

Just what research design am I using?

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Presentation Plan

- an introduction to the basics of research study design
- a brief overview of the most common designs
- exhortation to use mixed methods

Background

- how I became an 'expert'
- badly taught and badly described
- interdisciplinary differences in expectations
- no single decent textbook/guide
- much misuse of jargon

Start with the research question

- o Do you want to ...
 - o show that a government programme works
 - o show that intervention A is better than intervention B
 - o demonstrate that X causes Y
 - o describe how a client uses a service
 - o see how a new role fits into a team
 - o count how many people ...
 - o measure knowledge about a topic
 - o ...

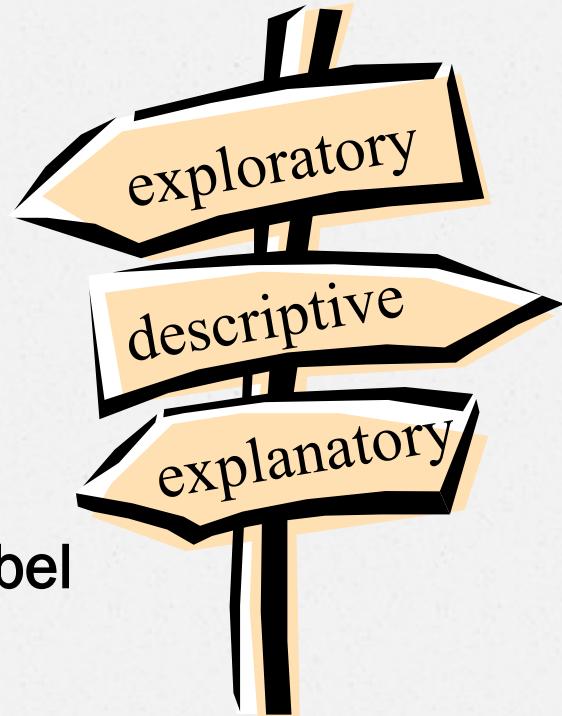
Research Design Basics 1

- o the terminology is poorly used
- o Start by describing your project with these 4 classifications and then select your design
 - 1. Purpose
 - 2. Time Frame
 - 3. Context
 - 4. Structure

Classification: Purpose

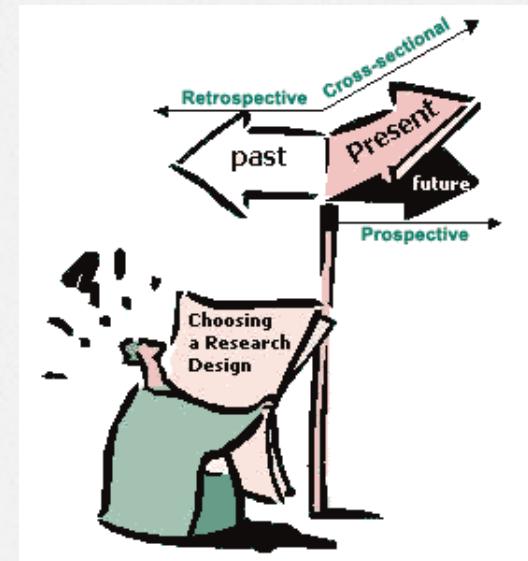
- o Exploratory
- o Descriptive
- o Explanatory

none of these are a sufficient label



Classification: Time Frame

- Retrospective Studies
- Prospective Studies
- Cross-sectional Studies
- Longitudinal Designs



none of these are a sufficient label

Classification: Context

- o field setting
- o laboratory setting
- o clinical setting

none of these are a sufficient label

Research Design Basics 2

- o it is not qualitative v quantitative
- o the fundamental division is between
experimental v non-experimental
- o and the key to understanding this is how you engage with the research participant

Classification: Structure

- o (True) experimental designs
- o Quasi-experimental designs
- o non-experimental designs

This should be the basis for choosing your research design

Criteria for experimental designs

- o random assignment
 - o so, a minimum of 2 groups
- o control - experimental NOT statistical
- o manipulation
 - o YOU must do something
- o RCTs are only one little subtype of experimental designs

Criteria: Quasi-experimental designs

- one of the experimental criteria is missing
- usually randomisation
- term frequently misused

Non-experimental designs

- o makes up most of published health research
- o just because there are numbers/counts doesn't make it experimental
- o a mixed bag ... includes surveys, using administrative data, interviews, analysis of text, etc

'Rigor' hierarchy

- o NIHR or NICE
- o the 'official' list



Figure 1. Levels of evidence

- o not reality
- o particularly for 'soft' stuff like patient experience, public health, or problems with multiple causes and solutions

