A Behavioural Insights Approach to Population Level Behaviour Change

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Overview

1. PHE Behavioural Insights Team

2. Theoretical Background to Behavioural Science

3. Behavioural Insights Approach

4. Designing a Behavioural Intervention

5. Local and National Examples

6. Ideas and Opportunities
PHE Behavioural Insights Team

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63% deaths worldwide are due to: Cancer, Cardiovascular disease, Diabetes and Respiratory Disease

Key causes

Eliminating these major risk factors will prevent:
- 75% of diabetes and cardiovascular disease
- 40% of cancer
- AND reduce health inequalities by about 50%
Limitations of Traditional Behaviour Change Theories

- **The Health Belief Model** – *Becker (1974)* Importance of beliefs, perceived benefits & barriers to action, self-efficacy, stimulus/ cue to action. Limitations; focused on conscious decision making and ignores habits.

- **Social Learning Theory** – *Bandura (1977)* Importance of social environment, modelling and self efficacy

- **Theory of Reasoned Action** *Ajzen & Fishbien (1980)/ Theory of Planned Behaviour* – *Ajzen (1985)* Limitation; assumption people act in a rational way at all times, not all behaviour is planned.

- **Stages of Change Model / Transtheoretical Model** – *Prochaska and DiClemente (1997)* Assumption behaviour change occurs in a linear fashion, progression through a series of stages.

**Limitations:**
- Effectiveness of predicting behaviour change
- Intention-behaviour gap
- Not addressing automatic motivation, habits and impulsive behaviour.
Changing behaviours: The limitations of changing minds


Thomas L. Webb
The University of Manchester

Paschal Sheeran
The University of Sheffield

“..this review suggests that intentional control of behaviour is a great deal more limited than previous meta-analyses of correlational studies have indicated”

“Changing behaviour by changing minds is unscaleable, increases inequalities, not very effective” (Professor Theresa Marteau)
Changing behaviours: Two Approaches

Change minds to...

Resist Environments

Change Environments

Before

After
Dual process models of cognitive processing

Two interacting systems

Automatic
Fast
Effortless
Unconscious

Driving on an empty road
2 + 2

Reflective
Slow
Effortful
Self-aware

Complete a tax form
17 x 24
Reflective

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.

Automatic

Unbelievable value.
Motivation: reflective and automatic

Beliefs about what is good and bad, conscious intentions, decisions and plans

Emotional responses, desires and habits resulting from associative learning and physiological states

Reflective-Impulsive Model, Strack & Deutsch, 2004
PRIME Theory of Motivation, West, 2006
State the colours as fast as you can

Yellow  Green  Blue  Red

Green  Red  Yellow  Blue
Standard Economic Theory

“Homo-economicus”

• Consistently rational (not emotional)
• Self-interested (not altruistic)
• Utility maximisers (the greatest amount of value possible for the budget)
• Takes the optimal route to achieve goals
In reality

- Subject to biases
- Subject to irrationalities
- Use heuristics (shortcuts) to make decisions
- Context and time dependent (inconsistent)
- Emotional
Heuristics

Mental shortcuts or rules of thumb to aid in problem solving
Cognitive Biases
Systematic thinking errors that affect decisions and judgement
Heuristics

1. Anchoring  
A form of priming where the initial exposure to a value serves as a reference point and influences subsequent judgement.

2. Availability  
Tendency to base likelihood on examples that come to mind

3. Representativeness  
Tendency to equate uncertain situations to prototype

Biases

1. Attribution  
tendency to over-emphasize internal explanations for behaviours

2. Confirmation  
favouring information that confirms previously existing beliefs

3. Self-serving  
Tendency to distort information to maintain self-esteem

4. Loss aversion  
Tendency to strongly prefer avoiding losses to acquiring gains
Example: Time Inconsistent Preferences

Snack choice for next week

- Unhealthy: 49%
- Healthy: 51%

Snack choice for now

- Unhealthy: 88%
- Healthy: 12%
An epidemic has broken out that threatens the lives of 1000 people.

Programme A: 500 lives will be saved
Programme B: 50% chance 1000 people will be saved

Decision 2: Which programme do you adopt?

