



EUROPE

THE ARTS
CHILD POLICY
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND
HOMELAND SECURITY
TRANSPORTATION AND
INFRASTRUCTURE
WORKFORCE AND WORKPLACE

This PDF document was made available from www.rand.org as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore [RAND Europe](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).

This product is part of the RAND Corporation technical report series. Reports may include research findings on a specific topic that is limited in scope; present discussions of the methodology employed in research; provide literature reviews, survey instruments, modeling exercises, guidelines for practitioners and research professionals, and supporting documentation; or deliver preliminary findings. All RAND reports undergo rigorous peer review to ensure that they meet high standards for research quality and objectivity.

TECHNICAL REPORT

How the Department of Health Influences healthy living

The use of behaviour change
programmes in public health

Lila Rabinovich, Claire Celia,
Philipp-Bastian Brutscher, Annaliijn Conklin

Prepared for the UK National Audit Office

The research described in this report was prepared for the UK National Audit Office.

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

RAND® is a registered trademark.

© Copyright 2009 RAND Corporation

Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Copies may not be duplicated for commercial purposes. Unauthorized posting of RAND documents to a non-RAND Web site is prohibited. RAND documents are protected under copyright law. For information on reprint and linking permissions, please visit the RAND permissions page (<http://www.rand.org/publications/permissions.html>).

Published 2009 by the RAND Corporation
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
1200 South Hayes Street, Arlington, VA 22202-5050
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665
Westbrook Centre, Milton Road, Cambridge CB4 1YG, United Kingdom
RAND URL: <http://www.rand.org>
RAND Europe URL: <http://www.rand.org/randeurope>
To order RAND documents or to obtain additional information, contact
Distribution Services: Telephone: (310) 451-7002;
Fax: (310) 451-6915; Email: order@rand.org

Contents

Table of Figures.....	v
Table of Tables.....	vii
Executive summary	1
Acknowledgements	7
CHAPTER 1 Introduction	9
1.1 Background.....	9
1.2 Defining the unit of analysis.....	10
1.3 Objectives of this study	11
1.4 Methodology.....	12
CHAPTER 2 Analytical framework.....	15
2.1 A theory of behaviour.....	15
2.2 Models of behaviour change.....	18
2.3 Bringing together the different models of behaviour change	21
2.4 A framework to analyse DH behaviour change initiatives	22
2.5 Closing remarks.....	22
CHAPTER 3 Behaviour change campaigns in the UK.....	25
3.1 FRANK campaign.....	26
3.2 Change4Life.....	29
3.3 Know Your Limits.....	34
3.4 5-a-day	37
3.5 Closing remarks.....	40
CHAPTER 4 Theory and DH initiatives	43
4.1 Behaviour change theory and current behaviour change initiatives.....	43
4.2 Why map current practice onto insights from theory.....	47
4.3 Closing remarks.....	48
CHAPTER 5 Influencing healthy living: perspectives from the inside.....	49
5.1 Changing approaches to promoting healthy living.....	49
5.2 Components of behaviour change programmes	53

5.3	Implementing effective behaviour change programmes	54
5.4	Future challenges for behaviour change initiatives.....	55
5.5	Closing remarks.....	56
CHAPTER 6 International evidence on the effectiveness of behaviour change programmes		
	change programmes	57
6.1	Evidence on the effectiveness of behaviour change campaigns	58
6.2	Characteristics of effective campaigns	61
6.3	Why are some campaigns ineffective?.....	63
6.4	Impact of contextual factors.....	64
6.5	The impact of target population characteristics	65
6.6	Closing remarks.....	66
CHAPTER 7 Challenges in evaluating behaviour change initiatives		
	7.1 Evaluation challenges.....	69
	7.2 Closing remarks.....	72
CHAPTER 8 Final remarks.....		
	73	
REFERENCES.....		
	Reference list.....	75
		76

Table of Figures

Figure 2-1: Simplified theory of Planned Behaviour - adapted from Davies <i>et al</i> , 2002.....	16
Figure 2-2: Theory of Planned Behaviour - adapted from Davies <i>et al</i> , 2002.....	17
Figure 2-3: Extended Theory of Planned Behaviour.....	18

Table of Tables

Table 2-1: Models of Behaviour Change.....	20
Table 2-2: Linking up Models of Behaviour Change.....	21
Table 3-1: Change4Life targets	32
Table 4-1: Mapping current initiatives onto behaviour change theory.....	44
Table 6-1 Overview of countries covered in meta-analyses or reviews included in the literature review by health topic area of interest.....	58

Executive summary

Initiatives aimed at influencing the behaviour of citizens to improve individual and societal outcomes have been systematically used by governments (as well as by non-governmental bodies) for decades in many fields including transport, education, crime and health. Such initiatives are very prominent in the public health field, where they typically focus on aspects of people's lifestyles which can lead to adverse health outcomes, such as hazardous alcohol consumption, tobacco smoking, drug use, bad diet, lack of physical exercise, and risky sexual behaviour.