General principles that sit behind research

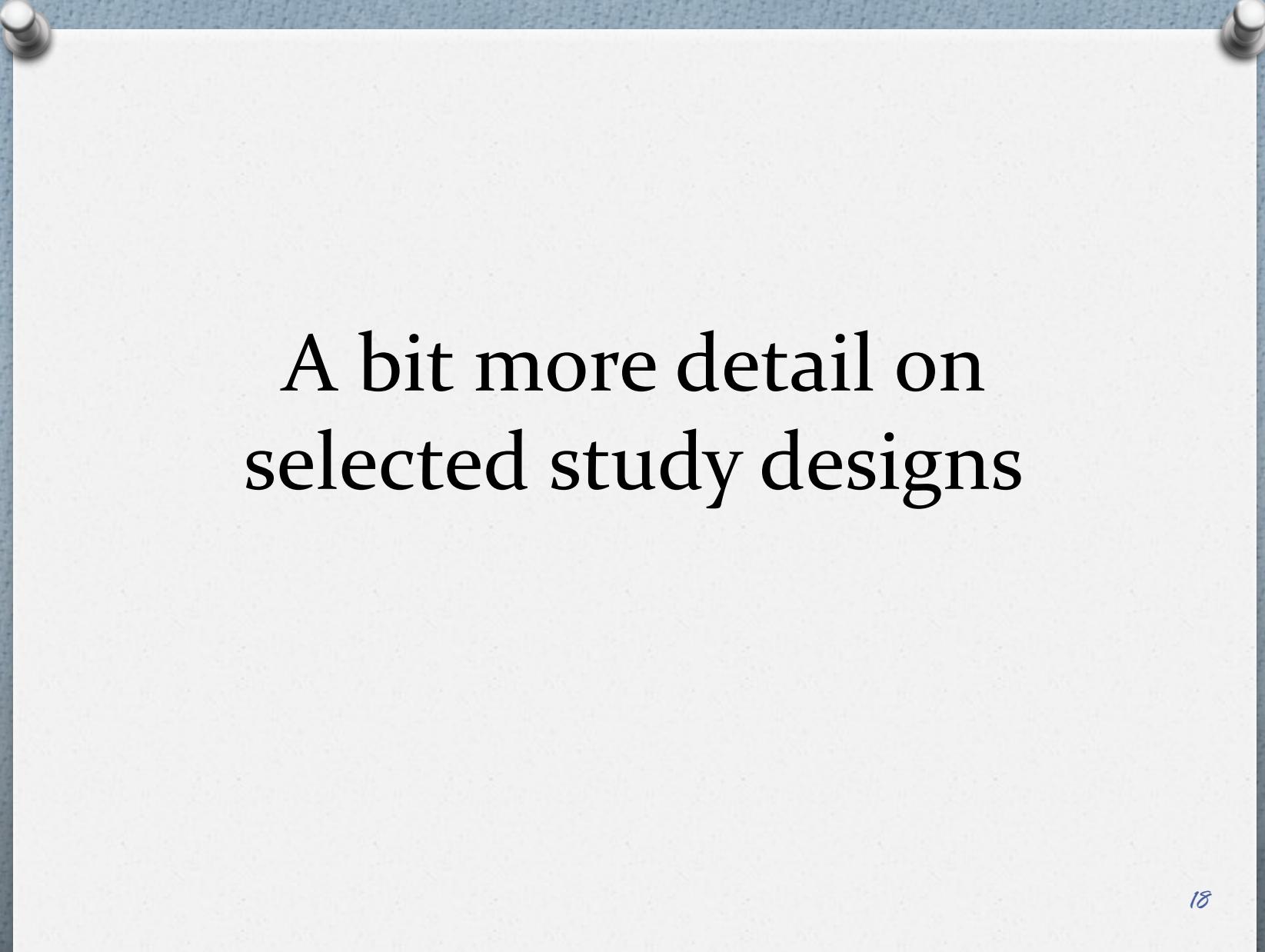
- the purpose of peer review
- reproducibility - can someone replicate?
- generalisability
- blinding to remove unconscious effects
- bias as opposed to random error

Recommendations

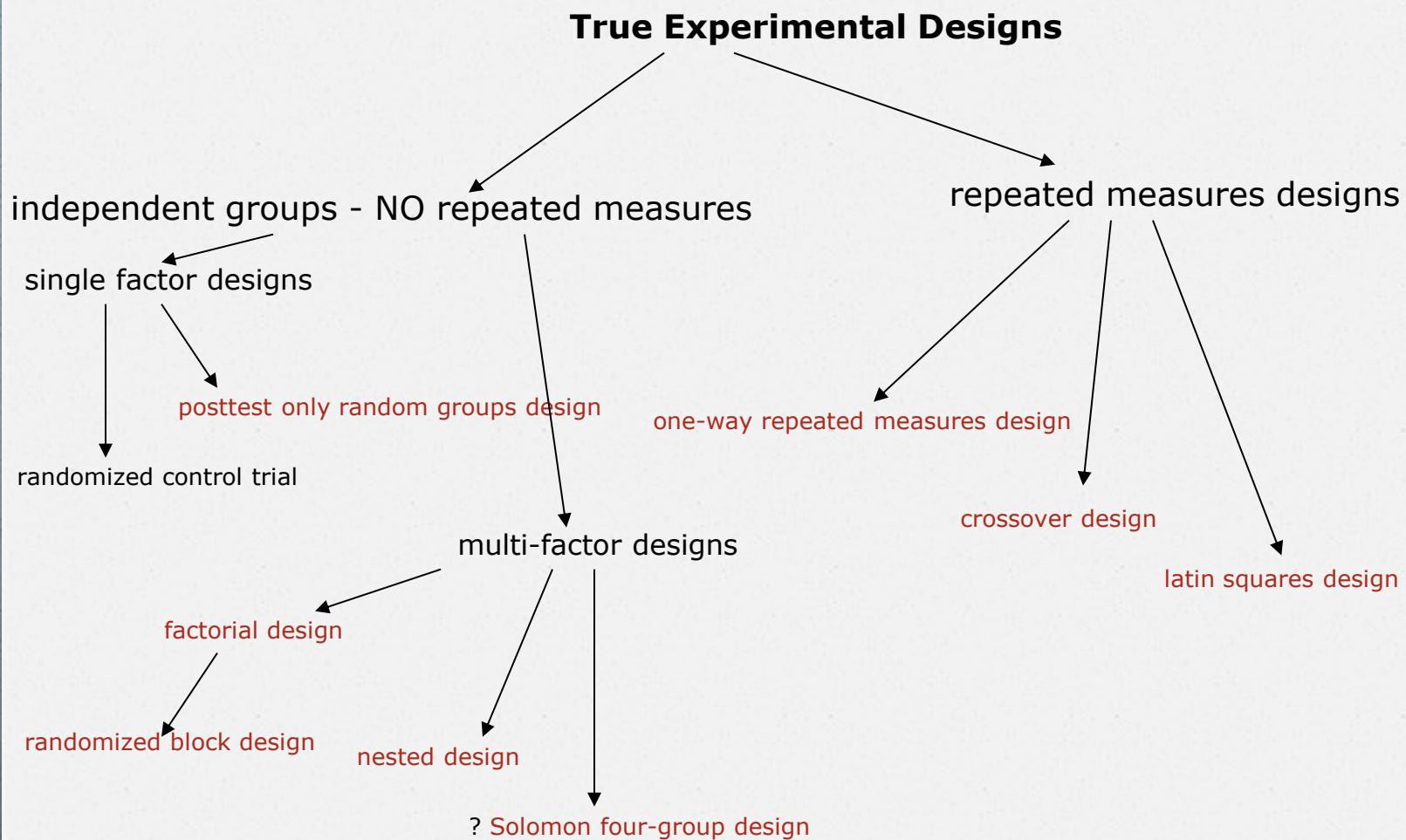
- Don't get stuck in a philosophical debate about methodology
- Go as rigorous as can be reasonably expected
- most researchers DON'T use multiple methods because they were 'apprenticed'
- Don't assume qualitative is easier
- Make sure any data you might need actually exists

