Measurement of Costs for Health Economic Evaluation

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The provision of guidelines on cost measurement for health economic evaluations enable research to be more standardized and hence more comparable, which offers clear benefits for policy formulation and health management. The guidelines herein focus on three aspects-the cost of health intervention/health care programs, the cost of illness/health risks, and use of costs in health economic evaluation. For each aspect, the main concepts and methods are outlined, and recommendations for the Thai context are presented. There is particular focus on how to calculate various costs according to different evaluation methods and perspectives, how to evaluate source of cost data, how to make value adjustments and how to present cost measurement findings.

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'Costs' refer to the monetary value of resources that are used for the production of products or services, based on a concept of opportunity cost. In health economics, measuring or calculating costs, conducting a cost analysis, or undertaking costing research are processes that help researchers know or estimate the total cost of a service or technology, by calculating the cost components and costs per unit of outputs. Some costs analyses also include an investigation of the factors that affect those costs. By calculating the costs of technologies, researchers, health administrators, and policy-makers are better able to prioritize health problems as well as implementing more evidence-based financial and budgeting management, efficiency management, and health economic evaluations. This article is concerned with how cost calculations affect health economic evaluations. The author hopes that this overview will provide researchers with a standard model and process that will help generate more uniform and comparable research in the future and ultimately benefit policy formulation and health management. Health economic evaluations take into account costs involved with the provision of medical services/health care programs (for instance, pharmaceutical therapy, prevention and control measures, diagnostic methods, and screening methods), any costs associated with the illness and/or health risks (or economic outcome), and how best to apply costing data. Health economic evaluations are a key tool in the health system management that help improve efficiency and equity[1] as well as informing decisions about equality and ethics. For instance, when calculating time costs, the same rate is used for all individuals, regardless of gender, age, and income to avoid ethical violation.

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Measuring the costs of medical services and health-care programs

To begin, the author examines the process for estimating the cost of the two main types of health interventions-medical services and healthcare programs. The author will consider two key approaches for measuring the costs involved with medical services-direct unit cost analysis and standard unit cost.

Unit cost analysis of medical services

There are two main methods for conducting a unit cost analysis-standard costing[2-4] and activity-based costing[5-7]. Standard costing is more well-known and is widely recognized as being more appropriate for the Thai context. The standard costing method is composed of six steps: study design and planning, cost centre classification, direct cost determination, indirect cost determination, full cost determination and unit cost calculation. The author shall examine each of

these in turn.

Step one: Study design and planning

The study design and planning step involves a number of different elements: The objectives must be defined, the cost objects (or cost products) and their components must be identified, the perspective and time horizon that will be adopted must be agreed, and the level of organization involved must be taken into account.

Step two: Cost centre classification

A cost centre is a unit that produces output and has a record of resource consumption. Cost centres can be categorized in a number of ways. However, in the process of unit cost calculation, all cost centres are classified into two groups:

Transient cost centres are those that provide supporting services to other cost centres. Direct costs of these cost centres are allocated to other cost centres they support.

Absorbing cost centres are cost centres that produce cost objects. These cost centres receive the costs that are allocated to them by transient cost centres.

This step involves examination of the structure of the hospital so that it can be broken down into cost centre components (usually hospital departments). The smaller the cost centres and the fewer service types each individual cost centre produces, the more accurate the analysis.

Step three: Direct cost determination

In step three, the total direct costs are calculated. The calculation includes all the cost components that were identified in step one. The calculation includes all material costs (drug, medical materials, office materials, utilities, maintenance, hiring, and outsource); all labour costs (salary, over-time, welfare and other compensation); all capital costs (capital asset costs-for instance, building, furniture, equipment, vehicles etc). The calculation takes into account the asset's use in the calculation period as well as the opportunity costs for any remaining payment that will be made for remaining future years[8]. The calculation period or useful year is defined according to recommendations from the Ministry of Finance. In practice, this is already defined in the capital asset registration.

Step four: Indirect cost determination

Indirect costs are all costs from transient cost centres that have been allocated to absorbing cost centres. Costs are allocated according to several methods, the most accurate of which is the simultaneous equation method[8]. The allocation process begins by identifying a set of allocation criteria, as determined by the output of the transient cost centres. Where transient cost centres produce more than one output, the output onto which the criteria should be applied will be the output that is responsible for the majority of cost consumption. The quantity of this output (allocation criterion) used by all cost centres is measured to calculate allocation proportion. Finally, this proportion is used in the allocation method selected.

