Behavioural Approaches to Public Health Prevention: Using Behavioural Science to Reduce Morbidity and Mortality to Reduce Falls

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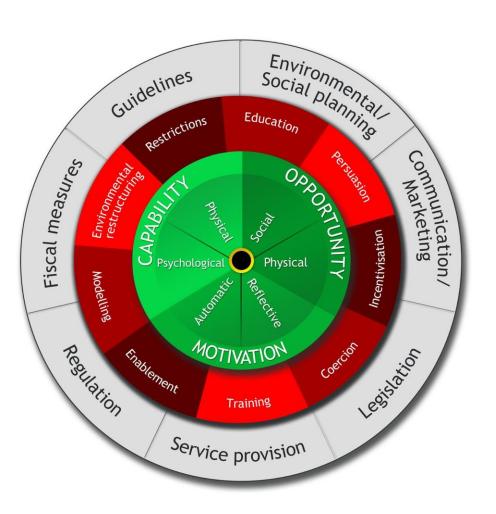
Director, Behaviour is Everything

Outline

- Introduction to the Behaviour Change Wheel framework

- Describe the application of the BCW framework to the issue of falls prevention

- Lessons learned about applying behavioural science in local government context

The Behaviour Change Wheel Framework

The Behaviour Change Wheel
A Guide to Designing Interventions

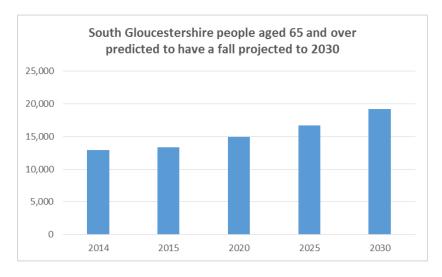Susan Michie, Lou Atkins & Robert West

- Synthesis of 19 frameworks across behavioural and social sciences
- Integrates a model of behaviour with a systematic approach to designing interventions at different levels
- Pragmatic approach for non-specialist and specialist application

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'Fallproof': Reducing burdens associated with falls across Gloucestershire

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Actors and behaviours in the system

Potential Actors	Potential Behaviours
Adults who are at risk of *becoming* deconditioned as they age	Do specific activities to improve their strength and balance
Adults who at risk of a fall due to *current* deconditioning	Attend a specialist Strength and Balance class
Adults who have already had a minor fall	Advise the at-risk person to go to a strength and balance class
Relatives or carers of adults at risk of a fall	Support the at-risk individual to attend a specialist Strength and Balance class
Doctors who come into contact with adults who have fallen	Talk to the adult about the value of Strength and Balance exercises

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Potential target behaviours

PROBLEM

OUTCOME

POTENTIAL ACTORS AND BEHAVIOURS

Increasing burden on public health and primary and secondary care systems due to ageing population at increased risk of falling

Reduced morbidity and mortality associated with falls within the region

Adults at risk of becoming physically deconditioned to do specific activities to improve their strength and balance

Adults who are at risk of a fall to attend a specialist Strength and Balance class

Which behaviour should we focus on?

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Applying the criteria

Actor	Behaviour	Impact	Likelihood of change	Spillover
Doctors in contact with someone who has fallen	Refer to a Specialist Strength and Balance class	**Low**. Numbers of people are relatively low and will only address future falls rather than prevent falls	**Medium**. Doctors are able to change behaviour if they know about classes and are keen on prevention	**Positive**. Strength and Balance classes are currently under-subscribed and so this will lead to effective use of resources
Adults at risk of fall because they are currently deconditioned	Attend a Specialist Strength and Balance class	**Medium**. Numbers of people at risk is much higher and so will be more likely to have a population level effect	**Low**. Difficult to identify and reach adults who are deconditioned without specialist assessment in current system	**Negative**. Adding assessment of physical activity status into health professionals current roles could increase burden
Adults at risk of becoming deconditioned	Do specific activities to improve their strength and balance	**High**. Preventing large numbers of people from becoming deconditioned will have a big population level impact	**Medium**. Increasing awareness of healthy ageing and falls means that advice on strength and balance exercises may be palatable to general population	**Positive**. May encourage uptake of other healthy ageing initiatives

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'Fallproof': Specifying the target behaviour

Who? Adult's aged 50 or above at risk of becoming physically deconditioned in ways that place them at risk of a fall