Governments typically use a range of measures to influence or shape the behaviour of citizens, including laws and regulations, fiscal incentives, and the provision of certain infrastructure (such as speed bumps to reduce speed, donor liaison 'sisters' in hospitals to encourage organ donation, cycle paths to encourage cycling). In addition, governments use programmes ranging from media-based information and awareness campaigns to more comprehensive programmes including targeted service delivery, training and so forth to positively influence behaviour. The latter, which are the focus of this study, are very common in the UK and elsewhere, and significant financial resources are spent on them; in the UK, for example, around £115 million is spent annually on public health marketing campaigns (DH, 2009(a)). It is worth briefly noting the distinction between awareness raising and behaviour change, which can be confused or conflated. As discussed in more detail throughout the report, awareness raising activities are one component of behaviour change activities, a tool to promote behaviour change (which may be effective or not, and this varies widely), but not the only one. There is growing recognition that awareness raising is not always sufficient to bring about behaviour change, and that more comprehensive behaviour change initiatives that address other determinants of behaviour than merely knowledge and awareness (such as environmental constraints, subjective opinions, social norms etc) also need to be tackled.

Against this background, the National Audit Office has commissioned a study to examine the use of behaviour change campaigns in today's Department of Health (DH). More specifically, as requested in the research brief, the study aims to improve understanding of the importance, nature and impact of behaviour change programmes in today's DH. This executive summary presents the key findings from the research to address the NAO's research questions.

Existing theoretical models of behaviour and behaviour change can be used to plan, engage critically with, and more clearly articulate, the 'intervention logic' of particular behaviour change initiatives.

The theoretical models of behaviour and behaviour change enable us to understand the underlying link between a particular activity and the mechanism through which it aims to change behaviour. Mapping information about particular behaviour change initiatives onto these theoretical models can be a useful tool to plan, engage critically with, and more clearly articulate, the ‘intervention logic’ of particular behaviour change initiatives.

This is, of course, only one possible approach to structuring our understanding of how initiatives and programmes aim to influence behaviour. The use of insights from the empirical literature on the effectiveness of behaviour change programmes can also be used in planning, critically examining, and communicating about such activities.

Current health behaviour change initiatives in the UK have varying degrees of comprehensiveness

A preliminary analysis of four DH behaviour change initiatives (*FRANK*, *Change4Life*, *Know Your Limits* and *5-a-day*), using a theoretical model of behaviour change, sheds light on some of the differences between these campaigns. The *Change4Life* programme seems to be the most comprehensive not just in the types of activities it includes but also in the mechanisms through which it aims to effect behaviour change. This may be at least in part a result of this particular programme having been developed following the social marketing approach; because this approach encourages a more thorough understanding of what affects people’s choices, it may lead to greater focus on multiple determinants of behaviour. From the data and materials we examined, the other three programmes tend to focus on two or three of the determinants, and not always in a systematic and deliberate way (for instance, *Know Your Limits* addresses perceived behavioural control but from the materials reviewed, it is not clear how it seeks to address this, other than by providing information on units and harms from excessive alcohol consumption). Also, only *5 a day* and *Change4Life* seem to have engaged directly with the actual behaviour control determinant, for example by setting up cooking classes and transport to markets and shops. Why these differences exist, and what their impact might be, are questions that would require further research.

Understanding of behaviour change among practitioners and policy-makers has evolved in the last few years

In 2002, the Wanless report highlighted the importance of understanding the ways in which future demand for health care could be reduced through health promotion activities. The 2006 report *Choosing Health* stated that the persistent and new public health problems affecting the UK call for “a step change in health improvement [that] will involve millions of people making different choices about the things they do in everyday life which impact on their health” (DH, 2006, chapter 1, p.16), and argues for “developing a new demand for health” (ibid, p. 12). Later that year, *It’s Our Health* concluded that “continuing with existing methods and approaches was not going to deliver the type of impact on key health-related behaviour that was needed” (NCC, 2006: p. 7) and recommended that the government, and the DH in particular, adopt a *social marketing strategy* for health promotion and improvement. The establishment of the National Social Marketing Centre in December 2006 clearly signaled the government’s commitment to developing new approaches to improving and promoting health (although the concept of social marketing has been in use for over two decades now).

In spite of its growing popularity and usage in the international public health community, social marketing is not understood in a uniform way

A review of international literature on health promotion suggests that social marketing is sometimes perceived as a predominantly promotional, or even more narrowly, a communication activity, rather than as a programme-planning process that applies commercial marketing concepts and techniques to promote voluntary behaviour change.

