Economics in social care

NCCSC interactive training

13th January 2014

LSE PSSRU Personal Social Services Research Unit

Agenda

10.15-11.45am **Economic evaluation**

- Introduction to economic evaluation *Annette Bauer (PSSRU), Jen Francis (SCIE)*
- Decision modelling *Annette Bauer*

11.45-13.15pm **Outcomes in social care (for economic evaluation)**

- General part *Annette Bauer & Juliette Malley (PSSRU)*
- ASCOT *Juliette Malley*
- Questions & answers

LUNCH 13.15-2.00pm

2.00-2.30pm **Examples of economic evaluations**

- *Martin Knapp (PSSRU)*

2.30-4pm **Reviewing the literature – The NCCSC process**

- Introduction *Annette Bauer and Jen Francis*
- Working in groups
- Discussion

Introduction to economic evaluation

Why is economics relevant?

Relevance?

→ Resources are scarce – so we have to think carefully about how we use them

→ Outcomes are fundamentally important but also often rather elusive – so what outcomes are we trying to achieve?

→ … And how best can we achieve them?

And this scarcity and these issues are relevant across all social care (and wider) fields

When decision makers make choices

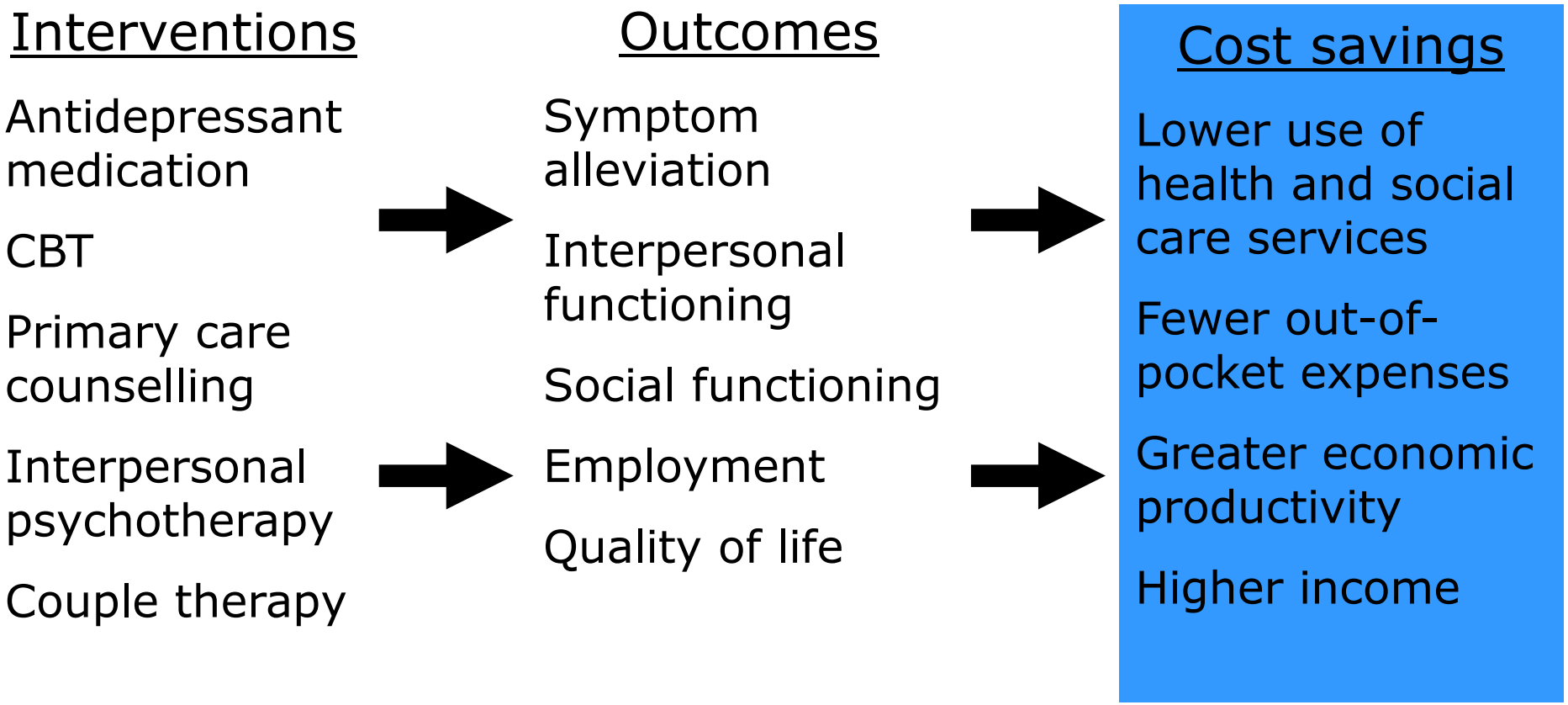
… they need to know …

- what people ? and what they ?
- what services can meet those ?
- what staff and other ? are employed to deliver those services
- what are the ? of employing them
- how to raise the funds to meet those costs

… and – importantly – also:

- what ? are achieved
- and whether those outcomes are worth the ? that is spent to produce them

Example: Treatment for depression



Some conceptual challenges

1. Efficacy *vs* effectiveness *vs* efficiency.
2. Intermediate versus final outcome.
3. Sources of data for economic evaluation (->modelling).

Efficacy *Vs* Effectiveness *Vs* Efficiency

Efficacy = measure of effect under ? conditions.

Effectiveness = effect under ? conditions.

Efficacy does not imply ?

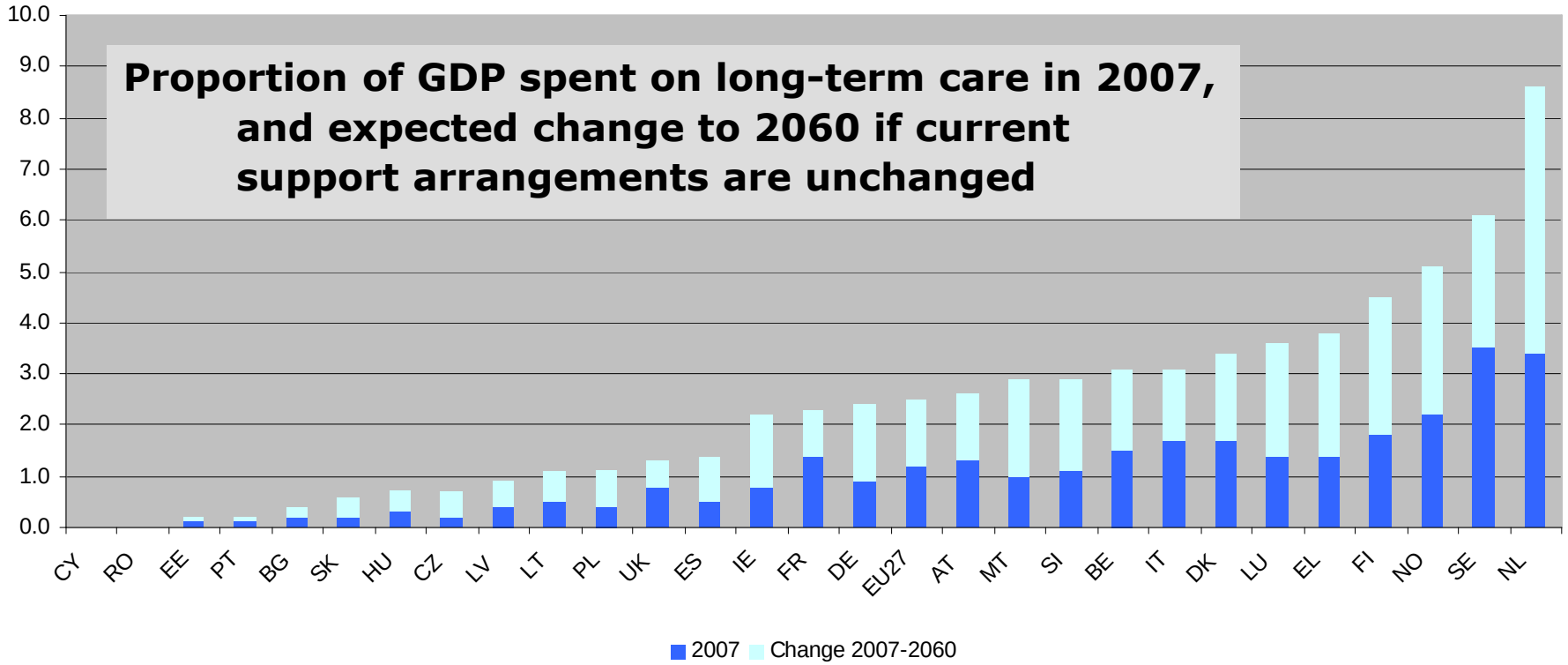
Efficiency = relationship between ? & benefits.