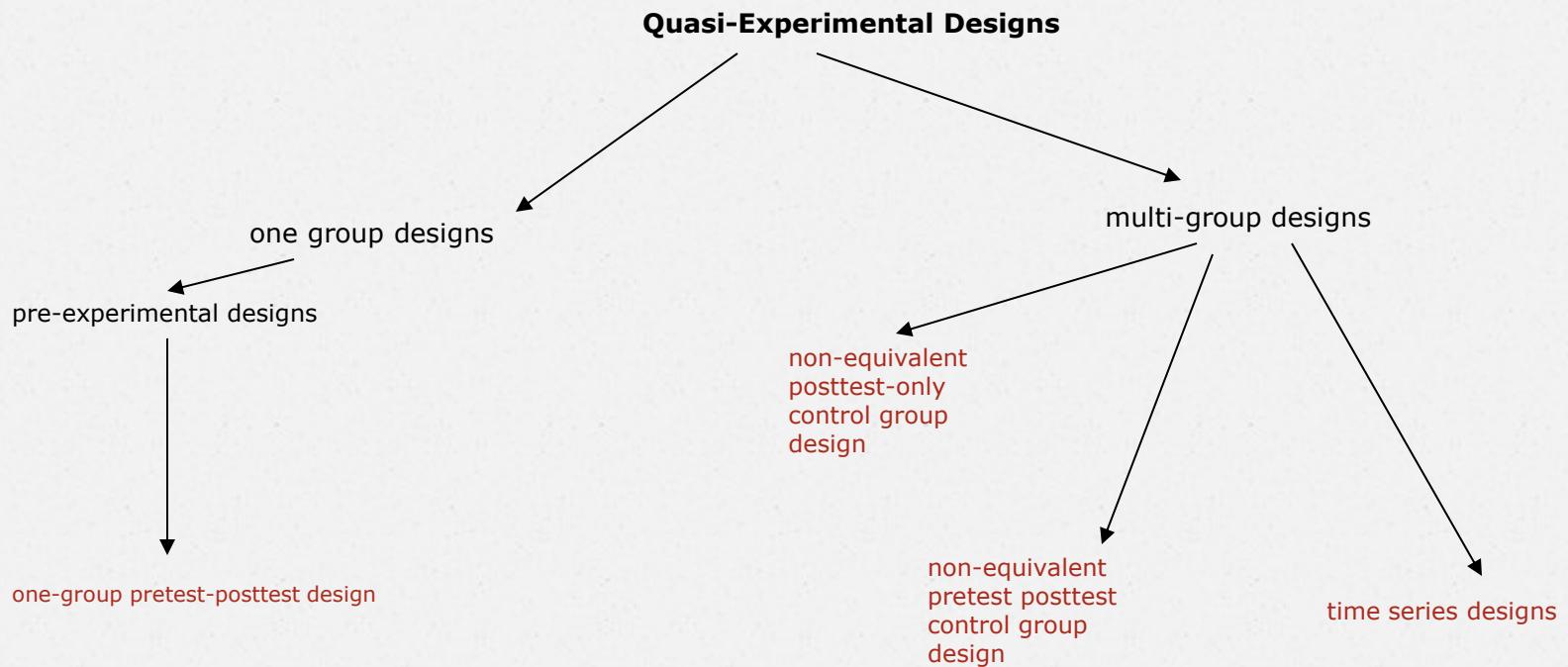
Discuss

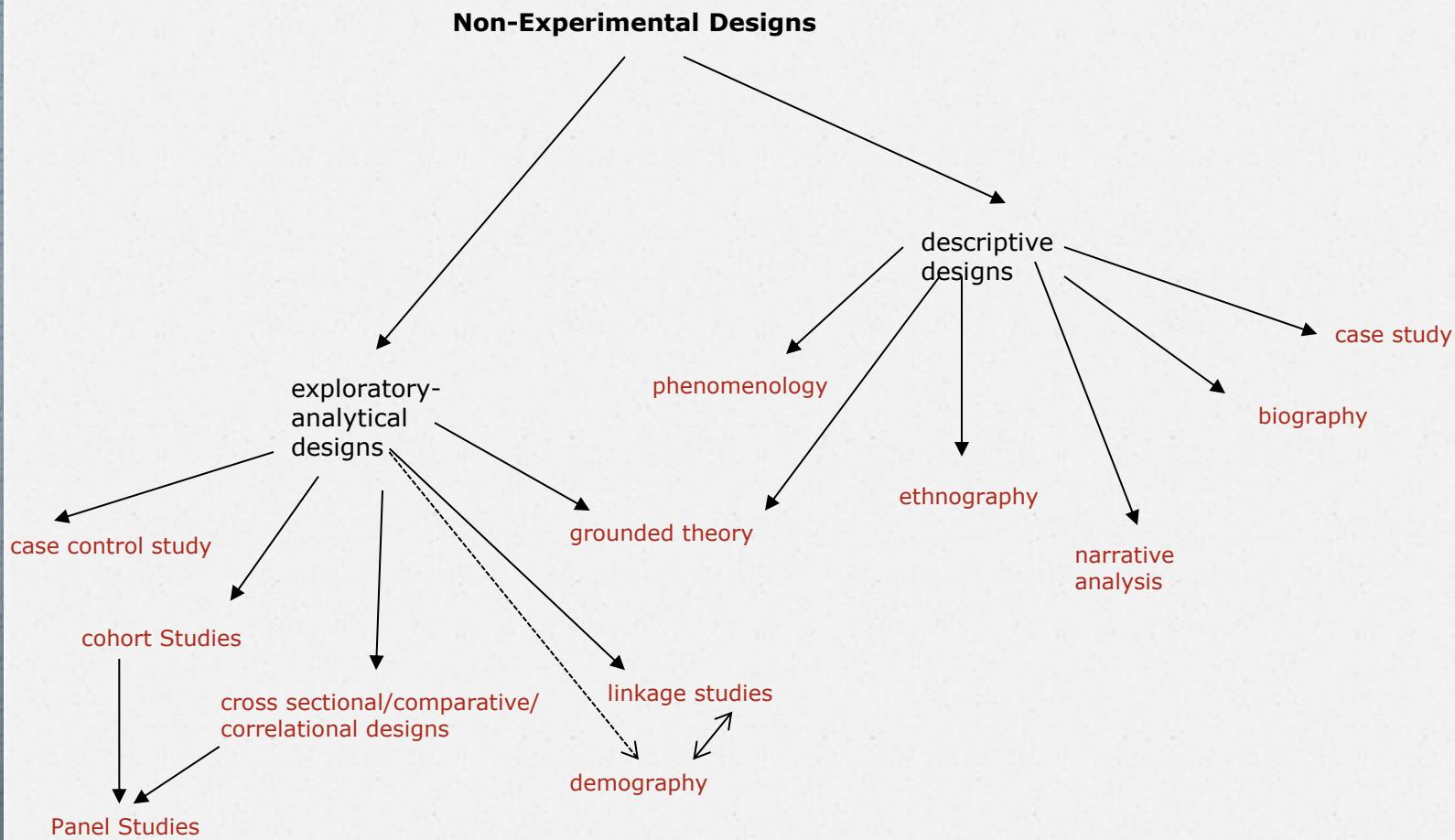
- o Break into pairs and discuss your research



A bit more detail on selected study designs





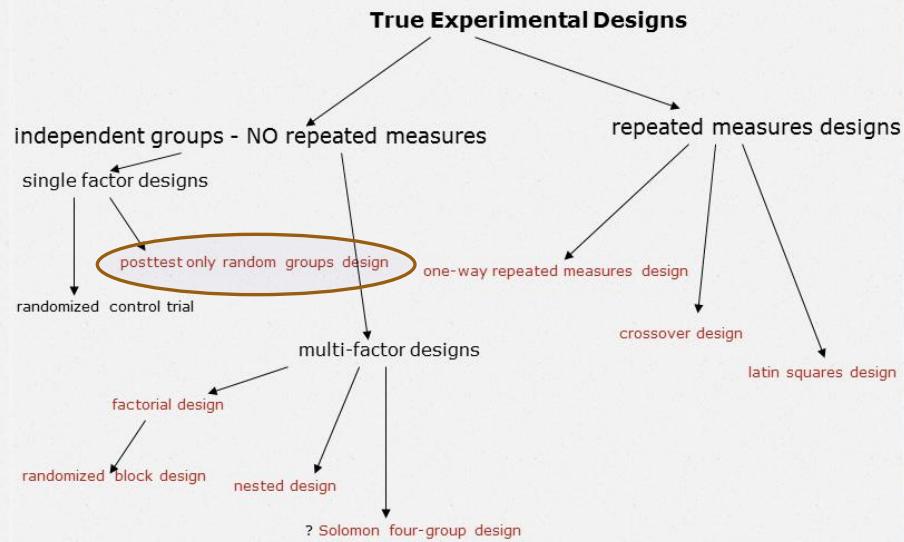


Why are there all these different designs?