In the UK, social marketing has been defined by the National Social Marketing Centre (NSMC), as “the systematic application of marketing, alongside other concepts and techniques, to achieve specific behavioural goals, for a social good”.¹ In addition, the NSMC offers a definition of *health-related* social marketing specifically: “the systematic application of marketing, alongside other concepts and techniques, to achieve specific behavioural goals, to improve health and to reduce inequalities”.² Most of the key elements of a social marketing approach identified by the NSMC are broadly the same as those in much of the peer-review academic literature; namely, exchange theory, audience segmentation, competition, the ‘marketing mix’, and consumer orientation.

Not all the elements of social marketing appear to be equally salient, according to interviewees for this research

The definitions and understandings of social marketing did not vary significantly within the group of interviewees, nor were they significantly different from that offered by the NSMC. In particular, interviewees largely recognised and highlighted some of what the NSMC poses as the key features of a social marketing approach, most notably “audience segmentation”, a strong “consumer orientation”, and a clear understanding of “behaviour and behavioural goals”. Nevertheless, other important aspects of the social marketing approach were much less frequently mentioned, for example the use of (commercial) marketing techniques to achieve the desired goals, and the “exchange” element of social marketing, which entails recognising that social marketing offers benefits that customers value, but for which they often incur costs (Grier and Bryant, 2005). The latter point was emphasised by only two interviewees, one of whom argued more broadly that social marketing is also a tool to help design better services which will “please and attract consumers”. Social marketing, they argued, goes beyond changing people’s behaviour; it is also about helping service providers understand their ‘customers’ and improve service provision.

The importance of ‘regionalising’ national behaviour change programmes was highlighted by many interviewees

According to interviewees, ‘regionalisation’ is key to the effective targeting and delivery of initiatives to influence healthy living because regional and local authorities and agencies are better able to accurately assess the needs and attitudes of people in their communities. However, the resources necessary for effective ‘regionalisation’ are not uniformly available; it is often easier to mobilize resources for public health issues that are of particular policy or political priority.

¹ Available at: <http://www.nsms.org.uk/public/default.aspx?PageID=10> (last accessed May 2009).

² Available at: <http://www.nsms.org.uk/public/default.aspx?PageID=10> (last accessed May 2009).

There was widespread agreement among the interviewees that effective behaviour change activities in public health needed to include more than media-based campaigns

Nevertheless, there was little agreement among interviewees regarding what, in addition to information provision, a programme to promote healthy living should consist of. Some interviewees argued that effective behaviour change programmes needed to include initiatives and services that made it easier for people to choose healthier lifestyles. Others highlighted the importance of comprehensive programmes that included a range of measures, from messages delivered through the media, to improvements in the delivery of relevant services, to the provision of incentives (such as increased taxes on alcohol or tobacco, which raise prices and can lead to lower consumption).

There are a number of challenges associated with the widespread implementation of behaviour change initiatives

Most interviewees agreed that funding is an important confounder. Two main issues were identified in this respect. First, annual budgets, which to a large extent are set historically, place serious limitations to the scope and nature of health promotion initiatives. One interviewee gave the example of funding for alcohol-related programmes, which has historically been low (often less than £10 million), whereas *Change4Life*, a comprehensive programme to promote diet and exercise and prevent obesity has an annual budget of £90 million, which this interviewee considered more adequate given the expected impact. A second, related challenge mentioned by interviewees was that funding for regional initiatives within a wider programme for behaviour change is often extremely limited.

Another challenge identified by some interviewees, particularly Regional Directors of Public Health (RDoPH), was the lack of piloting and evaluations that would enable them to more effectively design, implement and target initiatives.

A review of the empirical literature identifies a number of important characteristics of effective public health behaviour change programmes

The literature suggests that behaviour change programmes are most effective when they seek to eliminate or reduce access barriers to healthier lifestyle choices, and when they include a wide range of initiatives. In addition, there is evidence that developing a more accurate understanding of determinants of behaviour change according to each target group can help develop effective programmes. Greater duration and frequency of activities are associated with greater behaviour change and awareness of the messages of a campaign or programme by the target population.

Factors external to a campaign can enhance, or act as barriers to, its success

Research has indicated that factors such as unemployment, lack of social support, living in an unsafe neighborhood, not having enough financial resources to meet food and medical care needs as well as having caring responsibilities all play a part in increasing the likelihood that someone will take up smoking and become regular smokers. Equally, recent research has focused on the role of “obesogenic” environments (i.e. environments encouraging consumption of energy and discouraging expenditure of energy) in increasing the number of dangerously overweight people. Some of the factors that create this type of environment include: easy availability of a wide variety of good-tasting, inexpensive,

energy-dense foods in large portions, reductions in jobs requiring physical labour, reduction in energy expenditures at school and in daily living, and an increase in time spent on sedentary activities such as watching television, surfing the Web, and playing video games. It is clear that some of these factors pose significant hurdles to behaviour change initiatives which are trying to counter their influence.

