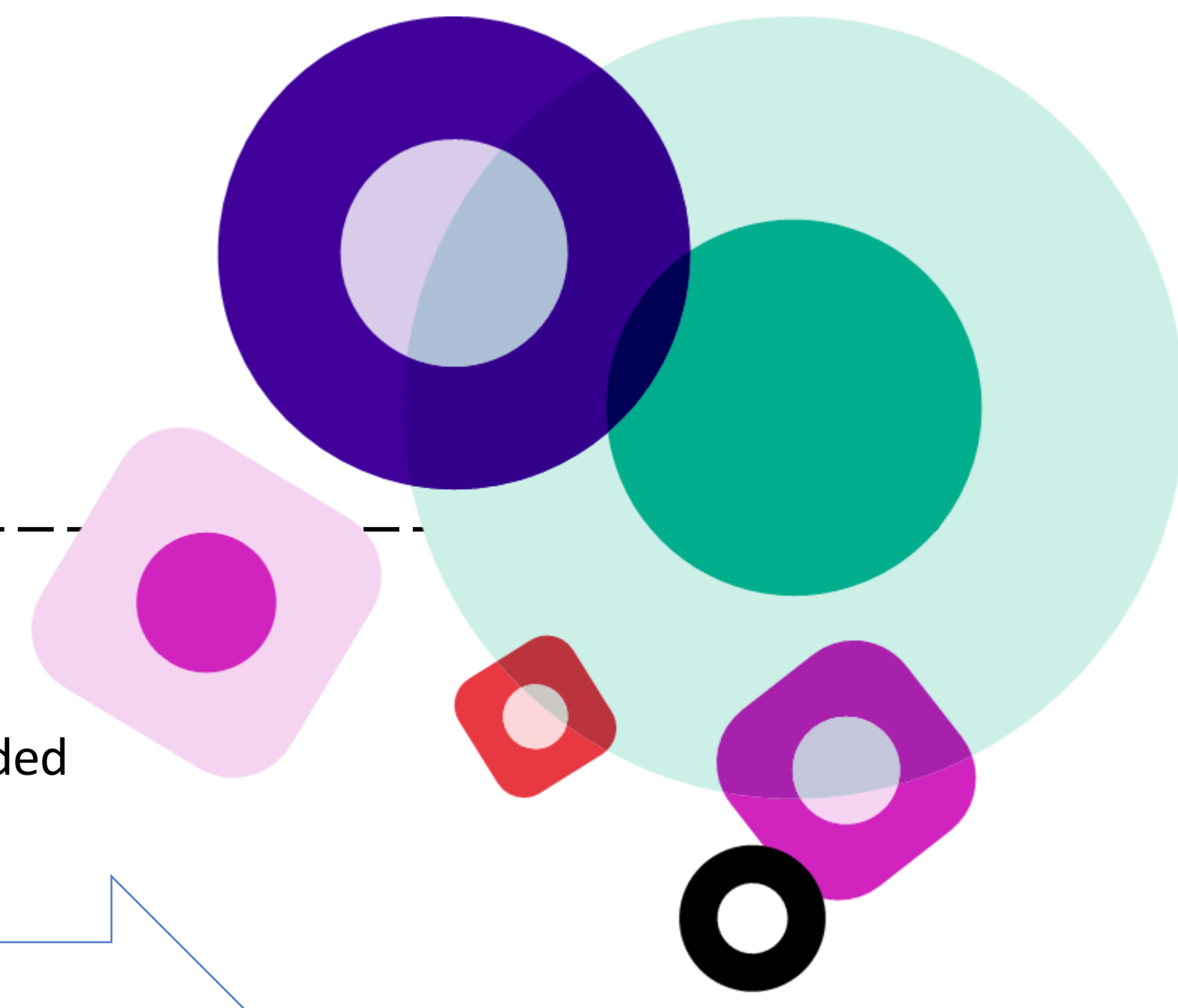


# How is the NHS Low-Calorie Diet Programme expected to produce behavioural change to support diabetes remission: An examination of underpinning theory

