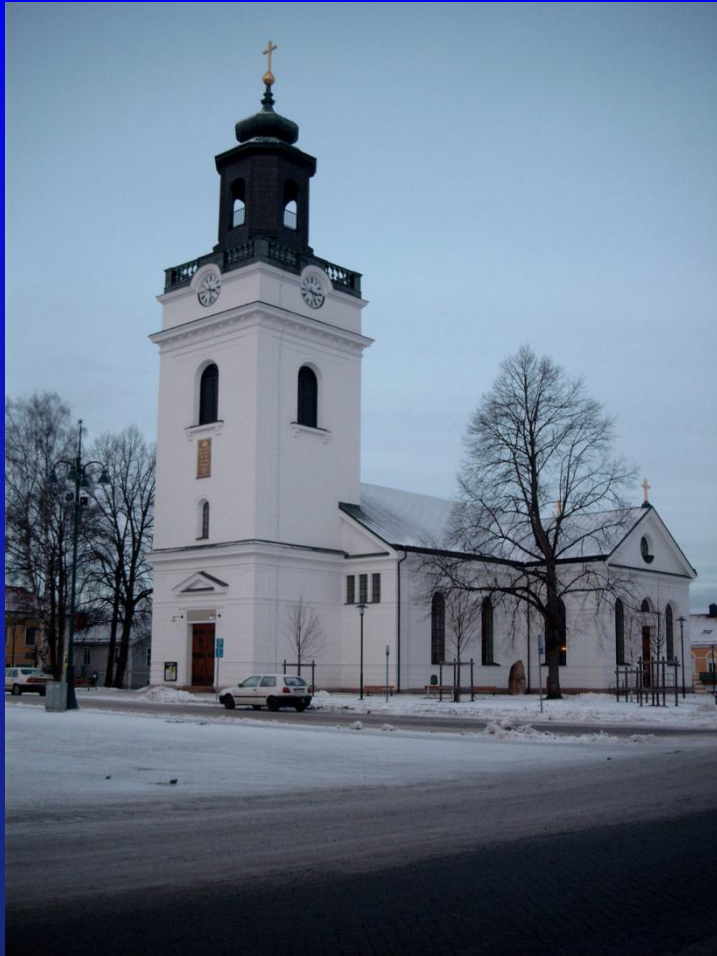


# Resource allocation



1. Assumptions on funding – cost - outcome

# Resource allocation

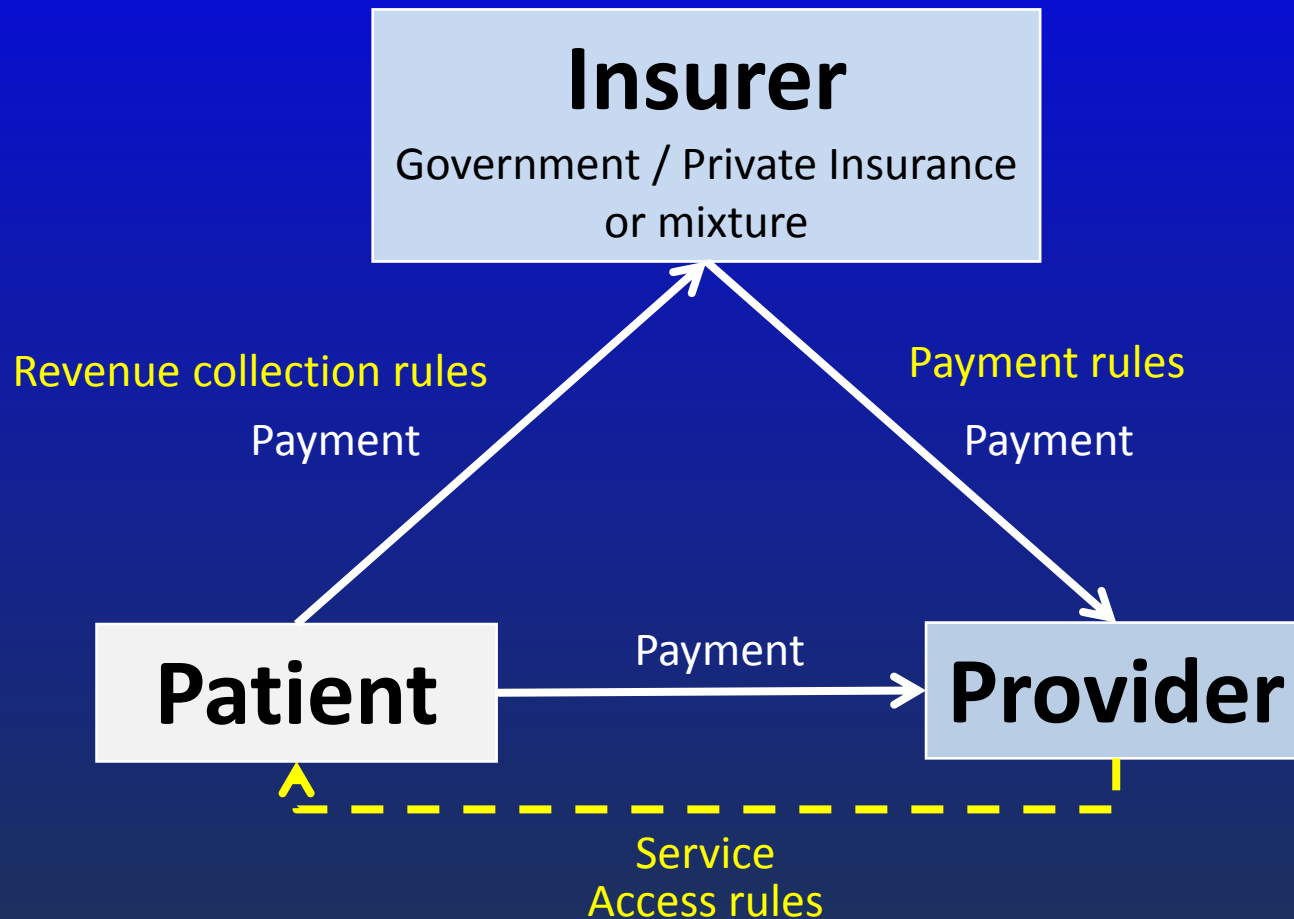
## Preoccupations are:



- 1 - The balance is between cost and outcome
- 2 - Equitable distribution of health care resources among all strata of society (equity / fair share).
- 3 - The rule set from the health care triangle

# The Medical Care Triad

## The rule set



# Resource allocation

## Preoccupations are:



- 1 - The balance is between cost and outcome
- 2 - Equitable distribution of health care resources among all strata of society (equity / fair share).
- 3 - The rule set from the health care triangle
- 4 – Recourse scarcity

# Common assumptions on funding

Resources for health care must be taken from the society's common financial basis regardless of the name or nature of the immediate payer

There will never be enough resources to meet every demand on health care sector. Therefore, the use of any such resource must be weighed against other needs within or outside the health care sector

*( This choice is based on opinions on what are the most urgent and commonly accepted goals. This opinion is seldom based on facts.)*

