



***Which behaviour change approach
should I choose?***
**An introduction to the
Behaviour Change Wheel**

Susan Michie

Professor of Health Psychology,
University College London, UK

Behaviour Works, Melbourne, November 2012

Acknowledgements

- Key collaborators in this work
 - Prof Robert West, University College London
 - Prof Marie Johnston, UCL and University of Aberdeen

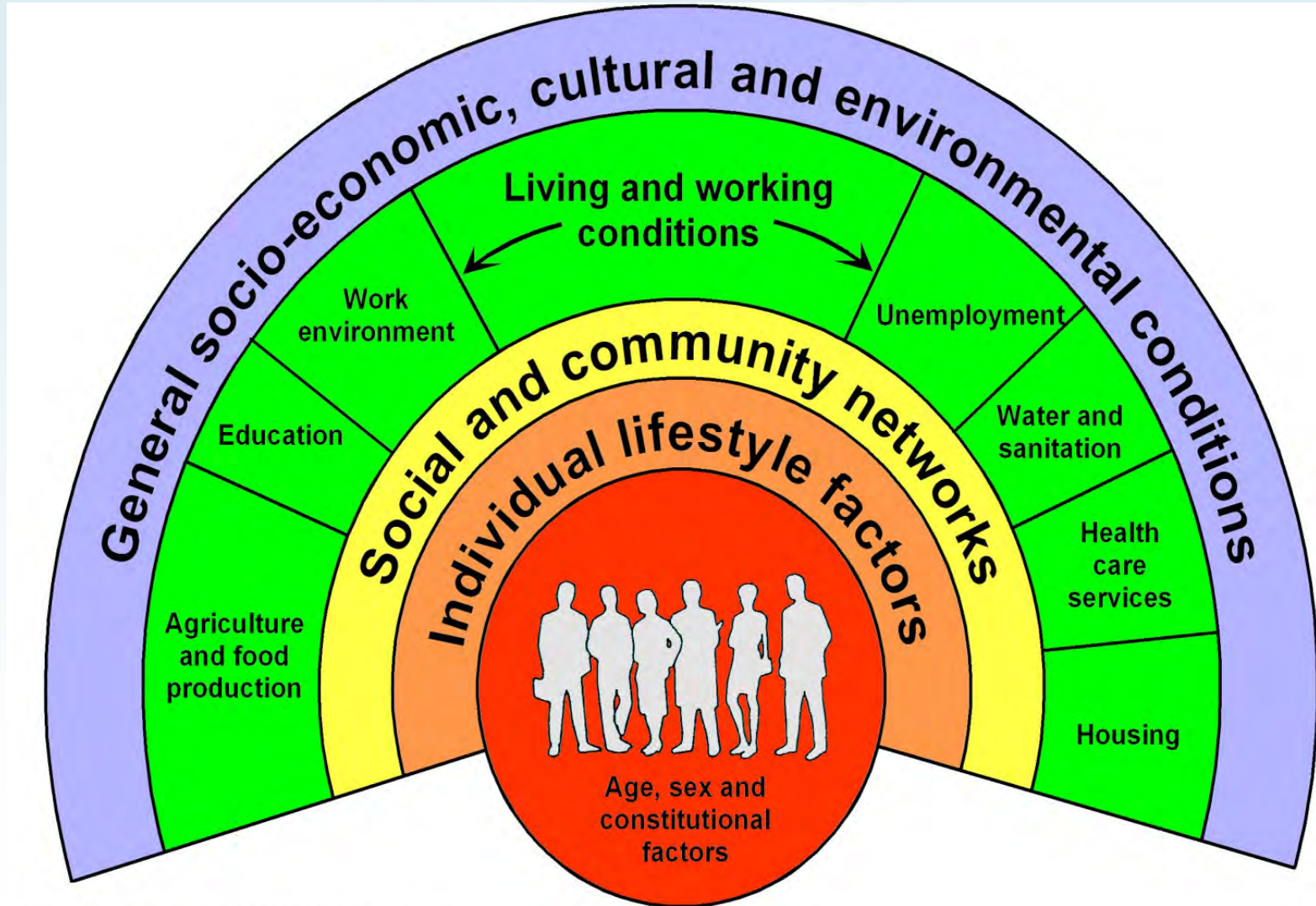
- Funders



Sustaining the environment depends on **changing behaviour**

- Improve the environment
 - Reduce litter, stop illegal dumping, reduce greenhouse gas emissions
- Reduce waste
 - Avoid waste
 - Choose products that are durable, repairable, and made from recycled materials
- Every one of these requires multiple behaviours at multiple levels – individual, organisational, state/national
- Each behaviour differs in context, barriers and drivers
- Use materials & fuels more efficiently
 - Upgrade buildings, use energy-efficient appliances & technologies, turn down thermostats, switch off lights, wear warmer/cooler clothing, change mode of transport

Understanding behaviour

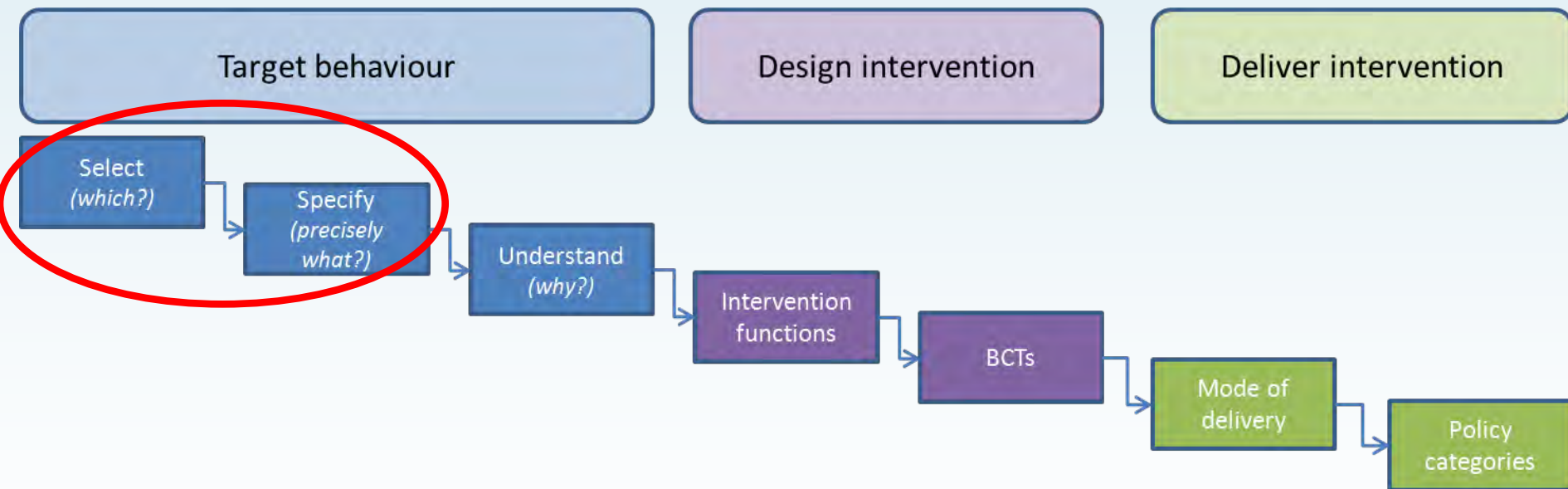


Source: Dahlgren and Whitehead, 1991

A system for designing effective behaviour change interventions

1. **Identify** the target behaviour/s
2. Understand the **target behaviour/s** in context
3. Consider full range of possible **intervention functions**
4. Identify specific **behaviour change techniques**

An approach to developing behaviour change interventions



Which behaviours?