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## INTRODUCTION

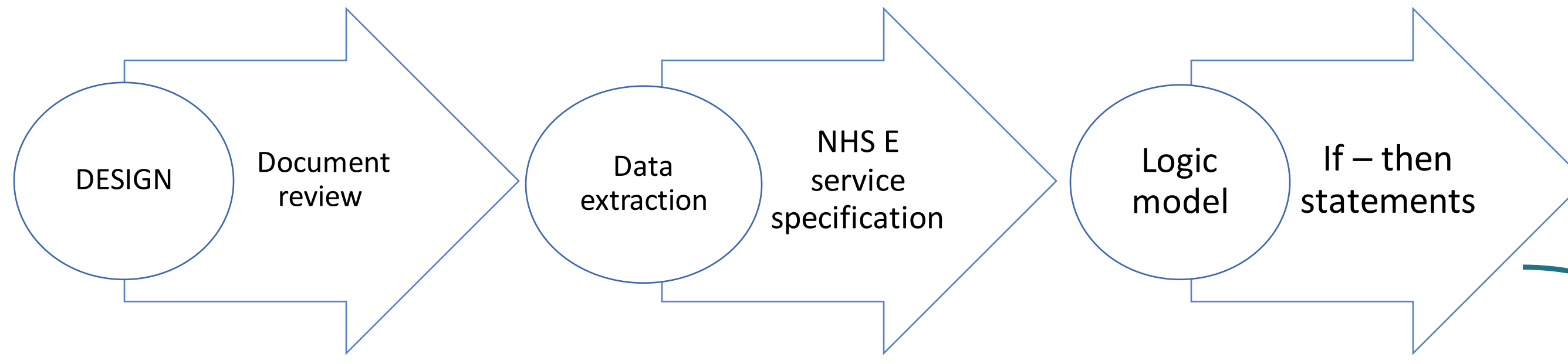
- NHS England launched a low-calorie total diet replacement pilot programme to help participants with comorbid overweight/obesity and Type 2 Diabetes to lose weight and improve their Type 2 Diabetes.
- The Medical Research Council recommends use of programme theory in the design and evaluation of complex interventions.
- Programme theory is a theory or model that explicitly describes how an intervention's components expect to produce behavioural change and achieve intended health outcomes.
- NHS England commissioned four service providers to design and deliver theoretically grounded behaviour change programmes across 10 localities.

## AIMS

- To develop a logic model detailing how the NHS Low-Calorie Diet Programme is expected to produce behavioural changes and health outcomes.
- To analyse and evaluate the use and application of behaviour change theory in provider's programme designs.

