CEA & BCA

What they do and don't tell us

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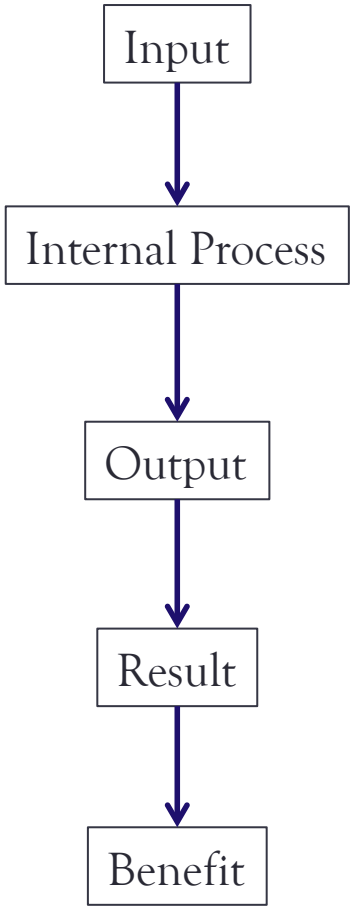
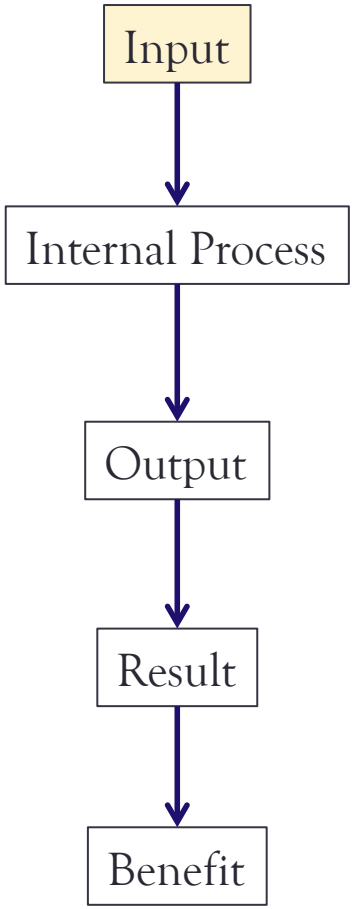
OVERVIEW

What to measure?



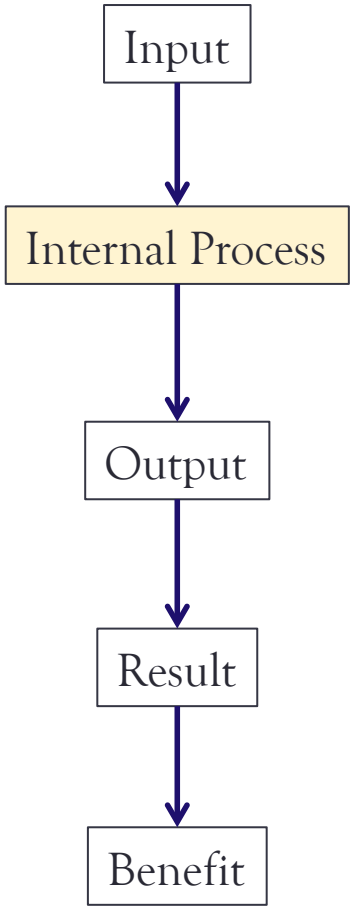
What to measure?

0.7% GNI target



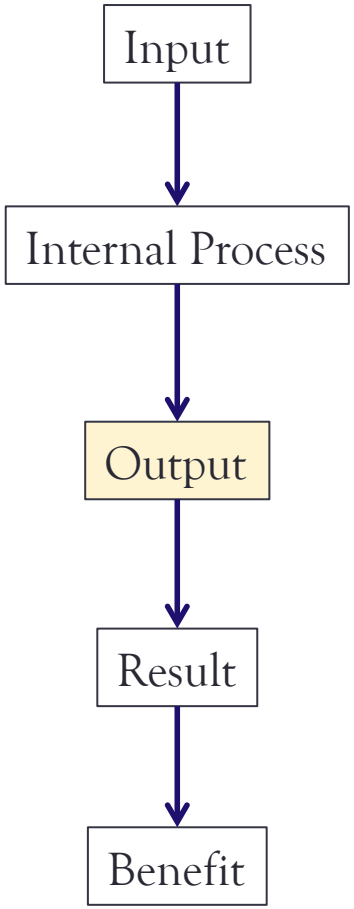
What to measure?