- Identify key specific behaviours
 - **Who** needs to do
 - **what** differently,
 - **when**,
 - **where**,
 - **how**?
 - Behaviours are often contingent on other people's behaviours

Example hand hygiene in hospital staff

- Nurses and doctors
 - Cleaning hands
 - Cleaning hands
- Infection
 - For each of these, **who** needs to do
- Senior
 - **what,**
 - **when,**
 - **where,**
 - **how?**
 - Ensuring that dispensers contain alcohol handrub



Example ... reducing waste



1. Use smaller

2. For each of these, **who** needs to do

3. Composting or worm farming

- **what,**
- **when,**
- **where,**
- **how?**



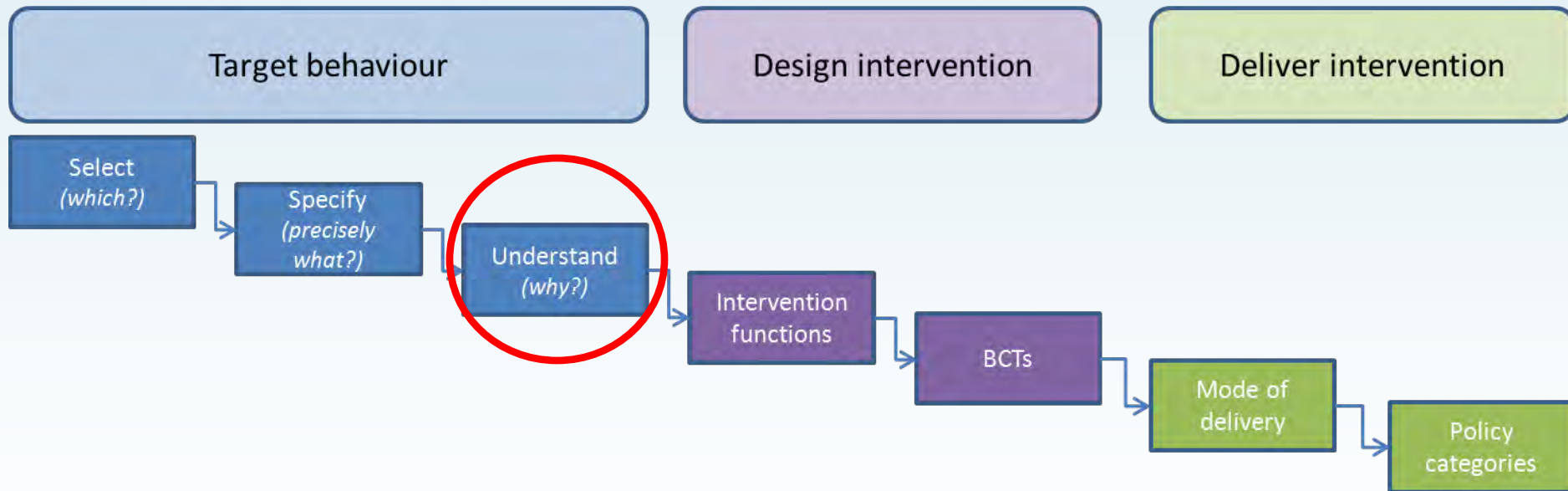
Example: Townsville Residential Energy Demand Program (TRED Program)

- Identified **240** separate behaviours
 - Reducing Electricity Consumption
 - Hot Water Systems - **24**
 - Kitchen Appliances - **53**
 - Entertainment Equipment - **18**
 - Laundry Appliances and Bathroom - **28**
 - Pools, Hot Tubs and Saunas - **7**
 - Heating & Cooling – **40**
 - Lighting - **17**
 - Complimenting Energy Efficiency Behaviours with Onsite Generation - **7**
 - Options for House Construction and Retrofit - **24**
 - Additional Behaviours related to housing construction - **13**

Which behaviours to target?

- Each behaviour assessed based on its
 - likely **impact** if undertaken
 - E.g. the energy demand reduction from changing an incandescent light bulb to a compact florescent lamp
 - likelihood that such a behaviour will be **implemented** in the community
 - cost, technical complexity, aesthetics etc
 - preference, acceptability
- Other factors to consider
 - Spillover/generalisability to other behaviours and people