Step five: Full cost determination

The full cost of the absorbing cost centre is calculated by adding the indirect costs to the direct costs, as incurred by the absorbing cost centres.

Step six: Unit cost calculation

In the case where the absorbing cost centre produces only one output (a cost object) or a number of homogeneous outputs (for instance, out-patient service), average unit costs are used. For multi-product cost centres, a number of methods are available, the most accurate of which is the micro-costing method, since this is based on actual resource use[9,10]. This method first determines the direct cost of each service (the amount of countable resources that are used in the provision of the service). Following this, a calculation is made of the indirect cost of services (the full cost of each department subtracted by the sum of the total direct costs of all services), which is then allocated to each service using either the average method or by calculating the proportion of the direct cost of each service. The second method is the ratio of costs to charges method[10,11]. The ratio of cost to charges is computed based on historical records. It is used to estimate the cost of each service from the relevant charge information obtained from patient bills. This calculation can be fairly simple. For instance, in any given period, if total charges are 100,000 baht and total costs are 75,000 baht, the cost to charge ratio (CCR) will be 0.75. The ratio will then be used for determining the costs for services. For example, each service charge would be multiplied by 0.75, resulting in a unit cost of each service. The third method is the relative value unit method[10,11], which uses the standard relative value unit (RVU) of each output in the calculations. The total number of all RVUs for all outputs is calculated (standard RVU of output x total number of

such output) and the cost per RVU is then calculated by dividing the total hospital cost by the total hospital RVUs. Finally, the cost per RVU is multiplied by the number of RVUs of each output.

Standard cost list

To increase the usefulness of health economic evaluations for national policy formulation, the evaluation results should reflect nationwide trends and be comparable with findings from other studies. To achieve this, unit costs used in cost measurement should be standardized, and to this end, a list of standard unit costs has been developed[12]. The list is composed of unit costs for medical services in district hospitals and provincial/regional hospitals, costs of transportation and meals, and includes the time cost of outpatient visits and treatment at health centres, district hospitals, and provincial/regional hospitals. For further detail, see the relevant article in this journal.

Cost analysis of healthcare programs

Healthcare programs are sets of activities conducted to improve healthcare in a given population. These often involve multiple agencies and bodies who work together. For instance, in Thailand the universal vaccine program is undertaken collaboratively by the National Health Security Office, district hospitals, and local health centres; the influenza mitigation and control program is implemented by central, regional, provincial and district organizations in both the health and non-health sectors. These programs can be temporary or permanent and can involve staff from several different organizations. They usually have a specific resource and budget allocation that can come from the program itself or the organization responsible for implementing the program. For instance, one pilot vaccination program receives funding from both the sponsor organization and the ministry of public health. There are seven stages in costing a healthcare program: 1) Designing the study and planning, which takes into account defining the study objective, the perspective, the time horizon, and the types of cost that will be included (whether full or incremental costs will be used), 2) Defining the activities and organization that are involved in the healthcare program, 3) Defining the cost components. Full cost refers to the total cost of all resources used. Incremental costs refer only to the extra costs incurred by the program. For instance, the capital cost of a car that already belongs to the organization and that is used in the program's implementation would be taken into account as part of the full cost, but would not be taken into account as part of incremental cost, 4) Measuring the resources used, 5) Valuing the resources that are used. Capital costing method must be applied to all investment costs (such as those associated with training or social mobilization), 6) Quantifying program outputs, 7) Calculating program costs, taking into account both total and unit costs as well as cost structure in terms of the percentage breakdown for each cost (e.g. capital, labor, material and activity costs). Unit costs are derived by dividing total cost by total quantity of output, and are calculated using full cost and incremental costs, called average cost and marginal cost, respectively.

Whether full costs or incremental costs are used will depend on the proportion of program costs and the total cost of the organization. If program costs make up only a small proportion of the total organization cost, then incremental costs are recommended[13].

Analysing the cost of illness and health risks

Cost of Illness analysis

The cost of illness is defined as the economic burden to society caused by a disease or illness. Conducting a cost analysis of a given condition involves five steps: 1) Designing the study-identifying the objective, definition, and scope of the illness, clarifying the approach (whether the focus is on prevalence or incidence), defining the time horizon and perspective, and identifying which type of treatment or health service to examine, 2) Defining the services and resources that correspond to the study design, 3) Measuring the quantity of each component of services and resource that are to be used, 4) Converting the services and resources to a monetary value, 5) Calculating total costs, costs by component, and unit costs, taking into account the various factors that affect the cost.

