

Does the design of the NHS Low-Calorie Diet Programme have fidelity to the programme specification? A documentary review of service parameters and behaviour change content in a type 2 diabetes intervention

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Published version

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Doc. S1. Guidelines referenced in the programme specification excluded for the purposes of the analysis

The following guidelines were referenced in the specification as requiring adherence from the service providers but were not included in the analysis for this study as a review of each document found no new information reported on the service parameters or planned behaviour change content.

- NICE NG 28 Type 2 Diabetes in Adults: Management (2015)
- NICE NG 7 Preventing excess weight gain
- NICE PH 42 Obesity: working with local communities (2012)
- NICE PH 44 Physical activity: brief advice in primary care (2012)
- NICE PH 41 Physical activity: walking and cycling (2013)
- NICE CG 43 Obesity: Guidance on the prevention of overweight and obesity in adults and children (2006 and updated 2015)
- NICE PH 53 Managing overweight and obesity in adults – lifestyle weight management services (2014)
- NICE PH 46 BMI: preventing ill health and premature death in black, Asian and other minority ethnic groups (2013)
- Eatwell Guide (2016)

Doc. S2. Behaviour change technique (BCT) coding rules

A BCT must only be coded if it is part of the core delivery (not an optional activity). An exception to this rule was when guidance for coaches detailed a list of suggested techniques as a supplement to the activity or discussion, in this instance each BCT was coded once per technique (e.g., if a new level of a BCT was included in this list the dose was still coded as once to avoid over coding of optional BCTs) to ensure these techniques were captured in the coding.

New BCTs would be coded on the commencement of a new activity or if a different health behaviour (e.g., diet, physical activity), or 'level' of behaviour (e.g., strength training, cardiovascular activity, sedentary behaviour) was targeted. This rule was modified by NHS-DPP evaluators who applied this to the BCT 'information about health consequences' but was applied to all BCTs in this study (e.g., if 'problem solving' was described for strength training and sedentary behaviour, this technique would be coded twice).

A coding rule established by NHS-DPP evaluators but removed for this study was the instruction to code as 'information about health consequences' when interrupted by other activities that did not comprise of 'information about health consequences', as the NHS-DPP study authors noted this leading to the BCT being coded more frequently than others. Through team discussions it was decided that 'information about health consequences' would be coded once per behavioural health consequence, per session (e.g., the effect of starchy carbohydrates on blood glucose) unless a new behaviour or level of behaviour was described.

BCTs were not coded if they were not linked to the programme target behaviours (e.g., information on how to manage side effects for safety purpose, measures taken for the purposes of safety or data collection such as blood pressure). This is in line with the BCTTv1 training.

Doc. S3. Definitions of behaviour change techniques included in the full programme specification

Behaviour change technique [BCTTv1 no.]	Definition
Goal setting (behaviour) [1.1]	Set or agree on a goal defined in terms of the behaviour to be achieved
Problem solving [1.2]	Analyse, or prompt the person to analyse, factors influencing the behaviour and generate or select strategies that include overcoming barriers and/or increasing facilitators (includes 'Relapse Prevention' and 'Coping Planning')
Goal setting (outcome) [1.3]	Set or agree on a goal defined in terms of a positive outcome of wanted behaviour
Action planning [1.4]	Prompt detailed planning of performance of the behaviour (must include at least one of context, frequency, duration and intensity). Context may be environmental (physical or social) or internal (physical, emotional or cognitive) (includes 'Implementation Intentions')
Review outcome goal(s) [1.7]	Review outcome goal(s) jointly with the person and consider modifying goal(s) in light of achievement. This may lead to re-setting the same goal, a small change in that goal or setting a new goal instead of, or in addition to the first

Behavioural contract [1.8]	Create a written specification of the behaviour to be performed, agreed on by the person, and witnessed by another
Feedback on behaviour [2.2]	Monitor and provide informative or evaluative feedback on performance of the behaviour (e.g., form, frequency, duration, intensity)
Self-monitoring of behaviour [2.3]	Establish a method for the person to monitor and record their behaviour(s) as part of a behaviour change strategy
Self-monitoring of outcome(s) of behaviour [2.4]	Establish a method for the person to monitor and record the outcome(s) of their behaviour as part of a behaviour change strategy
Feedback on outcome(s) of behaviour [2.7]	Monitor and provide feedback on the outcome of performance of the behaviour
Social support (unspecified) [3.1]	Advise on, arrange or provide social support (e.g., from friends, relatives, colleagues, 'buddies' or staff) or non-contingent praise or reward for performance of the behaviour.
Social support (practical) [3.2]	Advise on, arrange, or provide practical help (e.g., from friends, relatives, colleagues, 'buddies' or staff) for performance of the behaviour

Social support (emotional) [3.3]	Advise on, arrange, or provide emotional social support (e.g., from friends, relatives, colleagues, 'buddies' or staff) for performance of the behaviour
Instruction on how to perform the behaviour [4.1]	Advise or agree on how to perform the behaviour (includes 'Skills training')
Information about antecedents [4.2]	Provide information about antecedents (e.g. social and environmental situations and events, emotions, cognitions) that reliably predict performance of the behaviour
Information about health consequences [5.1]	Provide information (e.g. written, verbal, visual) about health consequences of performing the behaviour
Information about social and environmental consequences [5.3]	Provide information (e.g. written, verbal, visual) about social and environmental consequences of performing the behaviour
Social comparison [6.2]	Draw attention to others' performance to allow comparison with the person's own performance
Habit formation [8.3]	Prompt rehearsal and repetition of the behaviour in the same context repeatedly so that the context elicits the behaviour
Graded tasks [8.7]	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behaviour is performed

Social reward [10.4]	Arrange verbal or non-verbal reward if and only if there has been effort and/or progress in performing the behaviour (includes 'Positive reinforcement')
Restructuring the physical environment [12.1]	Change, or advise to change the physical environment in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (other than prompts/cues, rewards and punishments)
<p>Group of techniques targeting self-belief [15]:</p> <p>Verbal persuasion about capability [15.1]</p> <p>Mental rehearsal of successful performance [15.2]</p> <p>Focus on past success [15.3]</p> <p>Self-talk [15.4]</p>	<p>Tell the person that they can successfully perform the wanted behaviour, arguing against self-doubts and asserting that they can and will succeed</p> <p>Advise to practise imagining performing the behaviour successfully in relevant contexts</p> <p>Advise to think about or list previous successes in performing the behaviour (or parts of it)</p> <p>Prompt positive self-talk (aloud or silently) before and during the behaviour</p>