ESSENCE WEBINAR SERIES:

Economic modelling to support decision-making in social care

Speakers: Professor Helen Weatherly and Ms Ana Duarte, University of York

With an introduction on ESSENCE, Dr Michela Tinelli, CPEC LSE

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2nd December 2025

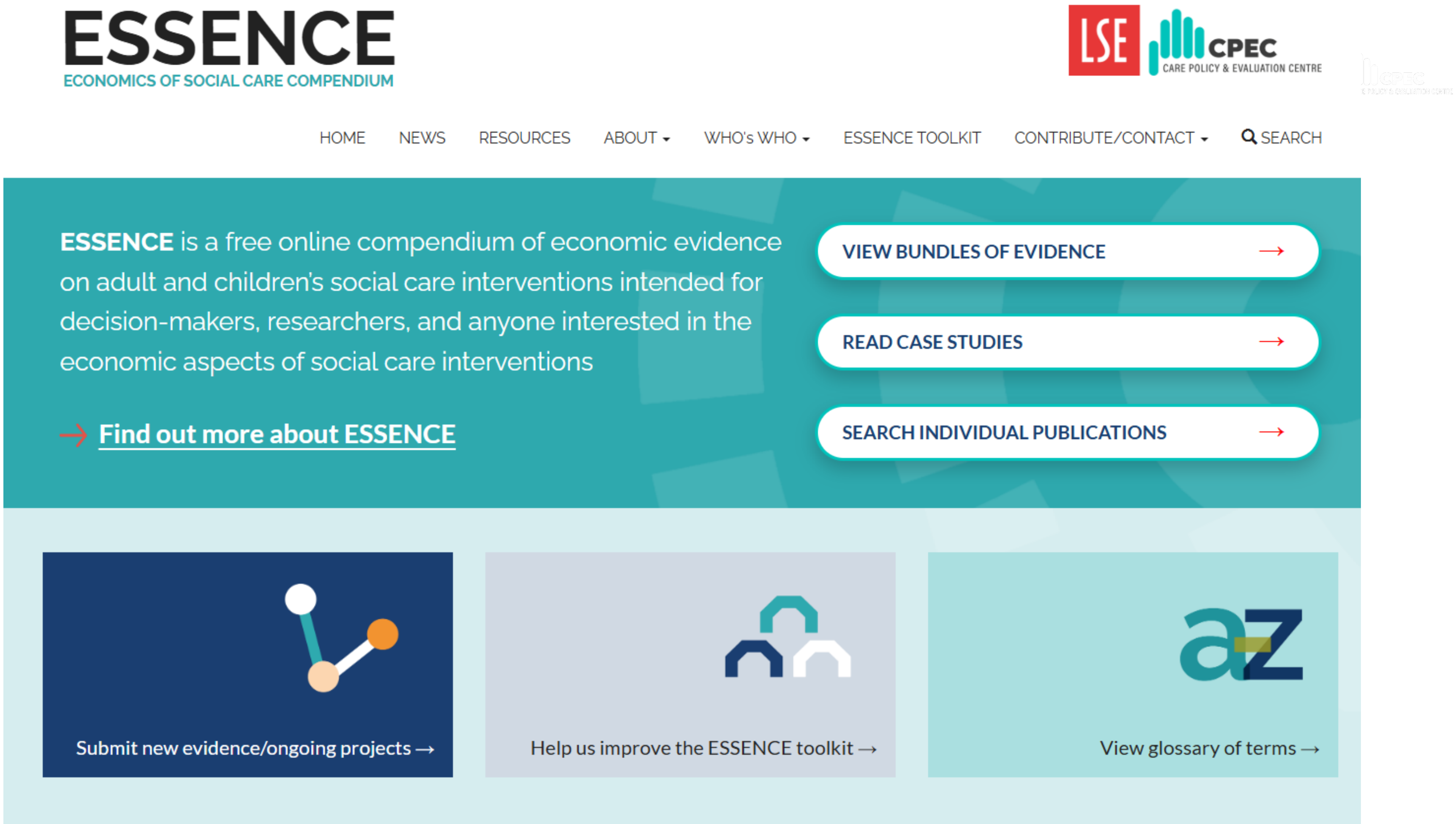
essenceproject.uk

NIHR | School for Social Care Research

LSE CPEC CARE POLICY AND EVALUATION CENTRE

Disclaimer

This presentation summarises independent research funded by the National Institute for Health Research School for Social Care Research. The views expressed are those of the author(s) and not necessarily those of the NIHR SSCR, the National Institute for Health Research or the Department of Health and Social Care.



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OBJECTIVES

01 Gather economic evidence for adult and children's social care.

02 Make it available in a form that supports decision making.

03 Improve understanding of economic evaluation through training and learning materials.

04 Identify adult and children's social care interventions where new economic evidence might be generated.

ACTIVITIES

01 Generating new evidence.

02 Strengthening collaborations.

03 Delivering training and building capacity.

04 Exploring further research areas.

Three components of the ESSENCE toolkit are available online:

1- Individual case summaries written in non-technical language

2- Searchable database with published evidence

3- Glossary of terms and **other useful resources** (training, publications, etc).

HOW TO GET INVOLVED?