Programme C: 500 people will die
Programme D: 50% chance 1000 people will die

We are generally risk averse. Preferences can be inconsistent if messages are framed positively or negatively.
Kahneman “losses loom larger than gains”
Choice Architecture

- Ambience
- Functional Design
- Labelling
- Presentation
- Sizing

Primarily alter properties of objects or stimuli

Altering choice architecture to change population health behaviour: a large-scale conceptual and empirical scoping review of interventions within micro-environments

Gareth J. Hollands, Ian Shemilt, Theresa M. Marteau, Susan A. Jebb, Michael P. Kelly, Ryota Nakamura, Marc Suhrcke, David Ogilvie
Effect of an Environmental Barrier

Control

Intervention
Results:
Outcome: % of people using the stairs
Control: 18.2%
Treatment: 35.2%
The Behavioural Insights Approach

The application of behavioural science to policy and practice with a focus on (but not exclusively) ‘automatic’ processes.

*Michael Hallsworth*, The Behavioural Insights Team

- Draws on insights from behavioural economics and psychology
- Emerging strong evidence for reproducible effects
- Robust evaluation to demonstrate effectiveness
- Low delivery intensity
- Small changes can have big impact
- Previous behaviour is best predictor of future behaviour – not intentions or beliefs
Our Objectives

Provide leadership to public health systems nationally and locally on behavioural insights.

1. Provision of a specialist capacity building service to PHE and LA partners on behavioural insights

2. Implementation of behavioural insights research

3. Provision of a specialist advice and support for improving performance of key PHE health improvement and health protection programmes in the priority areas and mandated services.
Our Approach

1. Problem identification and target behaviours
2. Development of partnerships/project team
3. Behavioural analysis and mechanisms of change
4. Identify context and intervention points
5. Research and intervention design
6. Implementation Evaluation, dissemination, and translation
Behaviour is anything a person does in response to internal or external events.

(Hobbs Campbell, Hildon & Michie, 2011)

Behaviour should be differentiated from its determinants (self-efficacy, emotion) and its outcomes (quality of life, cholesterol level)
33 psychological theories → 84 theoretical constructs → 14 theoretical domains

- Psychological capability
- Physical capability
- Reflective motivation
- Automatic motivation
- Social opportunity
- Physical opportunity

Capability → Motivation → Opportunity → Behaviour
<table>
<thead>
<tr>
<th>COM-B model components</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical capability</td>
<td>Physical skills, strength or stamina</td>
</tr>
<tr>
<td>Psychological capability</td>
<td>Knowledge, psychological skills (such as planning, attention, strength and stamina) to engage in the necessary mental processes (interpersonal skills, memory, attention, decision processes).</td>
</tr>
<tr>
<td>Physical opportunity</td>
<td>Opportunity afforded by the environment involving time, resources, locations, cues.</td>
</tr>
<tr>
<td>Social opportunity</td>
<td>Opportunity afforded by the social environment, social cues and cultural norms, social acceptability and expectations.</td>
</tr>
<tr>
<td>Reflective motivation</td>
<td>Active thought processes – attitudes and beliefs about what is good or bad, the costs and benefits of doing something, beliefs about consequences, goals, plans, and intentions.</td>
</tr>
<tr>
<td>Automatic motivation</td>
<td>Less conscious thoughts processes that drive behaviour - emotional reactions, desires (wants and needs), impulses, drive states, habits, reinforcement, associative learning and reflex responses.</td>
</tr>
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Designing a behavioural intervention

1. Problem Identification
2. Behavioural Target
3. Intervention Opportunities & Delivery Mode
4. Identify Behavioural Outcome Measures
5. Behavioural Analysis
6. Intervention Design
7. Evaluation Design
8. Implement
The Problem

The Outcome

The Behaviour
High Rates of Obesity

Reduce Calorie Intake
High Rates of Obesity
Weight Loss

The Problem
The Outcome
The Behaviour
The Problem
High Rates of Obesity

The Outcome
Weight Loss

The Behaviour
Reduce Calorie Intake

Who could our intervention target?
Behaviour occurs within a context and within a system of behaviours at different levels (individual, professional, system)