# Resource allocation

## Preoccupations are:



1 - The balance is between cost and outcome

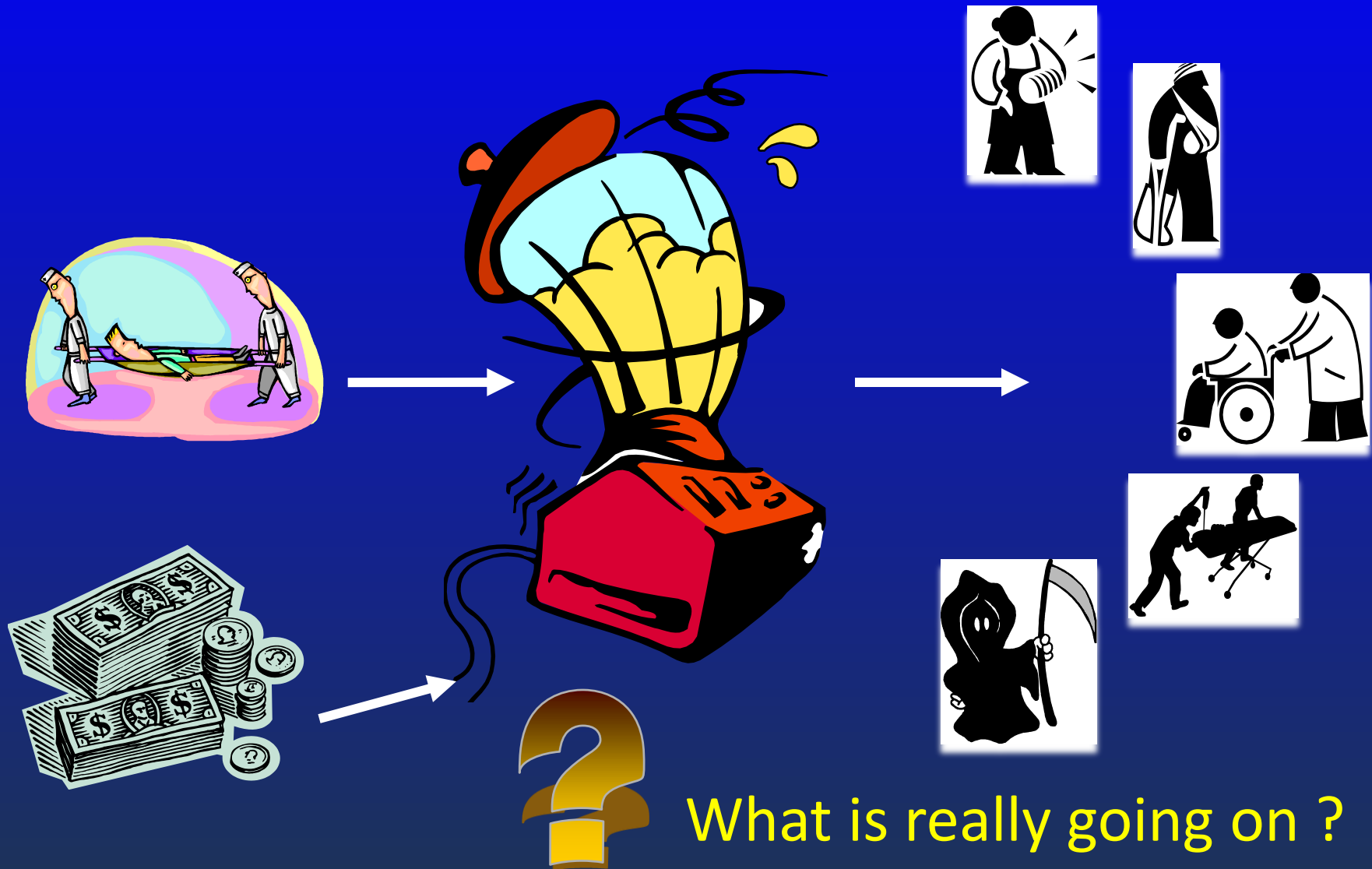
2 - Equitable distribution of health care resources among all strata of society (equity / fair share).

3 - The rule set from the health care triangle

4 – Recourse scarcity

5 - The Simple healthcare function model – the “Black Box Blender” to describe what it is we want to evaluate