Effectiveness does not imply ?

A few things to remember about costs

- Interventions for most social care and health needs are labour-intensive, and so _____**???**_____
- Interventions are complicated by multiple needs (co-morbidities): costs hard to ____**???**_____
- Costs can also fall to other services or service sectors
-  themselves may bear some of the costs …
- … and so do families (particularly the opportunity costs of ) and communities
- Costs can persist for long periods
- And many costs are  from view

‘unaffordable’ (?) future costs



Rapidly growing numbers of older people with long-term needs … whose care could be seen as ‘unaffordable’

Affordable solutions are needed for the future!

ECFIN report, Brussels 2009

An economic case based on … what?

Quality of:

- service / provision
- care and support

Effectiveness in:

- preventing needs or problems
- meeting needs
- meeting preferences

Equity / fairness in :

- access
- payment
- outcomes

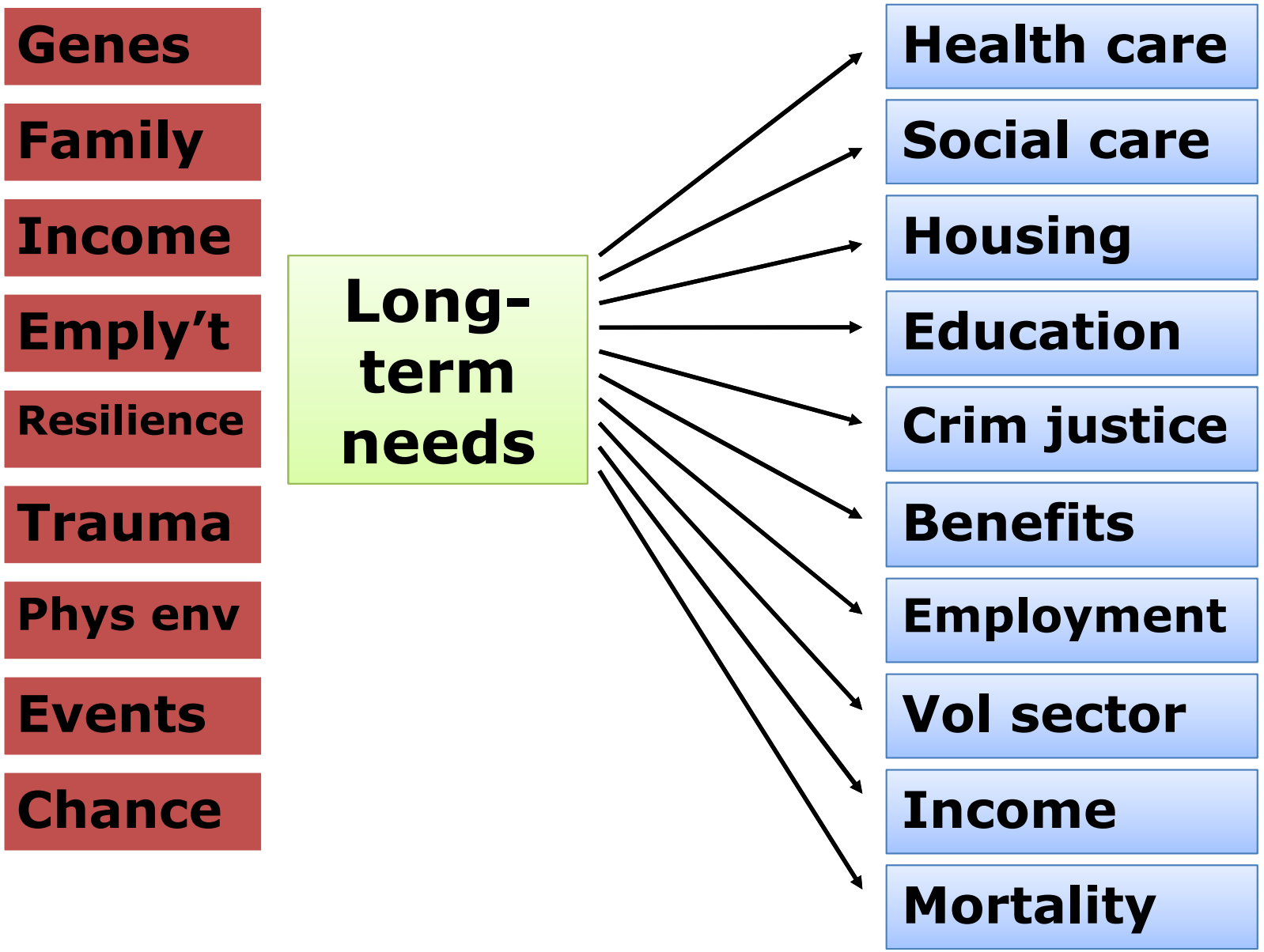
Respectful of / **responsive** to:

- rights
- dignity
- culture
- individuality
- vulnerability

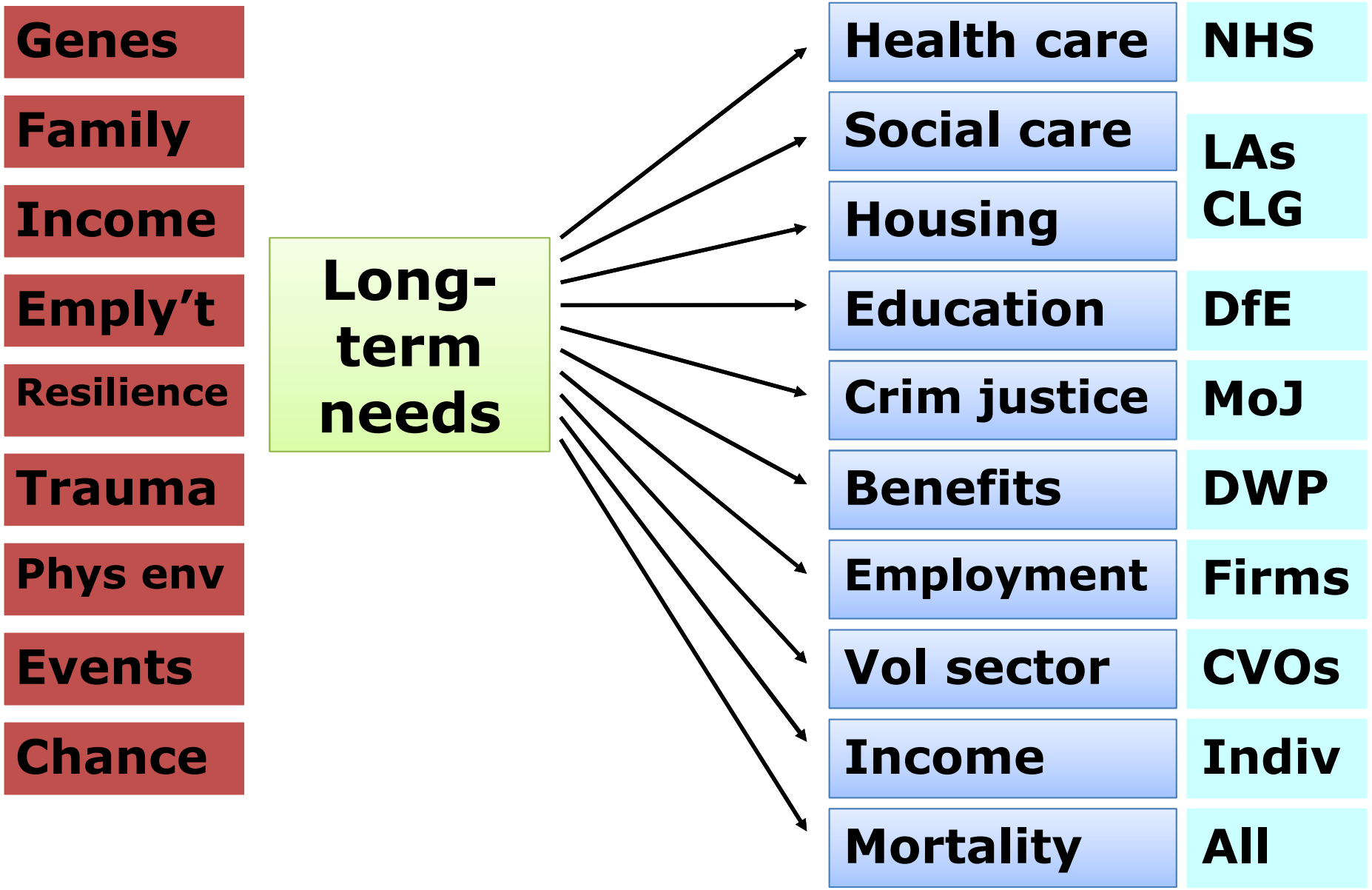
Economically:

- Affordability
- Sustainability
- Cost-effectiveness

Many causes; widespread impacts



…on many different budgets (England)



Cost-effectiveness: what does it mean?

If the policy/practice question is:

'Does this intervention work?'

Then the economic question is:

_____???_____

Which requires us to define what we mean by 'work' and by 'worth' – hence what outcomes and costs.

Which then usually requires difficult and maybe controversial trade-offs

Imagine that you have an idea for a new service (call it 'Service 2')

You want to sell/recommend it so that it replaces today's usual service (call it 'Service 1')

The decision-maker has a limited budget. What will s/he want to know before deciding whether to purchase the new service?

Is it more cost-effective?

