

Economics and decision-making in malaria control

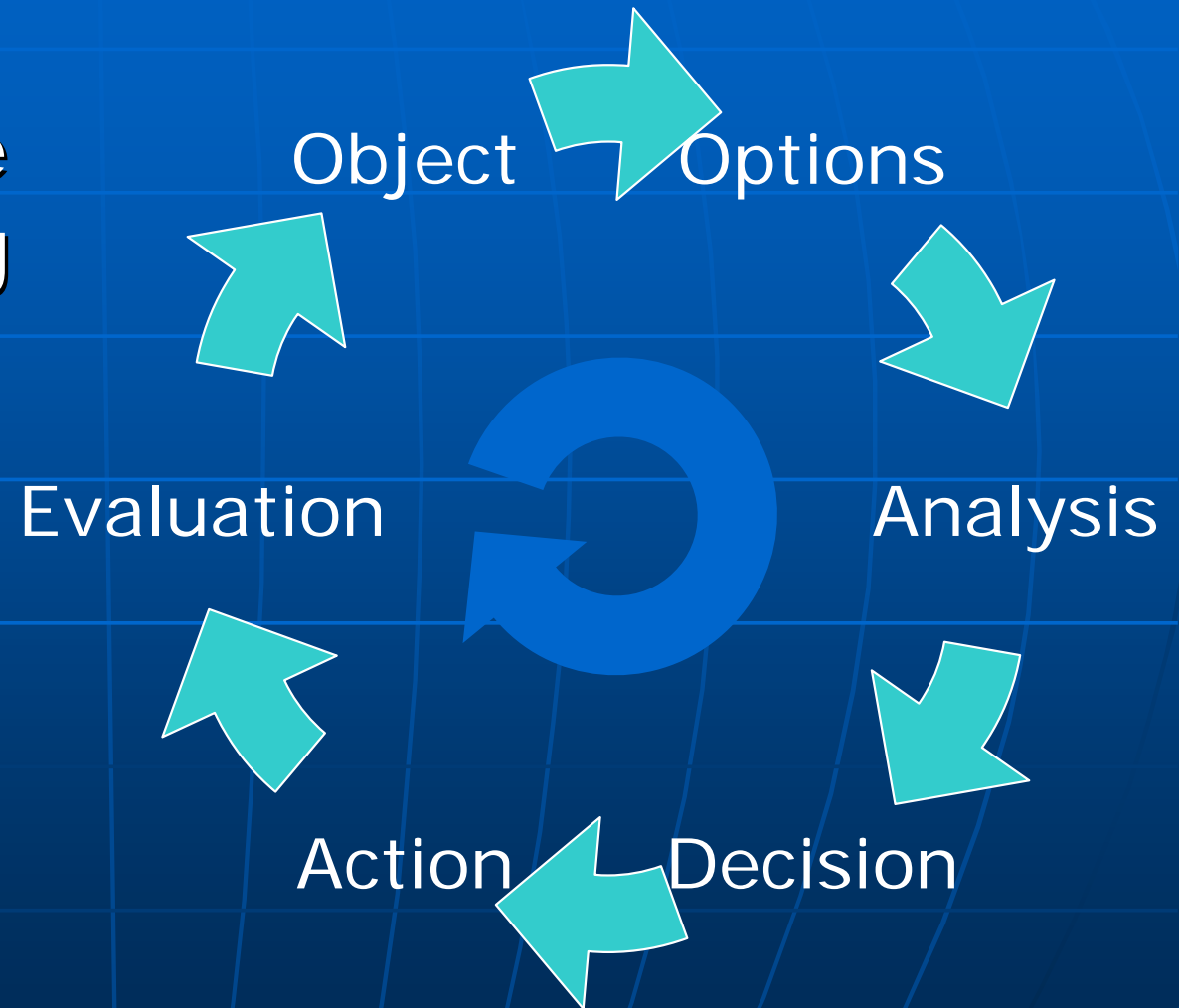
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Economics

- Health economics is the science for management of healthcare resources
- Two fundamental questions:
 - If we have adequate level of resources
 - If we use the available resources effectively and efficiently

Decision making

- The process to choose a course of action among several alternatives
- Six stages:



Contribution of economics to decision making

- Opportunity cost
- Rationalisation
- Maximisation
- Costs and benefits
- A tool, not an end...