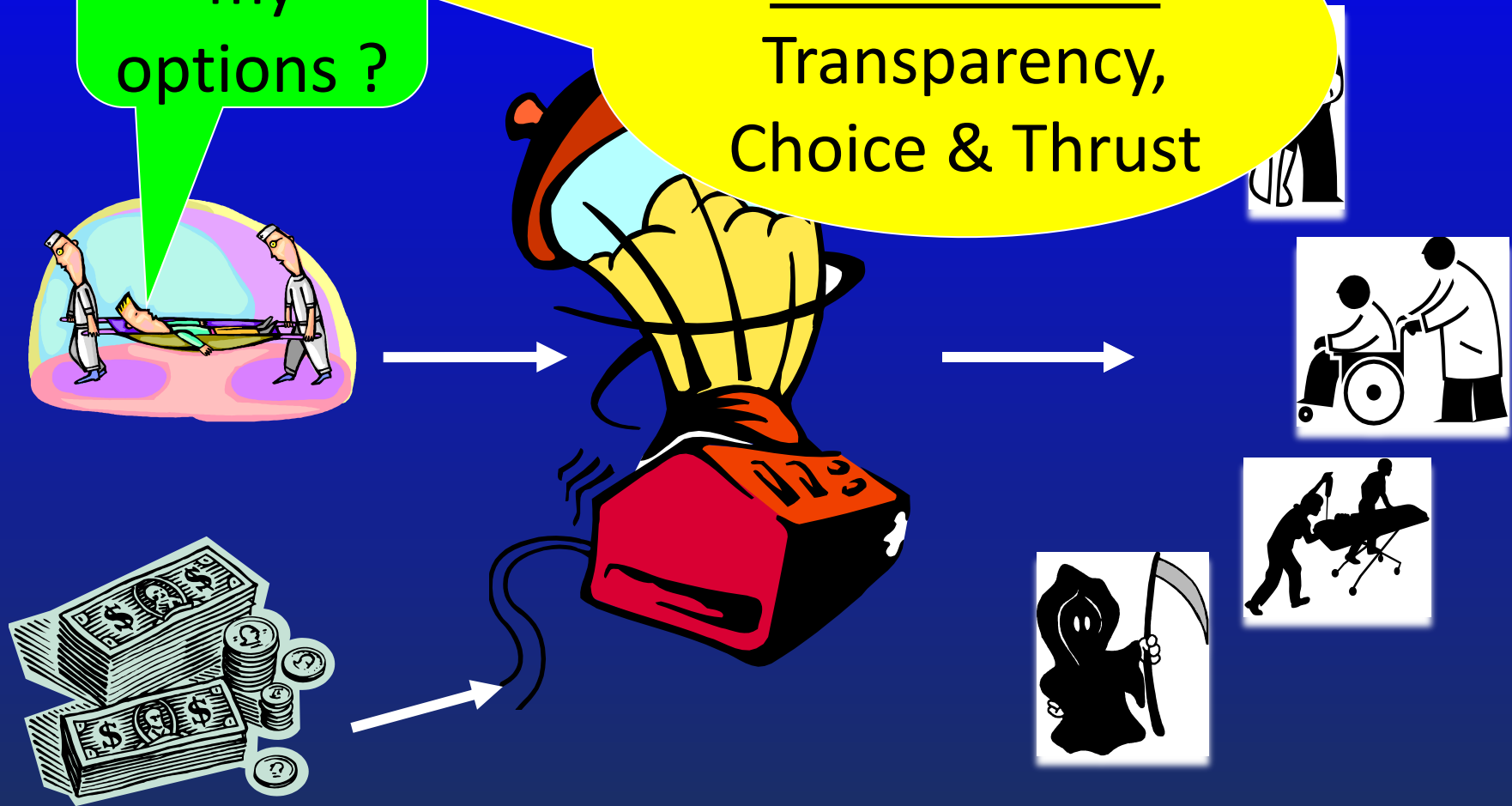
# The "Black Box"-Blender



# The Evaluation

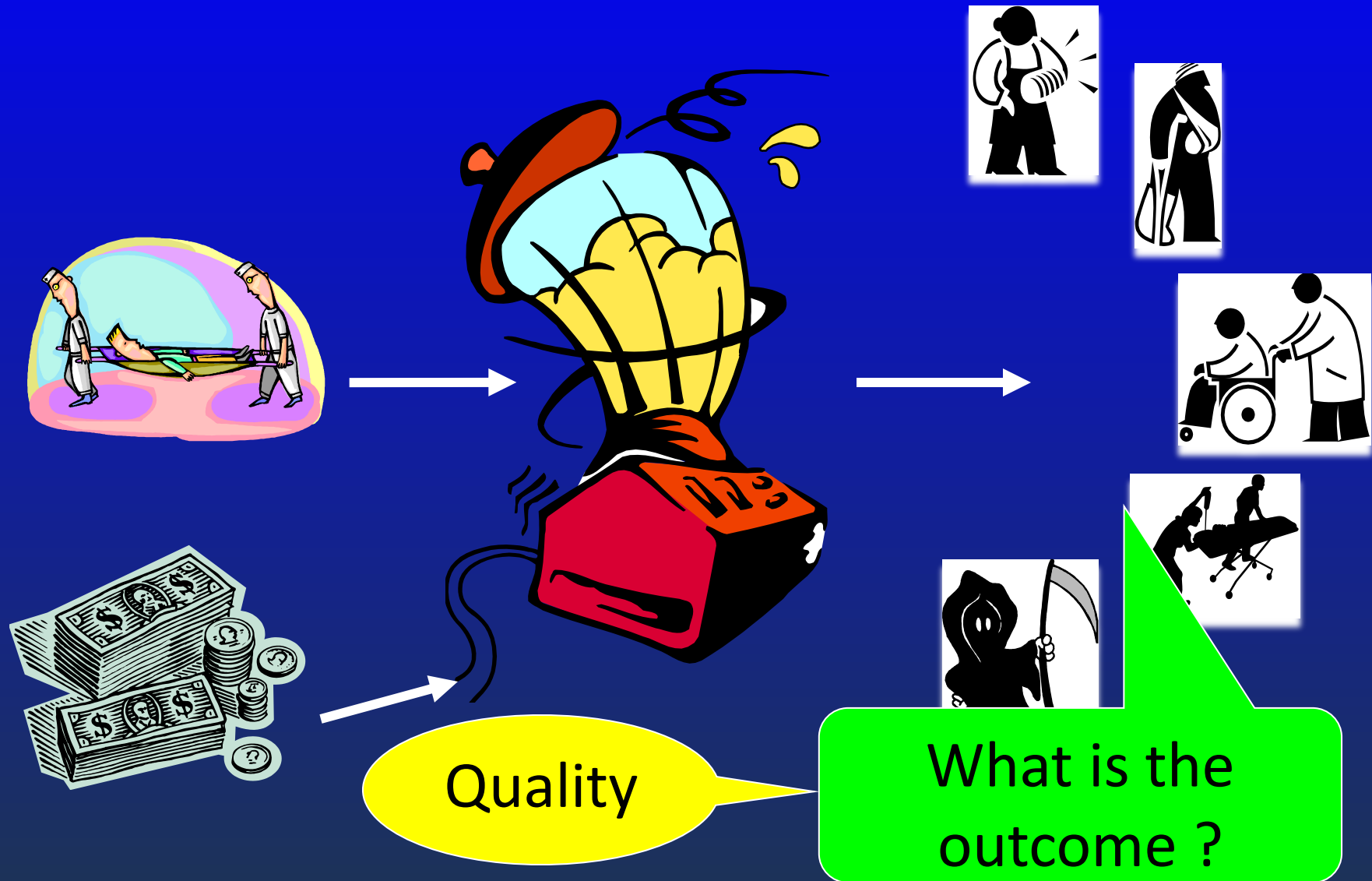
What are  
my  
options ?

The activities  
Transparency,  
Choice & Thrust





# The Evaluation



# The Evaluation

**Documentation of the  
relation between resources,  
activity and outcome**



**Where does the  
money go?**

# Resource allocation

## Preoccupations are:



1 - The balance is between cost and outcome

2 - Equitable distribution of health care resources among all strata of society (equity / fair share).

3 - The rule set from the health care triangle

4 – Recourse scarcity

5 - The Simple healthcare function model – the “Black Box Blender” to describe what it is we want to evaluate

6 - Assumptions about the organization and the individuals

# The Evaluation

## ***Assumptions about the organization:***

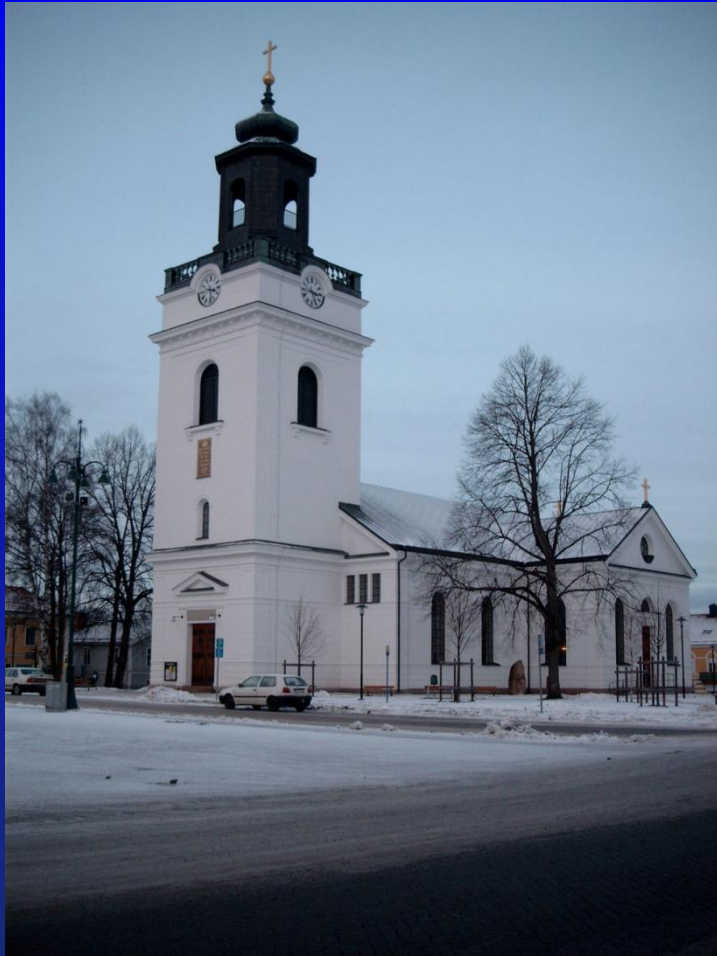
The goal of any economic organization, including the economic system as a whole, is to satisfy the wants and needs of individual human beings.

The economic system then is judged on how well it satisfies the economic needs of the population

## ***Assumptions about the individual:***

It is assumed that people are equipped with measures of their welfare (called utility functions), that they like one situation better than another if and only if it gives greater utility, and that their economic goal is to maximize this measurements of satisfaction.