- the nature of your question
 - the nature of your study participants
 - ethics or governance issues
 - cost and time available
-
- Let's look at some specific designs

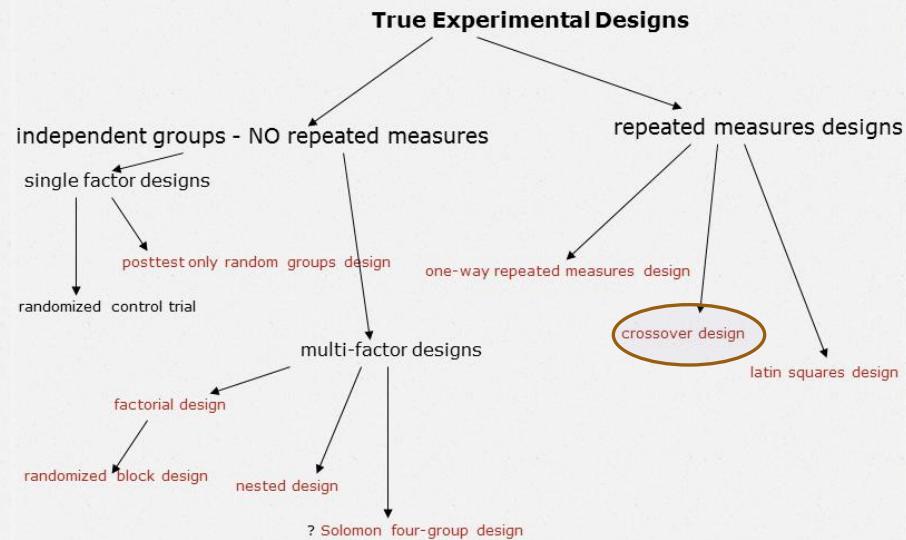
Does this intervention increase seat belt use?