% administration costs



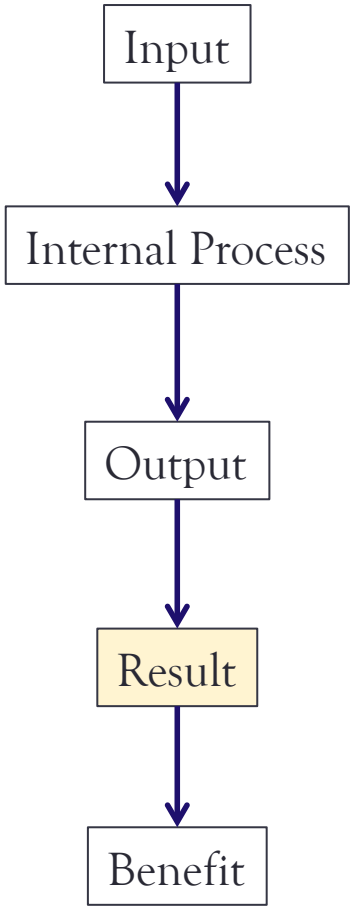
What to measure?

Bednets distributed

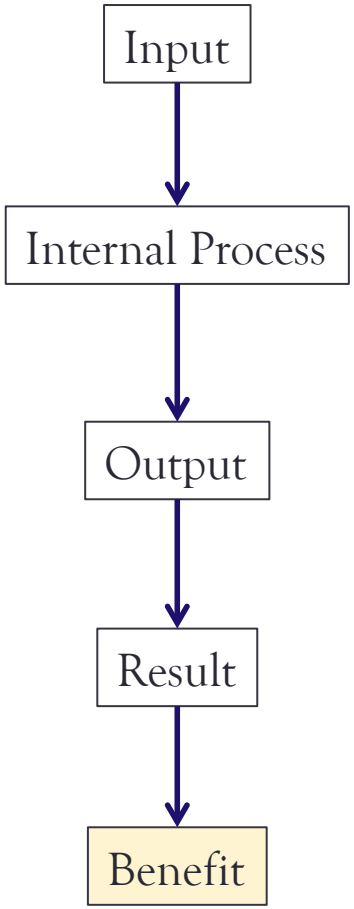


What to measure?

Malaria cases averted



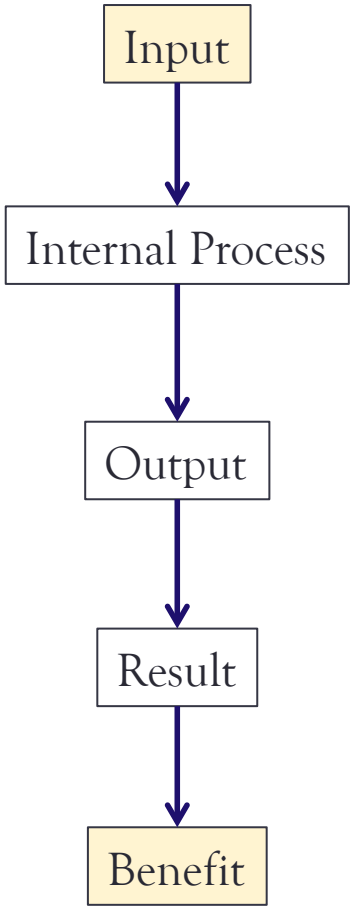
What to measure?