# Resource allocation



1. Assumptions on funding – cost - outcome
2. Priority setting an simple example

# Priority – an example

The task is to choose between 3 alternative treatments

We have 25 sick persons

A total budget of 100 \$

<i>Treatment</i>		
Treat- ment	Gain Years of life	Price per treatment
A	4	10 \$
B	3	5 \$
C	2	4 \$

# Priority – How many can we treat ?

The task is to choose between 3 alternative treatments

We have 25 sick persons

A total budget of 100 \$

<i>Treatment</i>				
Treat- ment	Gain Years of life	Price	Treated No of patients	Total cost
A	4	10 \$	10	$10 * 10 = 100$
B	3	5 \$	20	$5 * 20 = 100$
C	2	4 \$	25	$4 * 25 = 100$

# Priority – What is gained?

The task is to choose between 3 alternative treatments

We have 25 sick persons

A total budget of 100 \$

<i>Treatment</i>				
Treat- ment	Gain Years of life	Price	Treated No of patients	Gain Years of life
A	4	10 \$	10	$4 * 10 = 40$
B	3	5 \$	20	$3 * 20 = 60$
C	2	4 \$	25	$2 * 25 = 50$



# Economics don't give the answer

The question is which option to choose ?

Best effect for the individual treated person? Chose A

Treat as many as possible? Chose C

Gain maximum years of life? Chose B

<i>Individual level</i>			<i>Group Level</i>	
Treat- ment	Gain Years of life	Price	Treated No of patients	Gain Years of life
A	4	10 \$	10	40 years
B	3	5 \$	20	60 years
C	2	4 \$	25	50 years

# Economics don't give the answer

## The question is which option to choose ?

Treat- ment	Gain Years of life	Price	Treated No of patients	Gain Years of life
A	4	10 \$	10	40 years

Treatment of all 25 will cost ( $10\$ * 25 =$ ) 250 \$

Extra funding needed (  $250\$ - 100\$ =$ ) 150 \$

*Gain:*

25 patient - 10 already treated = 15 extra patients  
treated optimal.

We gain  $15 * 4$  year = 60 Year      2.5 \$ / Year

# Economics don't give the answer

## The question is which option to choose ?

<i>Individual level</i>			<i>Group Level</i>	
Treat- ment	Gain Years of life	Price	Treated No of patients	Gain Years of life
A	4	10 \$	10	40 years
B	3	5 \$	20	60 years

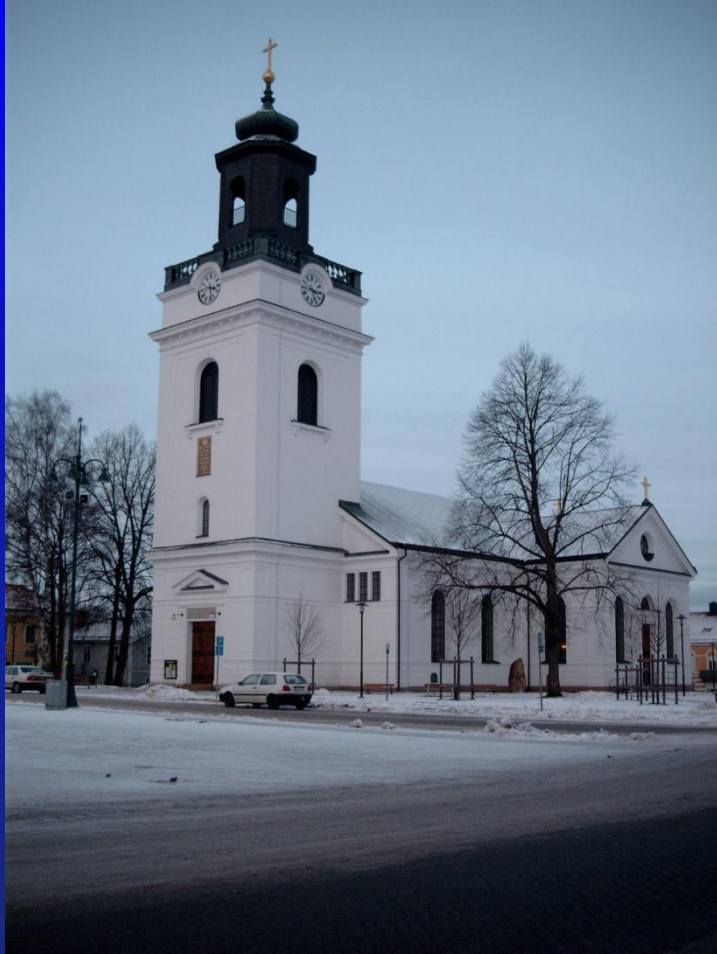
*More correct - the gain should be calculated using treatment B (max gain for the 100 \$ we already had)*

Best treatment: 25 pt \* 4 years gained/pt = 100 years

Option B gain a total of = - 60 years

We only gain for the extra 150 \$ = 40 years  
= 3,75 \$ /years

# Resource allocation



1. Assumptions on funding – cost - outcome
2. Priority setting an simple example
3. Effectiveness and Efficiency

# Effectiveness and Efficiency

**Effectiveness** – we have an effective procedure, we want it to be provided, and we do not want to wait for it

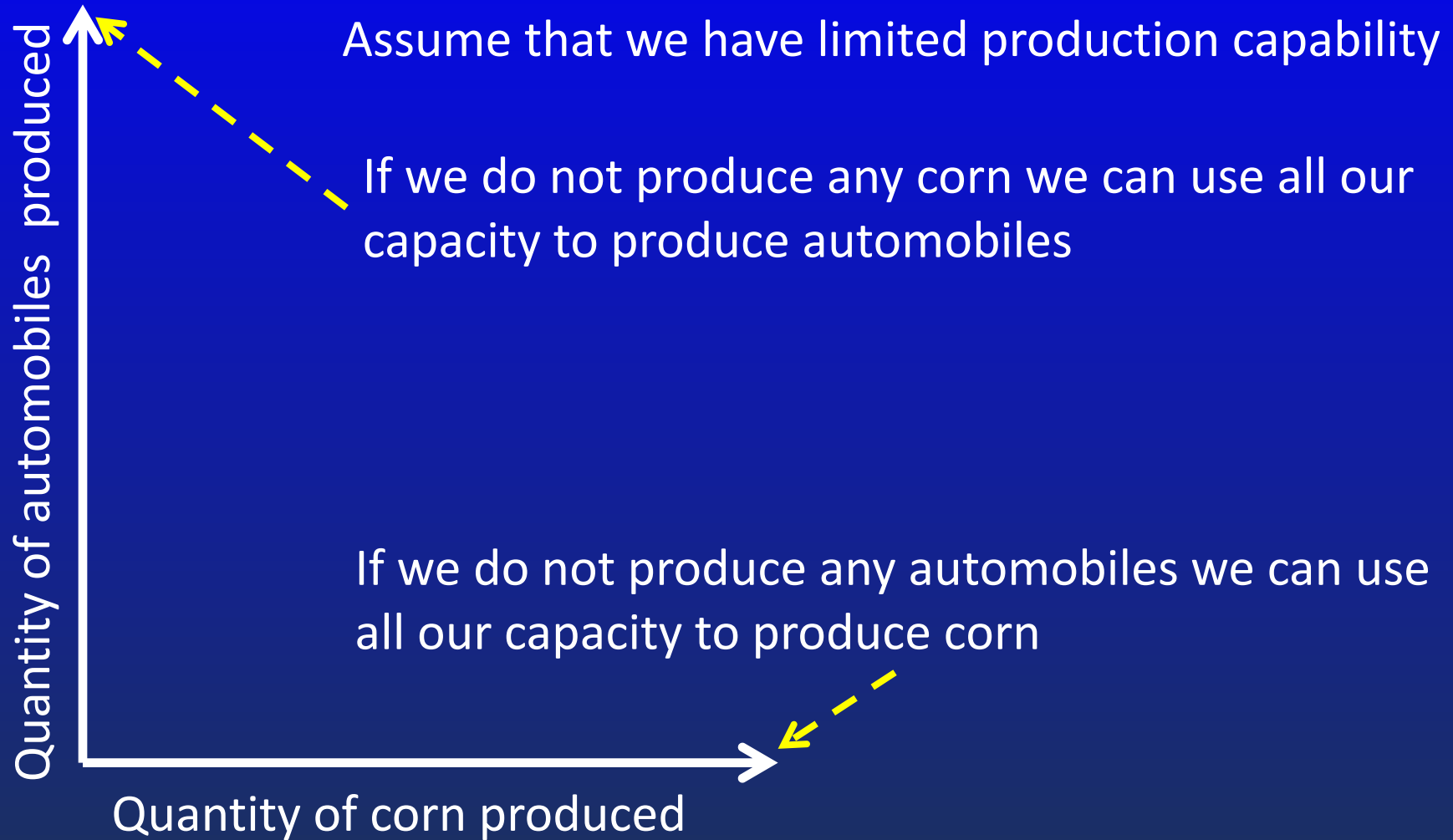
**Efficiency** – benefits provided by the treatment in a cost-effective way