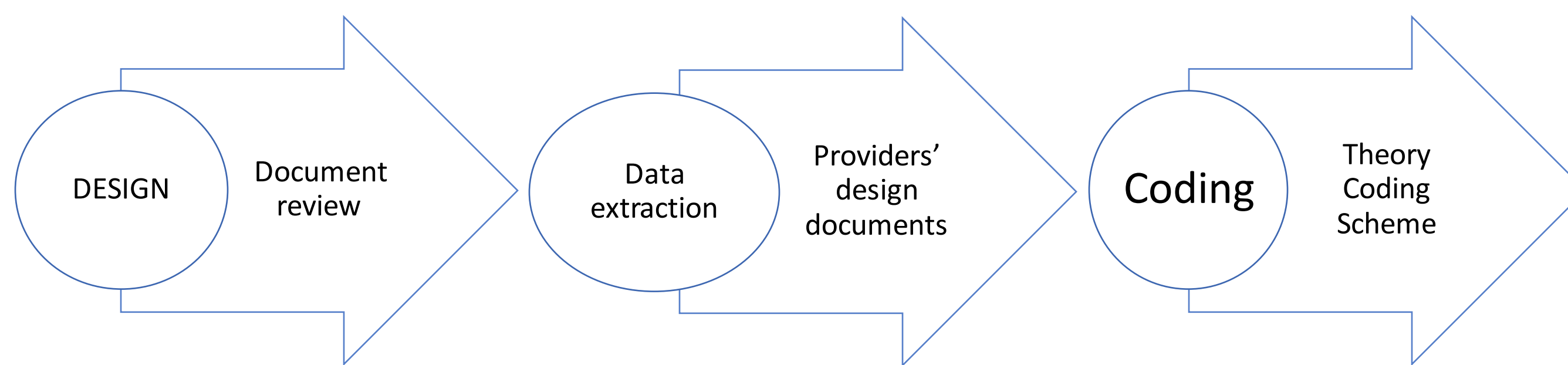
## METHODOLOGY

- Aim 1: Logic model development: programme assumptions linked to intended behaviour change content and outcomes through "if-then statements"



e.g., **IF** participants plan explicit coping strategies **THEN** they will develop skills to cope with difficult situations and conflicting goals

- Aim 2: Theory coding (by two coders) of providers design documents (programme manuals, session plans, staff training resources). All coding discrepancies were resolved via discussion.



## RESULTS: Logic Model

We devised a behaviour change logic model describing the intervention techniques and the psychological mechanisms targeted throughout the three phases of the 52-week programme.

- Referral process: information given to enhance positive outcome expectations (e.g. diabetes remission, reduced medication use).
- Total Diet Replacement phase: behaviour change techniques (BCTs) target participants knowledge of weight loss benefits and internal vs external cues of eating behaviours (e.g., emotions, social events). Self-regulation of behaviour is promoted through a cycle of BCTs (e.g., goal setting) to support dietary adherence
- Food Reintroduction and Weight Maintenance phases: self-regulatory BCTs remain a key focus, this time to encourage healthy eating and physical activity (e.g., Eatwell guide) to support maintenance of outcomes.
- The "rescue package" includes techniques that target recovery self-efficacy (confidence in getting back on track).
- A person-centred approach and supportive social environments are to be encouraged throughout to facilitate participants' confidence in embedding changes into their social and cultural contexts.