Service 2

Effects - on a user's needs, social functioning, quality of life

Service 1

Effects - on a user's needs, social functioning, quality of life

Service 2

Costs - cost of the service, costs of other services used, effect on employment

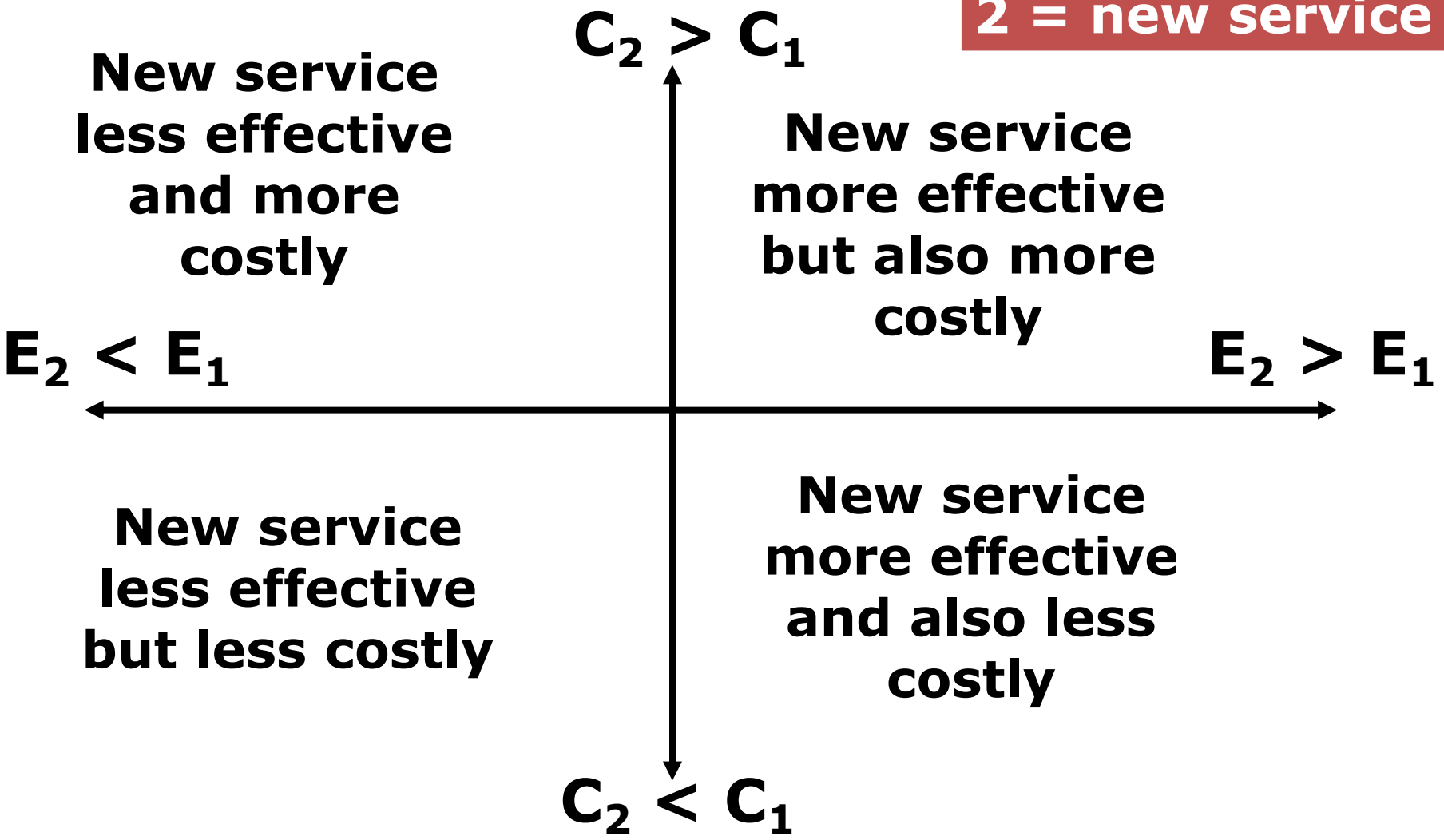
Service 1

Costs - cost of the service, costs of other services used, effect on employment

An economic evaluation needs all 4 elements

Possible CEA results

C = costs
E = effects
1 = old service
2 = new service



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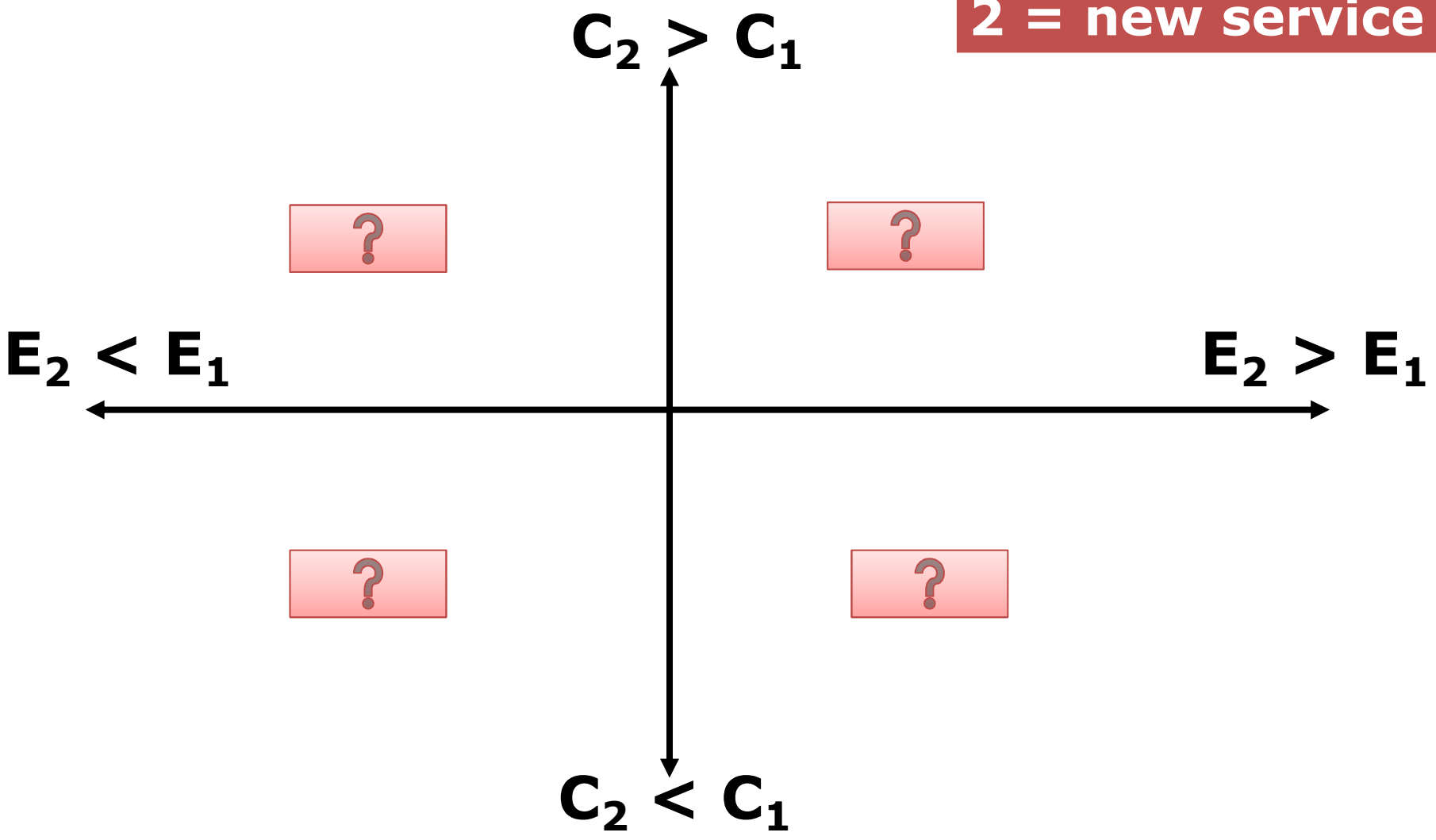
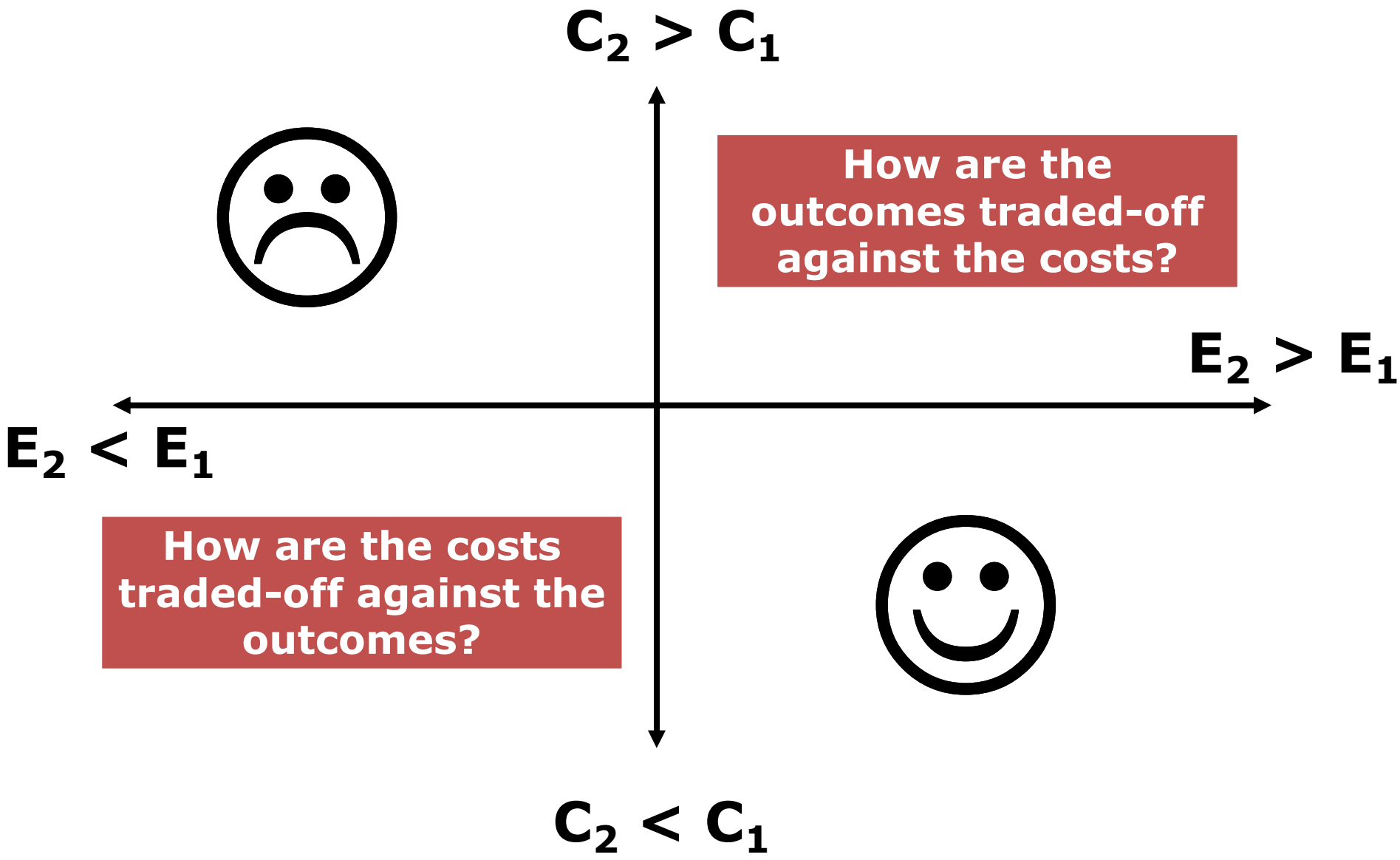


If you are trying to sell Service 2 …



Trade-offs … is it worth it?

If an intervention is more ? and also more ? then calculate the cost per unit gain in effectiveness.

So we first need to calculate the cost-effectiveness ratio, which is …

$$? = \frac{(C_2 - C_1)}{(E_2 - E_1)}$$

= the cost of achieving an incremental improvement in an outcome measure

Trade-offs … is it worth it?