**Efficacy** – best possible outcome from a procedure under optimal conditions

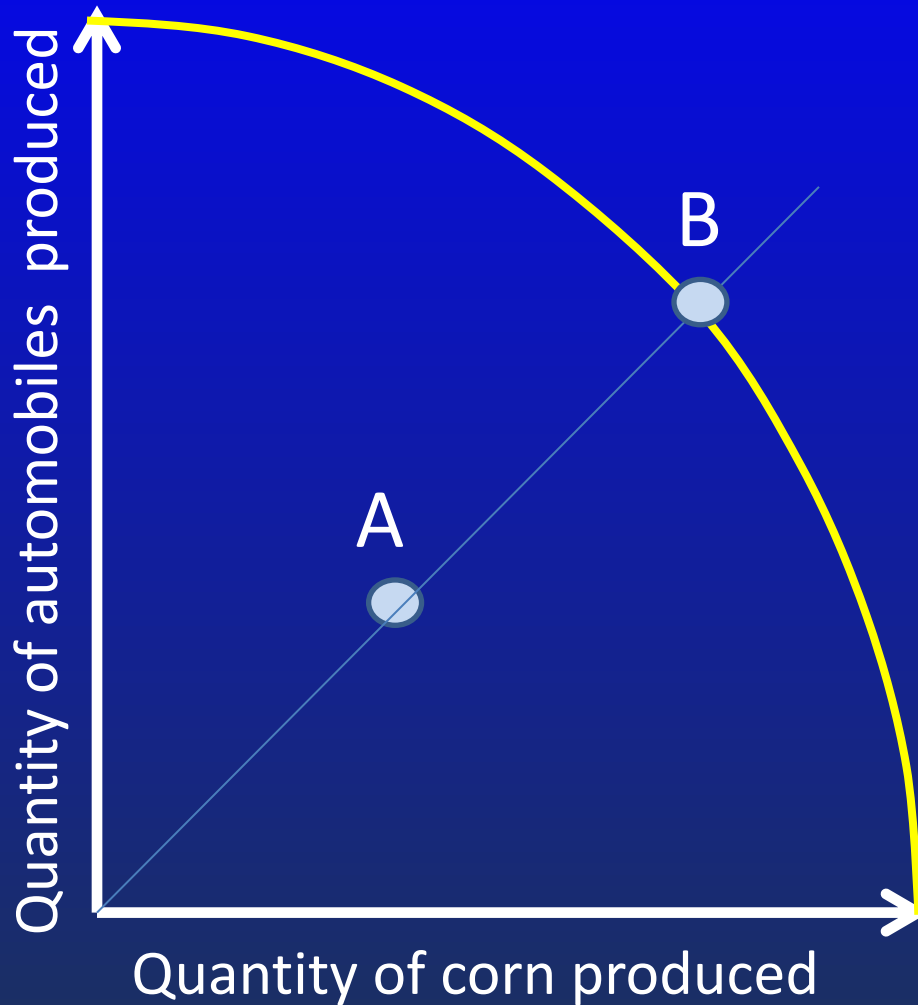
# Different Ways to Look at Efficiency

- Productive efficiency – maximum of output with minimum of input
- Technical efficiency – cost minimization
- Allocative efficiency – Pareto-optimality
- Social efficiency – social utilitarianism