Component of costs according to disease progress and treatment

When calculating illness costs, all of those associated with the major illness and any complications, from first symptom to either death or cure, are included, but costs associated with co-morbidities are not. When adopting the societal perspective, costs also include all kinds of treatment regardless of the health service facilities (if they are associated with the condition) as well as any costs incurred by the patient and family as a result of the condition (transportation, meal, accommodation and other illness-related costs). The societal perspective also takes into account the time

loss incurred by patients and caregivers (Fig. 1).

Study approach

Two main approaches can be adopted when conducting cost of illness studies-prevalence- and incidence-based approaches[14].

1) Prevalence-based approach

The prevalence-based approach looks at all patients over the time horizon of the study. The time horizon adopted is normally one year to avoid seasonal variation and patients showing symptoms before or during the time horizon. This means that the patients in the study are at different levels of disease progression and severity. In prevalence-based studies, results are presented as cost per person per year (or time horizon).

2) Incidence-based approach

The incidence-based approach looks at all new cases that emerge during a set period of time (normally one year) and follows them until end of the illness (cure or death). Costs are calculated for this period and are known as life time costs. In incidence-based studies, results are presented as cost per episode.

Cost components

Cost components can be categorized in a number of different ways, including medical and non-medical costs. The most common and well-known categorization divides costs into direct medical, direct non-medical and indirect[14].

1) Direct medical costs

Direct medical costs include all of those that are incurred as part of the provision of healthcare–diagnosis, treatment, rehabilitation, and terminal care as well as those costs associated with health services including those incurred as a result of institutional and non-institutional care (e.g. home care or alternative care).

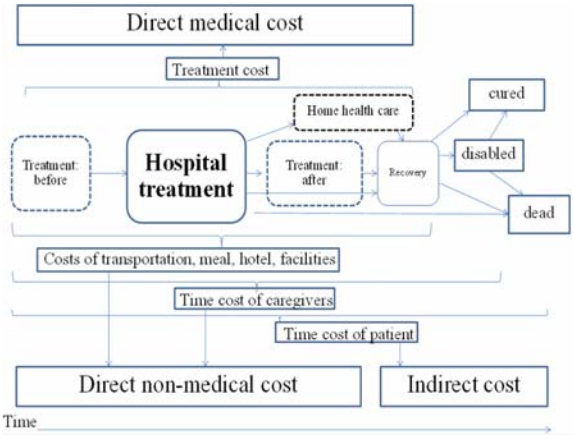

Fig. 1 Cost components by disease progress and treatment.

2) Direct non-medical costs

Direct non-medical costs cover all costs borne by patient and family because of receiving healthcare. They include transportation, meal, and accommodation (except for those incurred by in-patients staying in hospital wards, which are already included in direct medical costs), as well as those associated with special devices, home modification, and payment for caregivers. Direct non-medical costs also include those incurred as a result of the time lost by unpaid caregivers (relatives/friends) while the patient is receiving treatment and recovery at home (informal care).

3) Indirect costs

Indirect cost or productivity costs are those incurred as a result of time or working capacity loss caused by illness. Time loss results from a patient's death or from their inability to attend work or daily activities as a result of the illness, and is subdivided into two periods-whether they are receiving treatment or whether they are in their recovery period. All patient time loss is classified as either a productivity cost or an indirect cost. However, time loss that occurs as a result of a patient receiving treatment may be categorized as a direct non-medical cost[15]. In this article, all patient time loss is classified as an indirect cost (Fig. 1). This is to avoid double counting when time loss is measured as an outcome in terms of quality-adjusted life years (QALYs) (for more details, see section Defining cost components).

A well-known method that is used to value time loss is the human-capital method[1]. From an ethics standpoint, the value of a specified period of time loss is valued in the same way regardless of the individual's characteristics or income and regardless of the type of time–whether it is paid work, unpaid work, or leisure[1]. The value calculation is made by multiplying the time loss by the rate of income. The rate of income is taken from the per capita Gross National Income (GNI)[16] or the Gross National Product (GNP)[17]. Using GNI instead of Gross Domestic Product (GDP) allows the exclusion of productivity data from foreign investment. Per capita GNI is calculated from the total population, and thus includes people of all ages. To calculate morbidity costs,

the cost per day is calculated by dividing the per capita GNI by 365 days. To calculate the cost of informal care, a cost per hour is calculated by adjusting the per capita GNI by 52 weeks per year and 48 working hours per week (according to data from the Thai Department of Labour)[18].

