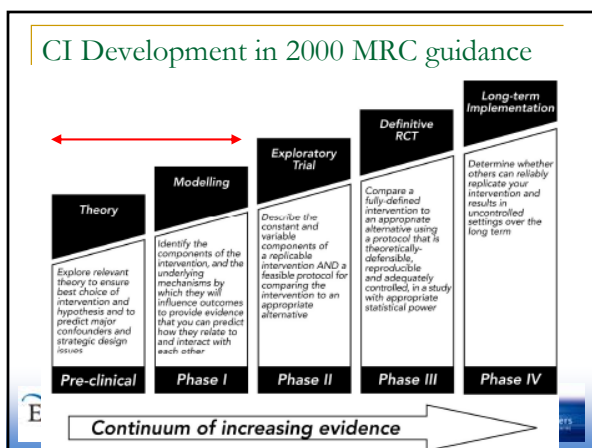


Workshop A. Development of complex interventions

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Quick introductions

- You first!
 - Name, location, reason for attending workshop
- Rob
 - Evaluating “complex interventions” since 1997
 - Especially service changes (emergency dental services, shared care for Hep C, cancer screening)
- Nicky
 - Diverse experience of evidence synthesis



Overview of Developing a CI

What will we be covering today?

1. Identifying the evidence base (sys reviews)
= EXERCISE 1
2. Identifying/developing appropriate theory
= EXERCISE 2
3. Modelling process & outcomes

Not covering economic modelling



Learning objectives: reminder

- Demonstrate a **critical understanding of key concepts** in the complex interventions research process in health care, including the role of the existing evidence base, theory and modelling
Especially,
 - Be critically aware of the importance of a **theoretical understanding of the process of change** in health care interventions and activities in terms of what changes are expected, and how change is to be measured and achieved
 - Demonstrate knowledge and understanding of the **concept of modelling** as applied to complex interventions/activities to provide important information about the design of both the intervention and the evaluation prior to a full scale evaluation



MRC 2008 on intervention development ...

“You should begin by identifying the relevant, existing evidence base, ideally by carrying out a systematic review” MRC 2008

But,

A review of what? And why? ...



Exercise 1: systematic reviews

- Imagine that you are planning to develop a CI to promote physical activity in people with a family history of diabetes. You know that your first task is to identify the evidence base, ideally by carrying out systematic review(s).
- a) what question(s) would your review(s) address?
- b) what types of study design would you include in your review(s) and why?

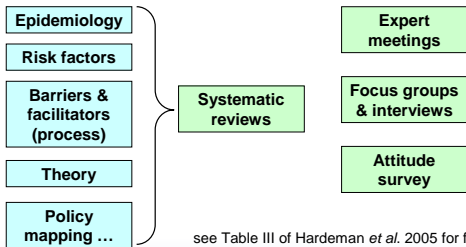


“Solution”?

- You can always do a systematic review of **any clearly stated review question**, but ...
- Usually little value unless confident that some research studies or sources have addressed/covered same or similar res Qs
- Which **types of sources** (cf study designs)
- Harder to search for, identify and know what to include (e.g. without study design criteria)



What types of research/data could inform a causal model of a complex intervention?



see Table III of Hardeman *et al.* 2005 for full picture of which evidence informed which part of methods



Further sources for possible types of review to consider

- R. Pawson, T. Greenhalgh, G. Harvey, and K. Walshe. **Realist review - a new method of systematic review designed for complex policy interventions.** *Journal of Health Services Research and Policy* 10:S1:21-S1:34, 2005.
- M. Grant, Booth A. **A typology of reviews: an analysis of 14 review types and associated methodologies.** *Health Information and Libraries Journal* 26: p1-108. 2009.



MRC 2008 on intervention development ...