An approach to developing behaviour change interventions



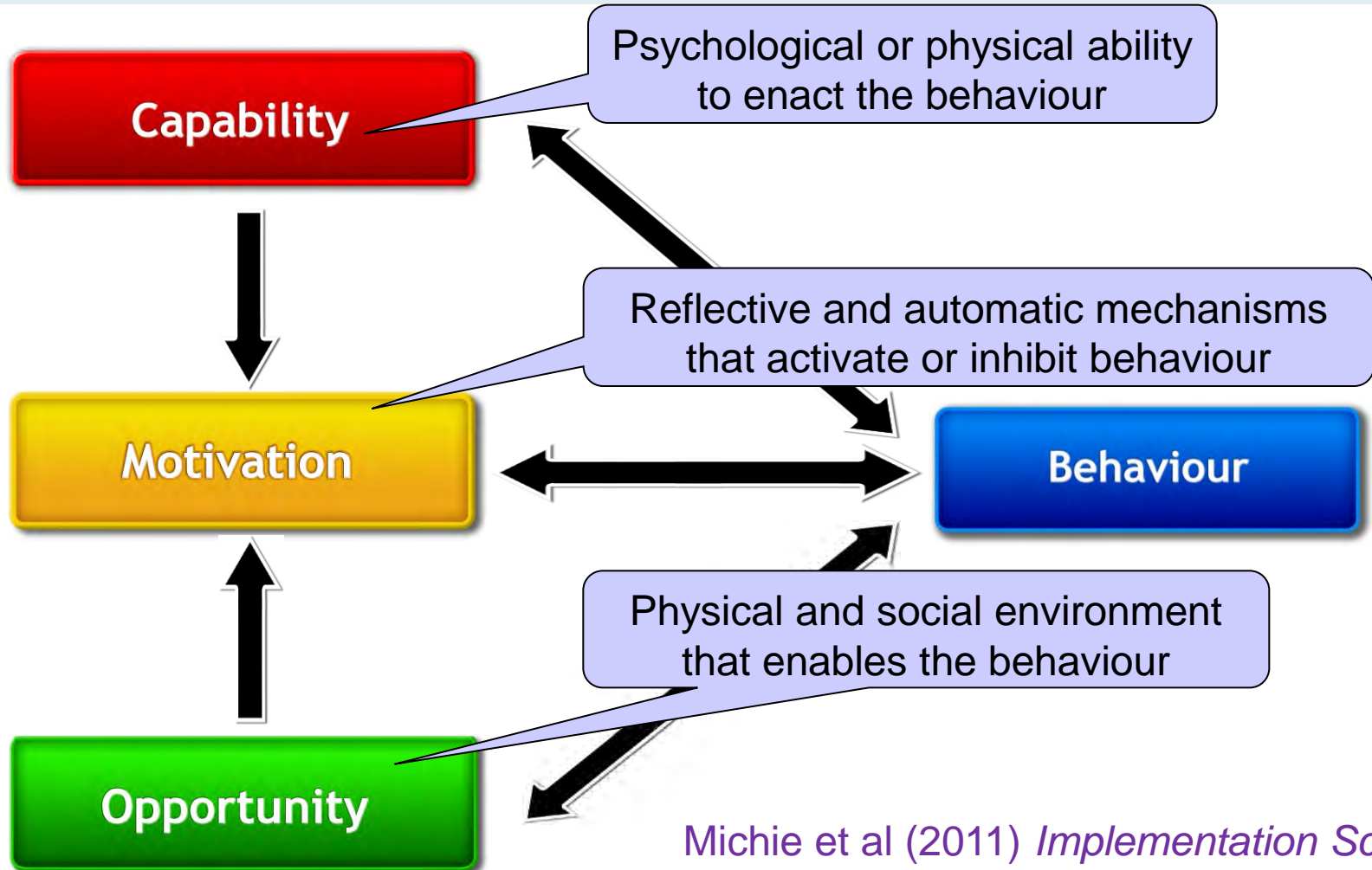
Understand the behaviour **in context**

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

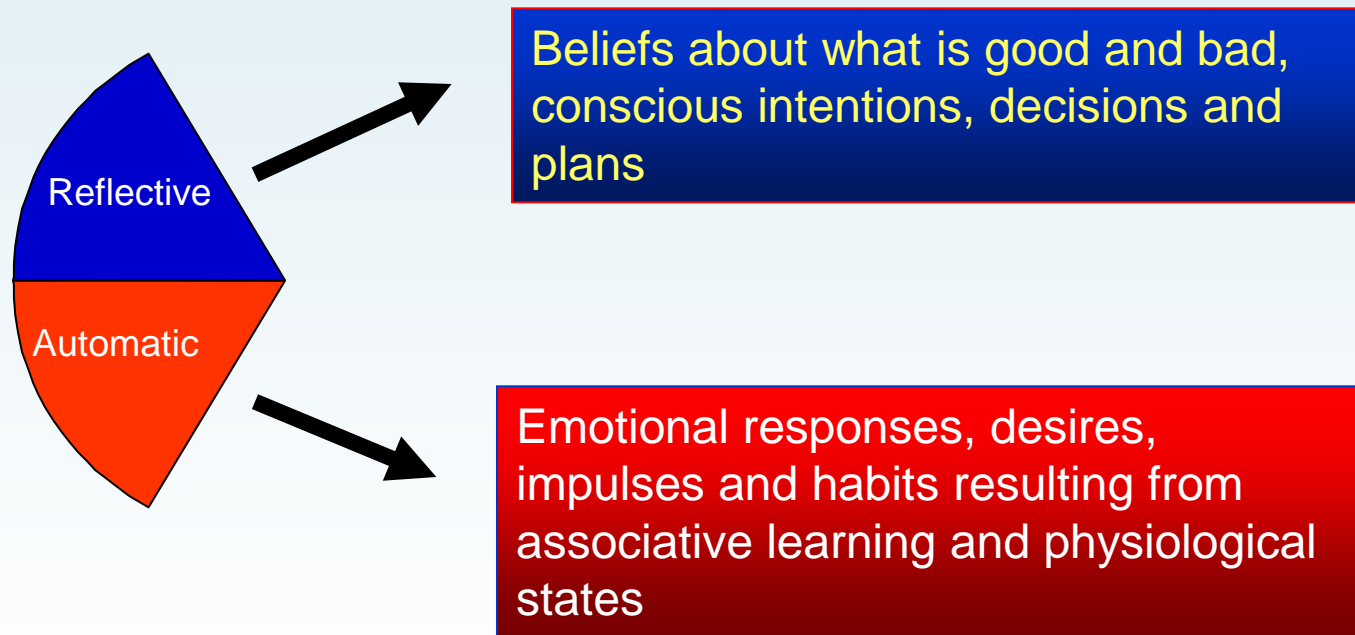


- Answering this is helped by a model of behaviour
 - COM-B

The COM-B system: Behaviour occurs as an interaction between three necessary conditions



Motivation: reflective and automatic



Reflective-Impulsive Model, Strack & Deutsch, 2004

PRIME Theory of Motivation, West, 2006

Reflective – “the head”

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.

Unbelievable value.



Das Auto.

Automatic – “the heart”



Motivation – push and pull



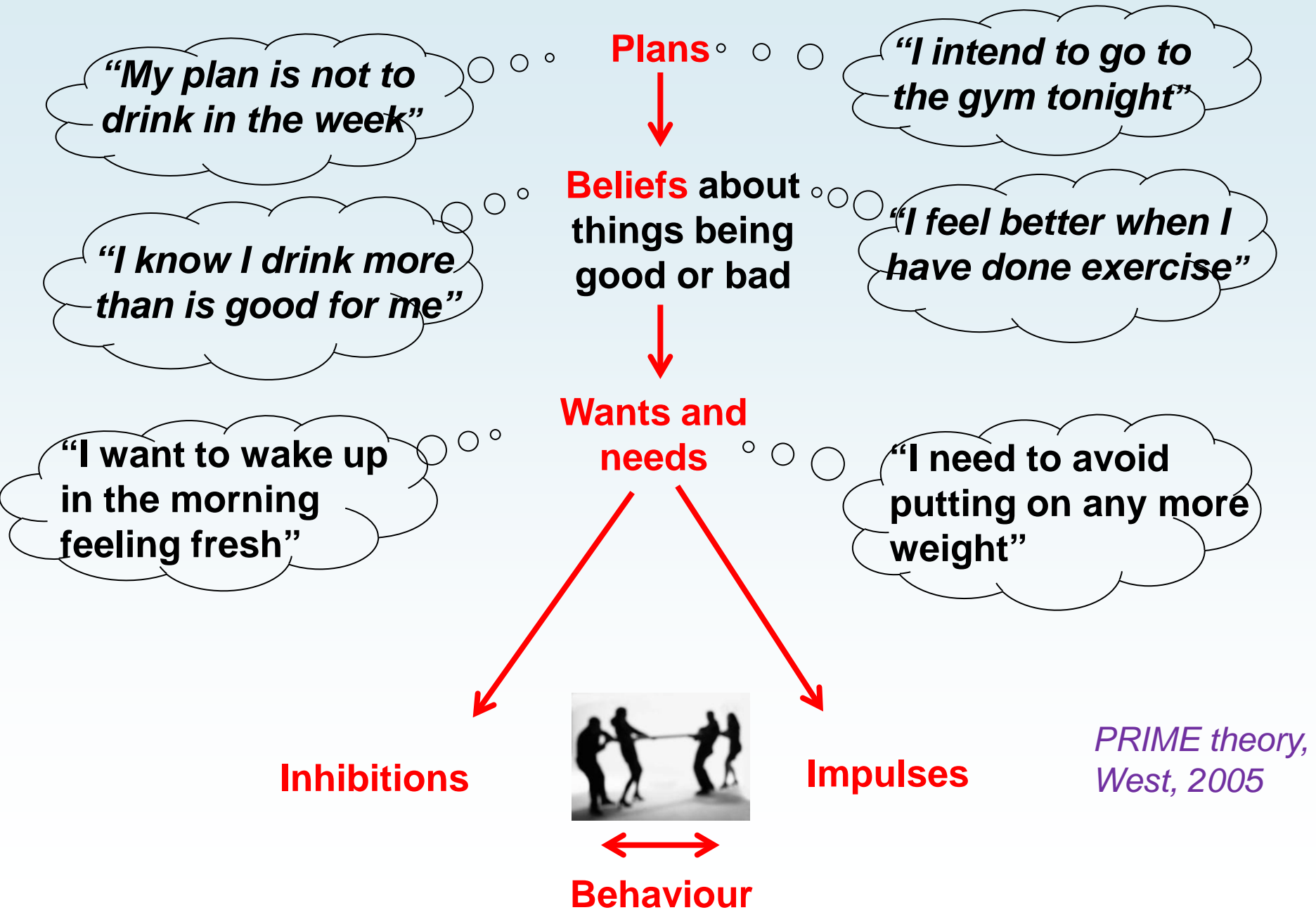
Behaviour is in the moment; at any one moment, there are many choices

- 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?