What? Engage in self-directed exercises to improve strength and balance with sufficient intensity and regularity to reduce their risk of a fall

When? As regularly as possible

Where? At home, or work or any environment where it is safe to do the behaviour

COM-B Model

Capability
Know that sugary drinks are harmful to children's dental health and how to manage children's tantrums effectively

Behaviour
Parents limiting preschool children's intake of sugary drinks whilst in public

Motivation
Believes that saying 'no' to children's requests is not harmful to the child, and can cope with feelings of embarrassment if child should act out in public

Opportunity
Retail environments should be designed in ways that limit children's exposure to sugary drinks (e.g. no drinks at eye level or next to supermarket checkouts)

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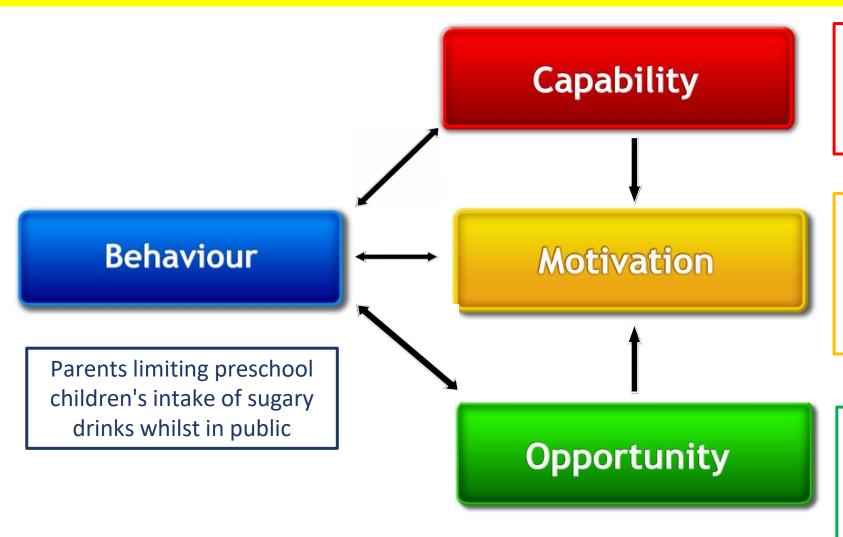**When?** As regularly as possible

Where? At home, or work or any environment where it is safe to do the behaviour

'Fallproof': COM-B diagosis

Target Behaviour:
Adults engaging in self-directed exercises to improve strength and balance

COM-B DOMAIN

C

> **PSYCHOLOGICAL**
> Not knowing that they are at risk of a fall

> **PSYCHOLOGICAL**
> How to perform exercises that improve strength and balance

O

> **PHYSICAL**
> No reminders to engage in Strength and Balance exercises

> **SOCIAL**
> Lack of social norms for this age group for doing strength and balance exercises for preventative health

M

> **REFLECTIVE**
> Strength and balance exercises not consistent with how they see themselves

> **AUTOMATIC**
> Behaviours need to performed regularly in order to become habitual and have greatest chance of impact

Intervention types in the Behaviour Change Wheel

Intervention types

- Found on the red ring of the Behaviour Change Wheel

- 9 intervention types; each changes behaviour in a different way

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Intervention types are related to COM-B

	Intervention Functions / Types								
	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical capability									
Psychological capability	☑				☑				☑
Physical opportunity									
Social opportunity									
Reflective motivation									
Automatic motivation									

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Using intervention types to generate ideas

Target Behaviour:
Adults engaging in self-directed exercises to improve strength and balance

COM-B DOMAIN	INTERVENTION FUNCTION / TYPE

C

PSYCHOLOGICAL
Not knowing that they are at risk of a fall

EDUCATION
Provide simple, easy to understand information on how to assess their risk of being vulnerable to falling

Intervention Functions / Types

	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical capability					▓				▓
Psychological capability	☑				☒				☒
Physical opportunity					▓	▓	▓		▓
Social opportunity						▓	▓	▓	▓
Reflective motivation	▓	▓	▓	▓				▓	
Automatic motivation		▓	▓	▓	▓		▓	▓	▓

Using intervention types to generate ideas

Target Behaviour: Adults engaging in self-directed exercises to improve strength and balance

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PSYCHOLOGICAL
Not knowing that they are at risk of a fall

EDUCATION
Provide simple, easy to understand information on how to assess their risk of being vulnerable to falling