A key element of effective approaches is programme evaluation, as they enable authorities, practitioners and other stakeholders to learn lessons about what works and what does not, and enables assessments of the returns on investments in such programmes

Evaluations of programmes to influence behaviour are not straightforward, and many considerations need to be taken into account in deciding how best to conduct such an assessment. Some of the issues that need to be considered for the evaluation of behaviour change programmes include: the sustainability of campaigns and programmes, the unintended consequences of campaigns and programmes, the magnitude of campaign and programme effects, influencing contextual factors, the interaction between message content and delivery, and the attribution of programme effects to external factors.

Acknowledgements

In researching this report we received invaluable assistance from a number of people. First, we would like to thank the National Audit Office for giving us the opportunity to conduct this study. In particular, we are grateful to Grace Beardsley and Mark Davies, who provided very helpful input throughout the study. Thanks also to Prof. Gregory Maio, who reviewed and provided valuable feedback and suggestions on an earlier draft of this report, and to the Regional Directors of Public Health and DH staff who kindly agreed to be interviewed for the study. Finally, within RAND, we would like to thank Dr. Chris van Stolk and Dr. Ruth Levitt, the project's quality assurance reviewers. Any errors remain our own.

1.1 **Background**

Initiatives aimed at influencing the behaviour of citizens to improve individual and societal outcomes have been systematically used by governments (as well as by non-governmental bodies) for decades in many fields including transport, education, crime and health. Such initiatives are very prominent in the public health field, where they typically focus on aspects of people's lifestyles which can lead to adverse health outcomes, such as hazardous alcohol consumption, tobacco smoking, drug use, bad diet, lack of physical exercise, and risky sexual behaviour. Other areas of public health in which initiatives to influence behaviour have been used include blood pressure control, seatbelt use, care of babies to prevent Sudden Infant Death Syndrome, intake of folic acid during pregnancy and immunization, among others. Efforts to positively influence people's choices that affect their health are considered by policy-makers, practitioners and observers to be of great importance as a policy lever, as health outcomes are understood to be determined much more significantly by people's behaviour than by the quality of secondary health care (Halpern *et al.*, 2004).

Governments typically use a range of measures to influence or shape the behaviour of citizens. Examples of such measures include: laws and regulations, fiscal incentives, and the provision of certain infrastructure (such as speed bumps to reduce speed, donor liaison 'sisters' in hospitals to encourage organ donation, family-nurse partnership to improve parenting skills, cycle paths to encourage cycling). In addition, governments use programmes ranging from media-based information and awareness campaigns to more comprehensive programmes including targeted service delivery, training and so forth to positively influence behaviour.

These programmes, which are the focus of this study, are very common in the UK and elsewhere, and significant financial resources are spent on them; in the UK, for example, around £115 million is spent annually on public health marketing campaigns alone (DH (a), 2009). However, there is debate surrounding the efficacy of such programmes, particularly in the public health field. An extensive body of research exists which has examined the effectiveness of behaviour change campaigns and programmes in influencing people's health-related behaviour (Snyder and Hamilton, 2002). There is also research on the cost-effectiveness or cost-benefit of these types of interventions, although this research is more limited. A significant proportion of this research originates from countries such as

the United States, Canada and Australia. Comparatively less is known about the impacts of public health programmes and campaigns to positively influence behaviour in the UK.

Understanding the theory and empirical evidence behind what works in influencing behaviour is important, but the analysis can be confounded by the various definitions and understandings of what constitutes a programme to influence behaviour. Thus, in order to strengthen our understanding of behaviour change and behaviour change campaigns, we first need to address this issue.

1.2 Defining the unit of analysis

As mentioned above, governments use many types of measures to influence or shape people's behaviours. A range of different terms has been used in the literature to refer to these kinds of initiatives. Some of these terms have included: social marketing, social advertising, and communication, education, information and/or awareness campaigns. Typically, these initiatives are understood to ultimately aim to persuade or influence individuals to make better choices through the provision of information or through a marketing approach (see for example Halpern *et al.*, 2004). But while the overall aim tends to be similar, the underlying logic, structure, content and implementation of these initiatives vary significantly.³

As this document discusses in later chapters, programmes to influence behaviour have been structured in various ways. For instance, they have been targeted at the general population or particular groups; delivered through mass media channels only or in conjunction with other channels such as schools or hospitals; provided only factual information or included 'branding', emotive messages and other approaches; and consisted of information provision only or included a range of other activities. The diverse terminology and variety of approaches mean that 'initiatives/programmes to influence behaviour' is a rather slippery unit of analysis.