COM-B analysis: home composting



- **Capability**

- Do people know how to compost?

- **Opportunity**

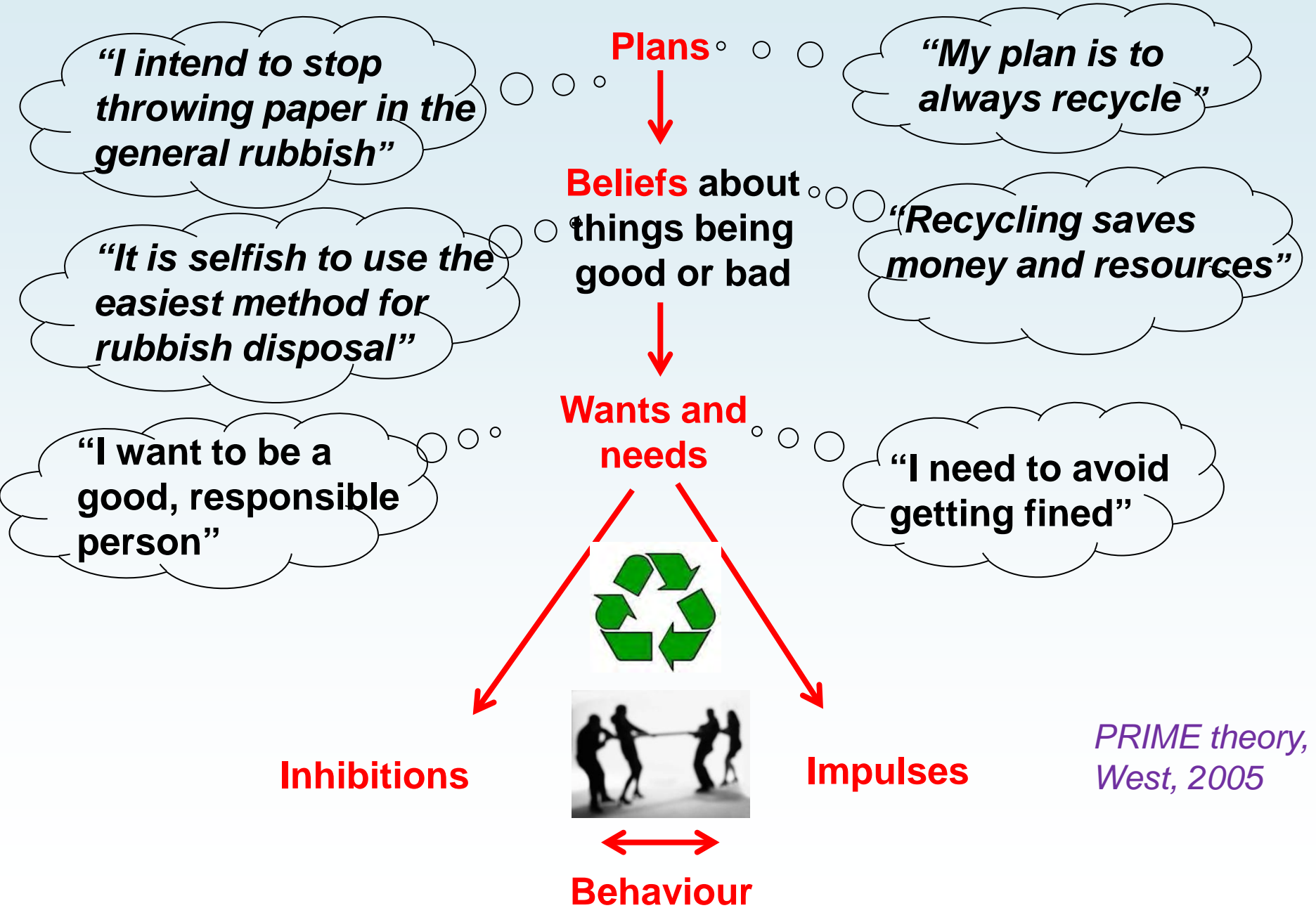
- Do households have compost bins?
 - If not, price, availability, accessibility



- **Motivation**

- Do people **plan** to use them?
- Do people **believe** they are a good thing
 - For themselves, for others, for the environment
- Do people **want** to use them?
 - Incentives, disincentives
- Have people developed a **habit** of using them?





A system for designing effective behaviour change interventions

1. Identify the target behaviour/s
2. Understand the target behaviour/s in context
3. Consider full range of possible **intervention functions**
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Need a framework for designing interventions with following criteria:

1. Comprehensive coverage
2. Coherence
3. Clear link to a model of behaviour

Useable by, and useful to, policy makers, service planners and intervention designers

Do we have such a framework?

- Systematic review identified 19 frameworks to classify behaviour change interventions
- Addressed behaviours relating to health, environment, culture change, social marketing etc.
- Evaluated using 3 criteria:

Model of behaviour	Based on a model of behaviour or behaviour change	7/19
Coherence	Is structured logically and coherently	3/19
Comprehensiveness	Covers all types of interventions	0/19

Frameworks included in systematic review

- **1. Epicure taxonomy** West (2006) Taxonomy of approaches designed to influence behaviour patterns
- **2. Culture capital framework** Knott *et al.* (2008) Framework of knowledge about culture change, offering practical tools for policymaking
- **3. EPOC taxonomy of interventions** Cochrane Effective Practice and Organisation of Care Review Group (EPOC) (2010) Checklist to guide systematic literature reviewers about the types of information to extract from primary studies
- **4. RURU: Intervention implementation taxonomy** Walter *et al.* (2003) Taxonomy covering a wide range of policy, practice and organisational targets aimed at increasing impact of research
- **5. MINDSPACE** Institute for Government and Cabinet Office (2010) Checklist for policy-makers aimed at changing or shaping behaviour
- **6. Taxonomy of behaviour change techniques** Abraham *et al.* (2010) Taxonomy of behaviour change techniques grouped by change targets
- **7. Intervention Mapping** Bartholomew *et al.* (2011) Protocol for a systematic development of theory- and evidence-based interventions
- **8. People and places framework** Maibach *et al.* (2007) Framework that explains how communication and marketing can be used to advance public health
- **9. Public health: ethical issues** Nuffield Council on Bioethics (2007) Ladder of interventions by government, industry, organisations and individuals to promote public health.