- could use an RCT but asking participants if they use one before may remind them to use them

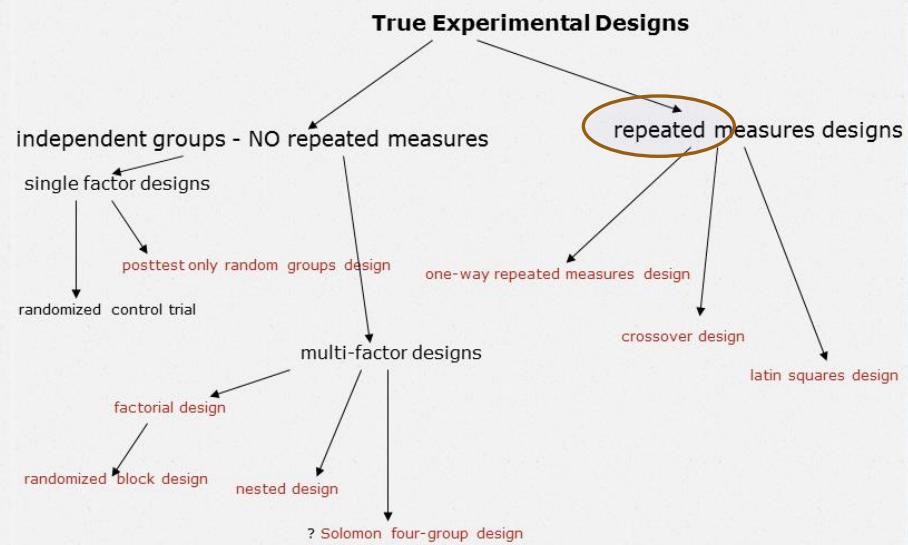


Benefits must continue

for example
ending benefits
may lead to
homelessness

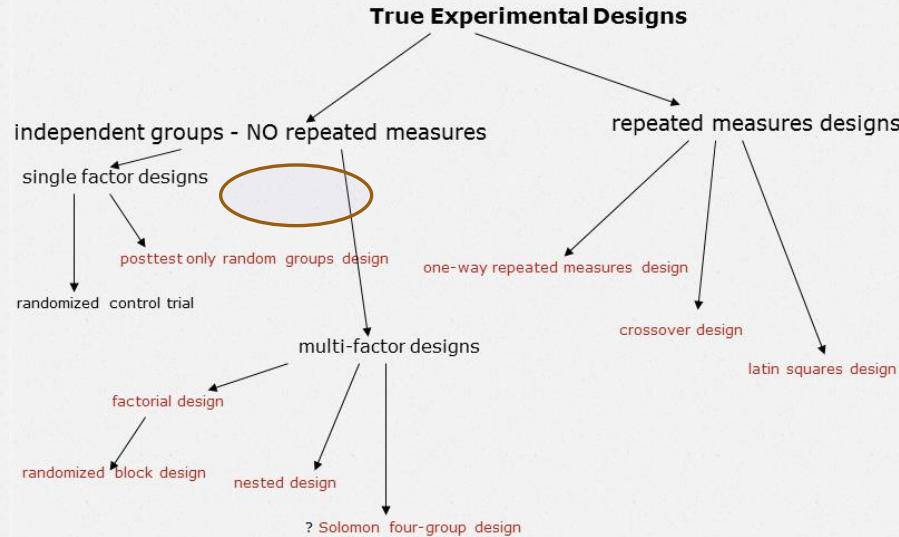


What is the optimal length of a TV advert campaign?



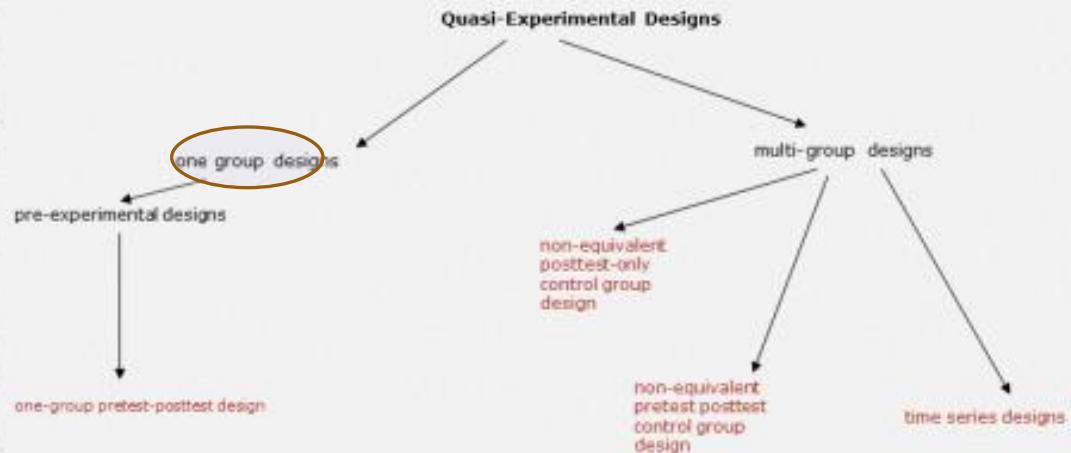
Participants might share what they learn about your intervention ...