Identify the level of intervention

Increase uptake of NHS Health Checks

**Individual:** Make and attend appointment.

**Professional:** Identify and recommend to eligible individuals.

**Organisation:** Provide more appointments.
**Group Example**

**The Problem**
High Rates of Obesity

**The Outcome**
Weight Loss

**The Audience**
Individuals

**The Behaviour**
Purchase lower calorie items

**Intervention Point**
Supermarket

**Delivery Mode**
?

**Behavioural Measure**
?
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**The Problem**
High Rates of Obesity

**The Outcome**
Weight Loss

**The Audience**
Individuals

**The Behaviour**
Purchase lower calorie items

**Intervention Point**
Supermarket

**Delivery Mode**
Physical store environment

**Behavioural Measure**
Sales Data
Specify the behaviour target in detail

• **Who** needs to do **what** differently to achieve the desired change?
• **When** do they need to do it?
• **Where** do they need to do it?
• **How often** do they need to do it?
• **With whom** do they need to do it?
• In **what context** do they need to do it?
Behavourial Insights Tools

MINDSPACE

EAST

Messenger
Incentives
Norms
Defaults
Salience
Priming
Affect
Commitments
Ego

Michie et al (2011)

Cabinet Office and Institute for Government (2010)
If you want to encourage a behaviour, make it

1. Easy
2. Attractive
3. Timely
4. Social
Descriptive Norm
Reciprocity
Network Nudge
Relative Ranking
Commitment Contracts
Messenger Effects
People Helping People
Feedback
Organ donation

1. Thank you.
   Please join the NHS Organ Donor Register.
   Join or find out more.

7. Thank you.
   Please join the NHS Organ Donor Register.
   If you needed an organ transplant would you have one? If so please help others.
   Join or find out more.
Organ donation
Descriptive Norm
Reciprocity
Network Nudge
Relative Ranking
Commitment Contracts
Messenger Effects
People Helping People
Feedback
Uptake of flu vaccinations

<table>
<thead>
<tr>
<th>Control Condition</th>
<th>Date Plan Condition</th>
<th>Time Plan Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[Company Name] IS HOLDING A FREE FLU SHOT CLINIC.</strong></td>
<td><strong>[Company Name] IS HOLDING A FREE FLU SHOT CLINIC.</strong></td>
<td><strong>[Company Name] IS HOLDING A FREE FLU SHOT CLINIC.</strong></td>
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<tr>
<td>Flu shots will be available on site at the [location of relevant free flu shot clinic] at the following times:</td>
<td>Many people find it helpful to make a plan for getting their shot. You can write yours here:</td>
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</tr>
<tr>
<td>Monday, October 26th</td>
<td></td>
<td>Monday, October 26th</td>
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<tr>
<td>Wednesday, October 28th</td>
<td></td>
<td>Wednesday, October 28th</td>
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<tr>
<td>Friday, October 30th</td>
<td></td>
<td>Friday, October 30th</td>
</tr>
<tr>
<td>Tuesday, November 3rd</td>
<td></td>
<td>Tuesday, November 3rd</td>
</tr>
<tr>
<td>Thursday, November 5th</td>
<td></td>
<td>Thursday, November 5th</td>
</tr>
<tr>
<td>7:00 am – 3:30 pm</td>
<td>(day of the week)</td>
<td>7:00 am – 3:30 pm</td>
</tr>
<tr>
<td>7:00 am – 3:30 pm</td>
<td>(month)</td>
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<tr>
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<td>(time)</td>
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The location, dates, and times of the influenza vaccination clinics were personalized in each mailer.
Commitments

Vaccination rates

- Control: 33.10%
- Date: 35.60%
- Date and Time: 37.10%
Key points to consider

1. What is the target behaviour?

2. **Who** needs to perform the behaviour? Where, when, how often and with whom?

3. Consider the **capability, opportunity, motivation** to perform the desired behaviour?

4. How will you **measure** the behaviour?

5. When designing the intervention make it **easy, attractive, social and timely.**
Useful Resources

Papers

• Local Government Association. (2013). Changing behaviours in public health. To nudge or shove? http://www.local.gov.uk/documents/10180/11463/Changing+behaviours+in+public+health+-+to+nudge+or+to+shove/5ae3b9c8-e476-495b-89b4-401d70e1e2aa

• The Behavioural Insights Team (2014). East: Four Simple Ways to apply behavioural insights http://www.behaviouralinsights.co.uk/publications/east-four-simple-ways-to-apply-behavioural-insights/


Useful Resources

Books


http://www.hpphn.org.uk/
Thank you!

For questions or comments please contact Amanda.Bunten@phe.gov.uk
EASY

SUBSTITUTION
Insight: It is easier for us to substitute a similar behaviour than to eliminate an entrenched one.
How to apply: Encourage people to switch from using one product to a similar product that makes them healthier, wealthier or happier.
Example: Getting people to switch from cigarettes to e-cigarettes may be easier than getting them to quit nicotine altogether.