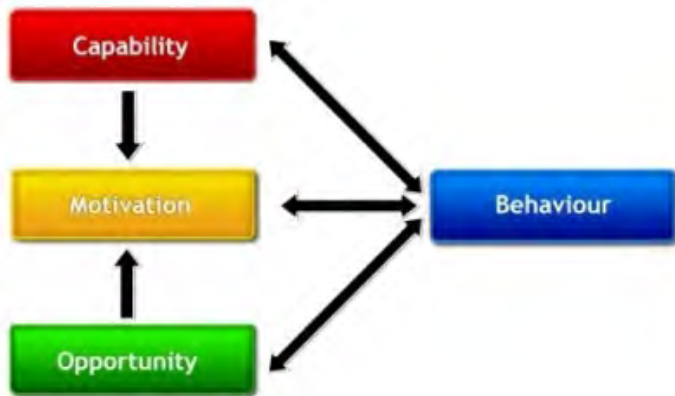
- **10. Injury control framework** Geller *et al.* (1990) Heuristic framework for categorising and evaluating behaviour change strategies aimed at controlling injuries
- **11. Implementation taxonomy** Leeman *et al.* (2007) Theory-based taxonomy of methods for implementing change in practice
- **12. Legal framework** Perdue *et al.* (2005) Conceptual framework for identifying possible legal strategies used for preventing cardiovascular diseases
- **13. PETeR** White (in prep.) Comprehensive and universally applicable model or taxonomy of health
- **14. DEFRA's 4E model** DEFRA (2008) Process model for policy makers aimed at promoting pro-environmental behaviours in accordance with social marketing principles
- **15. STD/ HIV framework** Cohen and Scribner (2000) Taxonomy to expand the scope of interventions that can be used to prevent STD and HIV transmission
- **16. Framework on public policy in physical activity** Dunton *et al.* (2010) Taxonomy aimed at understanding how and why policies successfully impact on behaviour change
- **17. Intervention framework for retail pharmacies** Goel *et al.* (1996) Framework that presents factors that may affect retail pharmacy describing and strategies for behaviour change to improve appropriateness of prescribing
- **18. Environmental policy framework** Vlek (2000) A taxonomy of major environmental problems, their different levels and global spheres of impact, and conceptual modelling of environmental problem- solving
- **19. Population Services International (PSI) framework** PSI (2004) A conceptual framework to guide and help conduct research on social marketing interventions

Synthesis into an integrated framework

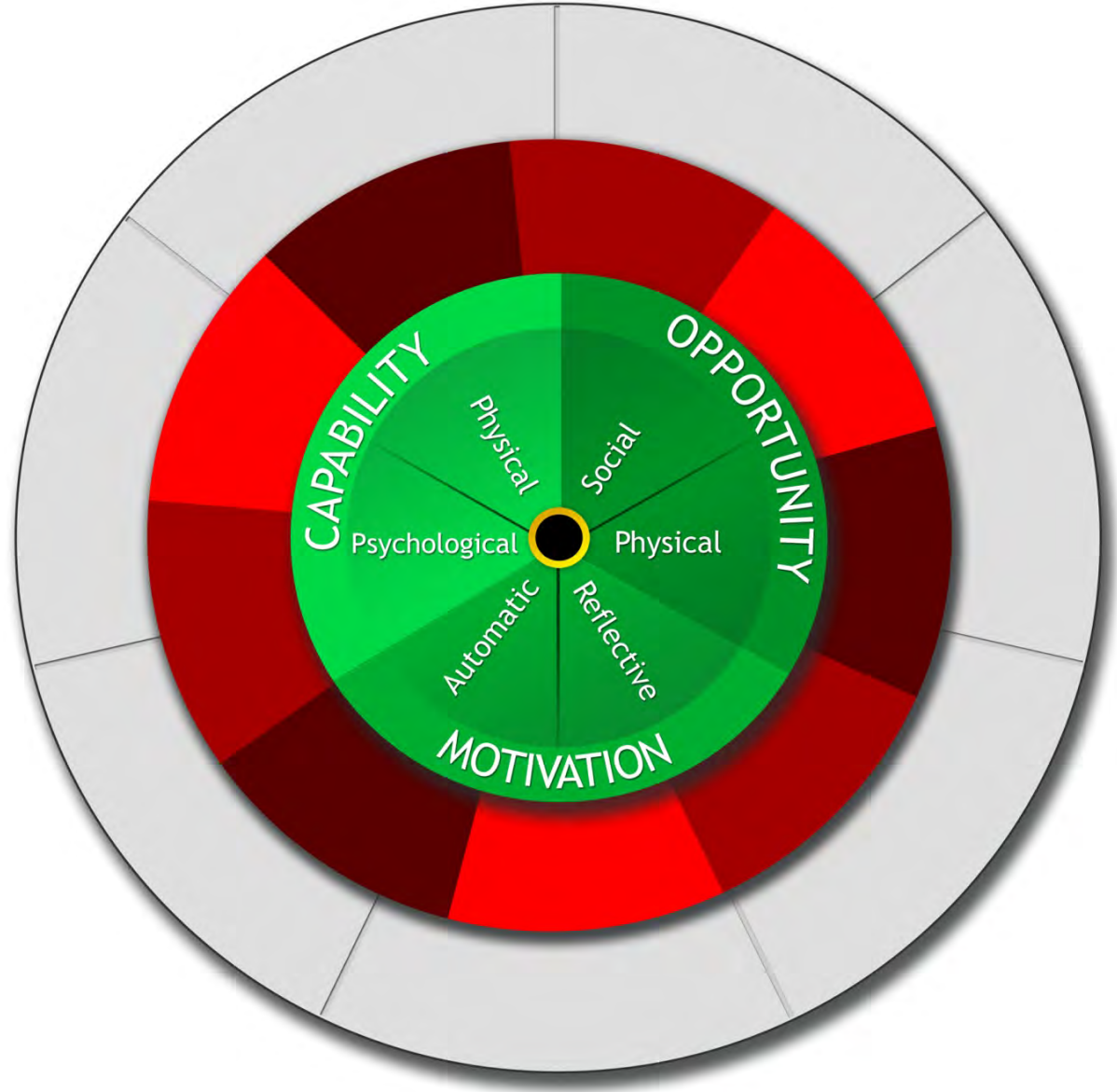
- Model of behaviour at the hub of a wheel
- Synthesis of existing frameworks
 - 9 intervention functions
 - each include one or more behaviour change techniques
 - 7 policy categories
 - that could enable or support these interventions to occur

Michie et al (2011) The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions, *Implementation Science*.

Understand the behaviour



Behaviour at the hub COM-B



Interventions



Sources of behaviour



Intervention functions

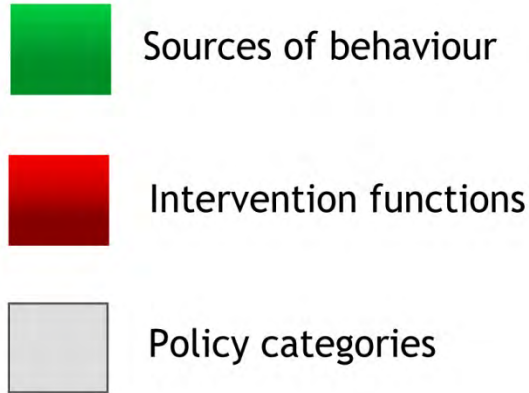
Interventions:
activities
designed to
change
behaviours



