Section A: CPHE to complete	
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Guidance title:	Behaviour change
Committee:	Programme Development Group
Subject of expert testimony:	Behaviour change – Implementation and Maintenance
Evidence gaps or uncertainties:	[Please list the research questions or evidence uncertainties that the testimony should address]

Provide the PDG with your perspective on the implementation and maintenance of effective behaviour change interventions, including:

- *The core characteristics, competences and processes required to implement effective behaviour change interventions (in particular, in the topics of interest, if you are able - smoking, diet, physical activity, sexual health or alcohol)?*

- *When, why and how behaviour change is maintained?*

- Core content of intervention materials and training courses on behaviour change for practitioners and service providers (in particular, in the topics of interest if you are able - smoking, diet physical activity, sexual health or alcohol)?

- Are there core areas or factors that can be generalised across topics?

Section B: Expert to complete	
Summary testimony:	

The core characteristics, competences and processes required to implement effective behaviour change interventions (in particular, in the topics of interest, if you are able - smoking, diet, physical activity, sexual health or alcohol)?

Provider characteristics

Competency in delivering most behaviour change techniques can be taught to a wide range of people with different professional and academic competencies. I have personally taught (and in many cases assessed subsequent intervention fidelity for) nurses, healthcare assistants, fitness industry staff, GPs, hospital-based consultants, social workers and health trainers to use behaviour change techniques and person-centred counselling techniques. This has been mainly for supporting changes in diet and physical activity, but also for smoking cessation.

Some perform better than others, but performance is not related to prior qualifications, so much as to other life-skills and personal characteristics (particularly

the ability to become patient-centred /to resist the righting reflex /to put aside your own agenda). I believe that most people with CGSE or higher education can be taught to deliver behaviour change techniques.

From what I have seen of it, the evidence base on differences in performance between staff with different characteristics in behavioural interventions (e.g. comparisons of delivery of the same intervention by GPs or nurses) is extremely weak both in quality and quantity. I am aware of no study that has been powered to properly address such questions. Our review of reviews of interventions for supporting changes in diet and /or physical activity[1] found no robust evidence on this (no consistent or significant relationship between intervention provider and weight, physical activity or dietary outcomes at up to 12 months of follow up). However, it was clear from individual RCTs that "a wide range of providers (with appropriate training) including doctors, nurses, dieticians/nutritionists, exercise specialists and lay people, can deliver effective interventions for changing diet and/or physical activity.[1]

Skills and Competencies: The skills and competencies needed for intervention delivery will obviously vary depending on the intervention to be delivered, but, based mainly on experience in delivering trials and training intervention providers, the competencies that staff should be trained in for delivering behaviour change interventions might typically include:-

1. Empathy-building skills. This is a critical skill-set in my experience. If these skills are weak in the provider, most behavioural interventions will fail. This is particularly difficult to assess at job interviews! Micro-skills include: Using a Guiding style; Open-ended questions; Affirmation; Reflective Listening; Rolling with Resistance.
2. Using Assessment Tools: (e.g. dietary and PA assessment).
3. Exchanging information (to support motivations, action-plans and problem-solving, a lot of information is often needed – what is a healthy diet, what different strategies might I use to help me stop smoking, what are the safety considerations etc): Micro skills might include using the Ask-Tell-Discuss (elicit-provide-elicit) process, or use of problem-based learning techniques.
4. Exploring motivation: This includes the ability to elicit the current circumstances, beliefs and preferences of the participant(s) that might influence behaviour change. Micro-skills might include using decisional balance techniques; exploring possible futures; using a confidence ruler; making summaries; use of 'turning point' questions.
5. Facilitating action planning: Micro-skills might include facilitating SMART (or SMART-ER) goals. Facilitating the completion of coping and social support plans.
6. Establishing self-regulation: Micro-skills might include setting up self-monitoring; providing feedback in the event of positive or negative outcomes; managing setbacks; problem-solving.
7. Managing emotional processes. Micro-skills might include encouraging enjoyable lifestyles; teaching techniques for managing impulses (e.g. food cravings); cognitive re-framing.
8. Group facilitation skills: This requires the ability to recognise group dynamics and to intervene to guide them in directions that evoke increasing engagement /attention /focus, rather than resistance /disinterest /drifting off topic. Empathy building techniques can be adapted for group settings, but

these may need to be combined with direction-building techniques to keep the group on a clear trajectory.