# Pareto-optimality



# Pareto-optimality

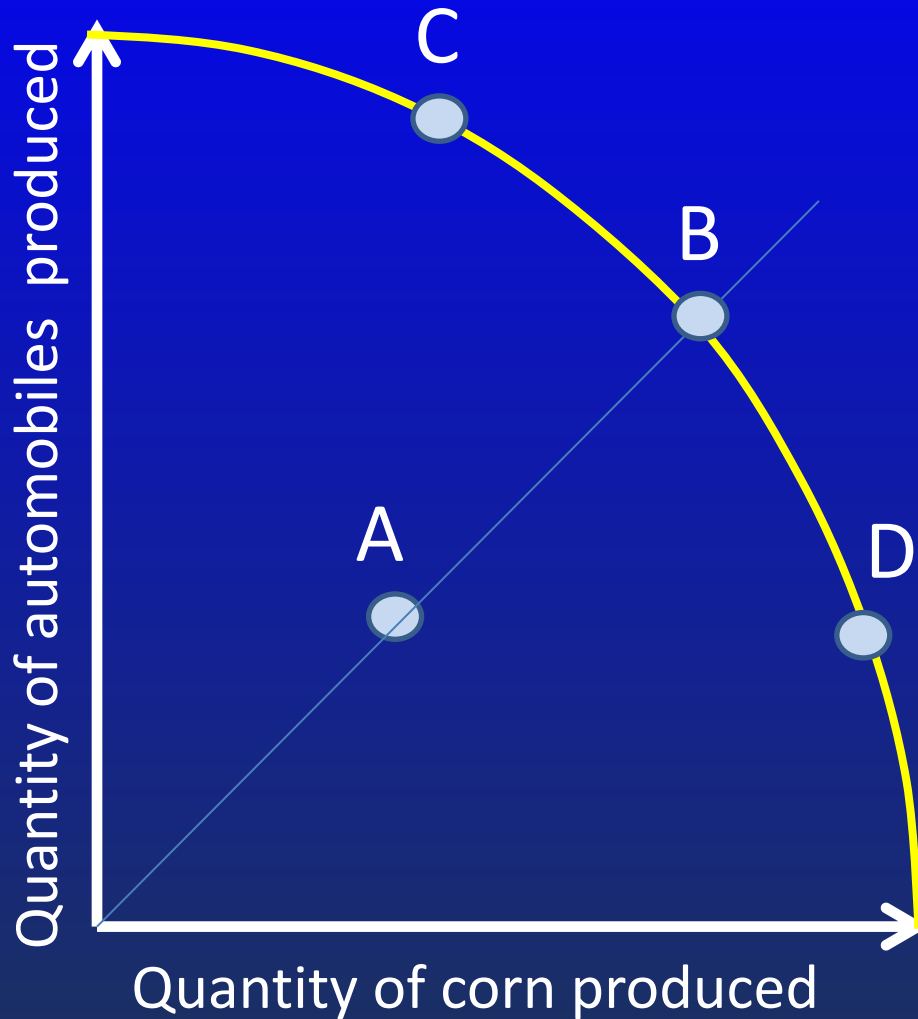


If the production at present is A

The production of both corn and automobiles can be increased to level B



# Pareto-optimality



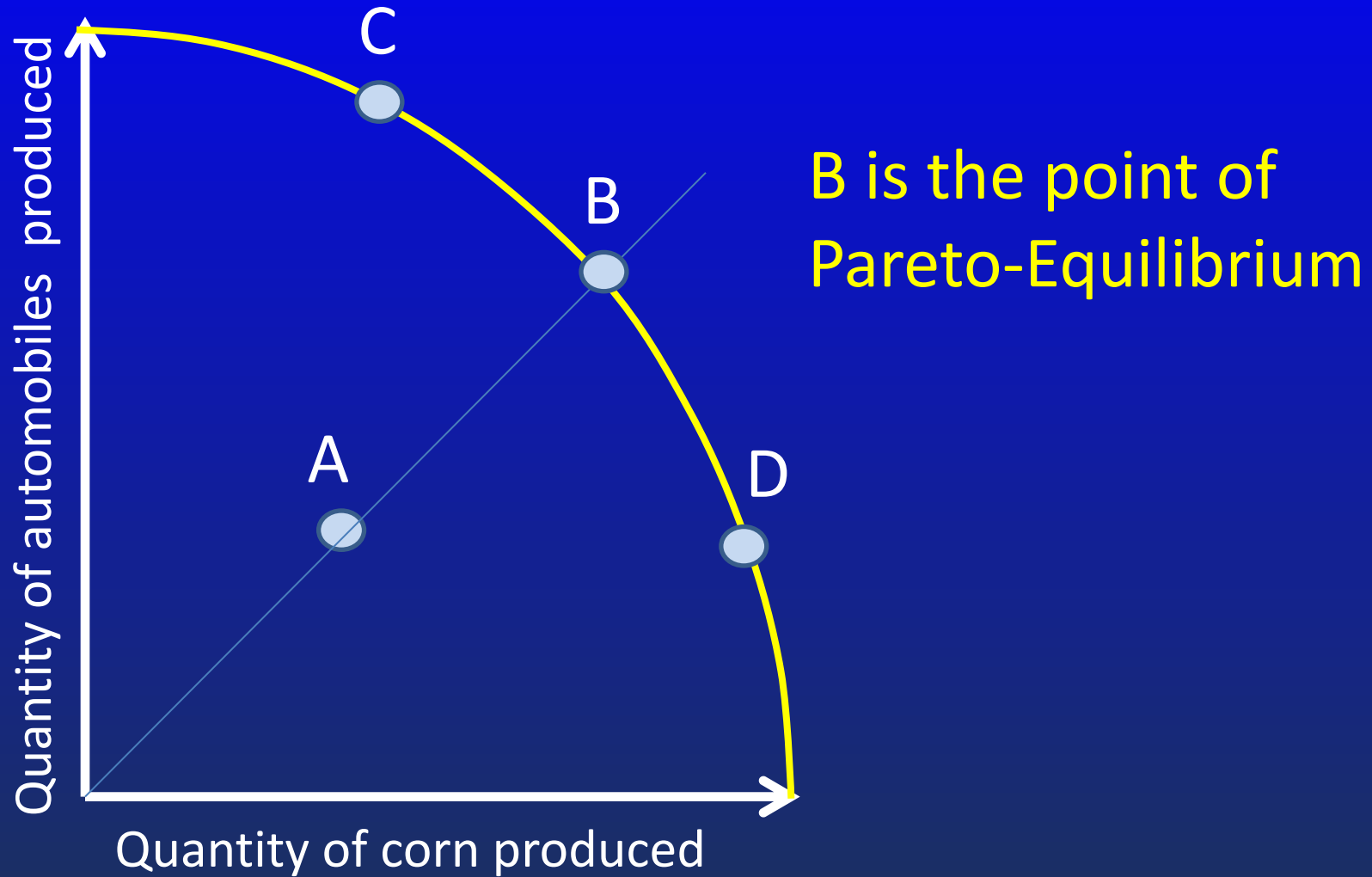
If the production is shifted to C ?

*More automobiles are produced at the expense of corn*

If the production is shifted to D ?

*More corn are produced at the expense of autos*

# Pareto-optimality



# Allocation, Needs and Target Efficiency



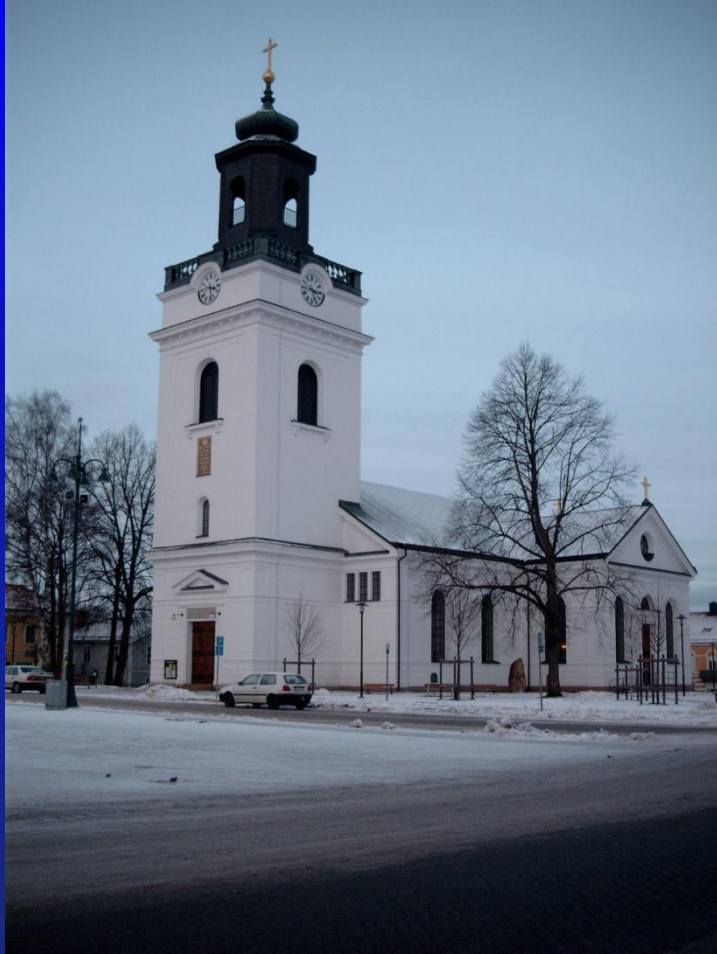
A: Do not need treatment

B: Need treatment

Oval: Receiving treatment

Efficiency: Specificity =  $D/(C+D)$       Sensitivity =  $D/B$

# Resource allocation



1. Assumptions on funding – cost - outcome
2. Priority setting an simple example
3. Effectiveness and Efficiency
4. Efficient choices

# Health Economic Themes

## ***Efficient choices or options means :***

There is no available alternative that is universally preferred in terms of the goals and performances of the people involved.

## ***Turning the definition around:***

A choice is inefficient when there is an alternative possible choice that would help one person without harming any other.