1

Contribute evidence (published or underway)

2

Give feedback on the ESSENCE toolkit

3

Raise awareness

Contact: m.tinelli@lse.ac.uk

ESSENCE-3

Economic modelling to support decision making in social care

Presented by:

- Ana Duarte, Senior Research Fellow
- Helen Weatherly, Professor of Health and Care Economics

Overview

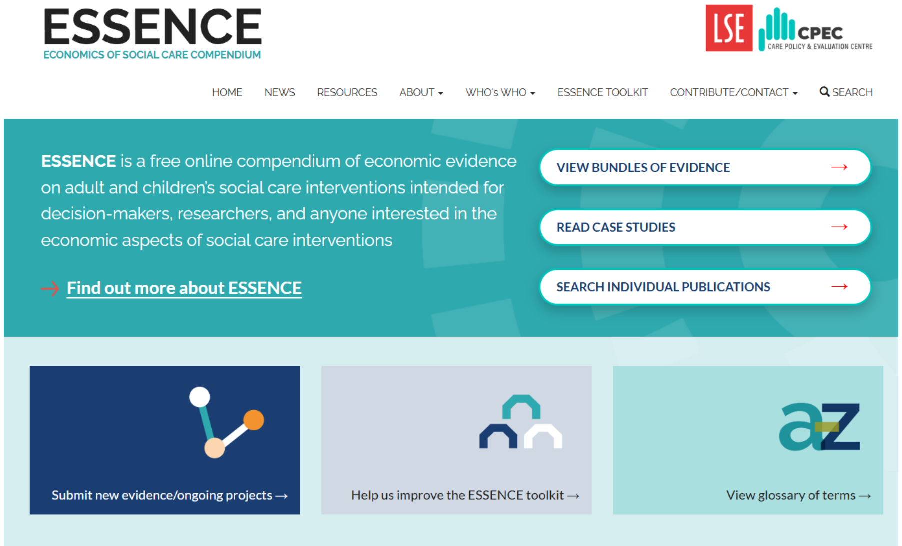
- ESSENCE
- Social care
- Economic evaluation
- Decision modelling
  - What is it and why is it useful?
  - Model development
  - Types of model
  - Examples of decision modelling in social care
- What is next for cost-effectiveness decision modelling in ESSENCE-3?

ESSENCE

- ESSENCE aims to develop robust, relevant economic evidence that addresses contemporary challenges in [social care]

Help decision makers in social care to make better use of resources by:

1. Finding economic evidence and making it available and accessible
2. Supporting capacity-building in social care
3. Identifying gaps in the evidence base and addressing them where possible

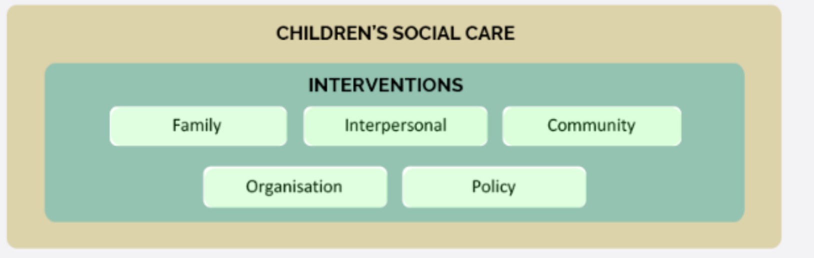


https://essenceproject.uk/

Social care

"**Adult social care** covers social work, personal care and practical support for adults with a physical disability, a learning disability, or physical or mental illness, as well as support for their carers" *NAO 2023*

Children's social care aims to "…support children, young people and families, to protect children and young people by intervening decisively when they are at risk of harm and to provide care for those who need it so that they grow up and thrive with safety, stability and love". *DfE Nat. Framewk. 2023*



Health and care economics basics

- Resources are scarce. There are never enough resources to meet every need. Choices have to be made.
- Conventionally economic evaluation takes the budget as fixed and focusses on comparing interventions competing for the same money
- With a fixed budget – if the bed is fixed – compare what comes in with what needs to come out