EASY

CHECKLISTS
Insight: Checklists help us remember important steps in a process, particularly in stressful situations.
How to apply: Create a list of the five to nine items, crucial to the completion of a task, that can be ticked off when completed.
Example: Checklists for airplane pilots have reduced errors and accidents.

EASY

CHUNKING
Insight: We find it easier to achieve complex goals if they are broken up into subgoals.
How to apply: Break up a complex challenge into more manageable 'chunks'.
Example: Jobseekers were more successful at finding jobs when the task was broken down into manageable 'chunks' (e.g. improve CV).

EASY

ORDERING EFFECTS
Insight: The positioning of a piece of information, i.e. what comes before or after it, influences how it is perceived.
How to apply: Put the best choices first or last: their 'primacy' or 'recency' can encourage people to choose them.
Example: Placing a healthy food item at the top or bottom of a menu increased its popularity.
Defaults
Insight: We tend to 'go with the flow' of a pre-set option.
How to apply: Change the default setting to encourage more positive behaviour.
Example: Automatically enrolling people into workplace pension schemes increased the number of savers.

Friction Costs
Insight: We can be deterred from taking an action by seemingly small barriers (like filling in an extra form).
How to apply: Reduce the hassle factor or frictions in a system to encourage uptake.
Example: Sending taxpayers directly to a form, rather than a webpage that contains the form, increased response rates.

Goal-Setting
Insight: We are more likely to achieve objectives if we are given a specific goal.
How to apply: Set an individual or an organisation a clear, challenging goal (ideally one that can be measured).
Example: Experienced marathoners who were asked about their goal in a pre-marathon survey ran 6 minutes faster than those who were not asked about their goal.

Simplification
Insight: We are more likely to take action when it's easy for us to do so (and clear what is being asked of us).
How to apply: Make a service easier to use or a message easier to understand.
Example: Simplifying a form doctors use to prescribe medicines dramatically reduced clinical errors.
**LOSS AVERSION**

Insight: We dislike losses more than we like gains of an equivalent amount.

How to apply: Focus on the potential loss associated with an action or lack of action ("it will cost you X").

Example: Paying teachers in advance of the school year, but requiring them to return the money if their students did not do well, enhanced teacher performance.

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**LOTTERIES**

Insight: Lotteries are effective because we tend to overweight the likelihood of rare events, and focus more on the prize than the probability.

How to apply: Give participants a chance to win a few, big prizes.

Example: Entering people into a lottery encouraged more people to lose weight than standard incentives.

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**PERSONALISE**

Insight: We are more likely to respond to messages or services which are tailored to us.

How to apply: Refer to an individual by name in communications and build services around individual needs.

Example: Including a person's name at the start of an SMS increased the payment rates of court fines.

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**MENTAL ACCOUNTING**

Insight: We think of money as being allocated for different categories rather than as being interchangeable across categories.

How to apply: Encourage people to set aside money into different 'mental accounts' to help them achieve financial goals.

Example: Dividing money into two envelopes, one of which was designated for savings, increased the total amount of money people saved.
FRAMING EFFECT
Insight: We react differently to the same information, depending on how it is framed.
How to apply: When encouraging a positive behaviour, frame it in a way that is appealing.
Example: Food described as 99% fat free may be evaluated more favourably than food described as 1% fat.

SALIENCE
Insight: Our attention is drawn to what is novel and seems relevant to us.
How to apply: Make the most important information or required action stand out so that it attracts attention.
Example: Putting a handwritten message on the outside of envelopes increased the number of people who paid their tax on time.

ENDOWMENT EFFECT
Insight: We tend to value objects we already own more than equivalent objects we do not yet own.
How to apply: Give a person something or increase their sense of ownership so that they value it more.
Example: People given a coffee mug were, on average, willing to sell it at higher prices than others were willing to pay for it.

SCARCITY
Insight: We are more attracted to goods if we believe supply is limited.
How to apply: Highlight scarcity of goods to make them more attractive.
Example: Noting the limited timeframe in which a government programme was available increased sign-up rates.
**DESCRIPTIVE NORM**

*Insight:* We use other people's behaviour as a cue for what's acceptable and desirable.

*How to apply:* When people are doing the right thing (paying their taxes, recycling), let everyone know.

*Example:* Telling people who have not paid their taxes that most people have paid on time increased payment rates.