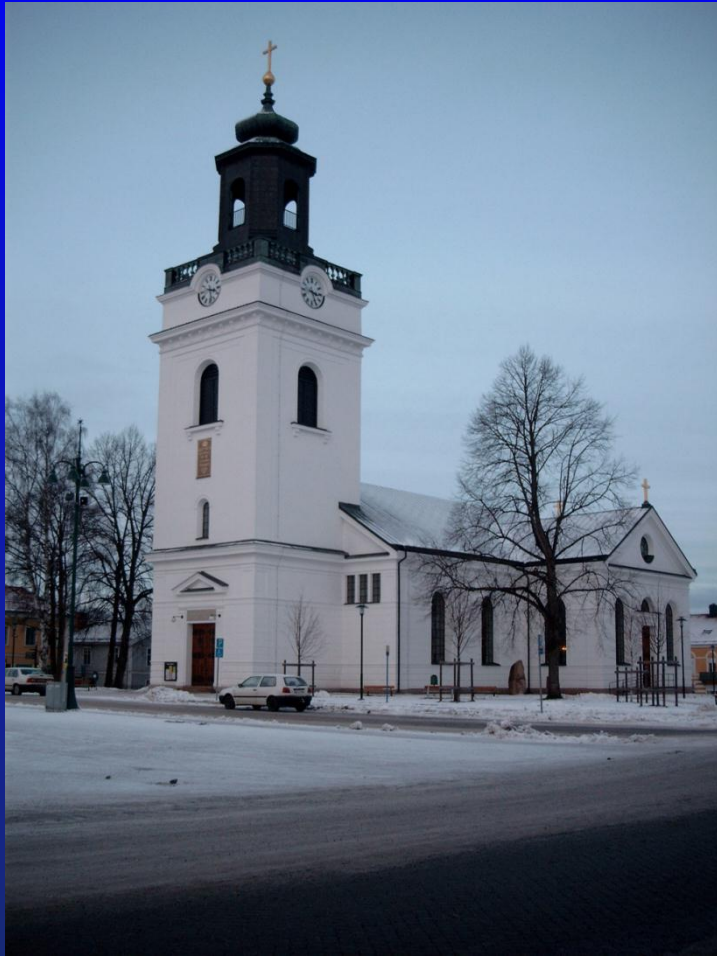
# Health Economic Themes

## Note

That the efficiency criterion can never be applied to resolve ethical questions about when it is justified or worthwhile to help one person at another's expense.

Thus , in applying the concept of efficiency it is necessary to be clear about whose interest are counted and what alternatives are considered to be feasible

# Resource allocation



1. Assumptions on funding – cost - outcome
2. Priority setting an simple example
3. Effectiveness and Efficiency
4. Efficient choices
5. Principles for priority setting

# The Usual Basis for Priority Setting in Health Care

1. Priorities in health care should be based on rational choices taking into account both ethical values and matters of effectiveness and efficiency.
2. The truth is that such choices are often based on local or even private opinions on which needs and demands should be treated, treated first and how.

*( Practice Guidelines support "Evidence Based Medicine" and priority settings only when clinical outcome data are used for those guidelines.)*



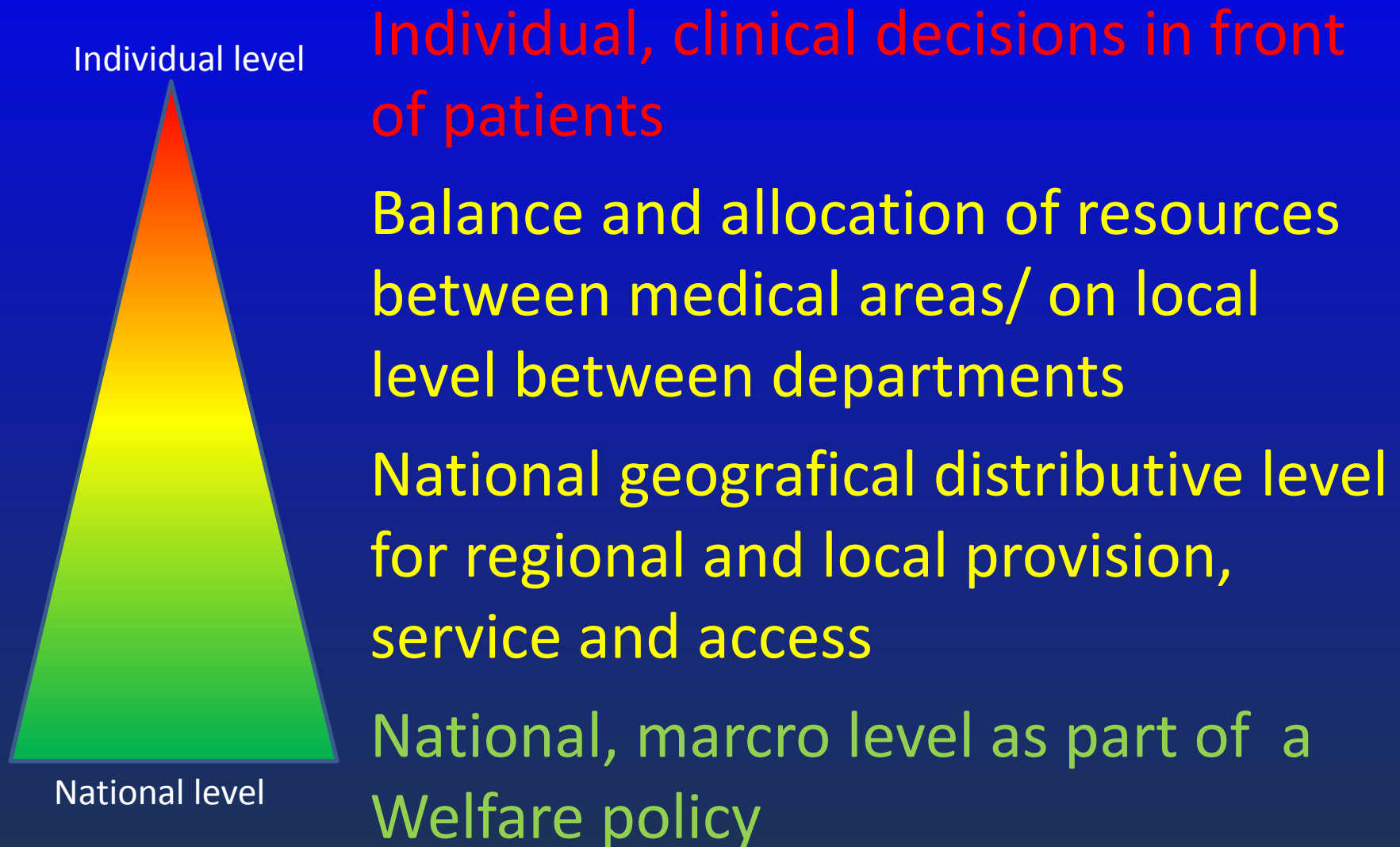
# Ethics, Economy and Priorities.

1. Ethical principles for setting priorities are based on needs. But inefficient use of resources is unethical.
2. Cost-effectiveness studies are based on costs and outcome. Cost or prices can be calculated and used for comparisons between groups of patients. The difficult part is to measure outcome.

*( The problem is case-mix and commonly accepted, operational indicators.)*

# Levels for Priority Settings in Health Care

## Priorities in Health Care are set on many levels:



# Level for Priority Setting in the Society

Decisions on priorities made on political and administrative levels are often in conflict with individual patient's choices.

Who should make these decisions?