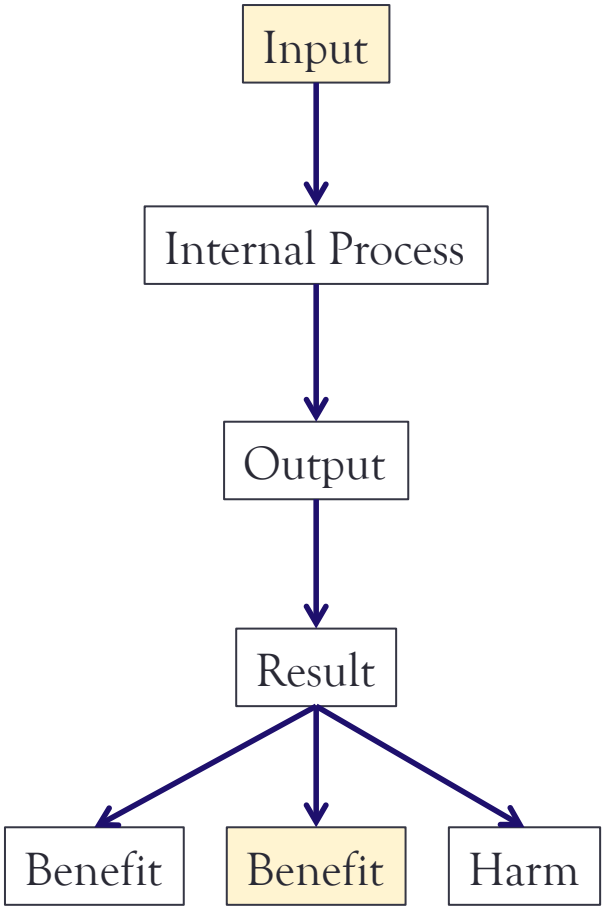
Health improvement

CEA

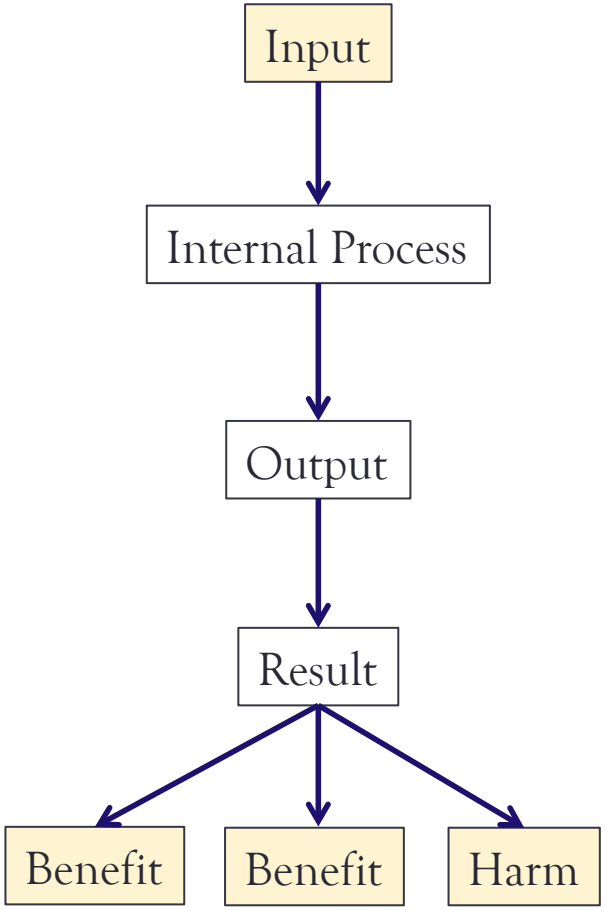
BCA



CEA


Input
Internal Process
Output
Result
Benefit
Benefit
Harm

BCA

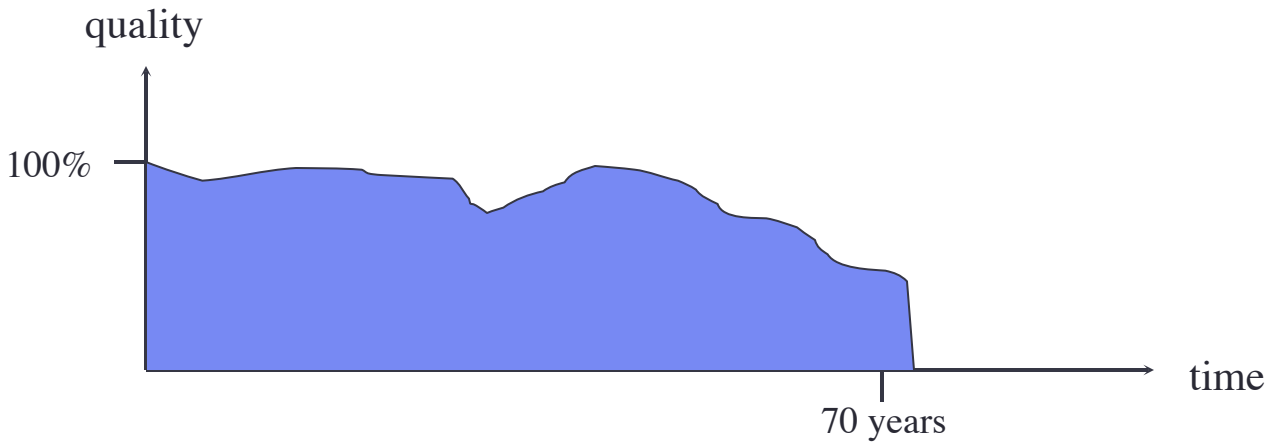

Input
Internal Process
Output
Result
Benefit
Benefit
Harm

CEA

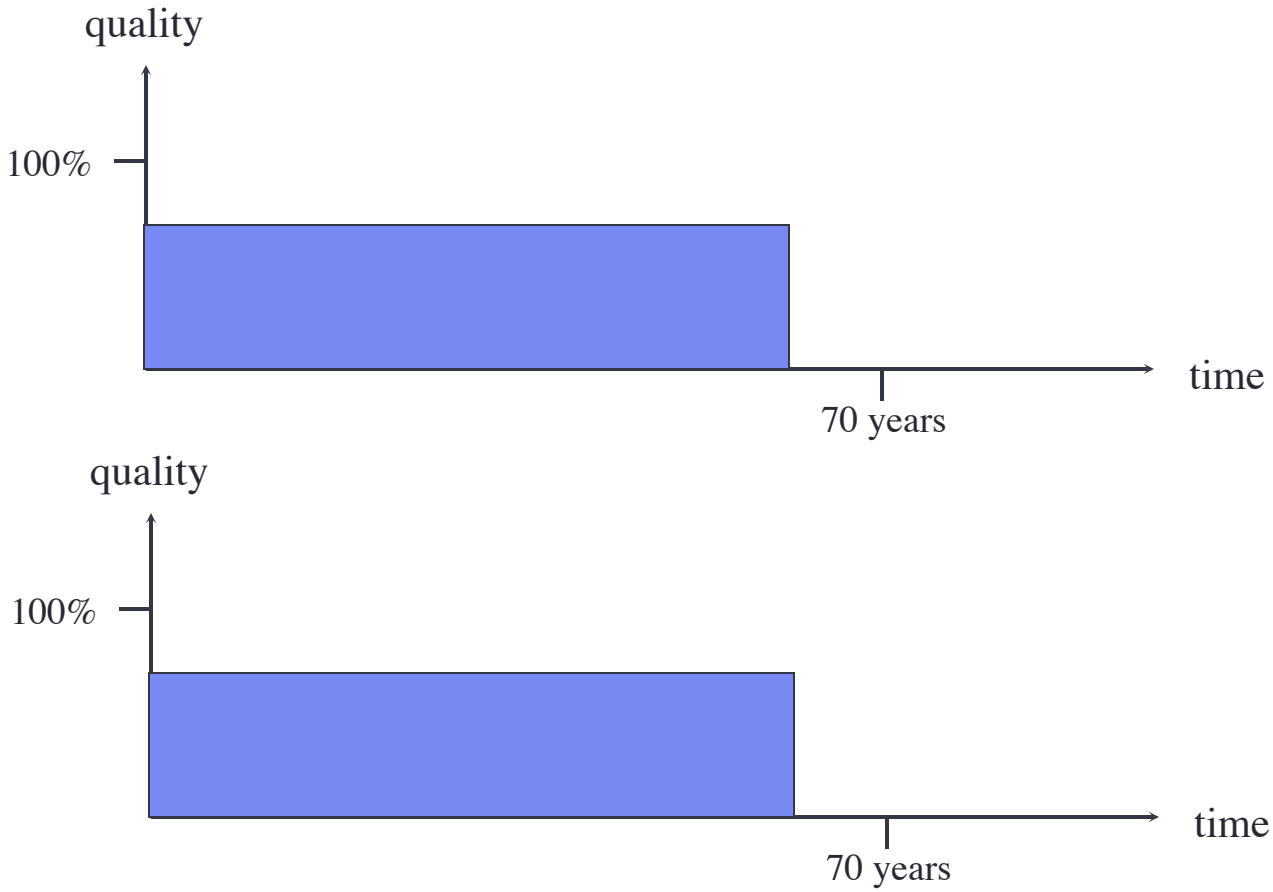
CEA – Cost-Effectiveness Analysis

- How much benefit to we get per dollar?
  - Benefits are expressed in a single natural unit
  - Costs are expressed in a monetary unit, such as US$ or I$
- Mainly used in public health
- Examples:
  - Lives Saved / $
  - LYs / $
  - QALYs / $
  - DALYs / $
- Sometimes expressed as a price:
  - $ / Life Saved