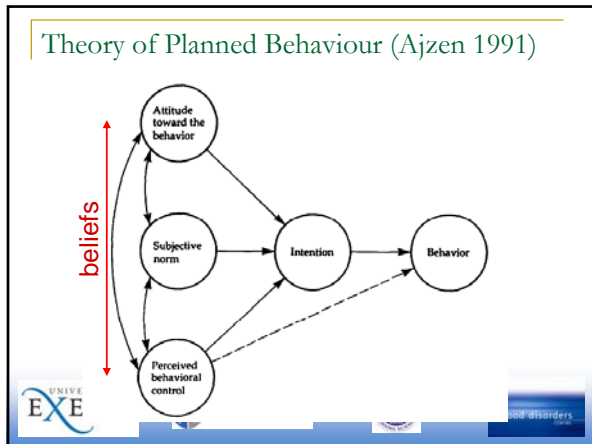
- “The rationale for a complex intervention may not be clear at the outset” ...
- “A vitally important early task is to develop a theoretical understanding of the likely process of change” and
- “Modelling a complex intervention prior to a full scale evaluation can provide important information about the design of the intervention and the evaluation”

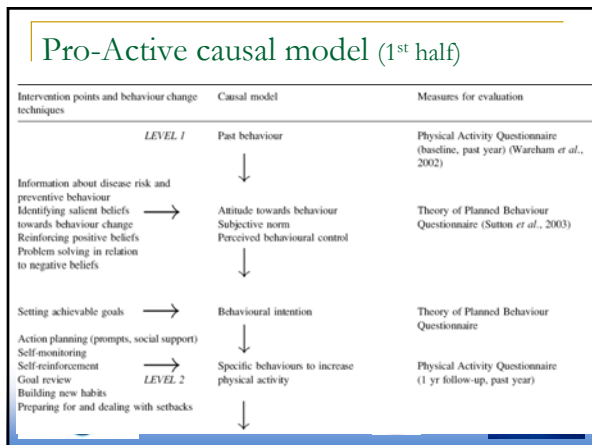


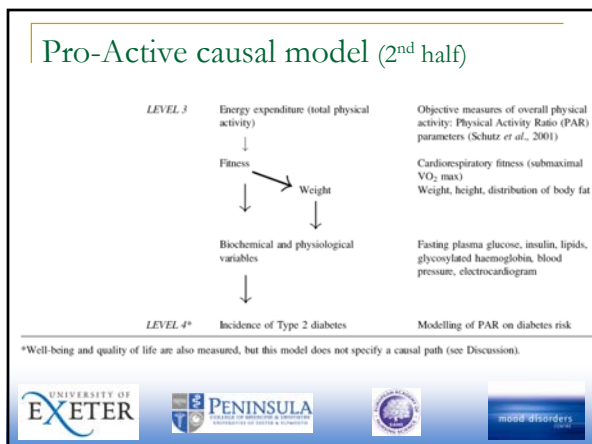
Exercise 2: causal modelling

- Your team decides to develop an intervention to promote physical activity based on the Theory of Planned Behaviour. Using the Theory, work out the stages at which the intervention would make a difference, the behaviour change techniques to use, and the measurements you would make at each point.
- Draw this causal model as a diagram.









Hardeman causal modelling case study: extending the MRC framework

- Concise one-page representation of causal pathways
- Guides the choice of intervention points and measures
- Assists in choice of behaviour change techniques
- Informs the assessment of 'fidelity' to theories
- Enables statistical modelling of the relationships between behaviours and health outcomes



Conclusions (1)

- Range of possible review questions = range of relevant study designs
- Primary research may be needed to 'plug gaps'
- Explicit use of theory is in its early stages, few examples of 'best practice' – though *theory-driven evaluation* and synthesis gaining popularity
- 'Modelling' can play a key role, including economic modelling as an early step



Conclusions (2)

- 3 recommended 'stages' of development overlap greatly (and may extend into feasibility & piloting)
- There are few standard 'right answers'; it all depends on your question and context
- Multi-disciplinary working and stakeholder involvement adds insights and 'lay theory'