- Individual politicians
- Doctors
- Patients or families

Consumerism: Informed patient

# Informal rationing

- Delay
- Dilution
- Deterrence
- Ignorance
- Withdrawal



*Hidden, unequal, closed.*

# Formal rationing

- Point systems
- Priority Classes
- Eligibility Rules



*Open to debate, uniformity of treatment*

# Some Implicit or Explicit Criteria for Setting Priorities in Health Care

- Age (Callahan)
- Capacity to benefit (Williams)
- Social utility (Oregon)
- Social justice (Dunning)

# Opportunity Cost Concept for Setting Priorities in Health Care

To make something else with the money is called **Opportunity costs**:

***For every use of a resource there is an alternative***

***Every use of a resource means a lost opportunity***

# The Power in Priority Setting in Health Care

Power in priority setting in different funding and provision systems:

	ACTORS	
System	Politicians	Patients
Planned	+	-
Competitive	-	+



# The Conflict of Two Disciplines

## **Economic logic**

v.s.

## **Clinical freedom:**

Framework and  
which allows us  
to reach  
conclusions  
about the best  
way resources  
can be allocated

The faculty of  
choosing the best  
intervention for a  
patient, based on  
one's knowledge

***Both calls for evaluation, judgment and prioritizing***

# Have we reached the limits for health care spending ?



# Resource allocation

**Maximize general population health.** Policy makers may not always be benevolent maximizers of social welfare, but may also act out of own (political) self-interest

**Distribution of health in the population** The poor, the severely ill, children women of reproductive age to the economically productive people or low priority to people who require health care as a result from irresponsible behavior (e.g. smoking)

**Specific societal preferences** e.g. for acute care in life threatening situations, or for curative over preventive services

**Budgetary and practical constraints** that policy makers face when implementing interventions, including costs and availability of trained health workers

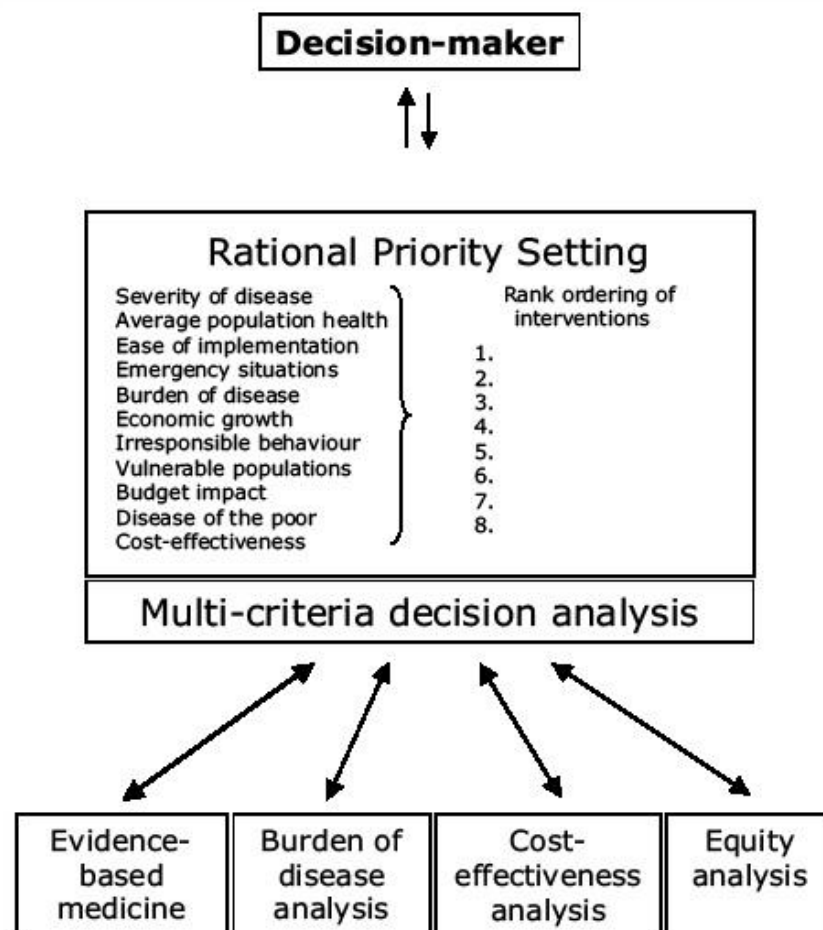
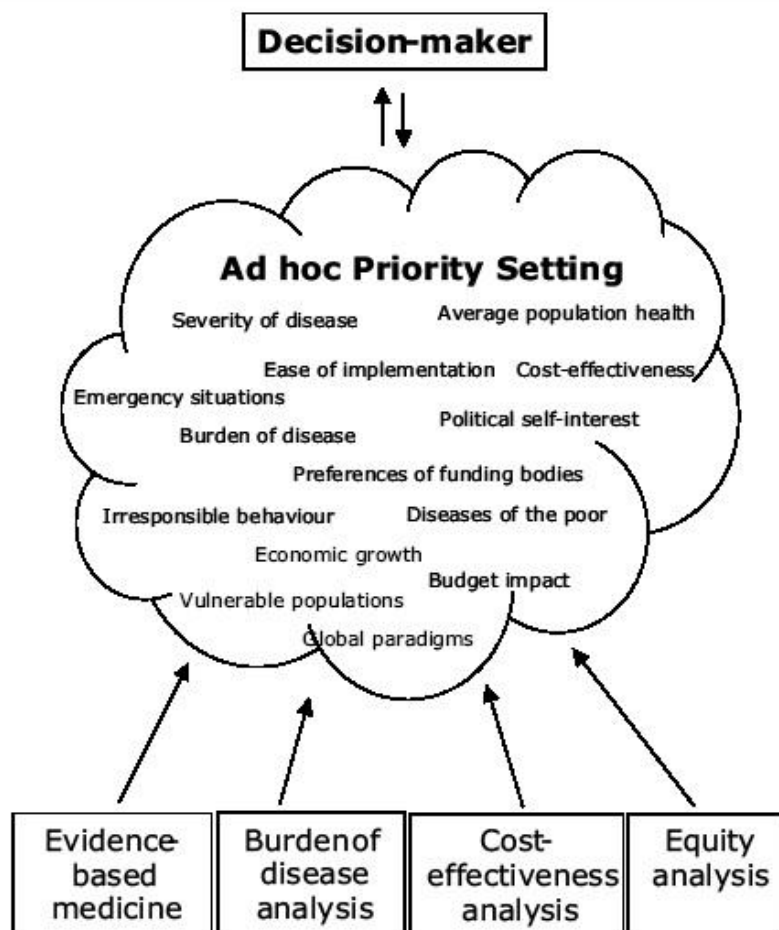
**Fifthly, political criteria may play an important role.** Policy makers may not always be benevolent maximizers of social welfare, but may also act out of own (political) self-interest

# Multi-Criteria Decision Analysis (MCDA)

Multi-Criteria Decision Analysis (or **Weighting and Scoring**) is a way of assessing a mix of both monetary and non-monetary benefits. The extent to which each option meets the identified criteria is measured, and explicit weights are given to each of the criteria to reflect their relative importance. Using this technique, options can be ranked and a preferred option identified.

[http://www.hm-treasury.gov.uk/green\\_book\\_guidance\\_mcda.htm](http://www.hm-treasury.gov.uk/green_book_guidance_mcda.htm) Accessed : 2012-01-31

# The Evaluation



Baltussen R, Niessen L. Priority setting of health interventions: the need for multi-criteria decision analysis. *Cost Effectiveness and Resource Allocation* 2006;4(1):14.