With the ICER we then have the following options:

- Show the decision-maker the cost-effectiveness of different ways to spend their money and get them to choose
- Or ask them how much they are willing to pay
- Or set a threshold, rigidly or as a guide (cf. NICE)

But then we need some way to compare across different 'areas' (e.g. across different need groups)

- Hence  in health; and  in social care.

Types of economic evaluations

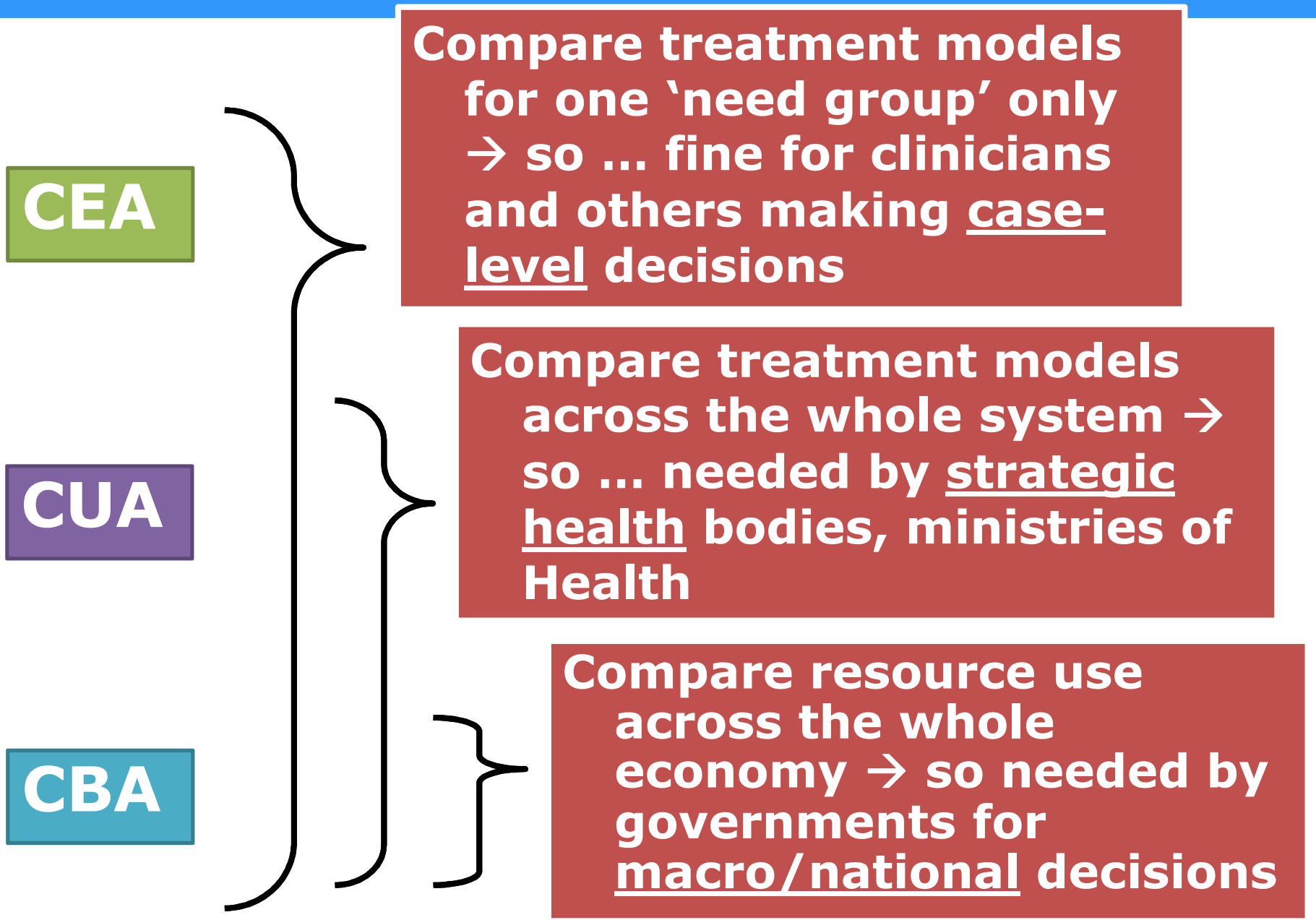
Cost-effectiveness: consequences measured using single outcome in natural units e.g. life years gained

Cost-utility: consequences measured using a single outcome in terms of utility e.g. QALY (in health care) and social care QALY

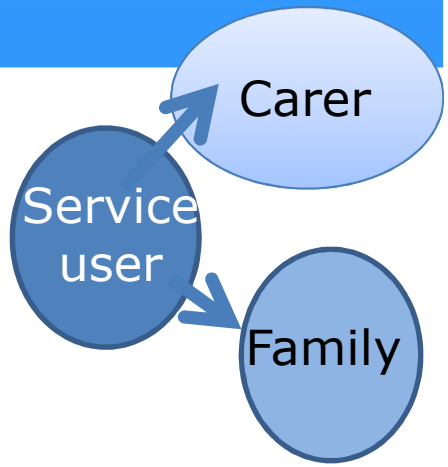
Cost-consequences: consequences measured using multiple outcomes, one by one

Cost-benefit: consequences measured in £ i.e. assigning £ values to outcomes

Evaluations – differences in scope



To choose: The perspective of the economic evaluation



'Individual': often includes not only service user but other people who are affected such as carers or parents

Public sector – Social care (adult, children), NHS, possibly other services and sectors affected such criminal justice, education and housing

Societal – Aggregation of the above perspectives

Impact of choosing a perspective on costs

Perspective	Social services, NHS	Transfer payment	Morbidity	Mortality	Informal care
Public sector	Covered costs	Yes, attributable to social condition	No	No	No
'Individual' (family, cares)	Out-of-pocket costs	Yes, amount received	Yes, Lost wages or household production (and opportunity costs of formal care)		
Societal	All	No , only shift in resources	All	All	All

Limitations of EE in social care

- A wide range of perspectives
- Multiple outcomes, some long-term ones and those difficult to quantify or express in monetary form
- Difficulty to define routine care
- Difficult to establish causalities
- Resource implications for other parts in the system, often savings for other public services such as health, education or criminal justice
- Knock-on effects are typical for social care interventions but difficult to capture
- Methods still underdeveloped
- Information from a diverse range of studies need to be utilised to populate the model

Decision modelling

A method that can combat some of the challenges of trial-based economic evaluations

Instead of collecting new data over time …

3 Steps

1. Use previous studies and routine data collections to simulate the impacts of an intervention.

2. Trace 'pathways' through a care system or a life-course

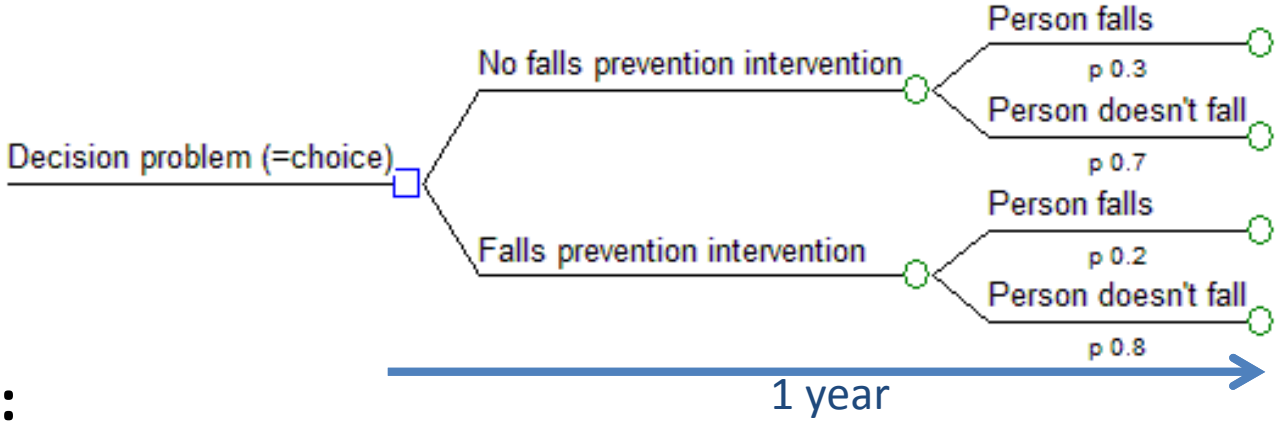
3. Estimate the associated outcomes and costs

Advantages of this method are that it allows

- To use synthesised data,
- To combine different sets of evidence,
- To link intermediate to final outcomes and
- To extrapolate beyond the observed time period.

