementation sites	Cost effectiveness analysis with benefits clearly articulated Cost utility if data available
Category 3	High volume of patients High cost and potential for large savings High patient benefits Statewide implementation	Cost effectiveness analysis Cost benefit analysis if data is available

⁶ Adapted from Gray A: Economic Evaluation in Daws et al. Eds. *Evidence Based Practice: A Primer for Health Care Professionals 2001*

1. Small scale intervention, low volume of patients, low cost

Medium scale intervention, moderate volume of patients, low cost

These projects are implemented at a limited number of sites, address the needs for a low or moderate volume of patients and have limited impact on resources.

2. Small scale intervention, low volume of patients, high cost

Medium scale intervention, moderate volume of patients, high cost

These projects will be implemented at a limited number of sites, are highly specialised interventions that have the potential for high patient benefit for a small or moderate number patients at a high cost.

3. Large scale intervention, system wide implementation

These projects are large scale, high volume, and have the potential for large cost savings/avoided future costs, and high patient benefits.

6.3 Key Health Economic documents

The key documents that the Health Economics team will prepare to support the model of care development and implementation process include:

1. Business as Usual Base Case
2. Economic Appraisal
3. Resourcing Strategy
4. Business Proposal
5. Economic Evaluation of Implementation.

6.3.1 Developing a Business as Usual Base Case (Base Case)

The purpose of the Base Case is to provide stakeholders with a picture of the current cost and benefits of continuing business as usual. This information can be used to inform the case for change during project initiation and diagnostic phases. It is also used as the comparator against which alternative courses of action are measured when determining the preferred model of care in the solution design phase (this is an economic appraisal). The completion of the Base Case is the first step of an economic appraisal.

Key components of the Business as Usual Base Case

- Identifying the growth of the patient cohort over the next 5 to 10 years including consideration of predicted disease prevalence and incidence and population growth
- Projection of utilisation of the health system
- Consideration of impact of any clinical variation
- Identification of the costs to the health system and patients (including if possible MBS, PBS, hospital, patient co-payments) including growth in outlays, indexation of costs and the impact of demand for services
- Identification of patient benefits and outcomes
- Analysis of impact of cost and benefits on the health system of continuing Business as Usual.

6.3.2 Developing an Economic Appraisal

An economic appraisal is a systematic approach to analysing all the costs and benefits of various options to achieve a particular service objective. This may be undertaken during the solution design and implementation phases. An economic appraisal should always be undertaken when the health and financial consequences are system wide.

The economic appraisal and methodology to be used will be designed specifically for each project as not all benefits will be able to be quantified, but all costs and benefits will be explicitly identified.

Key components of an Economic Appraisal

An economic appraisal involves a comparative analysis of the Base Case with the preferred innovative intervention(s). The same process of determining the Base Case is applied to the alternative option(s) to allow for comparison and will examine:

- Patient benefits, outcomes and impacts including quality of life measures projected over 5 to 10 years
- Avoided future costs and the impact on resource utilisation and capacity
- Impact on clinical variation
- Sensitivity and risk analysis including consideration of the sustainability of options
- A net present value (NPV) will be calculated. If the value of NPV is greater than 0, then the project is considered viable. The option with the highest NPV is the preferred option as it reflects the highest benefit to be gained. The discount rate to be applied will be consistent with that used by NSW Treasury.

An economic appraisal assists in investment decision making by the ACI, LHDs and the Ministry by identifying:

- whether the benefits of a proposed project are likely to exceed the costs
- which option has the highest net benefit amongst a range of options to achieve a given objective
- which option is the most cost effective, where benefits are equal.

6.3.3 Developing a Resourcing Strategy

A Resourcing Strategy will be developed to inform implementation as it will identify the resourcing options LHDs can consider when implementing the model of care or innovation. It also forms a key component of a Business Proposal if one is required.

A Resourcing Strategy will identify:

- Sources of savings and revenues
- Financial, budget and resourcing impacts on governments, patients and stakeholders
- Reallocation of resources including disinvestment (stop doing)
- Whether there is a need for additional funding (seeding or recurrent).

6.3.4 Business Proposal

A full business proposal contains all of the evidence and critical information that is required to establish the case for change to invest in a model of care or other innovation and provides the confidence that it can be delivered as planned. It brings together the clinical and economic evidence to support implementation. The key questions answered will be 'is this the right thing to be investing in' and 'can it be successfully delivered'. A business proposal will be developed for all models of care that require statewide implementation particularly where the number of patients affected and the potential impact on costs and health outcomes per patient are high. When approved by the ACI Executive, business proposals may also be developed for LHDs.

Key components of a Business Proposal:

- Case for change
- Economic appraisal
- Resourcing Strategy
- Implementation strategy
- Key Performance Measures (economic, clinical, patient) for ongoing evaluation and monitoring.

7. REFERENCES

Drummond M, O'Brien B, Stoddart G, Torrance G, *Methods for the Economic Evaluation of Health Care Programmes*, 2nd Edn, 2003, Oxford University Press.

NSW Treasury, *Policy and Guidelines Paper NSW Government Guidelines for Economic Appraisal* (TPP07-5).

National Institute for Health and Clinical Excellence (April 2007), *The Guidelines Manual*, Chapter 8, April 2007, pp 49-55.

Shiell A, Donaldson C, Mitton C, Currie G, *Health economic evaluation Epidemiology Community Health* 2002; 56;85-88.



ACI NSW Agency
for Clinical
Innovation