In this study, we refer to *programmes*, *initiatives* and *activities* to change or influence behaviour, or to promote healthy choices, indistinctly. The use of *campaign*, however, will vary; when discussing a particular initiative, we use the term used in the literature to refer to it, whether it is campaign, programme or another term. The terms most widely used in the literature we examine in Chapter 6 include: (mass) media campaigns, interventions, strategies, programmes and counter-marketing campaigns.

³ It is worth briefly highlighting the distinction between awareness raising and behaviour change, which can be confused or conflated. As will be discussed in more detail in subsequent chapters, awareness raising activities are one component of behaviour change activities, a tool to promote behaviour change (which may be effective or not, and this varies widely), but not the only one. There is growing recognition that awareness raising is not always sufficient to bring about behaviour change, and that more comprehensive behaviour change initiatives that address other determinants of behaviour than merely knowledge and awareness (such as environmental constraints, subjective opinions, social norms etc) also need to be tackled.

1.3 Objectives of this study

Against this background, the National Audit Office has commissioned a study to examine the use of behaviour change campaigns in today's Department of Health (DH). More specifically, as specified in the research brief, the study aims to:

- improve understanding of the importance, nature and impact of behaviour change programmes in today's DH;
- examine the organisational aspects that affect these activities, and identify their strengths and weaknesses;
- shed light on key trends and strategic issues for the DH and the NHS which make behaviour change activities an increasingly significant priority in their work;
- provide guidance on best practice in the evaluation of such programmes;
- forecast the likely future priority which will be attached to behaviour change programmes and activities by the DH and NHS in coming years, and;
- suggest themes and topics which would contribute to the NAO's health value-for-money programme in coming years.

The RAND Europe research team conducted the research using a range of methods (described below), with findings from these various elements of the enquiry triangulated in a synthesis exercise. Given the tight scope and timeframe, the study is not meant as an exhaustive and comprehensive analysis of existing knowledge and of the activities of the DH in the field. Rather, the study aims to act as a springboard for further discussion and analysis, within the National Audit Office and beyond, about the nature and role of government initiatives to positively influence behaviour and choices in the coming years.

This report presents the findings of the research addressing these questions. In order to ensure that the NAO's multiple research questions are addressed in a structured way, the report is organised around three overarching issues:

- Understanding behaviour change programmes;
- Opportunities and challenges in using behaviour change programmes in the UK, and;
- Assessing the effectiveness of behaviour change programmes.

The first issue is examined in Chapters 2 to 4. Chapter 2 sets out an analytical/theoretical framework with which to understand how behaviour change programmes may work. Chapter 3 examines four current DH programmes to influence behaviour. Chapter 4 maps these four programmes onto the analytical framework presented in Chapter 2 and discusses the utility of using such an approach to analyse behaviour change initiatives. The second issue is addressed in Chapter 5, which presents findings from a series of interviews about current understanding of DH and NHS behaviour change work, and its opportunities and challenges. The third issue, on the effectiveness of behaviour change programmes, is discussed in Chapters 6 and 7. Chapter 6 presents international empirical evidence on the effectiveness of behaviour change programmes in public health. Chapter 7 discusses some

of the challenges around evaluating behaviour change initiatives, which draws on insights from the various elements of this study.

1.4 **Methodology**

The information for this study was gathered in three ways: a review of peer-reviewed and 'grey' literature on behaviour change programmes and campaigns; a review of materials (including websites, government publications, peer reviews and others) on a number of DH programmes, and; a number of key informant interviews. More details on these methods are provided below.

1.4.1 **Rapid review of existing research**

The rapid review of existing research aimed primarily to provide a theoretical framework and empirical context within which to place and understand activities to influence health-related behaviour in the UK. The framework is based on a review of the literature on behaviour change models more broadly. The purpose of the framework is to provide a basis to structure our thinking about behaviour change activities in public health in the UK. Whereas there are a number of empirical analyses and meta-analyses of these initiatives, the criteria on which they are based often appear rather ad hoc and rarely allow for cross-comparison between studies.

Given the tight scope of this project, this rapid review of empirical evidence focused primarily on existing meta-analyses and systematic reviews of the effectiveness of behaviour change programmes, focusing primarily on public health. We complemented this with a small number of individual studies where these were particularly relevant or offer unique insights.

A number of sources were used to identify relevant literature. First, searches for the main relevant literature (journal-based or independent) were conducted through databases, including PubMed, the Cochrane Library, Medline and NHS EED/HEED. Grey literature (i.e. reports, studies and press releases produced by professional associations, government, international organizations and other relevant bodies) was also consulted where relevant. These were obtained from sources including the Department of Health website, the National Social Marketing Centre website, and other organisations' websites such as Alcohol Policy UK.