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**NETWORK NUDGE**

*Insight:* We are influenced by the behaviour of friends and friends of friends.

*How to apply:* Tap into the social networks of the individuals you are seeking to influence.

*Example:* Those who were asked to donate to charity by colleagues who had already donated were more likely to donate.

---

**MESSENGER EFFECT**

*Insight:* We are heavily influenced by the communicator of information.

*How to apply:* Enhance the effect of a message by considering who the individual or organisation conveying the information is.

*Example:* People were more likely to sign up to the Army Reserve when sent an email from a real and named officer.

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**RECIPROCITY**

*Insight:* We have an inherent desire to help those who have helped us in some way.

*How to apply:* Offer help or a gift to someone to encourage them to give something back.

*Example:* People were more likely to join the Organ Donor Register if they were asked, 'If you needed an organ transplant would you have one? If so please help others.'
PEOPLE HELPING PEOPLE
Insight: Public services can be delivered more efficiently and effectively by encouraging citizens to support one another.
How to apply: Redesign public services to make mobilising the public's contribution a core principle.
Example: King's College Hospital's volunteering programme generated a big return on investment by getting volunteers to provide practical help to patients and visitors.

RELATIVE RANKING
Insight: We are influenced by how our performance compares with others', especially those with similar characteristics to ourselves.
How to apply: Give people feedback on how their behaviour compares to their peers, friends, or colleagues.
Example: Doctors prescribed fewer antibiotics after they had been made aware that they were in the top 20% of antibiotic prescribers in their local area.

COMMITMENT CONTRACTS
Insight: When we actively commit to achieving a goal, we are more likely to achieve it, especially if the commitment is paired with a penalty for failure.
How to apply: Encourage someone to commit to and write down a goal, then to set a penalty for failing to achieve it.
Example: Smokers who made a commitment to quit (and agreed to forfeit money if they failed to do so) were more likely to be successful.

FEEDBACK
Insight: We are more likely to achieve a goal if provided with timely, structured feedback on how we are performing in relation to that goal.
How to apply: Create quick feedback loops that enable individuals and organisations to monitor their performance.
Example: Student given regular and constructive feedback on their English and Maths substantially improved their performance.
**PRIMING**

Insight: Our actions can be influenced by subconscious cues.

How to apply: Expose individuals to sights, words or sensations that encourage positive behaviours.

Example: People contributed more money in exchange for coffee they consumed when a picture of a pair of eyes was displayed.

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**PRESENT-BIAS**

Insight: We disproportionately prefer rewards that come sooner and costs that are borne later.

How to apply: Encourage positive behaviours today by moving the costs into the future.

Example: Save More Tomorrow™ encourages individuals to commit to future increases in pension contributions (rather than having to make a sacrifice today).

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**DEADLINES**

Insight: We are more likely to achieve goals if we have a clear deadline.

How to apply: Give people an expiry date or deadline for the use of a service or completion of a task.

Example: People given coupons with expiry dates were more likely to use them than those given coupons without a deadline for their use.

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**ANCHORING**

Insight: Exposure to a number influences subsequent judgements.

How to apply: Encourage greater levels of effort by setting higher initial ‘anchors’.

Example: Decisions by legal experts on the length of a prison sentence were influenced by the number they threw on a dice.
PROMPTS
Insight: We are more likely to undertake an activity if given a prompt at the right moment.
How to apply: Encourage individuals to take action through a well-timed message or intervention.
Example: Asking people if they would like to donate money in their wills at the moment they were writing their wills increased the number of people donating from 5% to 10%.

HEAD START
Insight: A head start can help us achieve our goals by making it feel like we are making progress.
How to apply: Give people a head start so that they are more likely to finish a task or process.
Example: Coffee stamp cards with 12 boxes, of which 2 are pre-stamped, are completed more quickly than coffee stamp cards with 10 unstamped boxes.

IMPLEMENTATION INTENTION
Insight: We are more likely to do something when we specify how, when and where we will do it.
How to apply: Get someone to spell out when, where, and how they will do something (e.g. vote, or get a flu shot).
Example: Encouraging people to write down the time and date they will go to get a flu shot increased uptake.

FOOT-IN-THE-DOOR TECHNIQUE
Insight: If we comply with an initial small request, we are more likely to comply with a later, larger request.
How to apply: Make an initial, small request before making a larger request.
Example: People asked to sign a petition for a good cause were more likely to donate to that cause at a later point in time.