PSYCHOLOGICAL
How to perform exercises that improve strength and balance

TRAINING
Equip people with the skills to perform strength and balance behaviours in ways that lead to risk reduction by providing information on _how_ to do strength and balance exercises

Intervention Functions / Types

	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical capability					▓				▓
Psychological capability	☑ ▓				☑ ▓				☒ ▓
Physical opportunity					▓	▓	▓		▓
Social opportunity						▓	▓	▓	▓
Reflective motivation	▓	▓	▓	▓				▓	
Automatic motivation		▓		▓	▓		▓		▓

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'Fallproof': Intervention type strategy

Target Behaviour: Adults engaging in self-directed exercises to improve strength and balance

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PHYSICAL
No reminders to engage in SB exercises

ENVIRONMENTAL RESTRUCTURE
Provide people with cues to remind them to perform strength and balance exercises at home or work

SOCIAL
Lack of social norms for this age group for doing strength and balance exercises for preventative health

MODELLING
Provide examples of adults in all relevant age groups engaging in self-directed strength and balance exercises, not just frail older adults

M

REFLECTIVE
Strength and balance exercises not consistent with how they see themselves

PERSUASION
Strength and balance exercises should be presented in such a way as to generate positive emotions about what might be gained from doing the exercises, i.e. what's in it for them

AUTOMATIC
Behaviours need to performed regularly in order to become habitual and have greatest chance of impact

EDUCATION
Ensure that instructions to do the exercises incorporate principles of self-management and habit formation so that they are more likely to be adopted and become habitual

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Narrowing down the list:
APEASE criteria

Affordability	Can it be delivered within an acceptable budget?
Practicability	Can it be delivered as designed and to scale?
Effectiveness/cost-effectiveness	How well does it work and is it worth the cost?
Acceptability	Is it judged appropriate to relevant stakeholders (policy makers, practitioners, the public) and engaging for potential users?
Side-effects/safety	Does it have unwanted side-effects or unintended consequences?
Equity	Will it reduce or increase disparities in health/wellbeing/standard of living?

Policy options in the Behaviour Change Wheel

Policy options

- Found on the grey ring of the Behaviour Change Wheel
- 7 policy options; each delivers, reinforces or embeds interventions in unique ways

What are policy options

- Policy options are there to help you think about how to:
  - **Deliver** an intervention (e.g. developing a communications campaign to deliver education about how to limit added sugars in children's diets – Communications/Marketing)
  - **Reinforce** the impact of an intervention (e.g. creating a network of community champions to amplify persuasive messages about the low risk and benefits to vaccines – Service Provision)
  - **Embed** an intervention (e.g. change operational guidance to ensure that coercive interventions to stop dangerous clinical practice are enforceable - Guidelines)

Policy Option / Category Matrix

	Intervention Functions / Types								
	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Guidelines	■	■	■	■	■	■	■		■
Environment / Social Planning							■		■
Communications / Marketing	■	■	■	■				■	
Legislation	■	■	■	■	■	■	■		■
Service Provision	■	■	■	■	■			■	■
Regulation	■	■	■	■	■	■	■		■
Fiscal Measures			■	■	■		■		■

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Using policy options to deliver and embed change

Target Behaviour: Adults engaging in self-directed exercises to improve strength and balance

INTERVENTION FUNCTION / TYPES

MODELLING
Provide examples of adults in all relevant age groups engaging in self-directed strength and balance exercises, not just frail older adults

POLICY OPTIONS / CATEGORIES

COMMUNICATIONS / MARKETING
Implement a multi-year co-ordinated public health campaign ('Fallproof') to increase awareness of falls as a public health issue and to distribute materials

SERVICE PROVISION
Create a network of 'Fallproof' champions to increase awareness of the issue and promote materials to those groups of adults who may be least likely to self-identify as needing to take action

Intervention Functions / Types

	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Guidelines	■	■	■	■	■	■	■		■
Environment / Social Planning							■		■
Communications / Marketing	■	■	■	■				☑	
Legislation	■	■	■	■	■	■	■		■
Service Provision	■	■	■	■			■	☑	■
Regulation	■	■	■	■	■	■	■		■
Fiscal Measures			■	■	■		■		■

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'Fallproof': Policy Options

Target Behaviour:
Adults engaging in self-directed exercises to improve strength and balance