- You can randomise groups



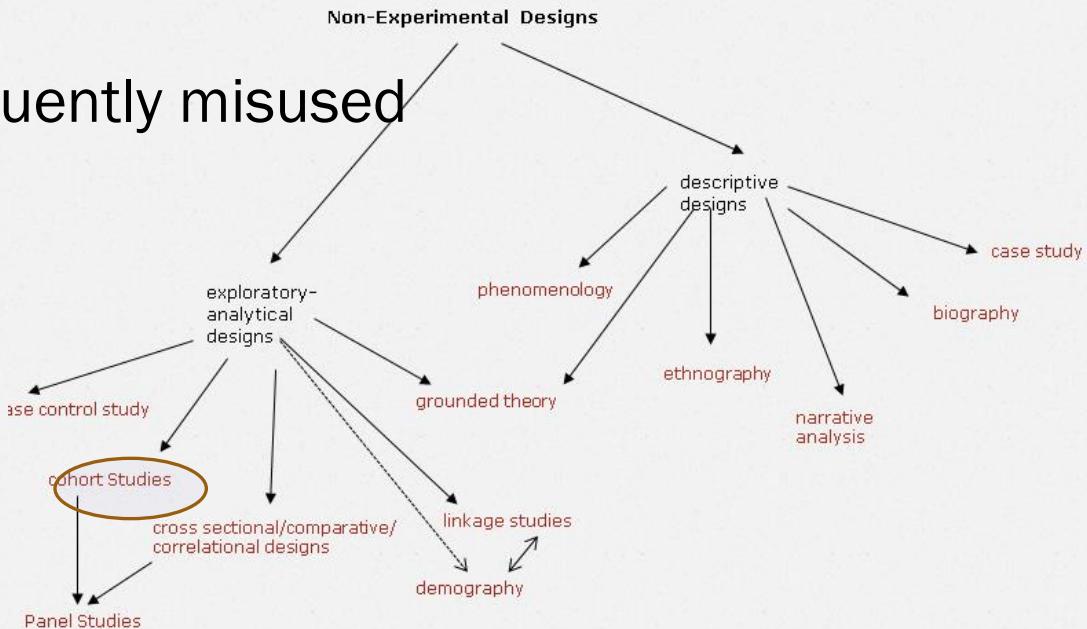
Does this treatment improve a patient's condition?

- o Instinctively use this design. But be careful!
Without a comparison group how do you
know they didn't just get better anyway?



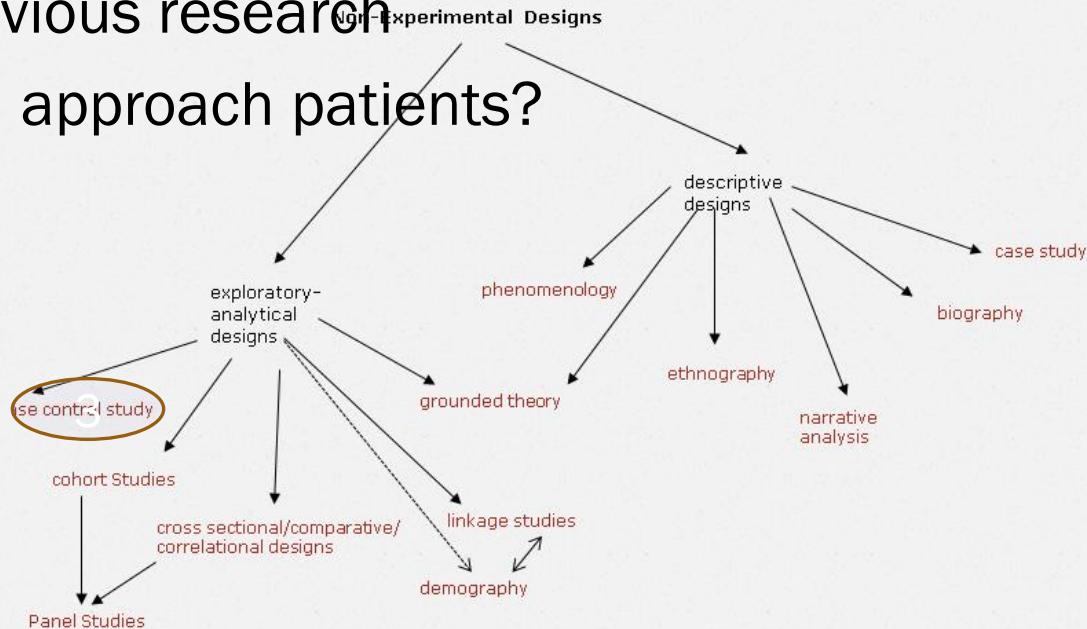
Can't ethically expose people to hazardous substances

- o find a group with a RANGE of potential exposure
- o term frequently misused



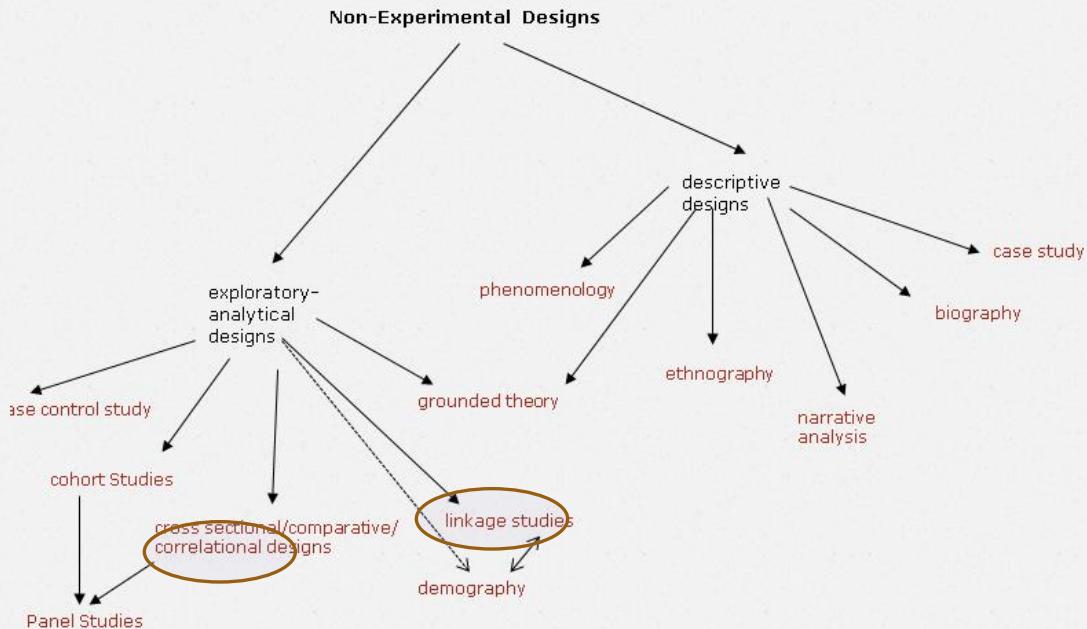
What causes this radicalisation?