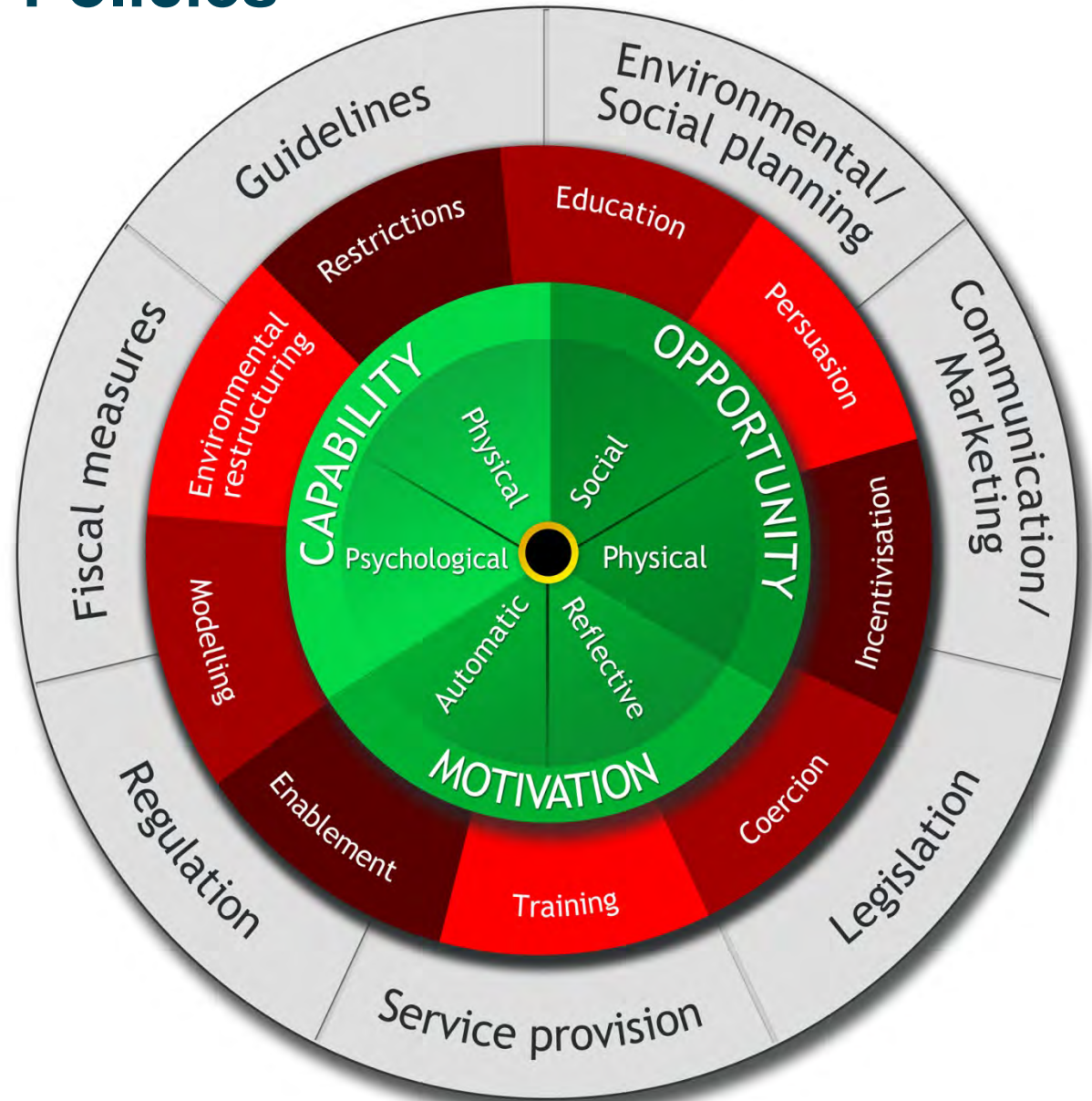
Intervention functions

Intervention function	Definition	Health examples
Education	Increasing knowledge or understanding	<i>Providing information to promote healthy eating</i>
Persuasion	Using communication to induce positive or negative feelings or stimulate action	<i>Using imagery to motivate increases in physical activity</i>
Incentivisation	Creating expectation of reward	<i>Using prize draws to induce attempts to stop smoking</i>
Coercion	Creating expectation of punishment or cost	<i>Raising the financial cost to reduce excessive alcohol consumption</i>
Training	Imparting skills	<i>Advanced driver training to increase safe driving</i>
Restriction	Using rules that limit engagement in the target behaviour or competing or supporting behaviour	<i>Prohibiting sales of solvents to people under 18 to reduce use for intoxication</i>
Environmental restructuring	Changing the physical or social context	<i>Providing on-screen prompts for GPs to ask about smoking behaviour</i>
Modelling	Providing an example for people to aspire to or imitate	<i>Using TV drama scenes involving safe-sex practices to increase condom use</i>
Enablement	Increasing means/reducing barriers to increase capability or opportunity	<i>Behavioural support for smoking cessation, medication for cognitive deficits, surgery to reduce obesity, prostheses to promote physical activity</i>

Policies



Policies:
decisions
made by
authorities
concerning
interventions

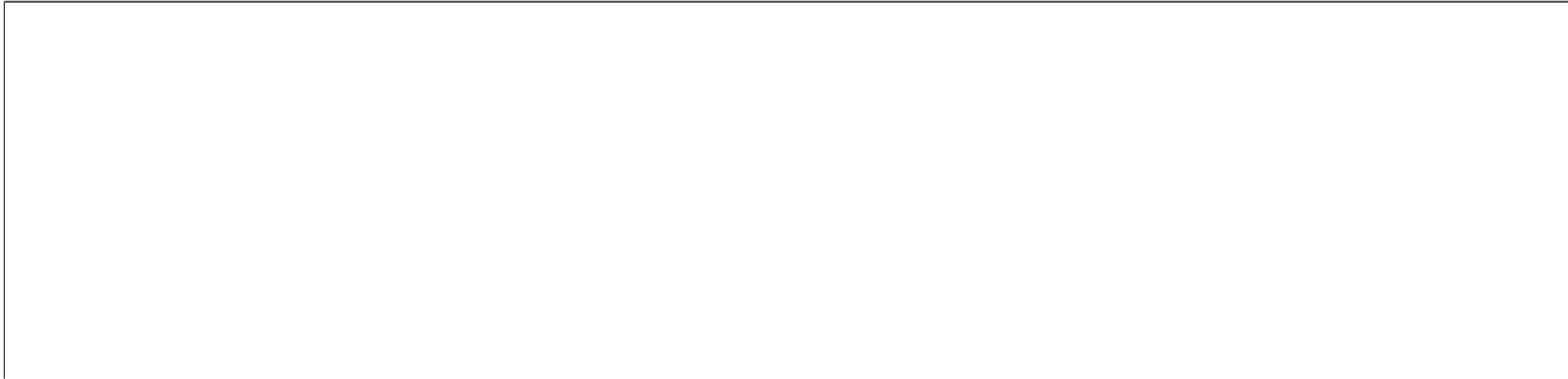
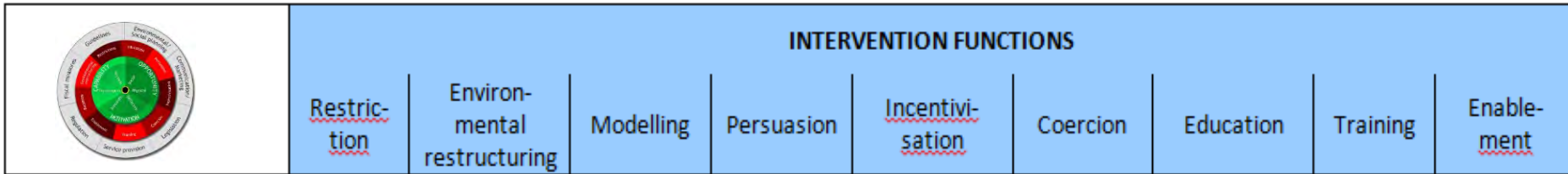


Michie et al (2011) The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions *Implementation Science*