When, why and how is behaviour change maintained?

Behaviour change is not always sustained. Indeed, relapse to prior behaviour seems to be the norm. The phenomenon of relapse is well documented in smoking cessation (where quit rates fall from around 40% at 4 weeks to around 10% at 12 months), interventions for drug and alcohol overuse and in physical activity. In the field of weight loss, although lifestyle (diet and physical activity) interventions are increasingly successful in promoting initial weight loss[1,2,3] gradual weight regain is common, with weight typically returning to baseline levels over 3-5 years.[3]

Behaviour change is perhaps more likely to be maintained when a) very strong motivation has been established ("Road to Damascus" moments or significant life crises[4]) b) when changes that are made are 'sustainable' in that they require little or no ongoing effort or motivation to continue with and c) when the person making the change experiences a significant benefit, thereby reinforcing the ongoing behaviour. For instance, people who still have a high level of food cravings after changing their diet are less likely to maintain weight loss. However, if the new diet satisfies hunger needs and personal standards about being able to enjoy food, then it is more likely to be sustained.

An increasingly common approach to promoting behaviour change maintenance is to encourage people to go through multiple cycles of self-regulation (a cycle would typically consist of making a plan of action, self-monitoring progress, reviewing progress, problem-solving and then revising the action plan). There is evidence that the use of self-regulation techniques is associated with an increase in the effectiveness of weight loss interventions at up to 12 months of follow-up[1,5] and several "maintenance by self-regulation" interventions have been shown to be effective in supporting the maintenance of weight loss (through diet and physical activity) from 18 to 30 months (although substantial weight regains were still observed).[6,7,8] The evidence for the effectiveness of self-regulation techniques in helping to promote weight loss maintenance (i.e. changes in diet and /or physical activity) is therefore strong.

The ongoing self-regulation approach may be less well suited to maintenance of 'categorical' behaviours like smoking or drug use, but the same techniques can still be used in an 'acute response' mode (to manage relapses).

Further theoretical and technological approaches to behaviour maintenance exist and need further exploration: These might include emotional self-regulation (using techniques to monitor impulses and improve impulse-control, as well as to manage stress-induced eating behaviour).[9] Social influences may also play an important role in either facilitating or hindering behaviour maintenance,[10] but few studies have specifically explored the potential of manipulating social influences (e.g. using social skills training, engaging social support) for behaviour maintenance. The developers of self-determination theory suggest that higher levels of autonomous self-regulation, perceived competence and relatedness might facilitate maintenance of health-behaviour change[11] and have applied SDT to at least one maintenance intervention (which is still under evaluation).[11] There has been speculation that

other theories, such as learning theory (providing retrieval cues after the new learning is complete, varying the contexts in which the new learning takes place to enhance generalisation of the new behaviour) could be applied to behaviour maintenance,[12] but I am not currently aware of any intervention studies that have tried to specifically test such ideas.

Using mobile phone or internet based software to support longer-term behaviour change (e.g. to provide regular or context-specific prompts or reminders, to support self-monitoring, or as a source of 'critical moment' advice) is becoming increasingly popular and the evidence base is developing rapidly in this area. The evidence base to date is mixed however and confounded by a large number of low quality studies and reviews. I will present some preliminary data from our ongoing review of reviews of this literature.[13]

There is a potentially interesting debate about whether maintenance of behaviour change is best supported by providing ongoing support (as seems to work in some commercial weight loss programmes), or by teaching people the skills needed to regulate their own behaviour so that they can self-manage when new challenges arise. Preliminary evidence suggests that ongoing guidance /support from a health promotion worker may work better than a self-help (either internet or self-help workbook) approach,[7,8] but the interventions used in these trials were intensive. Hence, further research is needed to identify the most cost-effective methods for achieving weight loss maintenance (and the maintenance of other health behaviours).