Economic evaluation

Cost-effectiveness in healthcare

Compares alternative health care interventions e.g.,

- New drug or procedure for heart condition

  versus

- Alternative drugs/procedures

Costs to the NHS

- Cost of the intervention and other associated costs to the health care payer

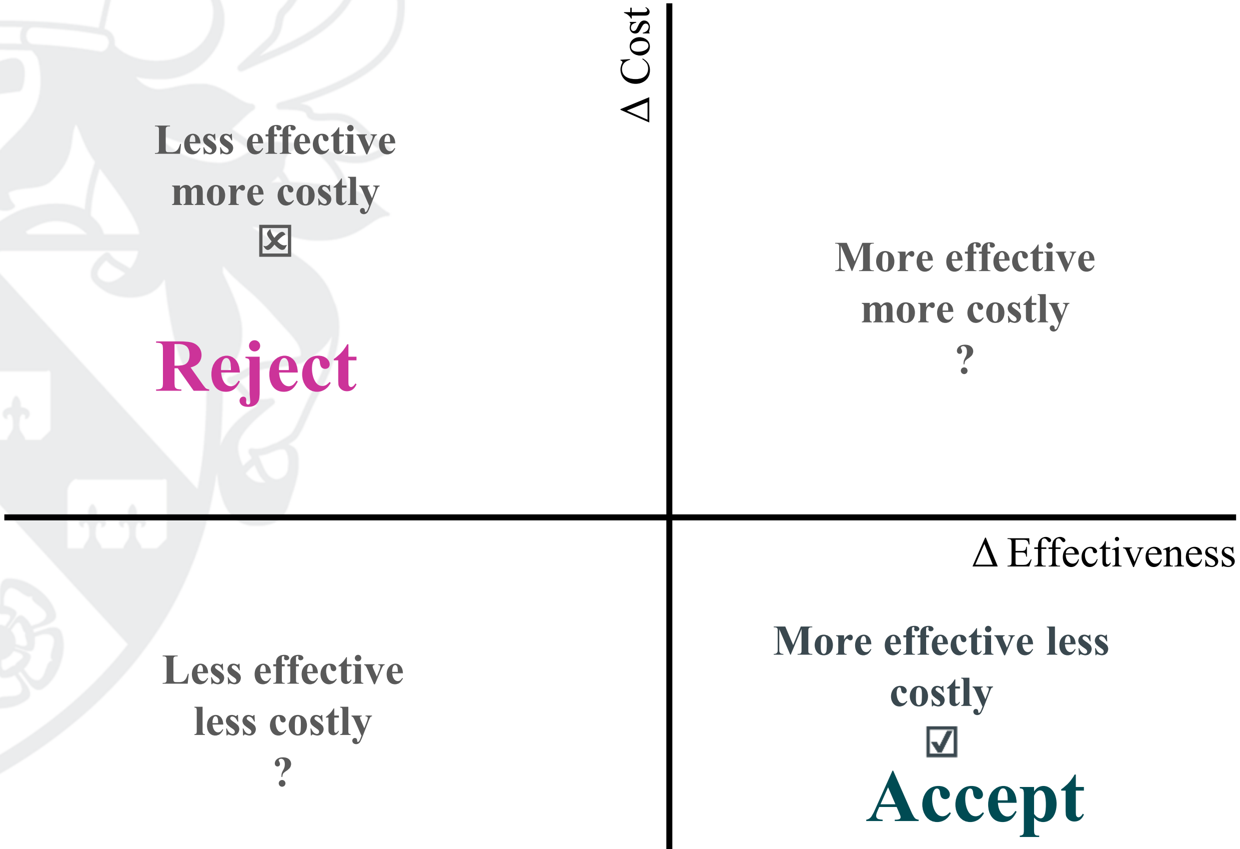
Patient health outcomes

- Quality adjusted life years (QALYs)

How are value judgments made?

- Are differences in costs worth the differences in QALYs?