- o blinding crucial
- o relies on previous research
- o when do you approach patients?



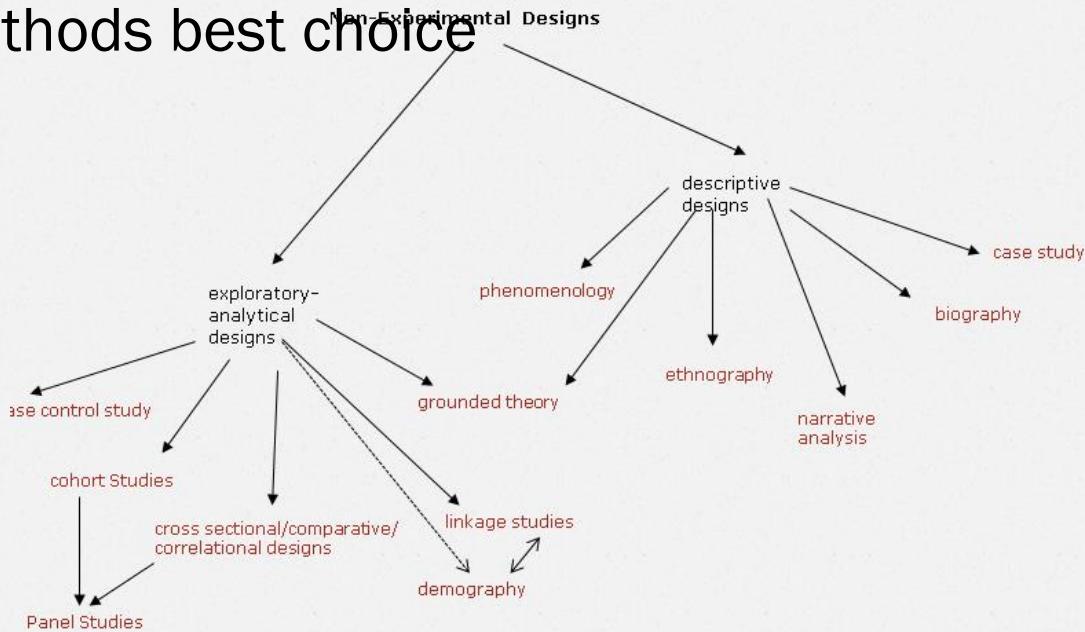
How many people have diabetes?

- o two choices - both have limitations



Why don't patients take their tablets?

- o two choices - both have limitations
- o mixed methods best choice



Additional issues - data

- o Where is your data coming from?
 - o don't assume the data already exists - check and confirm YOURSELF
- o data storage has changed over time so older records are more parsimonious
- o linking data is probabilistic

Additional issues - ethics

- o Understand the ethical and governance issues
- o who gives permission for access to people or data?
- o who owns the data if you didn't collect it?
- o change of ownership change of access