Decision tree

Simple decision tree: suitable to model a limited number of events which happen in a short time period with no continuous risk (= follow-on events)



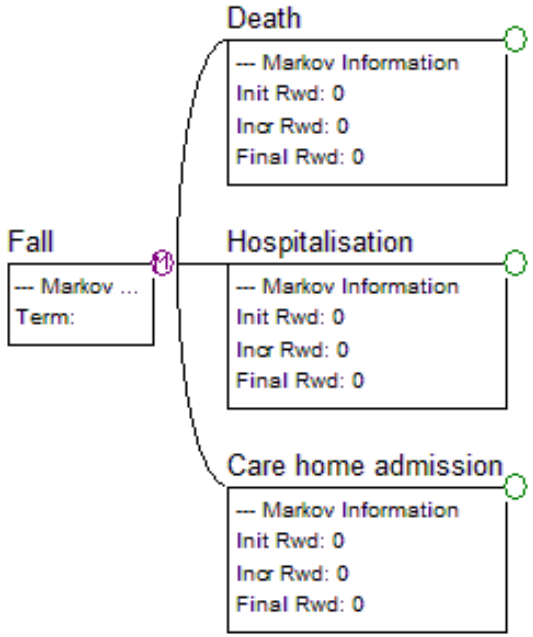
Parameters:

- Probability of fall for an 'average' person who received/ did not receive falls prevention
- Cost of the falls prevention intervention
- Consequences: Quality-of-life, resource implications of a fall (e.g. average cost of treating a fall)

Decision tree

State transition model (>Markov):

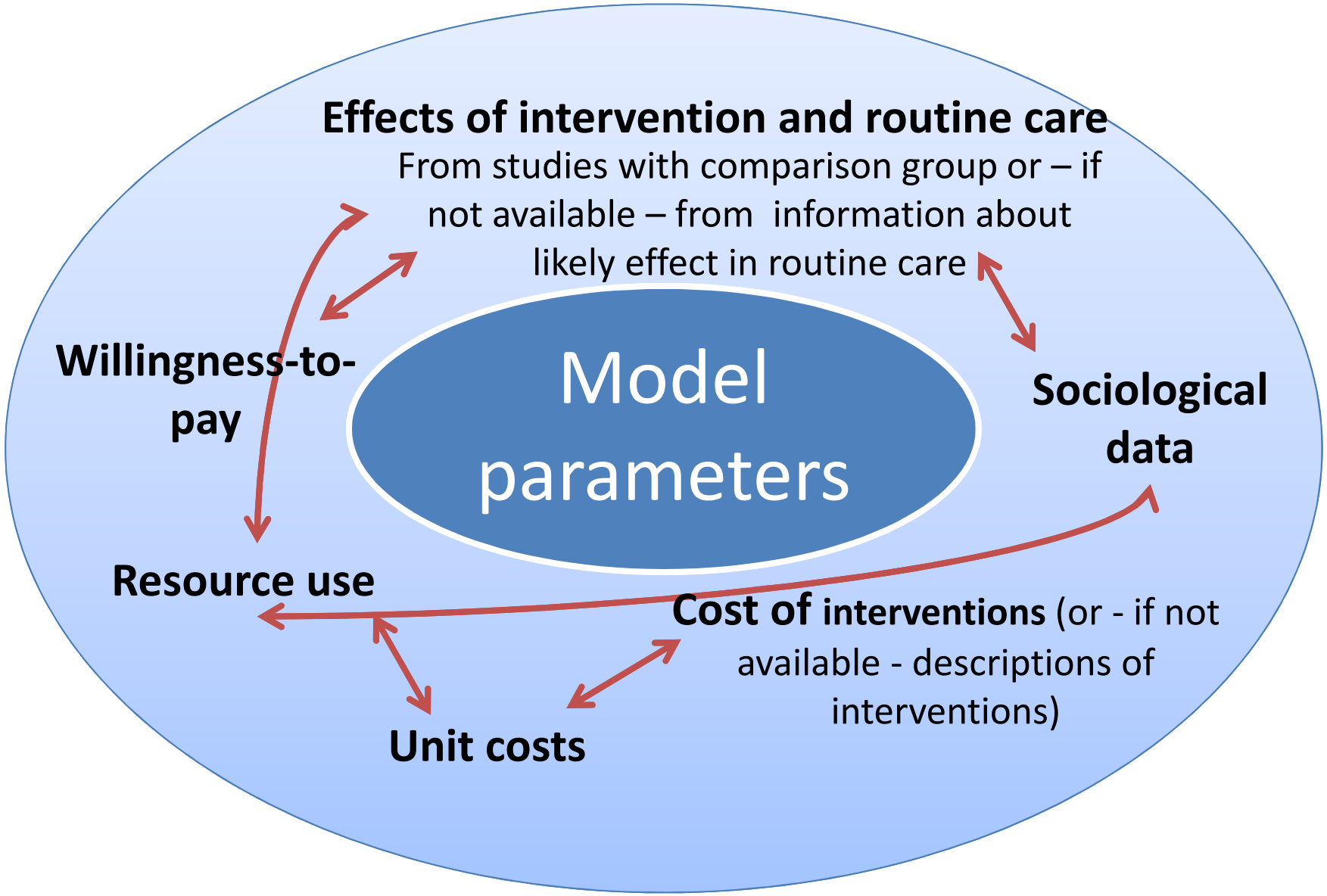
- Represent continuous risk in the form of repeating events over a long time horizon
- Events are modelled as transitions from one state to another



Parameters:

- Transition probabilities
- Cost of the intervention
- Consequences: e.g. quality-of-life associated with death, hospitalisation, care home admission; resource implications linked to these events

Model parameters



Outcomes in social care

Social care is 'different'

- Personal services for often very vulnerable people
- … many with multiple needs
- ... and so they have above-average use of: health care, housing support, welfare benefits, etc
- Strong association between need and low socioeconomic position
- Stigma
- Some care is compulsory
- Some users have difficulty or reluctance expressing their preferences, so 'consumer power' has been weak

- Interventions mainly address the consequences and not the causes of need
- Interventions are quite simple technologically
- BUT most social care is *relational* – the quality of the link between carer and user is crucially important.
- Many social care jobs are low-skill, low-status, low-paid
- Historically important roles for non-state sectors …
- ... and for private finance, whether out-of-pocket or through some other route.

