Designing interventions to change behaviour

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When is behaviour important?

- Behaviour

Health → Disease → Disability/Death

- To prevent ill health, manage illness, deliver effective health care
Why do people behave in ways that harm their health?

• Most people know that poor diet, being sedentary and not following health advice are harmful
  – short-term rewards are more powerful drivers of behaviour than perceived longer-term benefits
  – how to counteract or compensate for this?

• Interventions to change health-related behaviours have had modest and variable effects (NICE, 2007)
  – depends on the behaviour, the target population and the context
• Behaviour change is not easy
• If it were, most of us would be out of a job
There is a science of behaviour change.

But few apply it.
Why?
We know we can’t build bridges or perform open heart surgery.
• But we all behave and see others behave ....
• and have our own theories about how to change behaviour ...
• and they can be wrong!
Traditional approaches to intervention design

ISLAGIATT principle

‘It Seemed Like A Good Idea At The Time’

Martin Eccles, implementation researcher, UK
Some evidence ....

- Intervene at many levels
- simultaneously & consistently

NICE Guidance for Behaviour change at population, community and individual levels (2007)

Obesity and the Economics of Prevention, OECD (2010)

Source: Dahlgren and Whitehead, 1991
How to design an intervention that is likely to be effective?
Four things to take away …

1. Identify your target behaviour precisely
   – Who need to do what, when, where, how

2. Behaviours are part of a system
   – Of other behaviours within and between individuals

3. Make a “behavioural diagnosis”
   – A good behavioural diagnosis is more likely to lead to effective interventions

4. The most effective interventions target many levels simultaneously
   – The Behaviour Change Wheel is a comprehensive framework for designing interventions.
Guidance for intervention development

• NICE Behaviour Change guidance, 2007; 2014

• Behaviour Change Wheel
  – Scientific paper
  – Step by Step Guide
    • [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)
Which behaviour to start with?

• Questions to ask yourself
  – If I change this, what is the likely impact?
  – How easy is it to bring about change?
  – preference, acceptability, cost?
  – spillover/generalisability to other behaviours and people?
Behaviours are not stand-alone: they are part of a system

For each of these, **who** needs to do:
- *what*
- *when*
- *where*
- *how*?
Having decided on the behaviour to tackle,
Understand it!
• Understanding behaviour is key to changing it
• Understand before you intervene!
• Behaviour is in the moment and influenced by its context
• Diagnose before intervening

Would you want to be given a prescription by your GP without a thorough assessment and diagnosis?
Behaviours are different and contexts are different

• For example ....
  – Increasing physical activity
  – Changing diet
Behaviours are different ....

• Physical activity
  – requires energisation, “push”
  – begin doing things
  – create impulses
  – respond to cues

• Healthy eating
  – requires self-control, “pull”
  – avoid/stop doing things
  – resist impulses
  – not respond to cues
Understand the behaviour in context

- Why are behaviours as they are?
- What needs to change for the desired behaviour/s to occur?

- Answering this is helped by a model of behaviour – COM-B
A thought experiment

For behaviour to change, what three conditions need to exist?
The COM-B system: Behaviour occurs as an interaction between three necessary conditions

- **Capability**: Psychological or physical ability to enact the behaviour
- **Motivation**: Reflective and automatic mechanisms that activate or inhibit behaviour
- **Opportunity**: Physical and social environment that enables the behaviour

Michie et al (2011) *Implementation Science*
A Polo is £9,790.
Honestly, a Polo is £9,790.
It's true, a Polo is £9,790.
No really, a Polo is £9,790.
Trust us, a Polo is £9,790.
Look, a Polo is £9,790.
No joke, a Polo is £9,790.
Seriously, a Polo is £9,790.
Motivation – push and pull
Behaviour is in the moment; at any one moment, there are many choices

- Shall I lie here, watch TV, drink wine, eat popcorn?