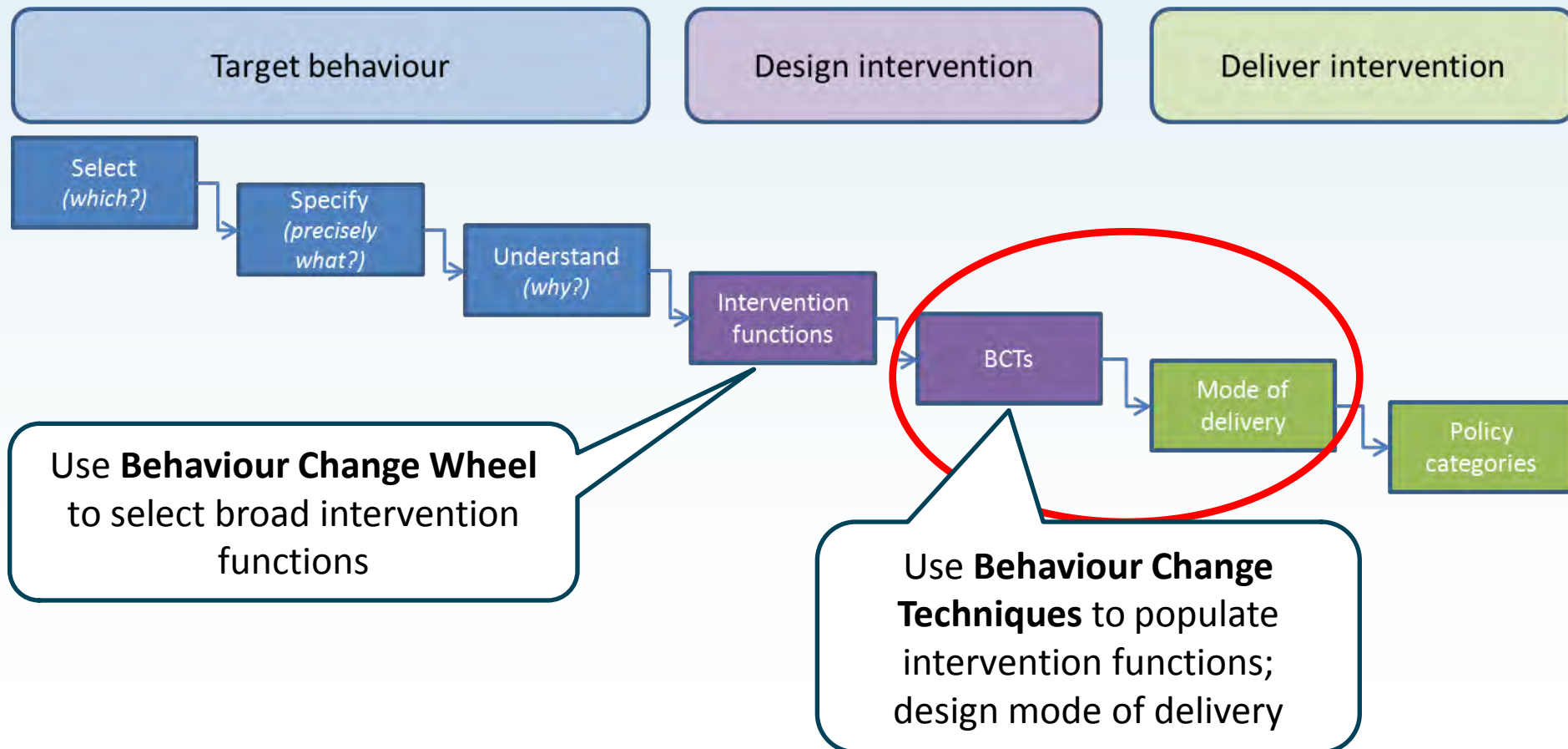
Policy categories

Policy category	Example	Examples
Communication / marketing	Using print, electronic, telephonic or broadcast media	<i>Conducting mass media campaigns</i>
Guidelines	Creating documents that recommend or mandate practice. This includes all changes to service provision	<i>Producing and disseminating treatment protocols</i>
Fiscal	Using the tax system to reduce or increase the financial cost	<i>Increasing duty or increasing anti-smuggling activities</i>
Regulation	Establishing rules or principles of behaviour or practice	<i>Establishing voluntary agreements on advertising</i>
Legislation	Making or changing laws	<i>Prohibiting sale or use</i>
Environmental/ social planning	Designing and/or controlling the physical or social environment	<i>Using town planning</i>
Service provision	Delivering a service	<i>Establishing support services in workplaces, communities etc.</i>

Selecting interventions and policies



An approach to developing behaviour change interventions



Intervention design



Intervention functions

Behaviour change techniques

Interventions made up of Behaviour Change Techniques (BCTs)

- “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

Interventions are made up of specific behaviour change techniques (BCTs)

Involves detailed planning of what the person will do including, at least, a very specific definition of the behaviour e.g., frequency (such as how many times a day/week), intensity (e.g., speed) or duration (e.g., for how long for). In addition, at least one of the following contexts i.e., where, when, how or with whom must be specified. This could include identification of sub-goals or preparatory behaviours and/or specific contexts in which the behaviour will be performed.

1. General information
2. Information on consequences
3. Information about approach
4. Prompt intention formation
5. Specific goal setting
6. Graded tasks
7. Barrier identification
8. Behavioral contract
9. Review goals
10. Provide instruction
11. Model/ demonstrate
12. Prompt practice
13. Prompt monitoring
14. Provide feedback

15. Social comparison
16. Self-monitoring
17. Self-reward
18. Self-punishment
19. Social support/ change
20. Social support/ change
21. Role model
22. Prompt self talk
23. Relapse prevention
24. Stress management
25. Motivational interviewing
26. Time management

The person is asked to keep a record of specified behaviour/s. This could e.g. take the form of a diary or completing a questionnaire about their behaviour.

“Taxonomies” of BCTs

- Physical activity/healthy eating/mixed : 26 BCTs
Abraham & Michie , 2008
- Physical activity & healthy eating : 26 BCTs
Michie et al, Psychology & Health, 2011
- Smoking cessation : 26 BCTs
Michie et al, Annals of Behavioral Medicine, 2011
- Reducing alcohol use: 42 BCTs
Michie et al, 2011
- 93 item BCT Taxonomy v1, under review 47 BCTs
Michie et al, 2012
- General behaviour change: 137 BCTs
Michie et al, Applied Psychology: An International Review, 2008
- Competence framework: 89 BCTs
Dixon & Johnston, 2011

STUDY PROTOCOL

Open Access

Strengthening evaluation and implementation by specifying components of behaviour change interventions: a study protocol

Susan Michie^{1*}, Charles Abraham², Martin P Eccles³, Jill J Francis⁴, Wendy Hardeman⁵, Marie Johnston¹

Website: www.ucl.ac.uk/health-psychology/BCTtaxonomy/index.php

Or Google: BCT Taxonomy

Email: BCTTaxonomy@ucl.ac.uk



Social norms = group-held beliefs about how members should behave in a given context

Function from BCW

Persuasion

Incentivisation (approval)

Coercion (disapproval)

Modelling (observational learning)



Techniques from 93 item taxonomy

Information about others' approval

Social comparison

Restructuring of social environment

Modelling of the behaviour

Social reward

Vicarious reinforcement

Punishment

Anticipation of future rewards or removal of punishment

Modes of delivery: how the BCTs are delivered

- Face-to-face

- Individual
- Group



- Distance

- Population-level

- Mass-media: internet, TV, radio, billboard, print media, leaflet



- Individually-tailored

- Phone: helpline, text, app.
- Individually accessed computer programme



Considerations when designing interventions and selecting behaviour change techniques

- Evidence of effectiveness
- Local relevance
- Practicability
- Affordability
- Acceptability
 - public
 - professional
 - political

An example: increasing hand hygiene in hospital staff



- 5000 die a year in the UK, others disabled, due to hospital acquired infections (e.g. MRSA)
- Disinfecting hands effective in preventing infection
- Specific guidelines for clinical practice
- Poorly implemented
 - on average **40%** occasions (5%-81%)