Intermediate vs. final outcome measures

In ***Health***

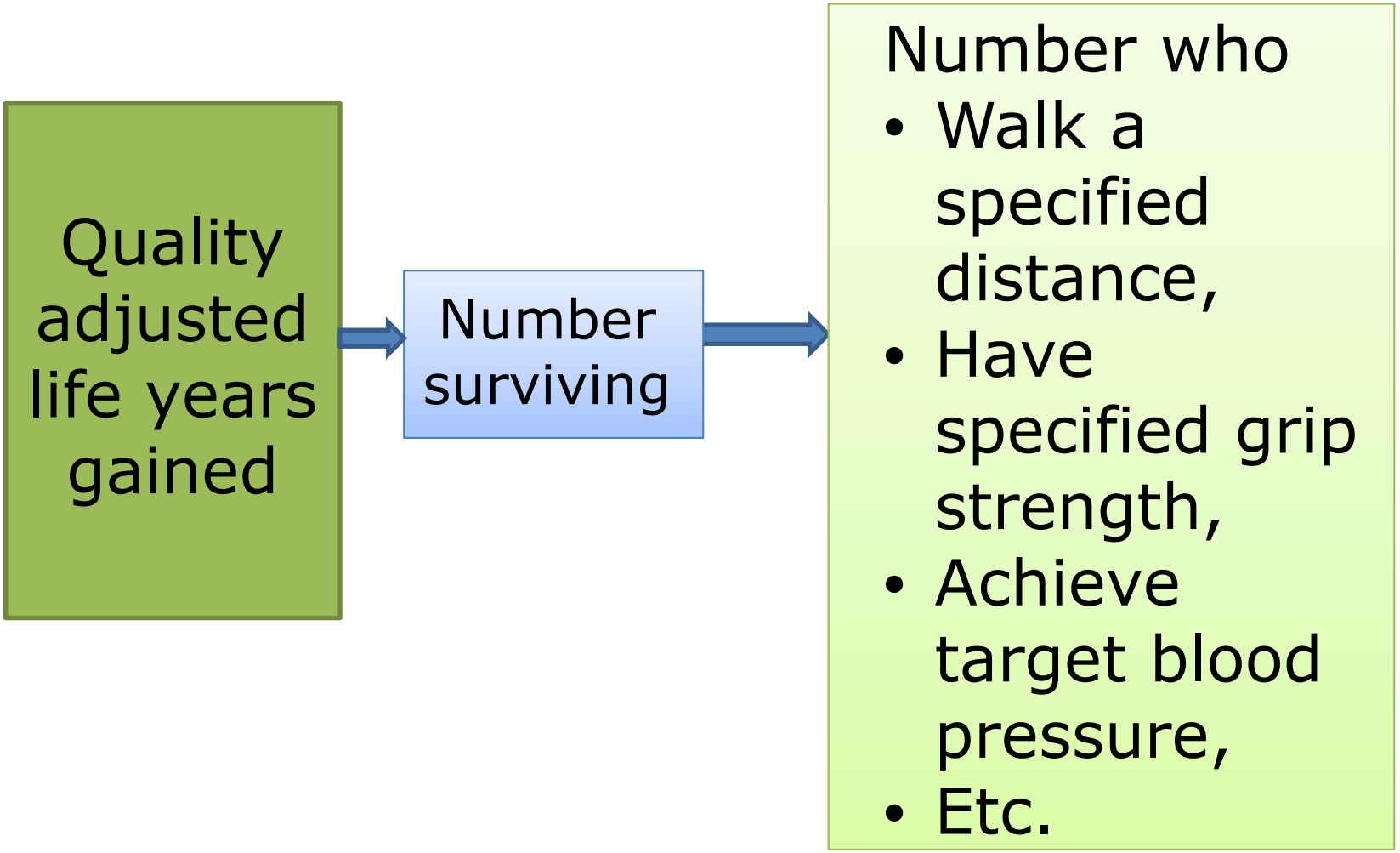
? = change in **health** (status) resulting from the intervention.

? = change in **clinical indicator** resulting from the intervention.

Aim is to establish ? between intermediate and final outcome measure.

Examples of Intermediate vs. final outcome measures

In ***Health***



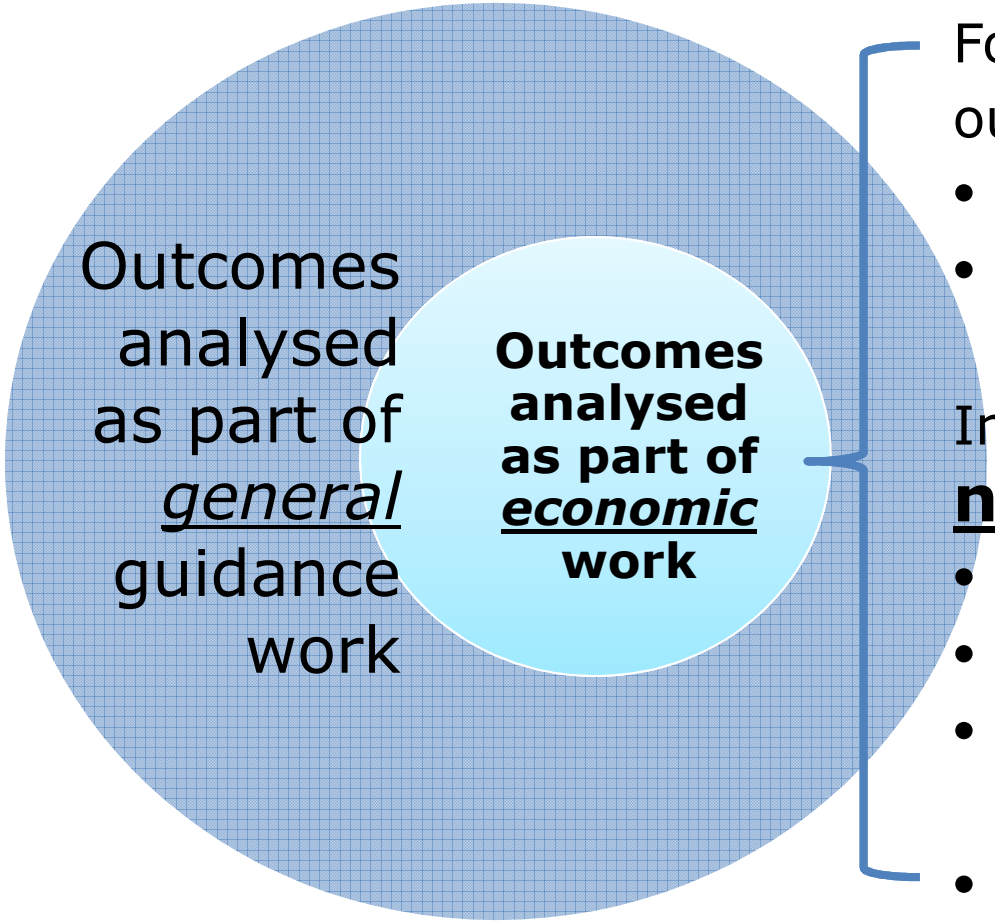
Additional challenges in social care

- Multiple outcomes (e.g. dignity, safety, mental wellbeing, physical health, choice and control);
- Not always set out at beginning of an intervention what the outcome should be (personalised, process oriented);
- Multiple needs & different groups of individuals who may benefit (e.g. service user, carer, family, wider community);
- Long-term outcomes and knock-on effects which will not be observed in the study period.

Which of the following are outcomes?