Cost analysis of health risks

The costs associated with health risks are estimated on the basis of their likelihood to lead to particular diseases. For instance, alcohol, drinking, smoking, and obesity can cause a number of leading non-communicable diseases. Firstly, the cost of the illness is measured, then the cost is adjusted by the extent to which the health risk is deemed attributable (known as an attributable fraction), which is calculated from relative risk[19]. In addition, costs from the non-health sector might also be included, for instance, damage of assets and crime management from car accidents caused by drink-driving. There are examples of these kinds of study in Thailand that have evaluated the wider cost impact of alcohol drinking[20] and obesity[21].

Defining costs for health economic evaluation

Defining cost components

Cost components that are used in health economic evaluations will vary depending on the perspective adopted and type of the evaluation that is undertaken. There are five major types of perspective: patient, provider, payer, health system, and society. The cost components within a perspective can also vary depending on the type of evaluation and the outcome measure used.

In cost-utility analyses that use the societal perspective, patient quality of life is measured with a QALY (see the relevant article in this volume for more details), which takes into account the effect of time loss in the form of anxiety affecting quality of life and duration of illness. Therefore, no costs associated with patient time loss in terms of indirect costs are included in the analysis, to avoid double counting[15,22]. However, some researchers have argued that the QALY does not adequately capture time loss[23] indirect costs may be included in the sensitivity analysis. When conducting a cost-effectiveness analysis using life-years gained as an outcome, the cost components that are included are similar to those that are included in the cost-utility analysis[1]. Costs associated with the time loss of caregivers are usually included in the cost-utility analysis, even though they are sometimes defined as indirect costs. This is because time loss of caregivers is not taken into account when measuring patient quality of life using a QALY. Details of the cost components for various types of economic method and perspective are presented in Table 1.

Sources of costing data

The costing data that is used in economic evaluations can come from various sources depending on the objective and application of the study. All studies involved in country policy formulation require nationally representative data. Primary data from appropriate sample size and sampling method are preferred when undertaking economic evaluation, but if that is not available, then cost estimates from standard services using references or standard unit costs can be used. The reliability of secondary data will depend on the quality of studies from which they are derived. Expert opinion is less reliable data and should come from a panel of experts, where possible. Regardless, data from expert opinion should never be a major part of the data used in the analysis.

The most reliable sources of cost data are as follows:

1. Generic drug cost data is used for the base case and data from the original drug is used for the sensitivity analysis. Drug prices are taken from the hospital purchasing prices that are available from the Drug and Medical Supply Information Centre of Ministry of Public Health (http://dmsic.moph.go.th/). Prices are reported by hospitals on a voluntary basis, and the use of a median, garnered from the reported data, is recommended. For analyses that are investigating a proposal submitted to the National List of Essential Drugs or an insurance benefit package, the prices that are quoted in the proposal are used.

2. To measure direct medical costs, data should be only be taken from studies with a valid and appropriate study design[24]. First, the number of drugs and medical services used is measured and then the unit cost from the same study site(s) is used in the valuation. If these data are not available, then the standard unit cost of medical services from the standard cost list[12] is used, in conjunction with the afore-mentioned reference drug prices.

3. All country database input should be derived from resource quantities, adjusted by standard unit cost of medical services, reference drug prices and direct non-medical reference unit cost data (which is available in the standard cost list)[12].