Methodology: An Example

- Data collection (case-control, cross-sectional, cohort study, randomised clinical trial)
- Cost analysis (average vs marginal, current vs future, net present value, budget impact analysis)
- Sensitivity analysis (uncertainty, scenario analysis)
- Rate or ratio (best value for money, cost-benefits, cost-effectiveness, cost-utility analysis, cost-consequence analysis)
- Ranking (option appraisal, decision tree)

Option appraisal

- A process to assess different potential options to achieve required outcomes.
- Steps:
 - Establish decision-making and reference groups
 - Define objective and assessment criteria
 - Gather information (disease, plausible weights and probabilities)
 - Wide consultation and workshopping
 - Develop and cost the options
 - Filtering and short-listing options
 - Assessing and analysing the options
 - Ranking and weighting the options
 - Selecting the preferred option

Malaria example - Village health worker incentive Program

- Objective: recommend an incentive scheme that motivates village health workers to meet malaria reporting requirement (within 7 days monthly reporting of malaria incidence) and is affordable under the current funding grant
- Appraisal criteria and weighting scores

Criteria	Weighting
Reporting timeliness	0.3
Reporting completeness	0.2
Accurate Dx & prompt Tx	0.1
Feasibility	0.2
Sustainability	0.2

Workshop for stakeholders

- Vice minister
- Consultants/Advisors
- Chief/Deputy
- Directors/Managers
- Coordinators

Options

Option	Description	Avg costs(\$)
1	Current case	0
2	1 + travel cost reimbursement	23
3	2 + performance payment	46
4	3 + t-shirt & certificate	51
5	3 + bicycle	62
6	4 + bicycle + toilet	87

Assessing the probability of meeting the criteria

Criteria	Option					
	1	2	3	4	5	6
Reporting timeliness	0.25	0.75	1	1	1	1
Reporting completeness	0	0.5	0.5	0.75	0.75	0.75
More accurate Dx prompt Tx	0	0.25	0.25	0.25	0.25	0.25
Feasibility	1	1	1	1	1	1
Sustainability	1	0.25	0.25	0	0	0

Assessing marginal effectiveness

Criteria	Option					
	1	2	3	4	5	6
Reporting timeliness	0.075	0.225	0.3	0.3	0.3	0.3
Reporting completeness	0	0.1	0.1	0.15	0.15	0.15
Accurate Dx & prompt Tx	0	0.025	0.025	0.025	0.025	0.025
Feasibility	0.2	0.2	0.2	0.2	0.2	0.2
Sustainability	0.2	0.05	0.05	0	0	0
Avg Effectiveness	0.475	0.6	0.675	0.675	0.675	0.675
Avg Cost	0	23	46	51	62	87
Marginal Effectiveness		0.125	0.075	0	0	0
Marginal Cost		23	23	5	16	20
Additional Effect per cost		0.005	0.003	0.000	0.000	0.000

Preferred option

- As Option 3 results in an increase of benefit from 0.475 to 0.675 and there is no estimated increase in benefit score from Option 3 to Option 6, Option three is the preferred option.
- The total implementation cost for priority population is estimated USD 81,874.
- Other considerations: More training, no opportunity cost, improved primary care, monitoring and evaluation

Discussion

- Option appraisal is about finding the best solution
- Best value for money
- Considered relevant risks - prepare for the worst and hope for the best
- Importance of panel selection (professional judgement)
- Assessing preferred option for both positive and negative impacts on the total economy