2004-2011 evaluated at UCL

led by Sheldon Stone

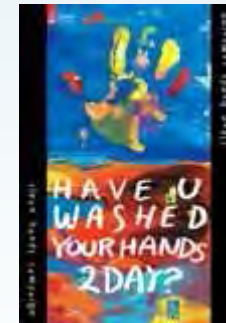
- **Opportunity**

- Alcohol hand rub beside every bed



- **Motivation**

- Persuasive posters
- Encouraging patients to ask




- **Capability**

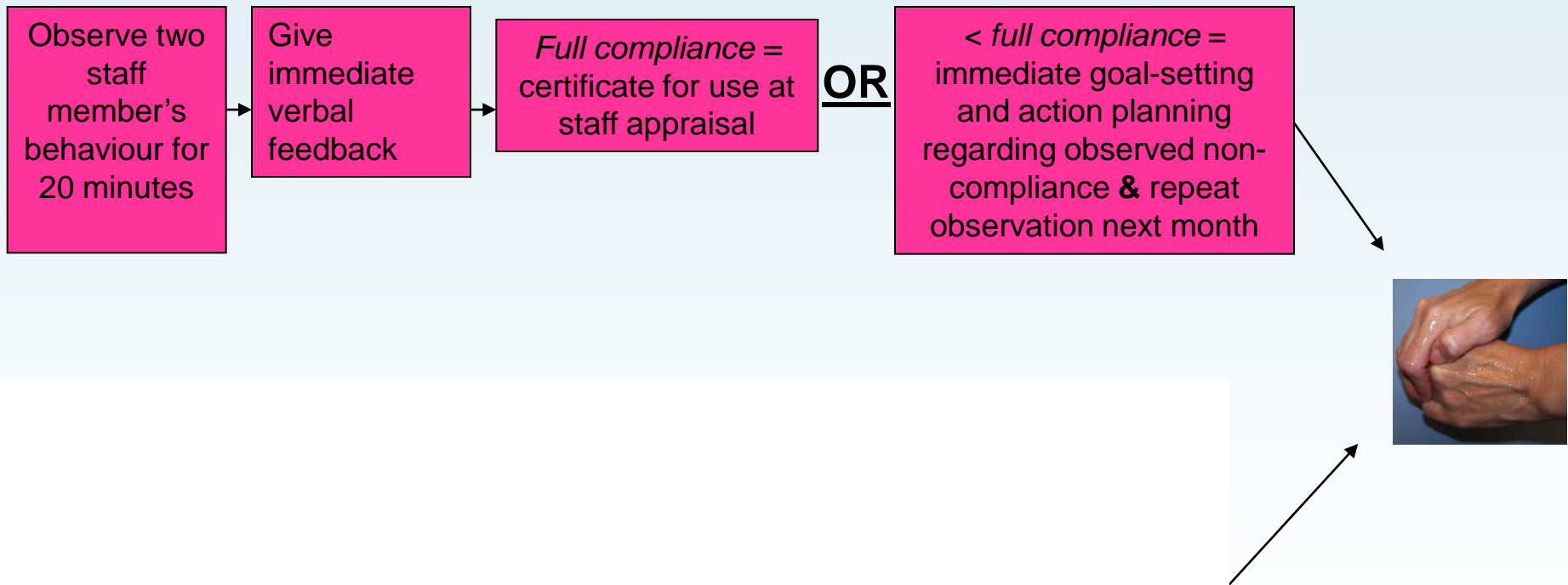
- Train staff to set goals, observe their behaviour, develop action plans on the basis of feedback
 - *Developed at UCL, based on behavioural theory*



MONTHLY FEEDBACK INTERVENTION


Co-ordinated by infection control team


 = individual level component

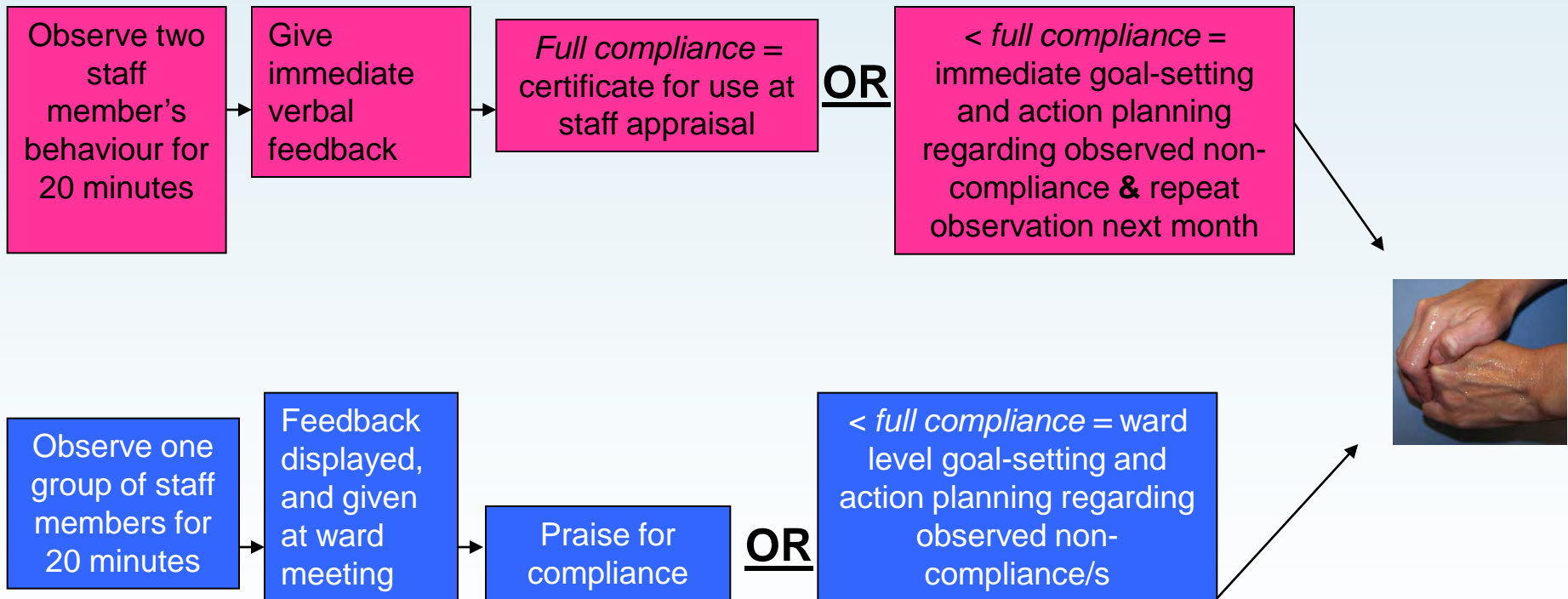


MONTHLY FEEDBACK INTERVENTION

Co-ordinated by infection control team

 = individual level component

 = group level component



Findings: 60 wards in 16 hospitals in England

- Use of soap and alcohol hand rub tripled from 21.8 to 59.8 ml per patient bed day
- Rates of MRSA bacteraemia and C difficile infection decreased
 - *Stone, Fuller, Savage, Cookson et al, BMJ, 2012*
- Giving 1-1 feedback led to staff being 13-18% more likely to clean their hands
 - *Fuller, Michie, Savage, McAteer et al, PLoS One, 2012*



Summary

- Start by understanding the problem
 - Identifying the behaviours
 - Who, what, where, when
 - Understand the behaviours
 - COM-B
 - **Then** identify the intervention strategy
- Consider the full range of effective interventions and supporting policies
- Identify behaviour change techniques and mode/s of delivery



For more information

Susan Michie

s.michie@ucl.ac.uk

www.ucl.ac.uk/health-psychology/people/michie

Health
Psychology
Research Group,
2011

