



# How is health economics used in chronic disease prevention?

## What is health economics?

The field of economics analyses the relationship between the unlimited needs and wants of a society and the limited resources available to achieve those needs and wants. Economics acknowledges there is a limit to the resources available, and as a result we need to make choices or decisions around how best to use and distribute those resources. The goal of economics is to achieve efficiency, which means that you are achieving maximum outputs or benefit to society (societal welfare) using the minimum amount of resources.

Health economics is a sub-discipline of economics. It involves a range of activities and aims to inform decision makers on how best to allocate scarce healthcare resources. It is used to inform decision making through the lens of efficiency. Health economic studies can answer questions related to how best to perform healthcare activities (technical efficiency), whether a program should be funded and what the right mix of activities should be to maximize health with the limited healthcare resources (allocative efficiency). Health economics is also concerned with equity. There are specific techniques that can be used to guide decision-makers on the equity impact of their decisions.



With limited health resources, what mix of activities, can optimise health outcomes?

## How does health economics work in prevention?

For health economists who work in chronic disease prevention, there are some specific considerations to take into account, including: longer modelling durations (time horizons) are required because the benefits of prevention could take many years into the future to manifest; the impact of discount rates, where high discount rates mean the benefits in the future are counted for less than in the present; and, the importance of modelling to help forecast the impact of current interventions on future health outcomes and costs related to chronic disease. The different types of activities and studies that inform decision making depend on the research or policy question).

**Table 1: Different types of health economic studies that inform decision-making for prevention**

Task type	Research type	Study design	Research policy	Resource
<p><b>Description</b></p> <p>Describes the size and nature of the problem</p>	<p>This type of research estimates the burden of disease, or the cost of illness associated with various illnesses or risk factors.</p>	<p>Cost of illness</p>	<p>“How much does obesity cost the Australian economy every year?”</p> <p>“What are the health, economic and social costs associated with alcohol use in the NT?”</p>	<ul style="list-style-type: none"> <li>• <a href="#">Weighing the cost of obesity</a></li> <li>• <a href="#">The social and economic costs and harms of alcohol consumption in the Northern Territory</a></li> </ul>
<p><b>Prediction</b></p> <p>Predicts or estimates future costs and benefits</p>	<p>This type of research follows on from cost of illness studies and aims to estimate the potential costs and benefits associated with future health status, illnesses or risk factors.</p>	<p>Economic modelling</p>	<p>“What are the economic benefits if all adults in Victoria achieve the recommended daily physical activity levels?”</p>	<ul style="list-style-type: none"> <li>• <a href="#">The health and economic benefits of reducing disease risk factors</a></li> </ul>
<p><b>Explanation</b></p> <p>Explains the relationship between health outcomes and economic variables</p>	<p>This type of research analyses longitudinal data to explain the association or relationship between health outcomes, trends, and economic variables.</p>	<p>Econometric or longitudinal analysis studies</p> <p>Descriptive epidemiology</p>	<p>“What is the association between adolescent obesity and household income?”</p>	<ul style="list-style-type: none"> <li>• <a href="#">For richer, for poorer: the relationship between adolescent obesity and future household economic prosperity</a></li> </ul>
<p><b>Evaluation</b></p> <p>Compares costs and benefits of interventions</p>	<p>This type of research aims to provide a comparative assessment of the value for money of an intervention. Full economic evaluations present the relative costs and benefits of two or more alternative interventions. The alternative intervention in single evaluations is often current practice or no intervention.</p> <p>Priority setting studies provide an assessment of the relative cost-effectiveness of a suite of policy relevant interventions.</p>	<p>Cost-effectiveness analysis (CEA)</p> <p>Cost-benefit analysis (CBA)</p> <p>Cost utility analysis (CUA)</p> <p>Cost minimization analysis (CMA)</p> <p>Cost consequence analysis (CCA)</p> <p>Social return on investment (SROI)*</p>	<p>“Are the additional costs of implementing the walk to school program worth the benefits?”</p> <p>“Which school-based intervention(s) to prevent obesity offer the best value for money?”</p> <p>“Which mix of tobacco control interventions or policies are the most value for money?”</p>	<p><b>Health economic evaluations</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Cost-effectiveness of community-based childhood obesity prevention interventions in Australia</a></li> <li>• <a href="#">Economic evaluations of tobacco control interventions</a></li> <li>• <a href="#">The effects of urban form on health: costs and benefits</a></li> </ul> <p><b>Priority setting studies</b></p> <ul style="list-style-type: none"> <li>• <a href="#">ACE-Obesity Policy</a></li> <li>• <a href="#">ACE-Prevention 2010</a></li> <li>• <a href="#">Best buys for NCD prevention</a></li> </ul> <p><b>Social return on investment</b></p> <ul style="list-style-type: none"> <li>• <a href="#">The Potential Impact of Salt Reduction in Australia</a></li> </ul>