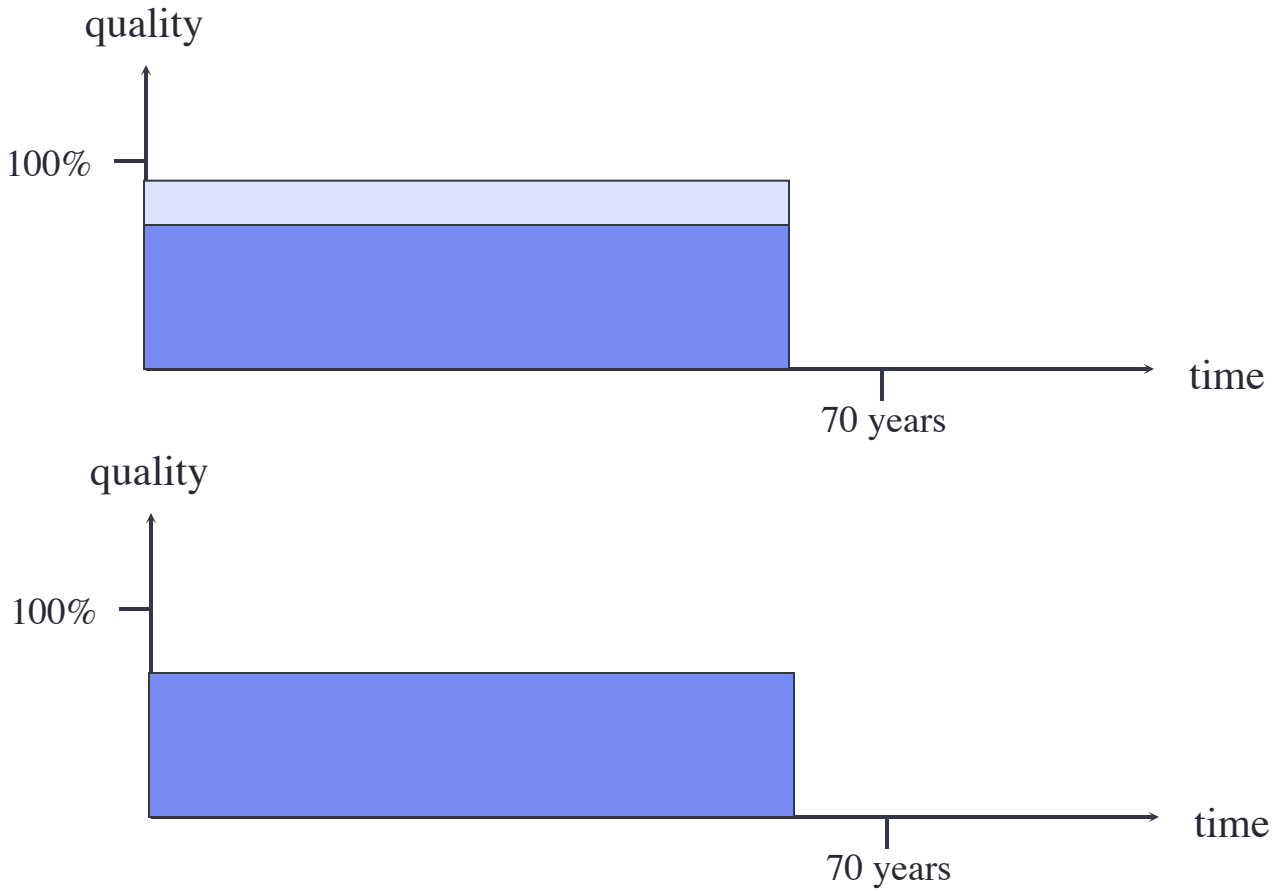
The DALY approach



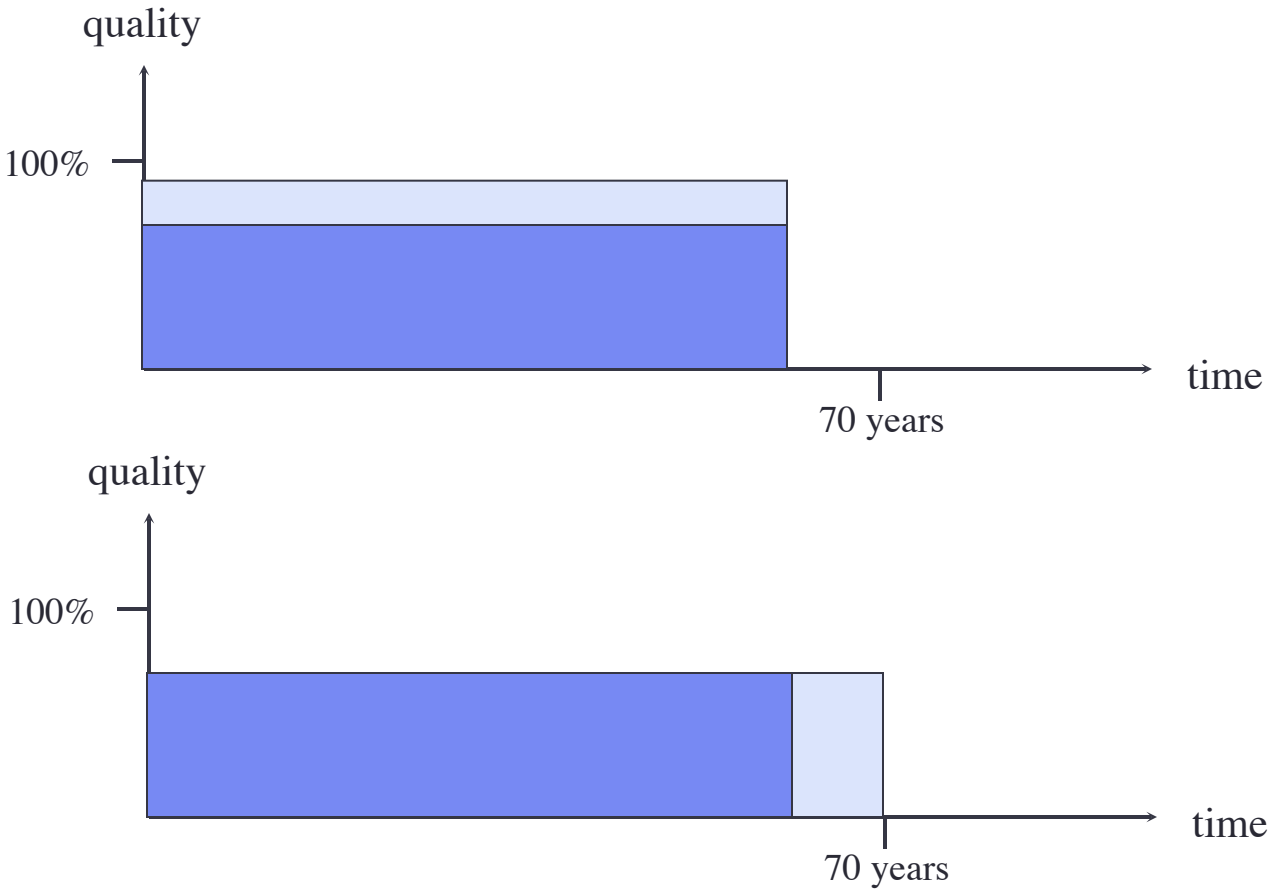
The DALY approach



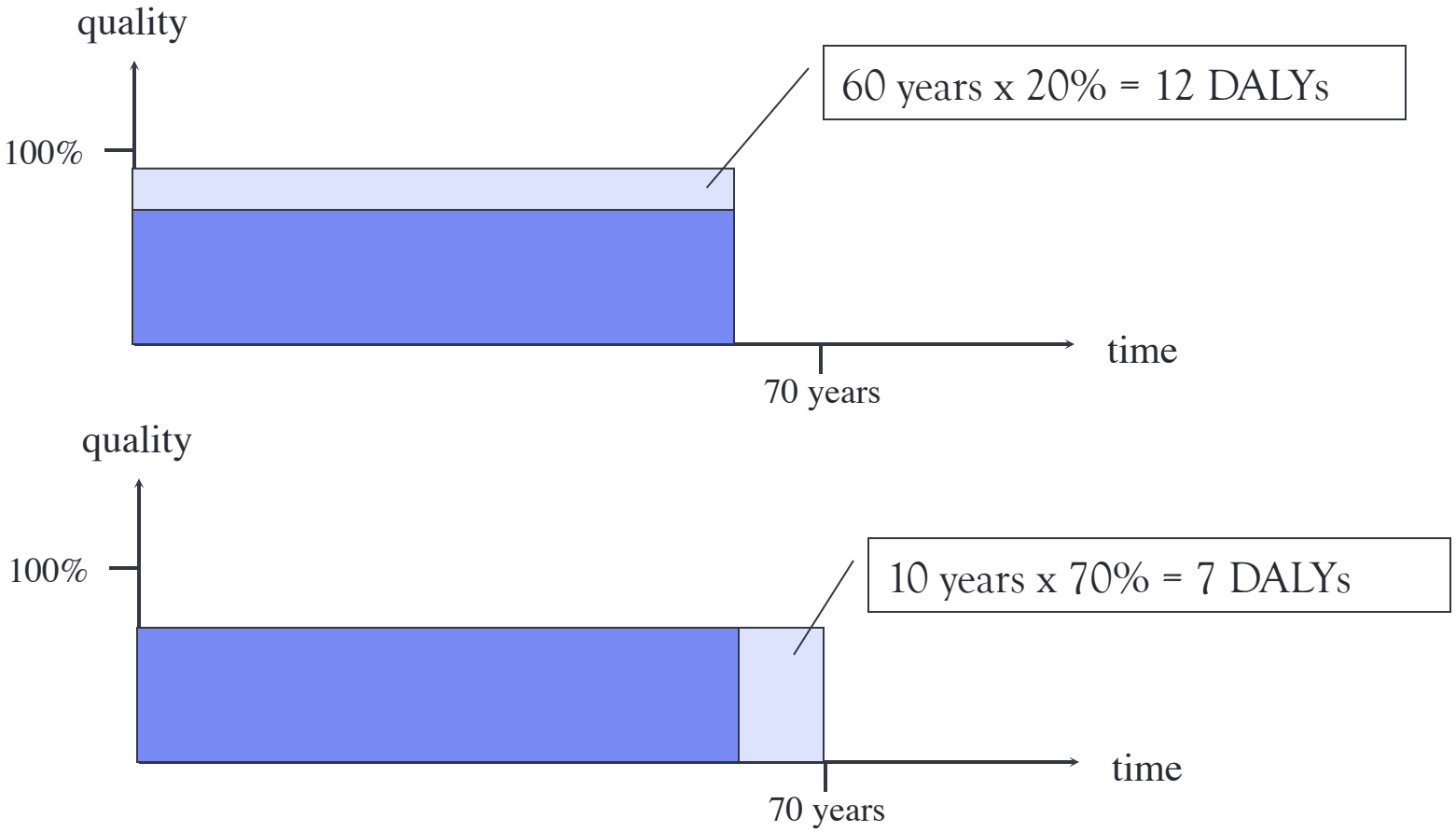
The DALY approach



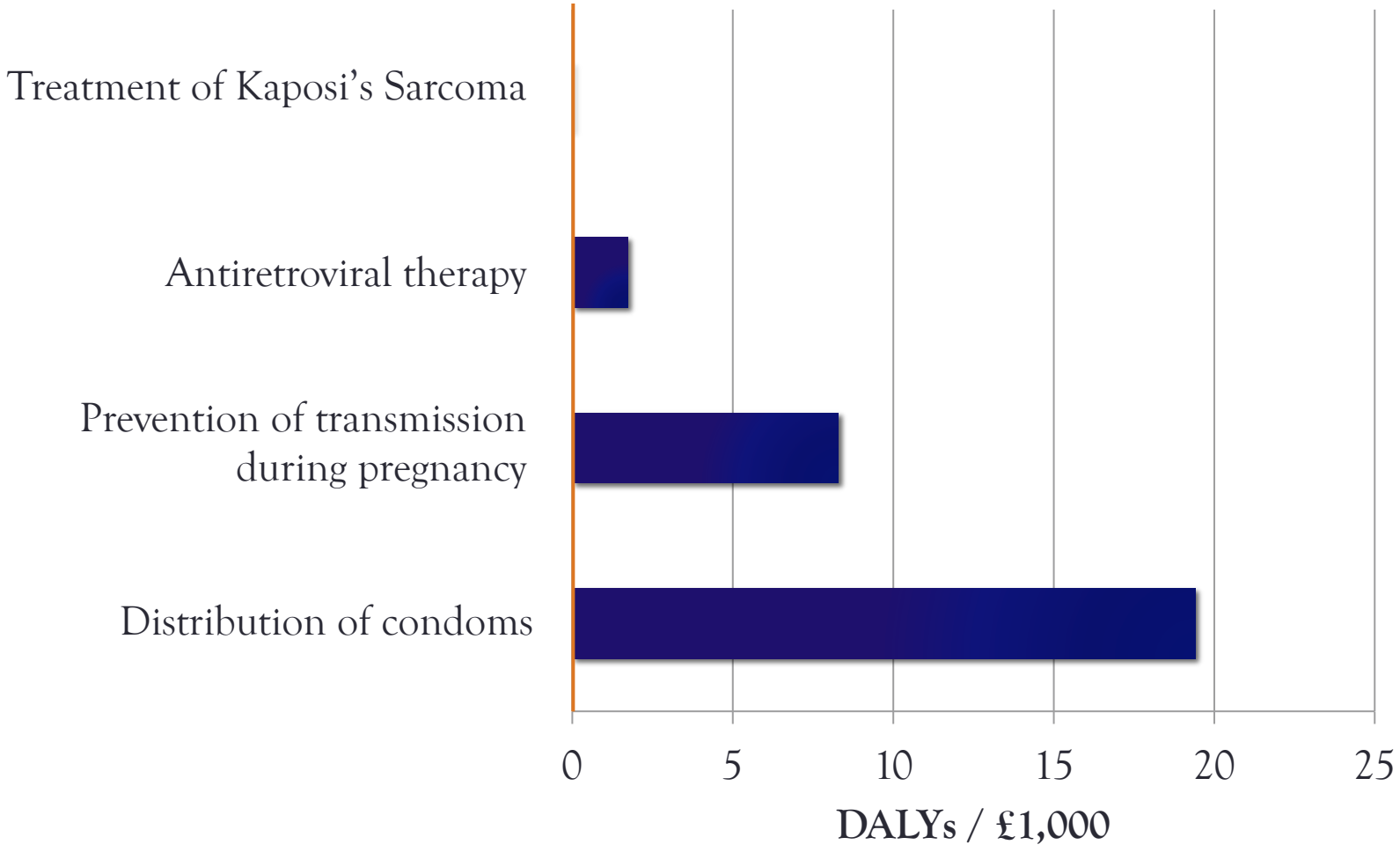
The DALY approach



The DALY approach



Example (from DCP2)



CEA – Advantages

- Relatively simple
- DALYs allow comparisons between many health interventions
- Allows you to produce the greatest health gains for a given budget
  - Rank interventions from most CE to least CE
  - Fund down the list until your budget runs out
  - (Rarely used in such a direct form though)

CEA – Drawbacks

- Can't deal with mixed benefits (or harms)
- The measure chosen might have problems