4. Charges from a country database can be

Table 1. Costs in various perspectives of economic studies

Costs	Perspective																			
	Patient				Provider				Payer				Health system				Society			
	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA
Cost of illness																				
Direct medical cost																				
Hospital treatment	ch	ch	ch	ch	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Treatment before and after hospital treatment	ch	ch	ch	ch	x	x	x	x	x	x	x	x	ch(c)	ch(c)	ch(c)	ch(c)	ch(c)	ch(c)	ch(c)	ch(c)
Direct non-medical cost																				
Travel, meal and hotel of patient and caregivers	ch	ch	ch	ch	x	x	x	x	x	x	x	x	x	x	x	x	ch	ch	ch	ch
Equipment and facilities for patient	ch	ch	ch	ch	x	x	x	x	x	x	x	x	x	x	x	x	ch	ch	ch	ch
Time loss of caregivers	i	i	i	i	x	x	x	x	x	x	x	x	x	x	x	x	c	c	c	c
Indirect cost																				
Time loss of patient due to treatment and recovery	i	i	x	i	x	x	x	x	x	x	x	x	x	x	x	x	c		x	c
Time loss of patient due to death or permanent severe disability	i	i	x	i	x	x	x	x	x	x	x	x	x	x	x	x	c	c	x	c
Cost of healthcare program: national immunization program																				
Direct medical cost																				
Cost of vaccine	ch	ch	ch	ch	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Vaccine wastage	x	x	x	x	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Vaccine logistics (including cold chain)	x	x	x	x	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Vaccine delivery (including campaign, if any)	x	x	x	x	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Management of wastage	x	x	x	x	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c
Adverse events following immunization (AEFI)	ch	ch	ch	ch	c	c	c	c	r	r	r	r	c	c	c	c	c	c	c	c

c = cost, ch = charge, i = income loss, r = reimbursement, x = not included
CoI = cost of illness; CEA = cost-effectiveness analysis; CUA = cost-utility analysis; CBA = cost-benefit analysis
CEA; cost/case averted, cost/life saved, for cost/life year gained, indirect cost is not included.
CUA; cost/DALY averted, cost/QALY gained

Table 1. cont.

Costs	Perspective																			
	Patient				Provider				Payer				Health system				Society			
	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA	CoI	CEA	CUA	CBA
Direct non-medical cost																				
Travel, meal and hotel of patient and caregivers for receiving vaccine and treatment of AEFI	ch	ch	ch	ch	x	x	x	x	x	x	x	x	x	x	x	x	c	c	c	c
Time loss of caregivers	i	i	i	i	x	x	x	x	x	x	x	x	x	x	x	x	c	c	c	c
Indirect cost																				
Time loss of vaccine receiver due to treatment and recovery of AEFI	i	i	i	i	x	x	x	x	x	x	x	x	x	x	x	x	c	c	c	c
Time loss of vaccine receiver due to death or permanent severe disability from AEFI	i	i	i	i	x	x	x	x	x	x	x	x	x	x	x	x	c	c	c	c

c = cost, ch = charge, i = income loss, r = reimbursement, x = not included
CoI = cost of illness; CEA = cost-effectiveness analysis; CUA = cost-utility analysis; CBA = cost-benefit analysis
CEA; cost/case averted, cost/life saved, for cost/life year gained, indirect cost is not included.
CUA; cost/DALY averted, cost/QALY gained

adjusted to costs using the cost-to-charge ratio available in the standard cost list[12]. These are 1.63 and 1.45 for provincial/regional hospitals and district hospitals, respectively[12]. The cost is a result of charge multiplied by the ratio.

5. Secondary data from past studies must be adjusted to the current study year by applying the consumer price index.

6. Costs may also be estimated from standard practice data, which is derived by applying an appropriate analytical technique (for instance, the Delphi technique) to data from a panel of experts. Drug and medical services used in the guidelines must be converted to costs using reference drug prices and standard cost list referred to in point 1, 2.

Costing data quality checklist

The quality of secondary data should also be assessed. Practically, this means assessing the quality of the study design, data collection method, analysis, and results presentation. A quality checklist can be used as a tool to ensure that the quality of the costing study is appropriate. The categories of the checklist are as follows:

1. Perspective
2. Cost composition
3. Year of cost value
4. Sample definition, sample size, data collection method
5. Result presentation composing quantity of resources used, unit cost, total cost and cost classified by composition.

Costing data adjustment

To adjust out-of-date costing data, the consumer price index is applied, to ensure that all costs are appropriate for the year of the study[25]. The list below shows which price indices are applied to various costs to ensure they are up to date.

- Drug and medical services: Consumer price index of medical care.
- Transportation: Consumer price index of public transportation services.
- Meals: Consumer price index of food and beverages.
- Accommodation: Consumer price index of shelter.
- Other materials: Consumer price index of all items.

All results should be presented in both local and international currencies. To convert to the international dollar, the purchasing power parity (PPP) exchange rate[26] and the GDP deflator[17,27] should be deployed.