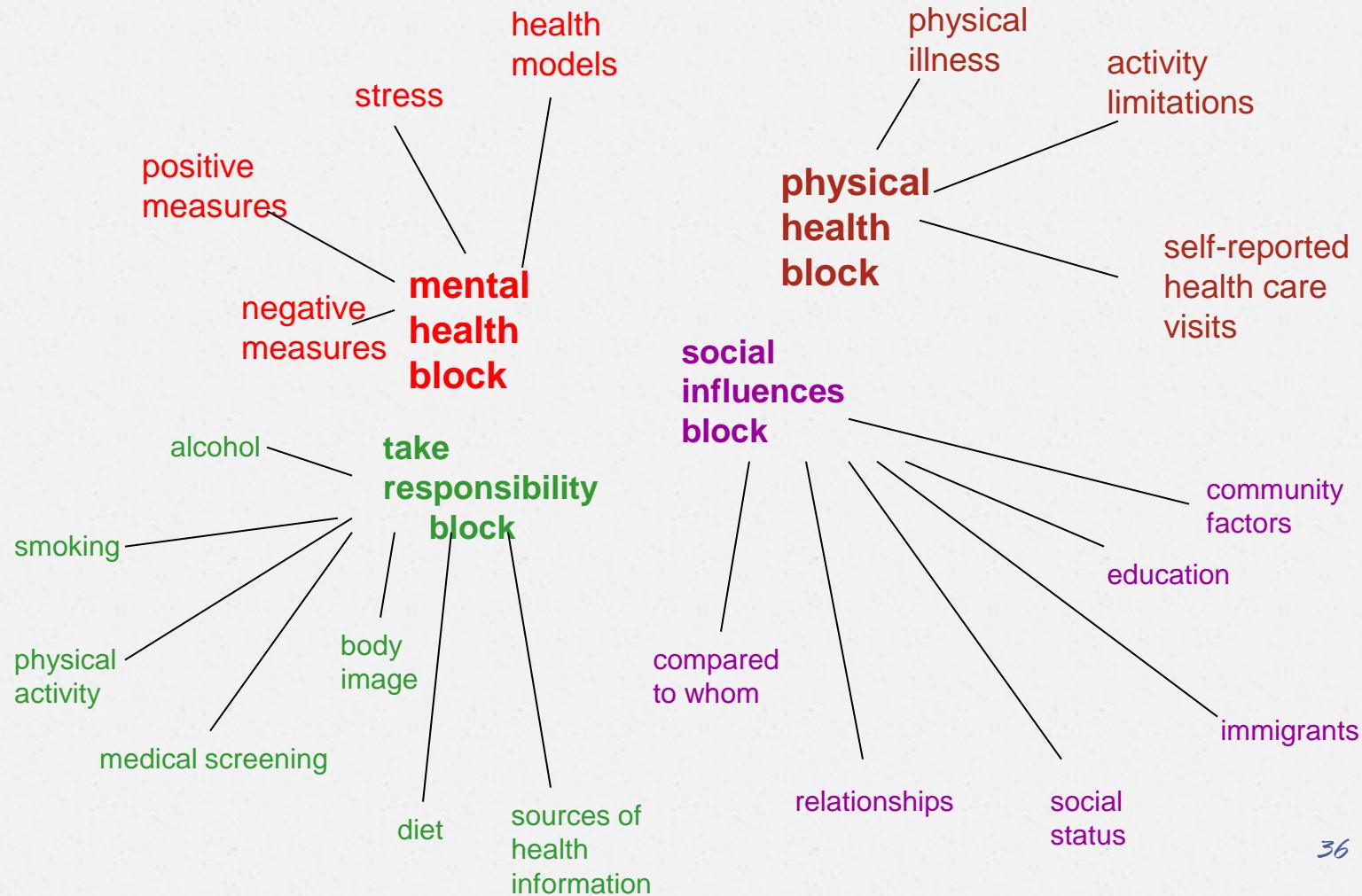
Mixed Methods

- o YES!!!! maybe always!
- o But ... not an excuse for poor quality or lack of rigor
- o stop agonising over combining them in conclusions
 - o convergent parallel mixed methods
 - o triangulation
- o some examples

Example: SRH 1

- In general how would you describe your health? excellent, very good, good, fair or poor.
- focused on E VG and G
- interested in gender and SES differences
- data: 23 interviews; health survey data; provincial healthcare records data
- analysed independently then fused and revisited some analyses

Example: SRH 2



Example: role substitution 1

- o NIHR call
- o background
 - o shortage of doctor trainees in region
 - o out of hours & weekend care
 - o HEE funded 300 ANP posts
 - o little research and most qualitative which suggested problems

Example: role substitution 2

o We proposed

1. Calderdale Framework
2. quasi-experimental component
3. ethnographic observation
4. economic evaluation
5. synthesis & dissemination into practice

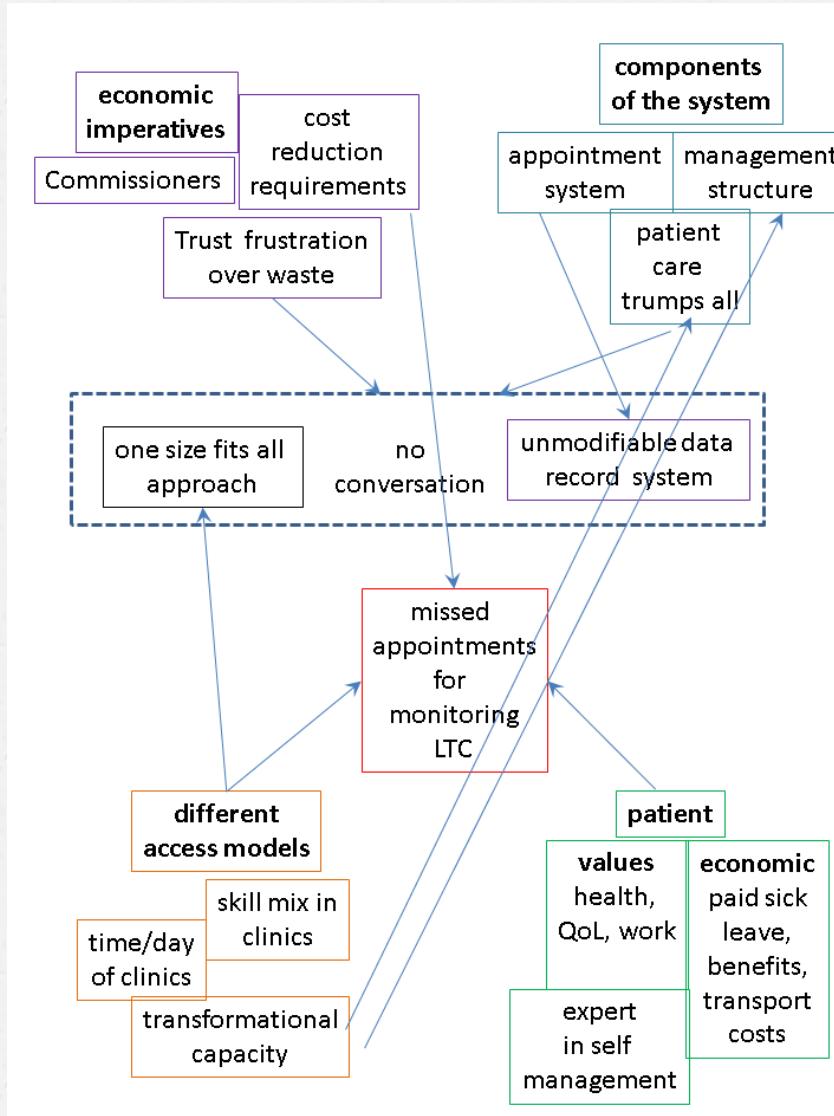
Example: DNA 1

- o 10-15% of hospital outpatient appointments are missed
- o Sionadh - literature review
- o UK situation
 - o little studied
 - o easy interventions already in place
 - o 'easy' place to save money

Example: DNA 2

- o multiple causes:
 - o patient factors - age, ethnicity, economics
 - o purpose of appointment - pre-op, chronic conditions, post-op follow-up
 - o clinic factors - patient mix, hierarchy', research
 - o appointment system - externally supplied, mostly unchangeable,

Current Working Model



Questions