- Battle of impulses and inhibitions “in the moment”
  - Put the popcorn out of reach?
  - Put the TV off?
  - Do what I said I’d do – go to the gym?
Impulses

Inhibitions

Wants and needs

Beliefs about things being good or bad

Plans

“I want to wake up in the morning feeling fresh”

“I know I drink more than is good for me”

“My plan is not to drink in the week”

“I feel better when I have done exercise”

“I need to avoid putting on any more weight”

“I intend to go to the gym tonight”

PRIME theory, West & Brown, 2013; Primetheory.com

Behaviour

Impulses

Inhibitions
Individuals: Effective principles of behaviour change

• Maximise **Capability** to regulate own behaviour
  – Develop relevant skills (e.g. goal setting, monitoring, feedback)
  – Develop specific plans to change

• Maximise **Opportunity** to support self-regulation
  – Elicit social support
  – Avoid social and other cues for current behaviour
  – Change routines and environment

• Increase **Motivation** to engage in the desired behaviour
  – Reward change
  – Develop appropriate beliefs
    • E.g. benefits of changing, others’ approval, personal relevance, confidence to change
  – Develop positive feelings about changing

• Reduce **Motivation** to continue with the undesired behaviour
Designing interventions: start with understanding the behaviour in context
Intervening: Consider all the options

- Frameworks make life easier
  - good frameworks make you more effective
- Need a framework that is:
  - Comprehensive
    - So you don’t miss options that might be effective
  - Coherent
    - So you can have a systematic method for intervention design
  - Linked to a model of behaviour
    - So that you can draw on behavioural science
- Useable by, and useful to, policy makers, service planners and intervention designers
Do we have such a framework?

• Systematic literature review identified 19 frameworks of behaviour change interventions
  – related to health, environment, culture change, social marketing etc.
• None met all our three criteria
• So …. Developed a synthesis of the 19 frameworks

Interventions: activities designed to change behaviours
Using rules to reduce the opportunity to engage in the behaviour (or to increase behaviour by reducing opportunity to engage in competing behaviours)

Increasing knowledge or understanding

Using communication to induce positive or negative feelings to stimulate action

Creating an expectation of reward

Creating an expectation of punishment or cost

Changing the physical or social context

Provide an example for people to aspire to or emulate

Increasing means or reducing barriers to increase capability (beyond education or training) or opportunity (beyond environmental restructuring)

Imparting skills

Modeling

Environmental restructuring

Restrictions

Education

Persuasion

Incentivisation

Coercion

Training

Reflective

Automatic

Psychological

Physical

Social

MOTIVATION

CAPABILITY

OPPORTUNITY
Intervention functions

Policies: decisions made by authorities concerning interventions

Use the Behaviour Change Wheel to …

1. Design interventions and policies
2. “Retrofit” – identify what is in current interventions and policies
3. Evaluate
   – How are interventions working?
4. Structure systematic reviews of evidence
Designing effective interventions

1. Understand the behaviour you are trying to change
   – Make a “behavioural diagnosis”
2. Consider the full range of options open to you
3. Use a systematic method for selecting behaviour change techniques
4. Evaluate interventions so it is possible to accumulate evidence to inform future interventions
Behaviour change techniques: what are they?

• “Active ingredients” within the intervention designed to change behaviour

• They are
  – observable,
  – replicable and
  – irreducible components of an intervention

• Can be used alone or in combination with other BCTs
Why describe interventions at this level?
### Interventions poorly specified: Descriptions of “behavioural counselling” in two interventions

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<thead>
<tr>
<th>Title of journal article</th>
<th>Description of “behavioural counselling”</th>
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<tr>
<td>The impact of <em>behavioral counseling</em> on stage of change fat intake, physical activity, and cigarette smoking in adults at increased risk of coronary heart disease</td>
<td>“educating patients about the benefits of lifestyle change, encouraging them, and suggesting what changes could be made” (Steptoe et al. <em>AJPH</em> 2001)</td>
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<tr>
<td>Effects of internet <em>behavioral counseling</em> on weight loss in adults at risk for Type 2 diabetes</td>
<td>“feedback on self-monitoring record, reinforcement, recommendations for change, answers to questions, and general support” (Tate et al. <em>JAMA</em> 2003)</td>
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“Taxonomies” of BCTs