As well as adjustments made to reflect any changes in date and currency, cost data must be also adjusted to reflect the health service facilities that are used in model of analysis, whether that be out-patient service or in-patient service and whether the treatment takes place at a district or provincial hospital. For country-wide analyses, it is recommended that a weighted average of the costs be used.

Costing data used in health economic evaluation

As discussed earlier there are several controversial issues surrounding costing for HTA. To help create guidelines that will improve uniformity across studies and improve comparability, the author makes the following recommendations:

1. Costs resulting from patient time loss, incurred both during the treatment and recovery period, should be classified as indirect costs.

2. Time loss costs should be converted to a productivity costs by adjusting them according to Gross National Income, GNI. This corresponds to the data that are used to determine the cost-effectiveness threshold.

3. To calculate the cost of informal care, cost per hour should be used for time conversion. Cost per hour is derived from GNI per capita divided by 52 weeks per year and 48 hours per week (based on 8 hour working days, with 6 working days a week).

4. Informal care costs should be classified as direct non-medical costs and included in the cost-utility analysis. Classification as an indirect cost would result in confusion as indirect costs are not included in the cost-utility analysis.

5. When conducting a cost-utility analysis and cost-effectiveness analysis that measures life-years gained, the time cost of the patient as an indirect cost should not be included. However, it should be included in the sensitivity analysis.

6. Assessment of the reliability of the costing data should be undertaken by assessing the reliability of the source, according to the guidelines detailed herein.

7. The costing data used in health economic evaluations should take into account the following aspects:

1. Perspective
2. Source of data (primary or secondary) and details on how it was sourced (including references)

3. Cost components and their values

4. Year of cost value and year of analysis, type of consumer price index used in value adjustment (including exchange rate if appropriate). References should be supplied.

5. The weighted average for nationwide costs should incorporate the cost of each type of health service facility and the proportion of utilization.

6. Data used in the sensitivity analysis and details on how it was sourced.

Guidelines for health technology assessment in Thailand (second edition): Recommendations for measuring costs

Whether a technology is deemed to be cost effective according to a health economic evaluation depends on both its effectiveness and costs. While effectiveness if often assessed in research, costing is often overlooked. Given this, researchers should pay particular attention to the costing side of this assessment to ensure the costs are adequately captured. In particular, researchers should take care to account for the sources of data, the type of analysis and the manner of data presentation. Although new interventions can be very effective, they may not necessarily be cost-effective. Whether a technology is cost-effective or not can be decided on the basis of solid and detailed costing data together with effectiveness data. An error in calculating costing data can have significant consequences. For instance, an analysis that erroneously finds a certain technology not cost–effective might deprive society of a highly effective–potentially life-saving–technology. Conversely, if a technology is erroneously deemed to be cost-effective and adopted across a society, the costs will outweigh the benefits. Clearly, both cost and effectiveness are essential parts of any HTA.

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Potential conflicts of interest

None.

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การประเมินต้นทุนในการประเมินทางเศรษฐศาสตร์สาธารณสุข

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แนวทางการประเมินต้นทุนสำหรับการประเมินทางเศรษฐศาสตร์สาธารณสุขที่นำเสนอนี้มีวัตถุประสงค์ เพื่ออำนวยความสะดวกแก่ผู้วิจัยและทำให้ผลการวิจัยมีมาตรฐานสามารถเปรียบเทียบกันได้และเกิดประโยชน์สูงสุดต่อการนำไปใช้เป็นข้อมูลในการกำหนดนโยบาย และบริหารจัดการ แนวทางนี้ประกอบด้วย 3 ส่วน ได้แก่ วิธีการประเมินต้นทุนของการบริการทางการแพทย์และโครงการดูแลสุขภาพ วิธีการประเมินต้นทุนของการเจ็บป่วยและปัจจัยเสี่ยงด้านสุขภาพ และการใช้ข้อมูลต้นทุนในการประเมินความคุ้มค่าทางสาธารณสุข ในแต่ละส่วนได้นำเสนอแนวคิด วิธีการและข้อสรุป เป็นแนวทางที่สอดคล้องกับบริบทของประเทศไทย การคำนวณต้นทุนให้สอดคล้องกับวิธีการประเมินและมุมมองที่แตกต่างกัน การประเมินแหล่งที่มาของข้อมูลต้นทุน การปรับค่าและข้อเสนอแนะในการรายงานข้อมูลต้นทุน