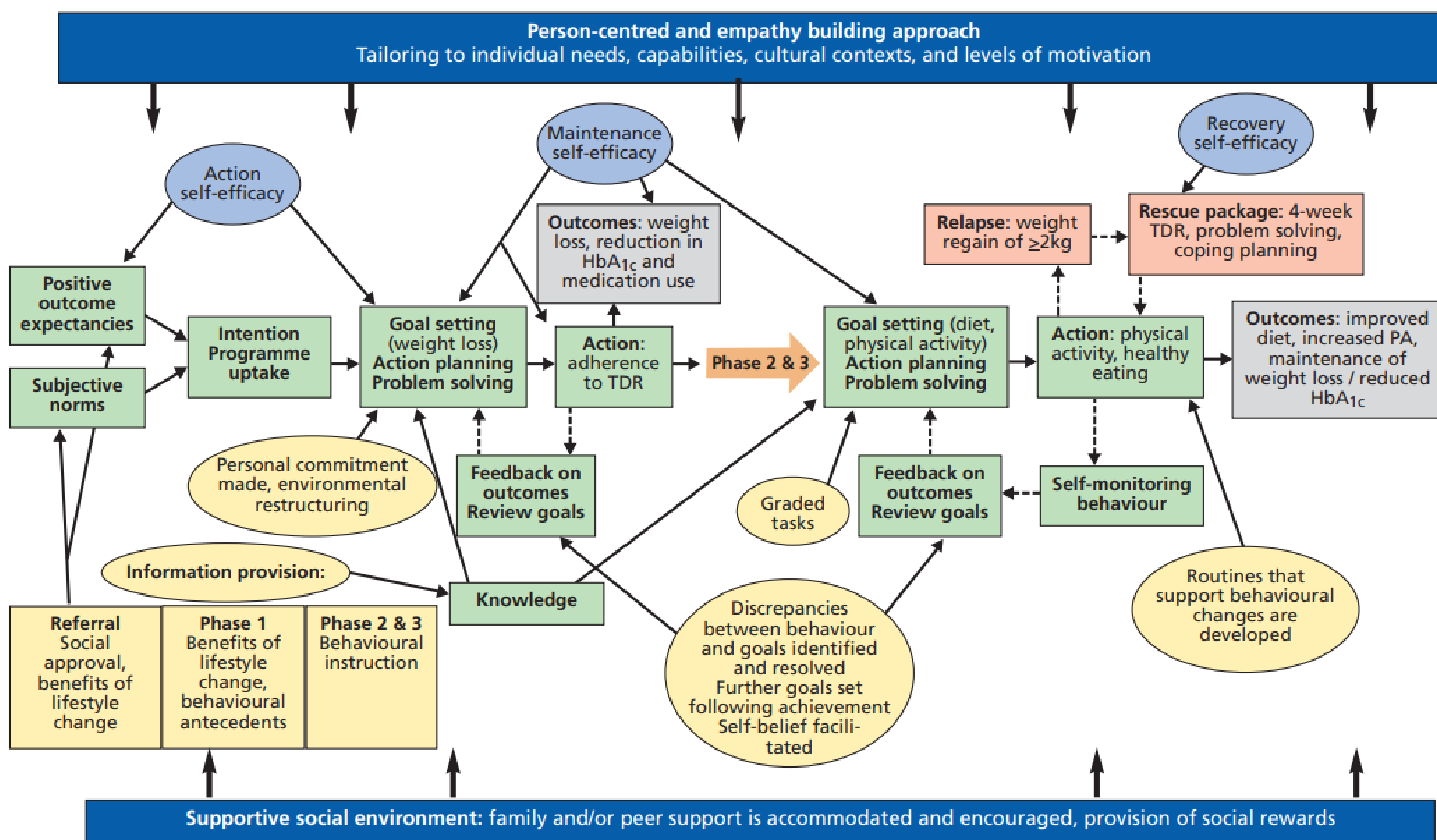


Figure 1. Logic model describing how the NHS-LCD expects to produce behaviour change through anticipated psychological mechanisms of action.

## DISCUSSION

- The NHS-LCD aims to improve T2D self-management and reduce medication use by providing behavioural support that facilitates TDR adherence, healthy lifestyle behaviours and resulting weight loss/maintenance.
- Only one of the four providers evidenced a detailed description of how their intervention was expected to achieve the desired outcomes.
- Justification for the BCTs selected across national diabetes programmes is unclear and may result in programmes not being delivered as intended.

## Recommendations

### Programme commissioners should

- Include a logic model within their programme specification OR
- Require service providers to state their underpinning programme theory explicitly during the commissioning process and evidence of the theory selection process
- Provide more detailed guidance or training in theory application

### Future research / consultancy work should

- Seek to understand and address the barriers to explicit theory use in programme design (e.g., time, resources, expertise)
- Compare outcomes across providers

## RESULTS: Use of behaviour change theory by service providers

Table 1. Behaviour change theories cited across the four providers programme designs

	SP1	SP2	SP3	SP4
ABC model of behaviour change			X	
Cognitive Behavioural Model		X	X	
COM-B		X		X
Health Beliefs Model		X		
Stages of Change (Transtheoretical Model)	X	X		
Social-Cognitive Theory				X

## Did providers evidence use of theory to select intervention techniques?

**One provider** linked 100% of techniques in their designs to theory (through construction of their own logic model).

**Two providers** linked 63% and 70% of techniques to theory, respectively.

**One provider** had limited evidence of theory application.

## IMPACT

NHS England will require service providers to explicitly describe the theoretical underpinnings of their programmes during commissioning for national roll out of the Low-Calorie Diet Programme. **Study authors have been requested by NHS England to develop guidance to support providers in adhering to this expectation.**