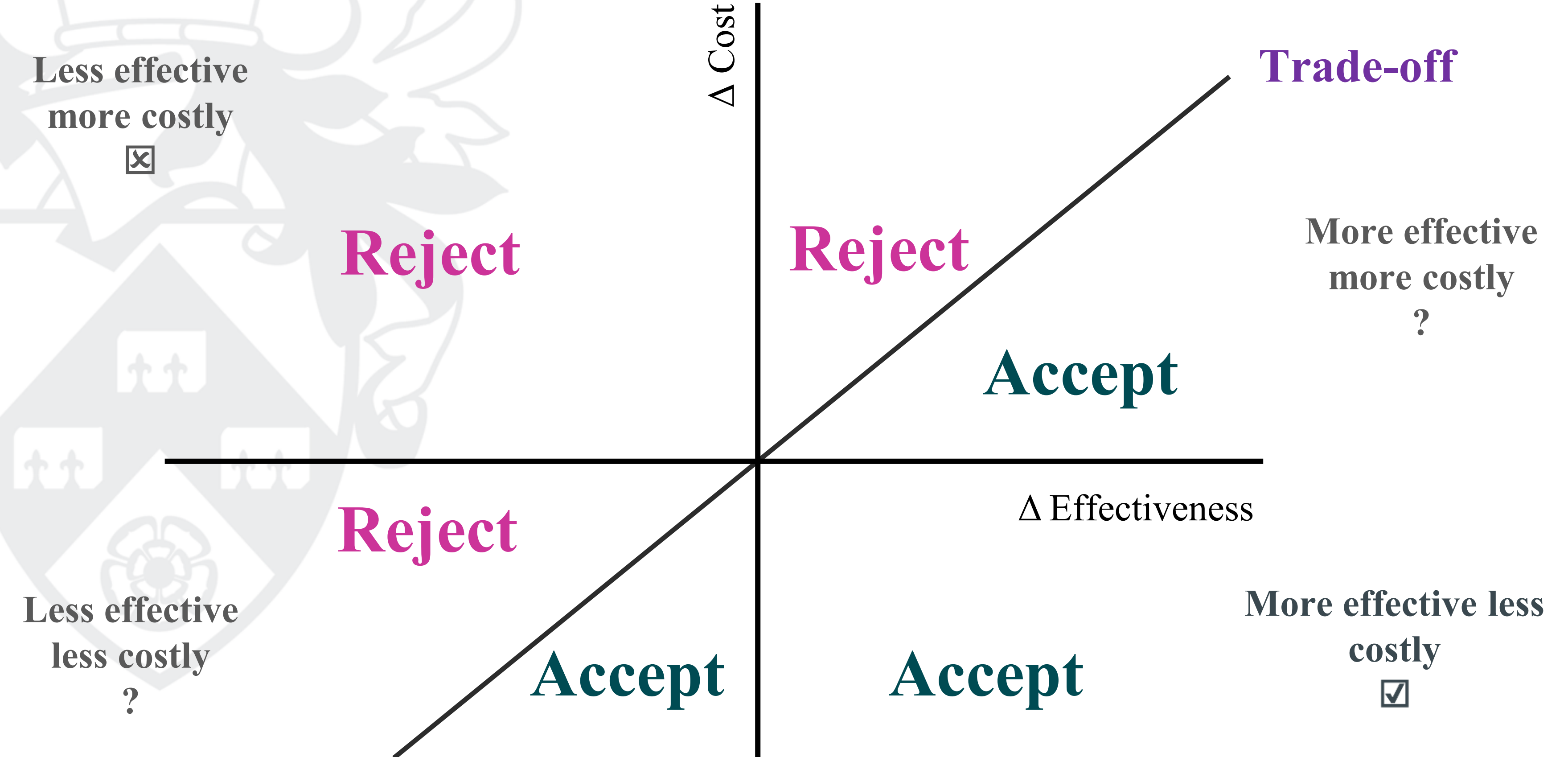
The cost-effectiveness plane



How are value judgments made?

- Are differences in costs worth the differences in QALYs?
  - In a publicly-funded health care system like the NHS where budgets are constrained, the new intervention needs to produce as much health as is already being produced on average in the NHS, as some activities will have to be stopped to afford the new intervention
  - From a NICE perspective, typically the threshold value that is used is around £20,000 to £30,000
  - Studies suggest that NHS activities generate on average 1 QALY for around £15,000 of NHS money

The cost-effectiveness plane



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  - From a NICE perspective, typically the threshold value that is used is around £20,000 to £30,000