1.4.2 **Review of materials**

As part of the examination of DH behaviour change programmes, we conducted a desk-based review of documents and materials on or related to particular programmes. These materials were obtained either through internet searches or directly from the DH (this was particularly the case with unpublished materials which were made available to us). The amount and nature of the materials found for the different programmes were varied, such that there was significantly more documentation and research on Change4Life than there was on the other programmes examined.

1.4.3 **Key informant interviews**

Thirteen key informant interviews were conducted in the course of this project with public health practitioners, including Regional Directors of Public Health and DH staff. The interviews aimed to tap the tacit knowledge and experience as well as formal knowledge of the interviewees on initiatives to influence behaviour in public health. The interviews followed a semi-structured format. A number of informant also sent additional written information following the interview.

In this chapter we discuss how theoretical frameworks have been used to understand what influences behaviour change. In doing so, this chapter provides a conceptual framework that can be used to facilitate planning, critical engagement with, and a deeper understanding of, the ‘intervention logic’ of particular behaviour change initiatives. It could, potentially, also help assessment of the likely effectiveness of behaviour change initiatives.

The chapter is structured as follows: we first outline one of the most prominent theories of behaviour – Ajzen’s Theory of Planned Behaviour (Ajzen, 1991). We then review a number of behaviour change models (at the individual, inter-personal and societal level) and discuss how they link up. In the final part of the chapter we show how Ajzen’s theory can be used to help structure thinking about DH behaviour change initiatives.

2.1 **A theory of behaviour**

There are many theories or frameworks to explain human behaviour. Darnton (2008b), the Australian Public Service Commission (2007), Halpern *et al* (2004) provide good overviews. For simplicity we focus on just one: the Theory of Planned Behaviour (Fishbein and Ajzen, 1975). So much work has been carried out on the basis of this framework that several critical reviews and meta-analyses have been published, both by the models’ authors and by others who have conducted evaluative surveys (Ajzen, 1987, 1991; Foks and Kiesler, 1991; Foxall, 1983, 1997a, 1997b; Lutz, 1991; Sheppard *et al*, 1988).⁴

The framework we set out here is very generic and makes very few behavioural assumptions – regarding, for example, human rationality, individual utility functions, discounting behaviour or the role of inter-subjective relations. In this sense the framework is

⁴ Nevertheless, the theory is not without problems. As is true for all models, Ajzen’s theory is deliberately simple and does not capture all the factors that account for behavioural outcomes. In addition, it focuses on the individual level. That is, it is concerned with the factors that influence behaviour from within an individual’s own psyche. There are other models which include factors shaping individual behaviour from higher levels of scale.

compatible with many other models of human behaviour.⁵ This framework can be a useful tool to structure our thinking about models of behaviour *change*, and help us establish a basis to discuss some of the different initiatives by the Department of Health (as will be explained in more detail below).

In its simplest form Ajzen's Theory of Planned Behaviour states that the immediate antecedent of any behaviour is the *intention* to perform a certain behaviour.⁶ This means that, for example, an individual's sport activity is determined largely by his or her intention to do sports. The theory also specifies two determinants of intention. One is *attitude* towards the behaviour, and refers to the degree to which a person has a favourable or unfavourable evaluation of the behaviour in questions ("I think doing sports is important"). The second determinant is *social norm*. It refers to the perceived social pressure to perform or not perform a certain behaviour ("My friends are going to judge me if I don't do any sport"). A schematic representation of the relationship between the key elements is presented in the figure below.

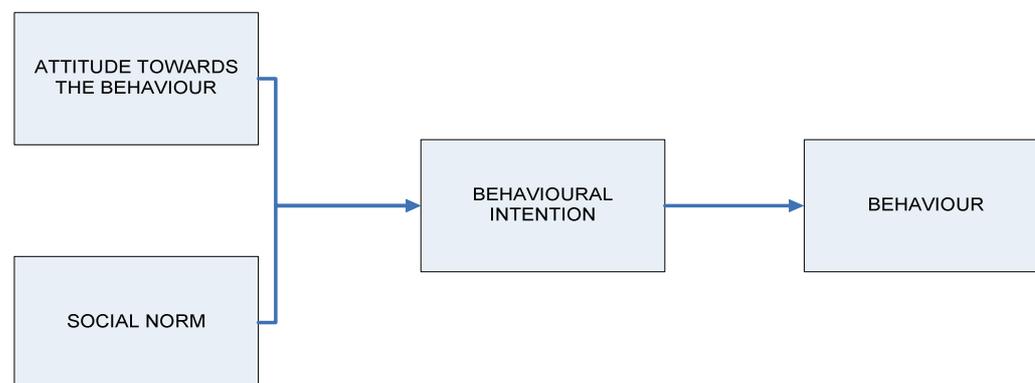


Figure 2-1: Simplified theory of Planned Behaviour - adapted from Davies *et al*, 2002

A problem with this simplest version of the Theory of Planned Behaviour is that it only applies to behaviour under volitional control – while even the most mundane activities can be subject to conditions beyond a person's control; for example a person may intend to go to the gym only to discover that the gym is closed. To explain behaviour not completely under volitional control Ajzen and Madden introduced a further antecedent to intentions and behaviour – which is perceived behaviour control. This is illustrated in the figure below.

