
Postgraduate Certificate in Health Economics and Policy

Economic Evaluation in Health Care

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Economic evaluation in health care is a crucial aspect of health economics that involves the systematic analysis of the costs and benefits of health interventions or programs. It aims to provide decision-makers with information on the most efficient use of resources to improve health outcomes. Economic evaluation helps in comparing different interventions or programs to determine which option offers the best value for money. There are several key terms and concepts that are essential to understand when conducting economic evaluations in health care.

Key Terms and Vocabulary

1. Cost-Effectiveness Analysis (CEA)

Cost-effectiveness analysis (CEA) is a type of economic evaluation that compares the costs of an intervention with its outcomes in natural units, such as life years gained or cases prevented. The main outcome of CEA is the cost-effectiveness ratio, which is calculated as the incremental cost divided by the incremental effectiveness of the intervention compared to an alternative. For example, a CEA might compare the cost per additional year of life gained for two different treatment options for a specific disease.

2. Cost-Utility Analysis (CUA)

Cost-utility analysis (CUA) is another type of economic evaluation that compares the costs of an intervention with its outcomes in terms of quality-adjusted life years (QALYs). QALYs combine both the quantity and quality of life gained from an intervention. The main outcome of CUA is the cost per QALY gained, which allows decision-makers to compare the value of different health interventions across diseases and populations.

3. Incremental Cost-Effectiveness Ratio (ICER)

The incremental cost-effectiveness ratio (ICER) is a key measure in economic evaluation that represents the additional cost of one intervention compared to another divided by the additional effectiveness gained. It indicates the additional cost required to achieve a unit increase in effectiveness when moving from one intervention to another. Decision-makers use ICERs to determine which intervention offers the best value for money.

4. Quality-Adjusted Life Years (QALYs)

Quality-adjusted life years (QALYs) are a measure used in economic evaluation to quantify the health

outcomes of interventions. QALYs combine both the quantity and quality of life gained from an intervention, where one QALY represents one year of life in perfect health. QALYs allow decision-makers to compare the impact of different interventions on health outcomes in a standardized way.

5. Discounting

Discounting is a technique used in economic evaluation to adjust future costs and outcomes to their present value. Future costs and outcomes are discounted at a specific rate to reflect the time preference for receiving benefits sooner rather than later. Discounting is essential in economic evaluation to account for the opportunity cost of capital and to ensure that costs and benefits are compared on a consistent basis.

6. Sensitivity Analysis

Sensitivity analysis is a method used in economic evaluation to assess the robustness of results to changes in key assumptions or parameters. It involves varying input values within a plausible range to test the impact on the results of the economic evaluation. Sensitivity analysis helps decision-makers understand the uncertainty surrounding the estimates and provides insights into the reliability of the findings.

7. Probabilistic Sensitivity Analysis

Probabilistic sensitivity analysis is a type of sensitivity analysis that involves assigning probability distributions to input parameters and running multiple simulations to estimate the uncertainty around the results of an economic evaluation. It allows decision-makers to assess the probability of different outcomes and provides a more comprehensive understanding of the uncertainty associated with the findings.

8. Cost-Effectiveness Plane

The cost-effectiveness plane is a graphical representation used in economic evaluation to display the uncertainty surrounding the results of a CEA or CUA. The cost-effectiveness plane has four quadrants that indicate whether an intervention is more costly and more effective, less costly and less effective, more costly and less effective, or less costly and more effective compared to an alternative. Decision-makers can use the cost-effectiveness plane to visualize the trade-offs between costs and outcomes.

9. Cost-Effectiveness Acceptability Curve (CEAC)

The cost-effectiveness acceptability curve (CEAC) is a graphical representation that displays the probability that an intervention is cost-effective at different willingness-to-pay thresholds. The CEAC shows the likelihood that the intervention is cost-effective compared to an alternative for a range of threshold values. Decision-makers can use the CEAC to determine the probability of an intervention being cost-effective at different levels of willingness to pay.

10. Willingness-to-Pay (WTP)

Willingness-to-pay (WTP) is the maximum amount that decision-makers are willing to spend to gain a unit of health outcome, such as a QALY. WTP thresholds are used to determine the cost-effectiveness of interventions, where interventions with a cost per QALY below the threshold are considered cost-effective. WTP thresholds vary across countries and health systems and reflect the value society places on health gains.

Practical Applications

Economic evaluation in health care has several practical applications that can help inform decision-making and resource allocation in healthcare systems. Some of the key practical applications include:

1. **Comparing Treatment Options:** Economic evaluation can help compare the cost-effectiveness of different treatment options for a specific disease or condition. Decision-makers can use economic evaluation to determine which treatment offers the best value for money and should be prioritized for funding.
2. **Allocating Resources:** Economic evaluation can assist in allocating scarce resources efficiently within healthcare systems. By comparing the costs and outcomes of different interventions, decision-makers can prioritize investments in interventions that offer the greatest health benefits for the resources available.
3. **Informing Health Policy:** Economic evaluation can provide evidence to inform health policy decisions at the local, national, or international level. Decision-makers can use economic evaluations to assess the impact of policy interventions, such as vaccination programs or screening initiatives, on population health and make informed policy choices.
4. **Guiding Clinical Practice:** Economic evaluation can help guide clinical practice by identifying cost-effective interventions that provide the best outcomes for patients. Clinicians can use economic evaluations to make evidence-based decisions on treatment options and improve the quality of care delivered to patients.

Challenges

Despite its numerous benefits, economic evaluation in health care faces several challenges that can impact the validity and usefulness of the findings. Some of the key challenges include:

1. **Data Availability and Quality:** Economic evaluation relies on accurate and reliable data on costs, outcomes, and effectiveness of interventions. However, data availability and quality can vary across different healthcare settings, making it challenging to conduct robust economic evaluations.
2. **Uncertainty and Sensitivity:** Economic evaluation involves making assumptions and simplifications that introduce uncertainty into the results. Sensitivity analysis can help address this uncertainty, but it may not always capture all sources of variability, leading to limitations in the interpretation of findings.
3. **Complexity of Interventions:** Some health interventions are complex and involve multiple components or outcomes that are difficult to measure or value. Economic evaluation may struggle to capture the full

impact of these interventions, leading to challenges in comparing their cost-effectiveness with simpler interventions.

4. Decision-Making Context: The context in which economic evaluations are conducted can influence decision-making and the interpretation of results. Decision-makers may have different priorities, values, or constraints that impact the selection of interventions based on cost-effectiveness criteria.

In conclusion, economic evaluation in health care is a powerful tool that can help decision-makers allocate resources efficiently and improve the health outcomes of populations. Understanding key terms and concepts in economic evaluation, such as CEA, CUA, ICER, QALYs, discounting, and sensitivity analysis, is essential for conducting rigorous and informative economic evaluations. By addressing challenges and applying practical applications, economic evaluation can play a crucial role in shaping health policy and clinical practice to deliver value-based care to patients.