INTERVENTION FUNCTION / TYPES

EDUCATION
Provide simple, easy to understand information on how to assess their risk of being vulnerable to falling

TRAINING
Equip people with the skills to perform strength and balance behaviours in ways that lead to risk reduction by providing information on **how** to do strength and balance exercises

ENVIRONMENTAL RESTRUCTURE
Provide people with cues to remind them to perform strength and balance exercises at home or work

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PERSUASION
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EDUCATION
Ensure that instructions to do the exercises incorporate principles of self-management and habit formation so that they are more likely to be adopted and become habitual

POLICY OPTIONS / CATEGORIES

GUIDELINES
Rework clinical guidance on assessing for fall risk to make it suitable for public health use

COMMUNICATIONS / MARKETING
Implement a multi-year co-ordinated public health campaign ('Fallproof') to increase awareness of falls as a public health issue and to distribute materials

SERVICE PROVISION
Create a network of 'Fallproof' champions to increase awareness of the issue and promote materials to those groups of adults who may be least likely to self-identify as needing to take action

FISCAL MEASURES
Establish a ring-fenced budget to ensure that the campaign and interventions can continue to be implemented for long enough to have an impact on outcomes

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Behaviour change techniques (BCTs) are...

- The **'active ingredients'** in interventions, designed to change behaviour

- They are **observable, measurable, replicable**

- They provide a **common language** to describe behaviour change

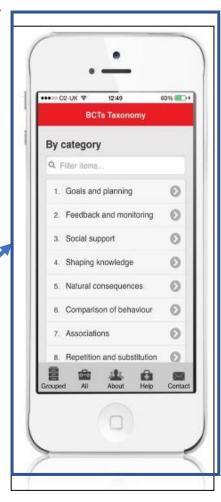# Behaviour Change Technique Taxonomy (BCTT) v.1

ORIGINAL ARTICLE

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

1. Goals and planning

1.1. Goal setting (behavior)
1.2. Problem solving
1.3. Goal setting (outcome)
1.4. Action planning
1.5. Review behavior goal(s)
1.6. Discrepancy between current behavior and goal
1.7. Review outcome goal(s)
1.8. Behavioral contract
1.9. Commitment

By category

Q Filter items...

1. Goals and planning
2. Feedback and monitoring
3. Social support
4. Shaping knowledge
5. Natural consequences
6. Comparison of behaviour
7. Associations
8. Repetition and substitution

Grouped All About Help Contact

- Fully searchable version of BCTTv1
- Search by BCT label, BCT grouping
- Find most commonly used BCTs for each intervention type

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'Fallproof' Behaviour Change Techniques

Target Behaviour: Adults engaging in self-directed exercises to improve strength and balance

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BEHAVIOUR CHANGE TECHNIQUES

5.1 Information about health consequences
Provide information (e.g. written, verbal, visual) about health consequences or performing the behaviour

4.1 Instruction on how to perform the behaviour
Advise on how to perform the behaviour (includes 'skills training')

12.5 Adding objects to the environment
Add objects to the environment in order to facilitate the performance of the behaviour

6.1 Demonstration of the behaviour
Provide an observable sample of the performance of the behaviour, directly in person or indirectly (e.g. via film, pictures, for the person to aspire to or imitate)

5.2 Salience of consequences
Use methods specifically designed to emphasise the consequences for performing the behaviour with the aim of making them more memorable (goes beyond informing about consequences)

8.3 Habit formation
Prompt rehearsal and repetition of the behaviour in the same context repeatedly so that the context elicits the behaviour

1.1 Goal setting (behaviour)
Set or agree a goal defined in terms of the behaviour to be achieved

'Fallproof' Behaviour Change Techniques

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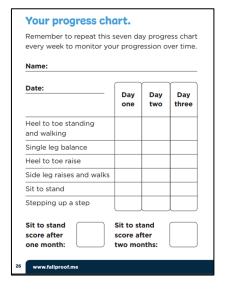Adults engaging in self-directed exercises to improve strength and balance

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Fallproof: Learnings

- Early example of building capacity in local-government funded organization to use behavioural science to address public health need

- Led by non-specialists, with training and consultancy support from an experienced behavioural scientist

- Led to outputs and process that were very different from previous public health work

- Independent researchers were appointed to ensure rigorous evaluation

- Behavioural model has subsequently be used on other public health projects – suggesting it is possible to develop capacity