- Physical activity/healthy eating/mixed: 26 BCTs
  Abraham & Michie, 2008
- Physical activity & healthy eating: 40 BCTs
  Michie et al, Psychology & Health, 2011
- Smoking cessation: 53 BCTs
  Michie et al, Annals behavioural Medicine, 2010
- Reducing excessive alcohol use: 42 BCTs
  Michie et al, Addiction, 2012
- Condom use: 47 BCTs
  Abraham et al, 2013
BCT Taxonomy v1: 93 items in 16 groupings

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<td>1. Goals and planning</td>
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<td>6. Comparison of behaviour</td>
<td>16</td>
<td>12. Antecedents</td>
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<td>1.1. Goal setting (behavior)</td>
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<td>6.1. Demonstration of the behavior</td>
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<td>12.1. Restructuring the physical environment</td>
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<td>1.2. Problem solving</td>
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<td>6.2. Social comparison</td>
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<td>12.2. Restructuring the social environment</td>
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<td>1.3. Goal setting (outcome)</td>
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<td>6.3. Information about others’ approval</td>
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<td>12.3. Avoidance/reducing exposure to cues for the behavior</td>
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<td>1.4. Action planning</td>
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<td>7. Associations</td>
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<td>12.4. Distraction</td>
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<td>1.5. Review behavior goal(s)</td>
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<td>7.1. Prompts/cues</td>
<td></td>
<td>12.5. Adding objects to the</td>
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<td>1.6. Discrepancy between current behavior and goal</td>
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<td>1.7. Review outcome goal(s)</td>
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### 1. Goals and planning

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<th>No.</th>
<th>Label</th>
<th>Definition</th>
<th>Examples</th>
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<tr>
<td>1.1</td>
<td>Goal setting (behavior)</td>
<td>Set or agree on a goal defined in terms of the behavior to be achieved. <strong>Note: only code goal-setting if there is sufficient evidence that goal set as part of intervention; if goal unspecified or a behavioral outcome, code 1.3, Goal setting (outcome); if the goal defines a specific context, frequency, duration or intensity for the behavior, also code 1.4, Action planning</strong></td>
<td>Agree on a daily walking goal (e.g. 3 miles) with the person and reach agreement about the goal.</td>
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<td>Set the goal of eating 5 pieces of fruit per day as specified in public health guidelines</td>
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Steps in intervention design

- Select intervention functions on basis of
  - the “behavioural diagnosis” in context
  - relevant evidence
- Select behaviour change techniques on basis of
  - intervention functions identified
  - practicability, effectiveness etc.
- User testing and piloting before implementation
- Evaluate
  - generate evidence as to what works in your context
  - design evaluation early on
Which behaviour change techniques to select?: The APEASE criteria

- Affordability
- Practicability
- Effectiveness/cost-effectiveness
- Acceptability
  - public
  - professional
  - political
- Side-effects/safety
- Equality
In summary .... To change behaviour ....

• Start by understanding the problem
  – Identify the behaviours to change
    • Who, what, where, when
  – Understand the behaviours
    – COM-B
    – Before designing the intervention

• Consider the full range of effective interventions and supporting policies

• Select and implement behaviour change techniques
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  – Health Psychology Research Group

• Key funders
For more information

• Susan Michie
  – s.michie@ucl.ac.uk

• Behaviour Change Wheel guide
  – www.behaviourchangewheel.com

• UCL Centre for Behaviour Change
  – www.ucl.ac.uk/behaviour-change
  – Summer School 4-8 August 2014