- Time spent by nurse to provide care
- Staff qualifications
- Cleanliness of the service
- Equity
- Improved confidence
- Control over daily living
- Quality of care
- Quality of life

Choosing outcomes for model-based economic evaluation



For economic analysis outcomes **must be:**

- Individual-level
- Quantified/quantifiable

In addition, they **may need to be:**

- Standardised
- Final
- Linked to willingness-to-pay threshold
- 'Monetisable'

Some examples

1. Adult Social Care Outcomes Tool (ASCOT): Measures social care related quality-of-life; comprehensive but not always available from study data;
2. Quality-adjusted life years (QALY): Measures quality and quantity of life; has advantage that NICE threshold exists to make decision about cost-effectiveness; limited usefulness in social care;
3. Mortality; often not observed in study period; but extrapolation possible with decision modelling;
4. Independent living at home; measured through period of additional time lived at home and delay into residential care;
5. Reduction in hospital (re-)admission; more a 'cost' than an outcome but in some areas studies use it as primary outcomes;
6. Intermediate outcomes that can be linked to final outcomes (e.g. social isolation, satisfaction, breakdown in carer's relationship, educational achievement).

What kind of outcome/measure-s?

Consider if study measures/uses:

- Outcomes (rather than outputs)?
- Quantified or quantifiable (versus qualitative) outcomes ?
- Standardised outcome measures?
- Outcomes at baseline?
- Adverse outcomes?

To address the issue of multiple outcomes in evidence synthesis:

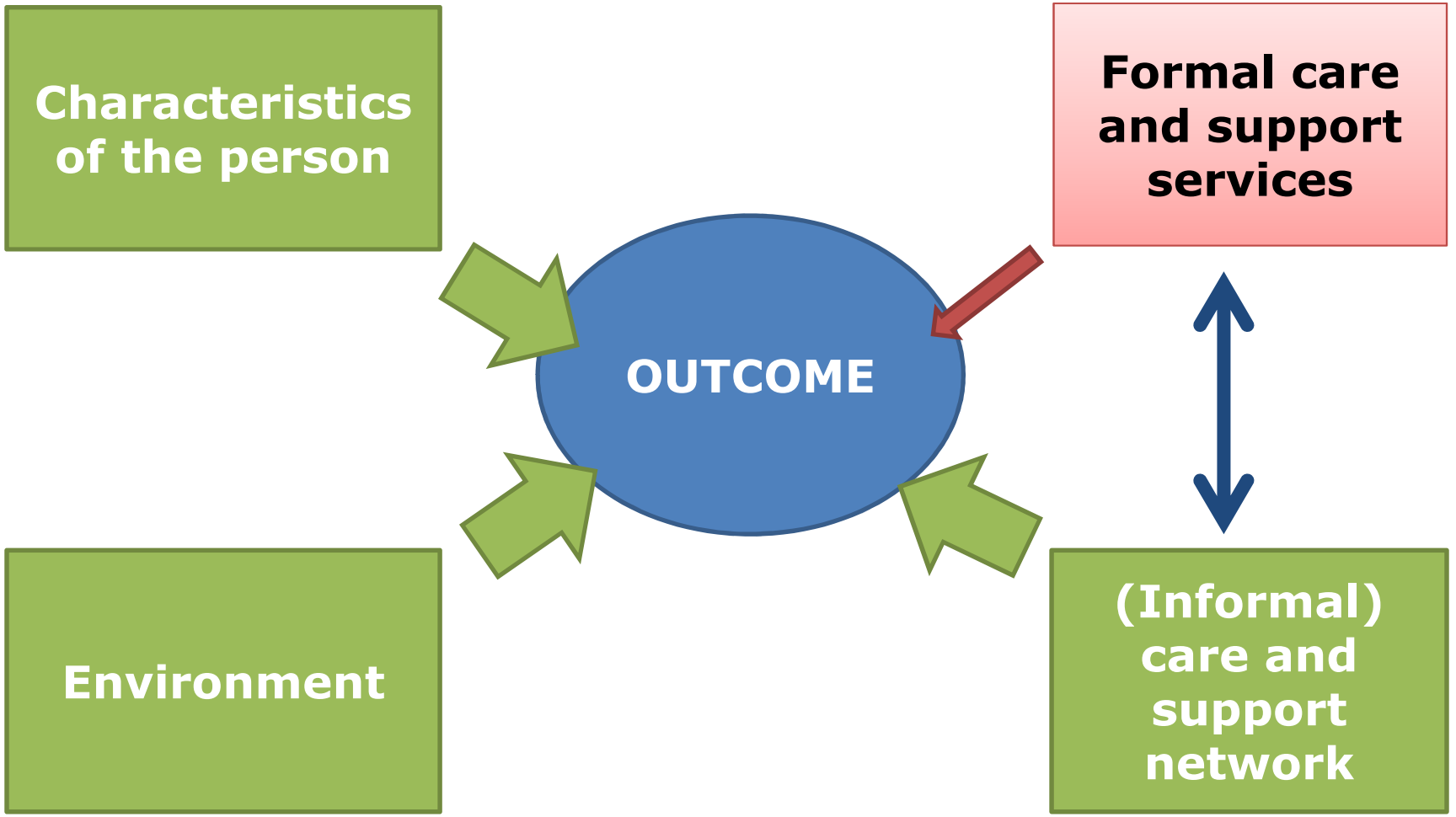
- Consider summarizing single outcome measures to areas of outcomes
- Selecting outcomes (possibly only one) for use in the economic analysis

Problems using outcomes measures

ATTRIBUTION

(or demonstrating that the outcome measure reflects the impact of services rather than anything else)

A range of factors influencing the outcome



Dealing with the attribution problem

Measure	• Difficult to identify • Problem not resolved or quantified
Method	• Randomised control trial • Not always appropriate • Ethical, practical and financial challenges
Analysis	• Complex and relies on good data • Quantifies problem, but some uncertainty remains

Reviewing the literature – The NCCSC process

Three key study types…

1. ? economic evaluations i.e. comparison between cost and outcomes for an interventions vs. control (usually trial based)
2. ? economic evaluations e.g. cost analysis, cost-outcome descriptions;
3. Systematic reviews of the effects of 'interventions' and (if this is not available) ? studies.

… of which often there will not be many in social care, and WHAT to do THEN?

Economic evaluation studies - *Full*

Name	Details
Cost effectiveness	Trial based i.e. cost information are collected alongside trial; resource information collected via service use questionnaire (e.g. the CSRI) and intervention cost via diaries; results for example in costs per life year gained
Cost utility	As above but outcome measure will be a quality of life measure such as EQ-5D, SF-36, WHO –QoL, (~ASCOT)
Cost benefit	Often used for service evaluations, might use information from case management system, local NHS or Council (budget) data, national/regional survey data
Social Return on Investment	As above; typically uses a wide range of sources including information about happiness, sustainability, wellbeing, community
Cost consequences	Often trial based, *see* Cost effectiveness
Decision modelling	Any of the above use, uses longitudinal data, may be called: decision modelling, model-based, Markov Model, modelling pathways

Economic evaluation studies - *Partial*

Name	Details
Cost savings	Similar to cost benefit but outcomes are not captured
Cost analysis	Cost of a condition over a year or life-time are calculated; information may be taken from routine data, case studies or (published) trials; service use data, labour, quality of life
Single effectiveness studies	Intervention studies with quantitative outcomes, including follow-up studies of those

Studies relevant for decision modelling

Topic	Details
Cost relevant	
Funding, paying for care	Includes information about publicly and privately funded services, out-of-pocket payments, fees, willingness or ability to pay
Caregiver burden	Statistics from national or local survey data e.g. average number of hours by certain groups
Volunteering	As above
Service utilisation, use of resources	Questionnaire has been filled out or data are from NHS or Council performance and monitoring systems
Unit costs	
Cost of intervention	

Studies relevant for decision modelling

Topic	Details
Probabilities of outcomes	
Prevalence of a condition	Survey, cross sectional
Development of condition over time	Usually longitudinal study design,
Prognostic or risk factors of condition	Statistical analysis in particular regression to analyse primary or secondary data sets (not always longitudinal)