Further research is needed to identify the best and most cost-effective approaches to behaviour maintenance for different health behaviours (including diet, physical activity, smoking, sexual health behaviours and drinking).

Core content of intervention materials and training courses on behaviour change for practitioners and service providers (in particular, in the topics of interest if you are able - smoking, diet physical activity, sexual health or alcohol)?

What should core content include? The intervention content, including the behaviour change techniques to be used, will clearly vary depending on the target behaviour. Please refer for instance to NICE guidance PH38 on diabetes prevention in individuals at risk of type 2 diabetes for evidence based recommendations on the content of behavioural interventions for promoting changes in diet and physical activity.[14]

However, the training should focus primarily on the *process* of intervention and the *skills* needed to deliver the intervention as well as the delivery of any specific behaviour change techniques and information that is relevant to the particular intervention.

I think it is useful during training to summarise the intervention in the form of a process model (a diagram depicting the journey that participants have to go in terms of processes of behaviour change in order to achieve the targeted changes). This can then be broken down into specific behaviour change techniques and skills, and each skill /technique can be taught separately.

Providing opportunities to practice delivery of the intervention components is essential.

I would also recommend that any training course on supporting behaviour change should ideally include a formative feedback element, whereby several recorded consultations are checked and reviewed by a specialist (and by the trainee) with a view to improving and maintaining performance. This is because taught skills (and particularly person-centred counselling skills) can 'drift' back to the person's previous counselling style if formative feedback is not provided. Direct evidence on the benefit of offering formative feedback to improve the fidelity of behavioural interventions is lacking and this would be a useful practice-informing topic for future research.

Are there core areas or factors that can be generalised across topics?

I have experience in promoting changes in diet, physical activity, medication use (as part of the self-management of asthma and diabetes) and to a small extent smoking behaviour. Based on this, it is clear that people attempting to change these behaviours vary in terms of a) *what motivates* them to want to change b) *what barriers* to change they encounter and c) the *specific information and skills* they need in order to succeed. The specific information and training needed to address these elements will vary from intervention to intervention. However, I would suggest that the same core processes apply to promoting change in each of these behaviours. These core processes are:.

Getting Motivated: This should not be taken for granted, even if people have 'turned up' for the intervention – motivation still needs to be consolidated, made explicit and maximised /reinforced.

Deciding what to do: This involves gaining information and making a plan of action. It may include making a coping plan about how to pre-empt and address potential barriers.

Keeping Going: i.e. Maintenance. This may be facilitated for instance by the use of self-regulation techniques or other theoretically driven techniques to support maintenance (as discussed above)

In implementing these core processes, it also makes sense to think in terms of what are the social and emotional (or hedonic) influences on the behaviour and how these might influence the above processes (e.g. what are the social influences on motivation and barriers to change; what changes can people make to their diet without reducing their enjoyment of food).

Delivery style: The issue of where the intervention sits on the spectrum of directive vs. person-centred is critical and needs to be specifically covered in the training course. The teaching of techniques to build empathy is essential if the course has a patient-centred counselling /empowerment /shared decision-making element.

Mode of delivery may also impact on training – for example, in group-based interventions, the teaching of group facilitation skills is important.

Finally, it is worth noting that, in a review of group-based behaviour change intervention in weight loss (through diet and physical activity) interventions, only 10 out of 125 articles reported that any kind of training had been provided in group facilitation skills.[15] Given the prominence of group-based formats for behavioural

intervention, more research is needed to understand better how intra-group processes might help to generate change in group-based interventions, and how facilitators can be trained to maximise such effects.

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