- Doesn't take into account distribution of benefits
  - (though BCA is even worse at this)
- Numbers are very uncertain
  - (same with BCA)
- Only seems to work well for narrow interventions
  - hard to assess health platforms etc.
- Even for narrow interventions, can't consider multiple types of cost or resource constraint at the same time
  - (same with BCA)

BCA

BCA – Benefit-Cost Analysis

- Also known as Cost-Benefit Analysis (CBA)
- Very commonly used in government to assess projects
- What is the ratio of benefits to costs?
  - Measured in $ / $
  - Net present value of benefits / Net present value of costs
- This is called the Benefit-Cost Ratio (BCR)
  - A value of 1 is the break-even point
  - High numbers mean good value

Calculating the net present value

- Measure/estimate the relevant quantities
  - Distribution of health gains, distribution of education gains, distribution of financial gains, environmental costs etc.
  - Should take into account all relevant stakeholders, externalities, environmental costs etc.
- Convert each of these into a dollar term via 'willingness to pay'
- Apply a discount rate to make benefits count less the further in the future they come
- Add them up

BCA – Advantages

- A very standard approach in government and economics
- Can be used to compare interventions that produce different kinds of benefit
  - e.g. Copenhagen Consensus
- Can take into account multiple types of benefit and harm simultaneously

BCA – Drawbacks

- Blind to distribution of benefits and harms
  - A really big problem as it measures them in dollars via WTP
  - Poor people are willing to pay less even to avoid the same sized harm, so they count less
  - Depends on how people are aggregated in calculating WTP
  - Even a benefit with a large BCR may produce more real harm than benefit
  - Sometimes we can get around this, but it requires considerable care
- Discounting health benefits is problematic
  - (this can come up in CEA too)
- Numbers are very uncertain
- Can't deal with multiple types of cost simultaneously

SUMMARY

CEA

something / $

simpler

limited distributional issues

BCA

$ / $

more flexible

serious distributional issues