  - Studies suggest that NHS activities generate on average 1 QALY for each £15,000 of NHS money
  - Other considerations beyond maximising health may be made, such as the **health inequality and the distribution of any health gains**

Cost-effectiveness analyses in social care

Compares more complex alternative courses of action e.g.,

New home care service
Versus
Standard care

- Cost of the intervention and other associated costs to the social care payer

- Social care quality of life

What is decision modelling?

- Modelling is a framework which simplifies reality and uses numbers and maths to bring together a broad range of evidence. Applied to economics, it helps us weigh up choices in terms of relative costs and benefits of different, comparable interventions/services

“All models are wrong but some are useful” (Box, 1976)

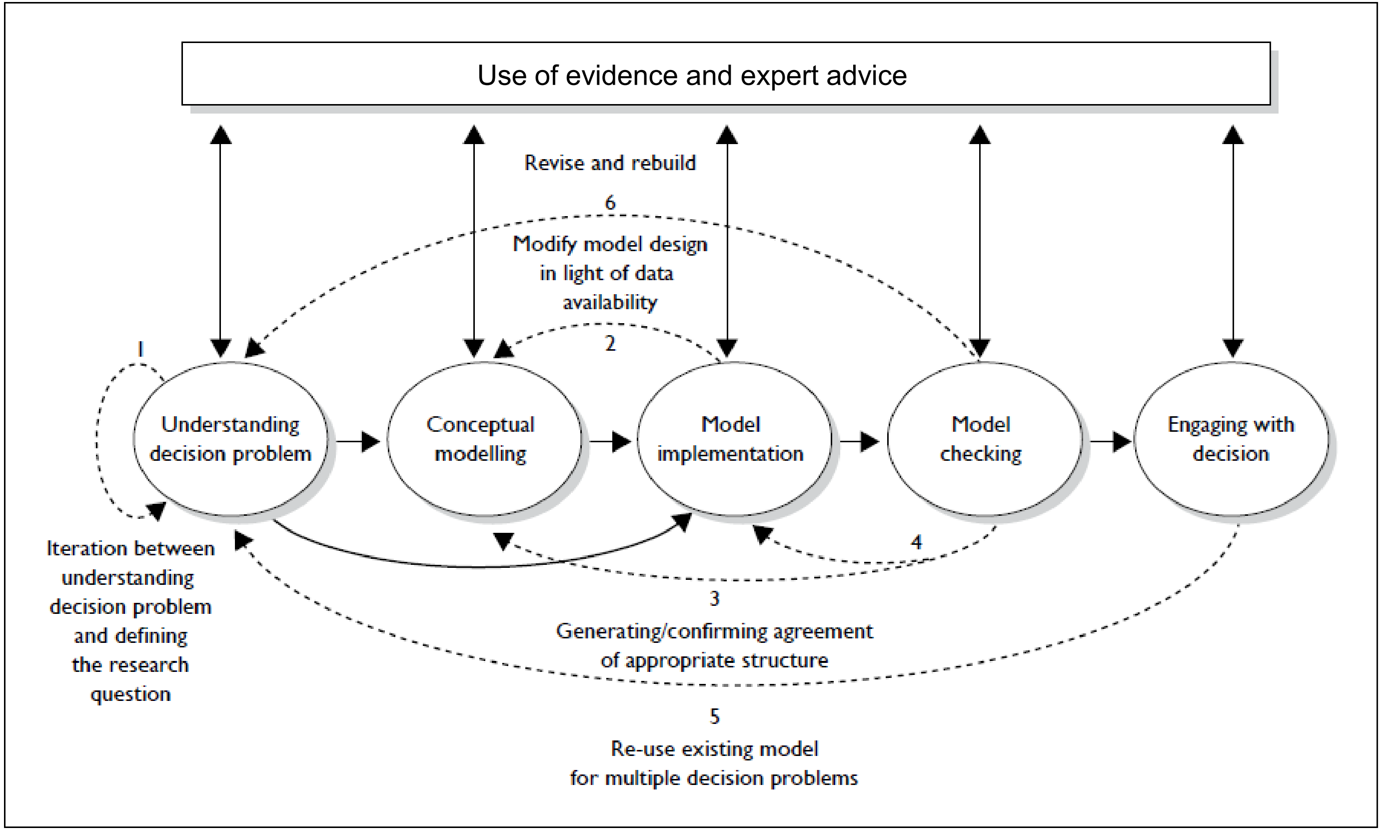
Why not use single studies?

