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Pharmacoeconomics

Dra. Lili Musnelina, M.Si, Apt

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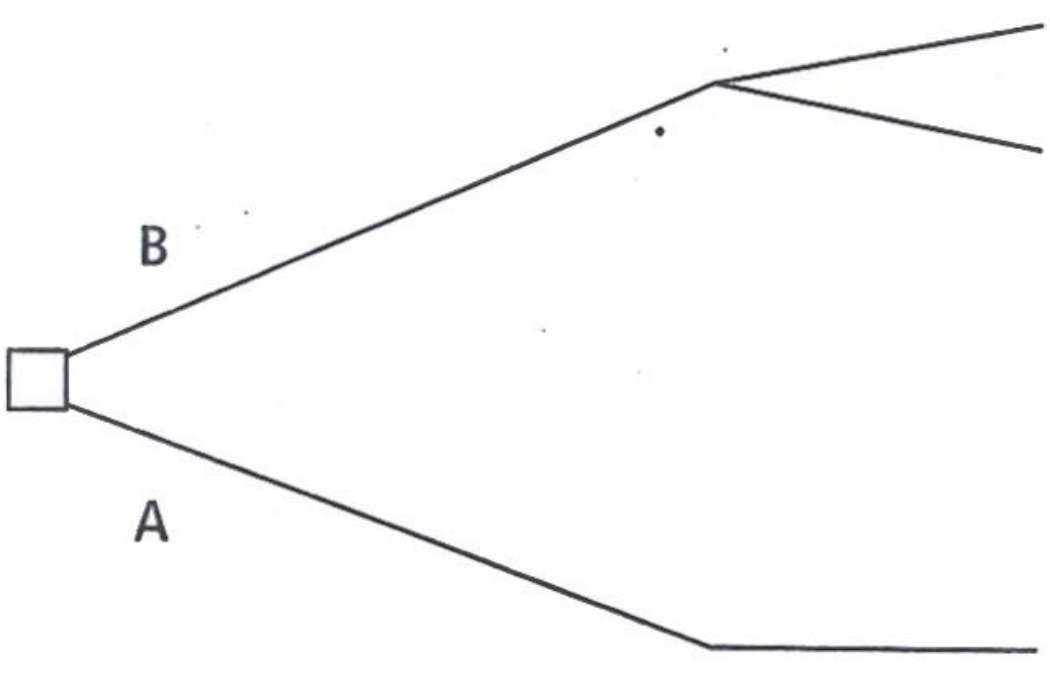
- ***Economics*** is about trade-offs and choices between wants, needs, and the scarcity of resources to fulfill these wants. When considering economics, most people think of the trade-offs between goods and services and money; however, the trade-off might also be expressed in humanistic terms. We are, therefore, careful to include both resource use and humanistic evaluations of drug therapy within pharmacoeconomics assessment.

- ***Pharmacoeconomics*** has been defined as “the description and analysis of the costs of drug therapy to health care systems and society.” Pharmacoeconomic research identifies, measures, and compares the costs (ie, clinical, economic, humanistic) of pharmaceutical products and services.