⁵ See for example: Thaler and Sunstein, 2008. Other models of behaviour can also provide useful insights (e.g. Fazio, 1990), but given time constraints we use Ajzen's model in this study as an illustration of how existing theoretical approaches can be used to gain insights into behaviour change activities.

⁶ This is often referred to Theory of Reasoned Action

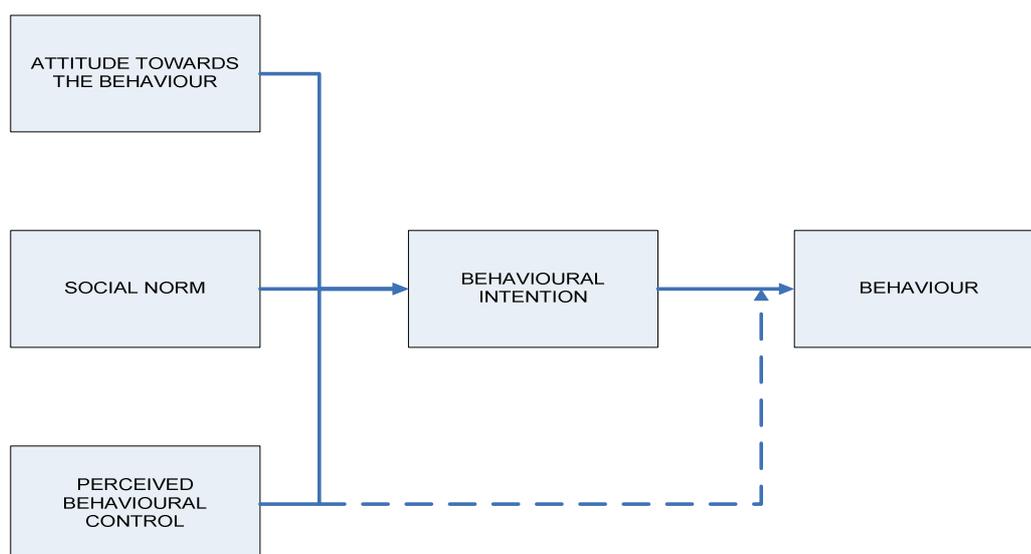


Figure 2-2: Theory of Planned Behaviour - adapted from Davies *et al*, 2002

The importance of *actual* behavioural control is clear: the resources and opportunities available to a person (such as an open gym) dictate, at least to some extent, the likelihood of a behavioural achievement (e.g. working out at the gym). *Perceived* behavioural control emphasises people’s perception of behavioural control (“I think the gym is closed anyway”) – which is in addition to their actual behavioural control.

The idea of perceived behavioural control is that people’s behaviour is strongly influenced by their confidence in their ability or capacity to perform it as much as by their actual ability to perform it. A large body of research shows that self-efficacy beliefs (“I am just too unfit to go to the gym. I might die”) can influence choice of activities, preparation for an activity and effort expended during an activity (Bandura, 1982, 1991).

2.1.1 Extensions to the theory

Despite its wide application the Theory of Planned Behaviour is not without criticism. The main one is that it is underspecified (i.e. specifies too few determinants of intention/behaviour) when there is much evidence that adding further factors/determinants adds predictive power. The most important extensions to the theory that have been suggested in the literature are: habit; affect (and emotions) and moral norms.

Habit

Some researchers (e.g. Bentler and Speckart, 1979; Fredricks and Dossett, 1983) have suggested that past behaviour should be included as a further determinant of behaviour. The assumption usually made is that repeated performance of a behaviour results in the establishment of a habit; behaviour at a later time then occurs at least in part habitually – i.e. without the mediation of attitudes, subjective norms, perceptions of control, or intentions (“I go to the gym because I have always gone to the gym”).

Affect

Behavioural scientists have been suggested that, at least in certain contexts, looking at attitudes per se is too broad. Instead we need to distinguish between different kinds of

attitudes. In the Theory of Planned Behaviour no clear distinction is drawn between *affective* and *evaluative* attitudes (Abelson, 1963). Some investigators have suggested that it is useful to distinguish between the two – i.e. “hot” (affect) and “cold” (evaluation) cognitions. (“I love going to the gym” versus “I know that going to the gym is good for me”).