- You can, but…
    - Relevant information to the decision is likely to need integrating with multiple sources of information
    - Compare the impacts of other relevant interventions alternatives
    - Predict how costs and outcomes are likely to change beyond the observed study follow up
    - Decisions need to be made under uncertainty
    - Need to consider multiple stakeholders

What type of evidence is needed for decision modelling?

Types of parameters	Sources of data
Relative treatment effects	Randomised trials
Baseline event rates	Observational studies/trials
Long-term trends	Longitudinal observational studies
Resource use	Observational studies/trials
Care quality of life weights	Cross-sectional survey/trials

Model development

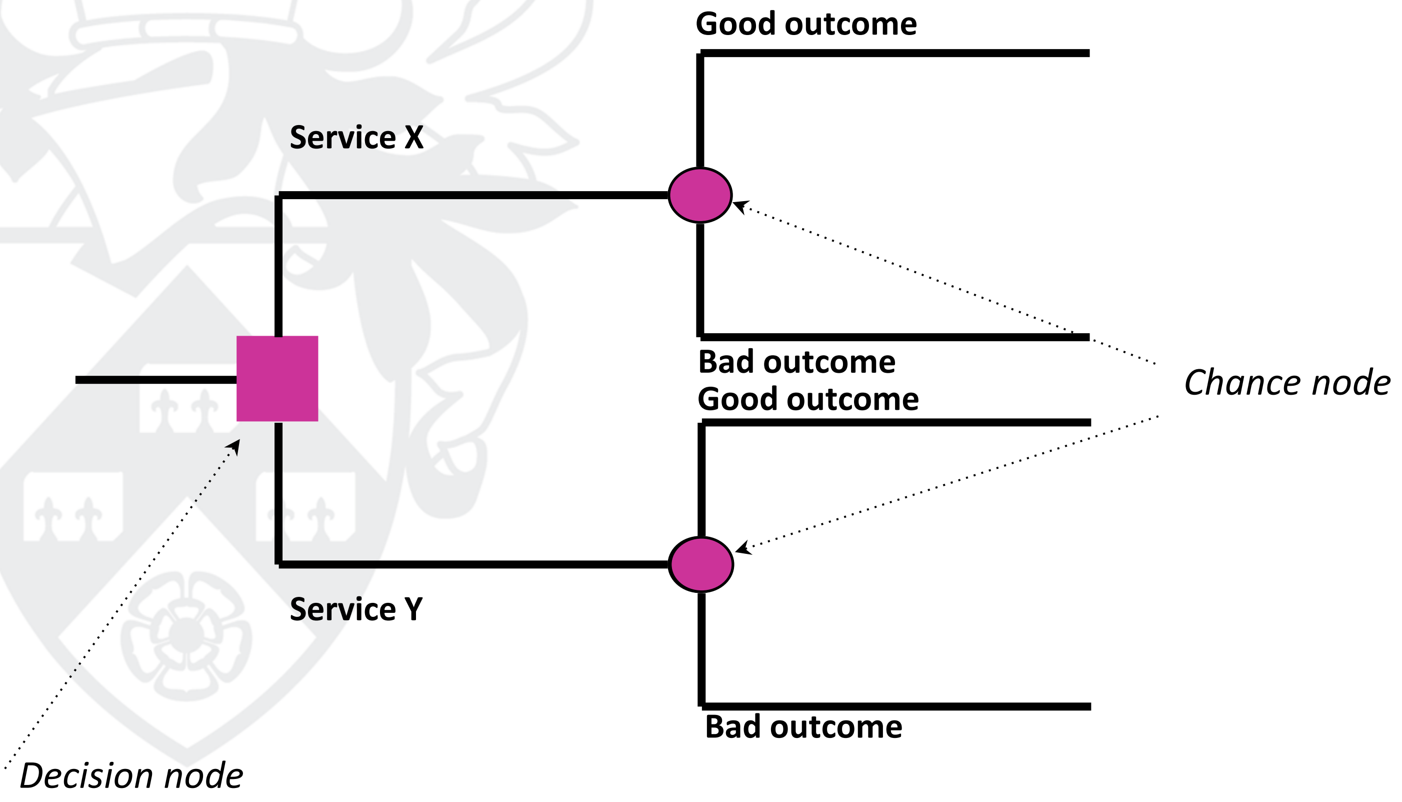


Tappenden, 2012

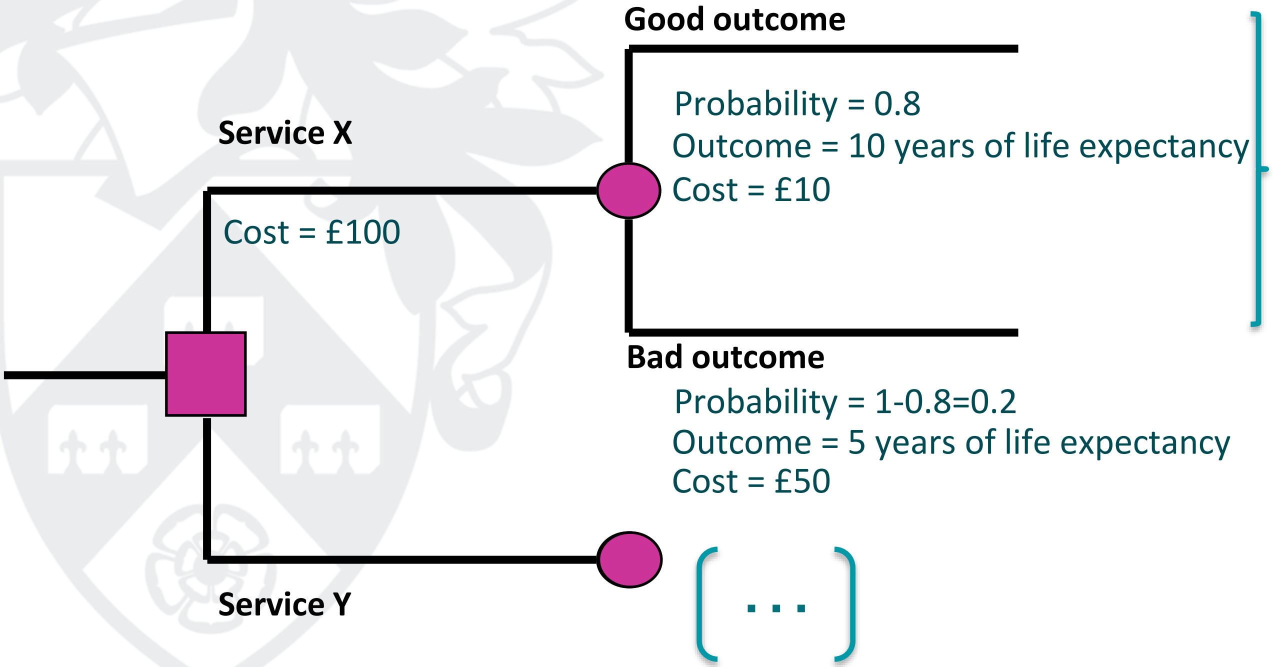
Common model types in social care

- Decision trees
- State transition models: Markov models

Types of models: Decision tree



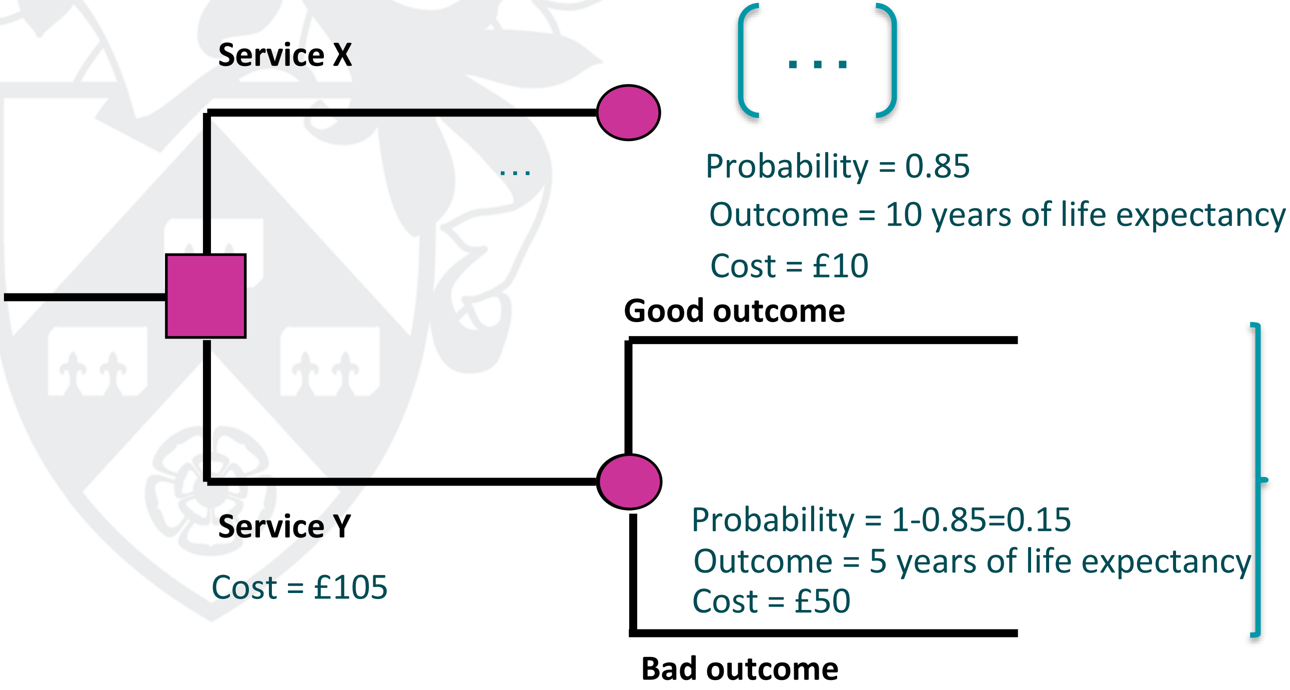
Types of models: Decision tree



Expected **survival duration**: (0.8 x 10 yrs) + (0.2 x 5 yrs) = 9 years

Expected **cost**: £100 + (0.8 x £10) + (0.2 x £50) = £118

Types of models: Decision tree



Service X

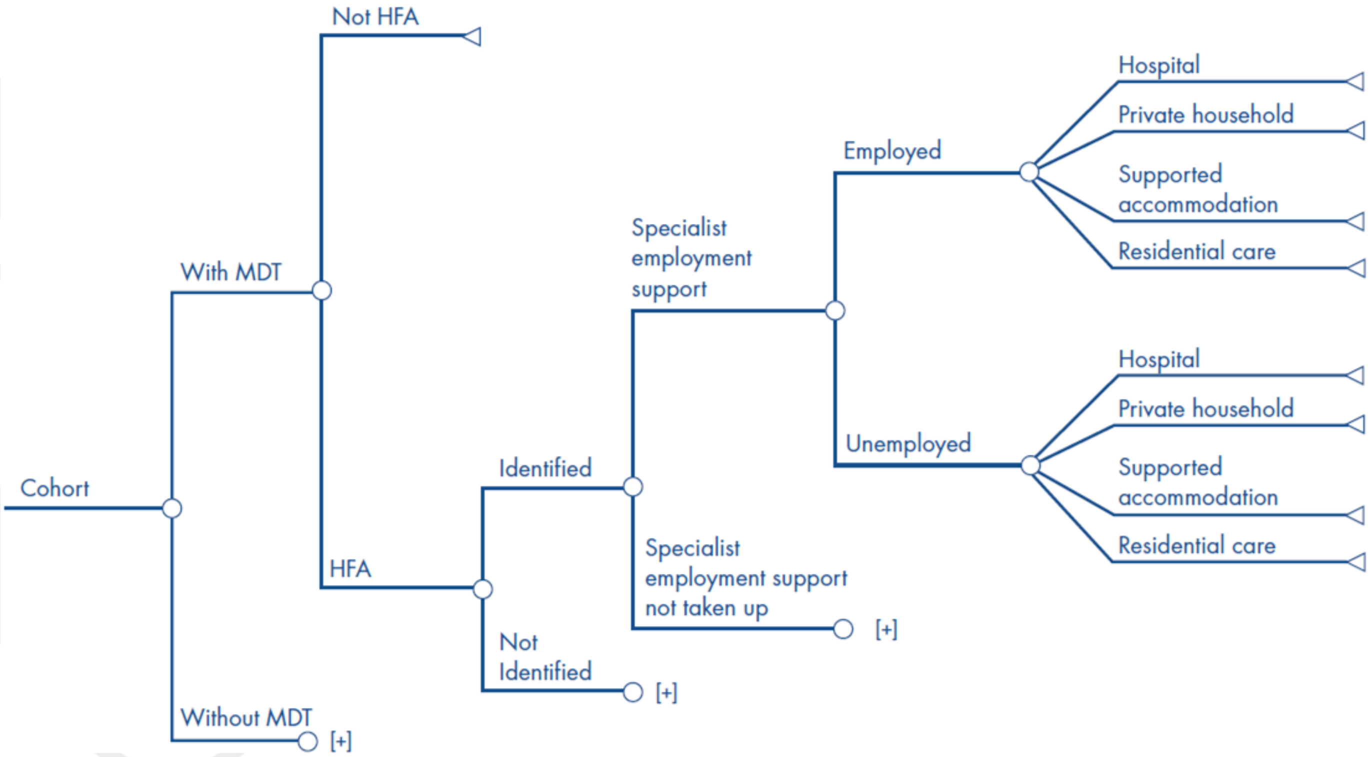
Expected **survival duration**: (0.8 x 10 yrs) + (0.2 x 5 yrs) = 9 years