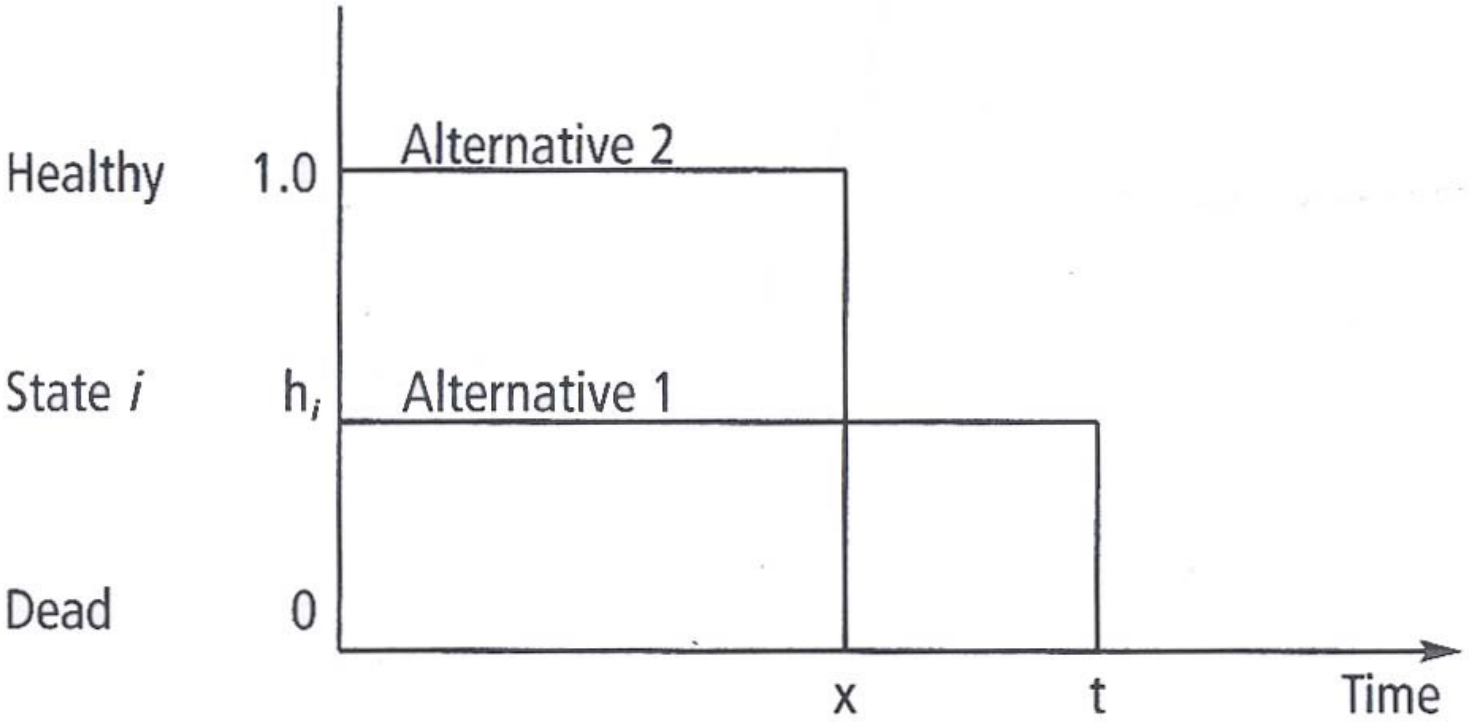
- ***Cost-benefit analysis*** is a basic tool that can be used to improve the decision-making process in allocation of funds to healthcare programs. Although the general concept of cost-benefit analysis is not overly complicated, many technical considerations require a degree of explanation and interpretation to understand how it can be or has been applied.

- ***Cost-effectiveness analysis*** is a technique designed to assist a decision-maker in identifying a preferred choice among possible alternatives. Generally, cost-effectiveness is defined as a series of analytical and mathematical procedures that aid in the selection of a course of action from various alternative approaches. Cost-effectiveness analysis has been applied to health matters where the program's inputs can be readily measured in dollars, but the program's outputs are more appropriately stated in terms of health improvement created (eg, lie-years extended, clinical cures).

- ***Cost-Utility Analysis***, it is much the same as cost-effectiveness analysis, with the added dimension of a particular point of view, most often that of the patient. Quite often the results of cost-utility analysis are expressed in the intervention cost per quality-adjusted life-year gained or changes in quality-of-life measurement for a given intervention cost.



Standard gamble for a chronic health state. *i* = chronic health state; p = probability of achieving perfect health.



Time trade-off for a chronic health state. $h_i = x \div t$, where h_i = preference value or utility for state *i*; state *i* = chronic health state; t = life expectancy for an individual with chronic health state *i*; x = time at which respondant is indifferent between alternatives 1 and 2.

Categories of Pharmacoeconomic Techniques

Technique	Distinguishing features
Cost-of-illness	Identifies and measures the costs of the illness itself, but *not* treatment outcomes
Cost-benefit	Measures the costs of treating an illness, along with monetary equivalents for the treatment's outcomes
Cost-effectiveness	Measures the costs of treating an illness, but using *clinical* measurements for the treatment's outcomes
Cost-utility	Measures the costs of treating an illness, but using *preference* equivalents for the treatment's outcomes
Cost-minimization	Directly compares the costs of treatment options for an illness, assuming *equivalence* of their outcomes

Pharmacoeconomic Methodologies		
Methodology	**Cost Measurement Unit**	**Outcome Unit**
Cost–benefit	dollars	dollars
Cost-effectiveness	dollars	natural units (life-years gained, mg/dL blood glucose, mm Hg blood pressure)
Cost-minimization	dollars	assume to be equivalent in comparative groups
Cost-utility	dollars	quality-adjusted life-year or other utilities

Examples of Categorized Costs

Relationship to disease, treatment, or program	Nature of cost or expenditure	
	Medical	**Nonmedical**
Direct	*Direct medical costs:* Hospital fees, drugs, equipment, supplies, and professional fees	*Direct nonmedical costs:* Transportation for care, lodging for family, and additional home care
Indirect	*Indirect medical costs:* Earnings lost during illness or treatment, and from disability	*Indirect nonmedical costs:* Intangible effects, such as quality of life, and psychological tolls

Sources: Adapted from Drummond et al., 1997b, and Larson, 1996.

THANK YOU