\* There are varied definitions of return on investment (ROI) and social return on investment (SROI). ROI is often implemented as a financial measure that demonstrates the financial return on a project relative to its costs. A SROI is similar to a CBA and is a framework to capture the social, environmental and economic value of a particular investment (Edwards et al. 2021, see resource list on page 4).

**Table 2: Different types of health economic evaluations or analyses used in prevention**

Type of evaluation or analysis	Measurement of consequence from the intervention	Summary measure
<p><b>Cost-minimisation analysis (CMA)</b></p> <p>Compares two interventions that have identical health outcomes and side-effects. The only factor being considered is the cost. The least costly intervention is the preferred option.</p>	Health can be measured with any outcome measure	Least cost alternative
<p><b>Cost-effectiveness analysis (CEA)</b></p> <p>Comparing the costs and benefits of different interventions that have been evaluated using the same outcome measure, for example, what is the most cost-effective drug for hypertension?</p>	Natural units e.g., years of life gained; blood pressure reduction	<p>Cost per life year gained</p> <p>Cost per mmHg unit reduction</p>
<p><b>Cost-utility analysis (CUA)</b></p> <p>Comparing the costs and benefits of interventions across different disease areas. For example, comparing an obesity prevention intervention for children compared to a mental wellbeing program for adults. Unlike a CEA, the effectiveness of these interventions can't be measured using the same natural units e.g., obesity is measured in BMI units, mental health outcomes are measured on various clinical measurement scales. As a result, a generic measure of health is developed to make the interventions comparable. These measures quantify the quantity and quality of life improvements that result from the intervention.</p>	Generic measure incorporating the quantity and quality of life gained e.g., quality adjusted life years (QALY); disability adjusted life years (DALY)	<p>Cost per QALY gain</p> <p>Cost per DALY averted</p>
<p><b>Cost-benefit analysis (CBA)</b></p> <p>The health benefits from different interventions are valued in monetary terms. If the monetised benefits of the intervention are greater than the monetised costs, then the intervention should be funded. This is the technique used across various other government sectors e.g., transport and environment.</p>	<p>Health gained (valued in \$)</p> <p>Other benefits can also be monetised and incorporated into the analysis</p>	<p>Net monetary benefit</p> <p>Ratio of benefits to costs</p>
<p><b>Cost consequence analysis (CCA)</b></p> <p>Compares the costs of implementing an intervention with its consequences. Used for complex interventions with multiple health and other effects that are difficult to quantify and value. This is a disaggregated approach that does not combine the benefits and costs into a single comparable ratio.</p>	All outcomes measured in their natural units where possible	No summary measure, impacts and costs are presented separately.

## Further resources

These resources include reports, guidelines, books and journal articles which may be useful for those working with health economics in prevention.

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The Australian Prevention Partnership Centre

Contact us

Email us: [preventioncentre@saxinstitute.org.au](mailto:preventioncentre@saxinstitute.org.au)

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The Australian Prevention Partnership Centre is funded by the NHMRC, Australian Government Department of Health, ACT Health, Cancer Council Australia, NSW Ministry of Health, Wellbeing SA, Tasmanian Department of Health, and VicHealth. The Australian Government also contributed through the Medical Research Future Fund. Queensland Health became a financial contributor in 2022. The Prevention Centre is administered by the Sax Institute.