Expected **cost**: £100 + (0.8 x £10) + (0.2 x £50) = £118

Expected survival duration: (0.85 x 10 yrs) + (0.15 x 5 yrs) = 9.25 years

Expected cost: £105 + (0.85 x £10) + (0.15 x £50) = £121

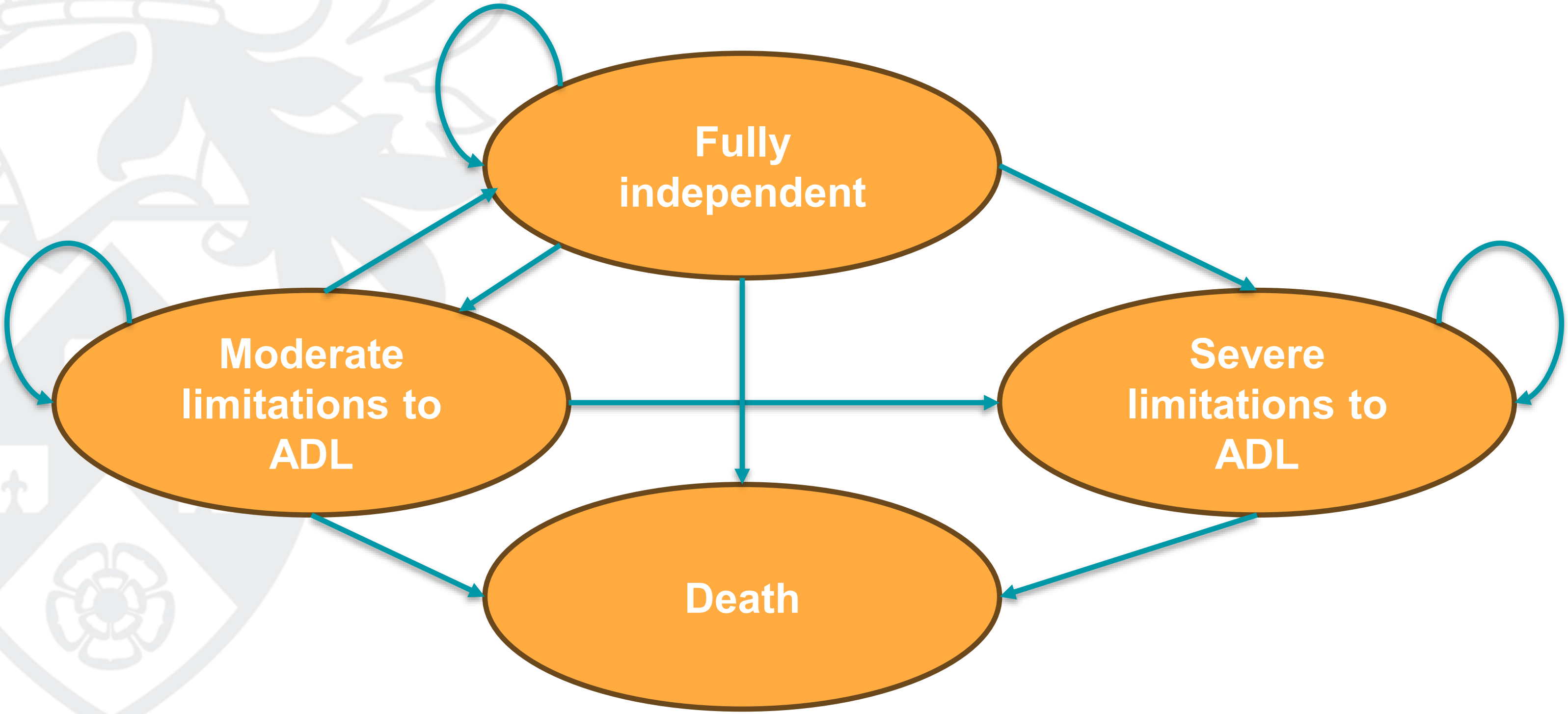
Social care example of a decision tree model



HFA high functioning autism; MDT, multidisciplinary team

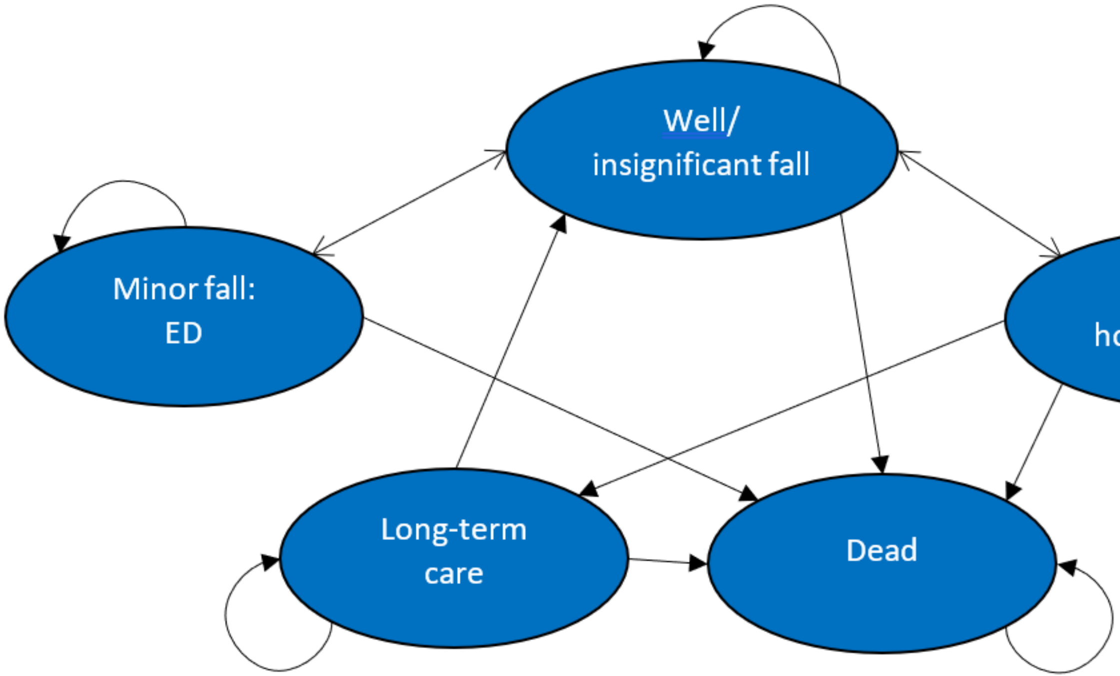
Source: National Audit Office, Supporting people with autism through adulthood – technical paper, 2009

Type of model: Markov model



ADL activities of daily living

Social and health care example of a Markov model



ED, emergency department

Source: Franklin and Hunter (2020)

Summary

- Purpose of economic evaluation to inform decision making
- Decision modelling is a natural complementary set of analytical tools
- Trials and other primary studies are key sources of evidence but can also have challenges as a ‘vehicle’ for evaluation
- Decision models can bring together a broad range of evidence

What next for decision modelling in ESSENCE?

Next steps *in line with model development slide* -

- Scoping review
- Identify the question
- Conceptualise the model
- Implement the model
- Check the model
- Engaging with decision makers

Seek expert advisor and PPIE feedback and undertake checks

Thanks for listening in

Questions?

More on ESSENCE-3