Moral Norms

Similarly, some researchers have suggested that just as it is possible to distinguish between different kinds of attitudes, it is possible to distinguish between different kinds of normative pressures (Gosuch and Ortberg, 1983; Pomoza and Jaccard, 1976; Schwartz and Tessler, 1972).

The idea is that we need to consider not only perceived *social* pressures but also *personal* feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behaviour (“I feel I have to go to the gym to be a good role model to my children”). The figure below adds the three elements (habit, affect and moral norms) to the Theory of Planned Behaviour.

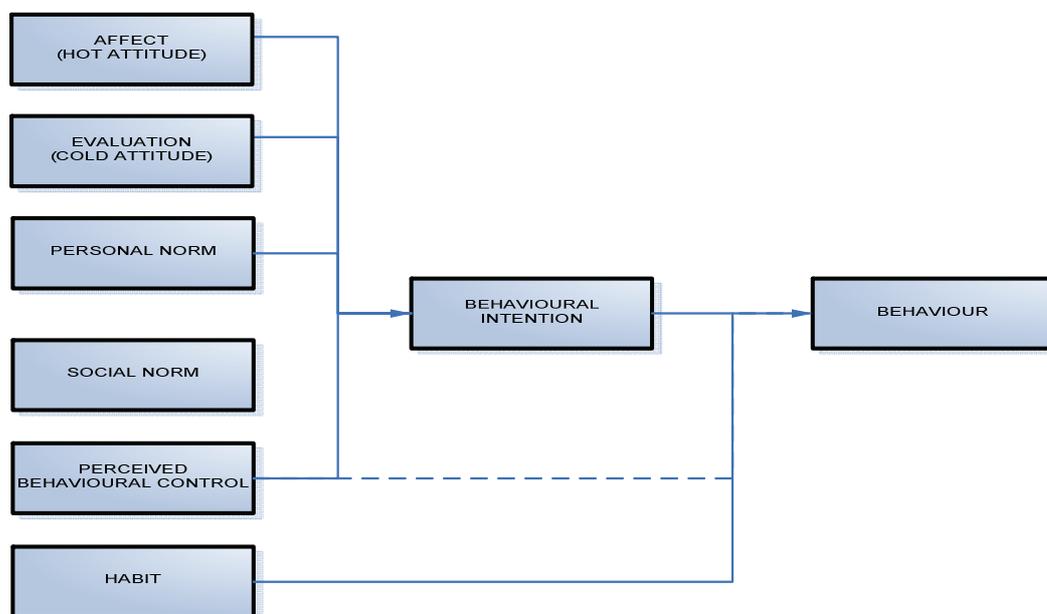


Figure 2-3: Extended Theory of Planned Behaviour

2.2 Models of behaviour change

Understanding the determinants of behaviour enables limited insights into how these determinants can be changed. As an example, if we know that lack of physical exercise is often driven by a certain attitude towards sports, this does not tell us anything about how we can change this attitude.

Behaviour change models are attempts to fill this gap by specifying how behaviour can be *changed*. Behaviour change models have been used in a wide array of circumstances (ranging from encouraging people to recycle their waste to buying new products). Over the

past five years there have been several UK government reports reviewing existing models of behaviour change - including the UK Strategy Unit publication *Personal Responsibility and Changing Behaviour: the State of Knowledge and its Implications for Public Policy* (2004); *Behaviour Change Knowledge Review* (2008), by the UK Government Social Research Unit; and the Australian Public Service Commission's paper *Changing Behaviour: A public Policy Perspective* (2004).

The table below provides a summary of some prominent behaviour change models. The idea is to illustrate the diversity of behaviour change models. In line with most of the literature in the field we divided the models into models operating at the individual level; the inter-personal level; and the societal level (Australian Public Service Commission, 2007). In the next section we will then discuss how the different models relate to each other – using Ajzen's simple framework discussed above.

Table 2-1: Models of Behaviour Change

Behaviour Change Model	Description
Individual Level Theories	
Conditionality Theory	Conditionality Theory holds that behavioural change is achieved through linking unconditioned stimuli, such as food, to other stimuli, such as a bell. Until 15 years ago, for example, advertising tried to make smoking more attractive to Europeans by linking it to fun, sexual attractiveness, glamour and sophistication.
Cognitive Consistency Theory	The theory states that behaviour change can be achieved by extracting a commitment from people to behave in a way that is consistent with their beliefs and attitudes. Research shows, for example, that “extracting a promise from restaurant-goers [...] that they will call if they change plans reduces “no-shows” compared to simply asking customers to do so.” (Australian Public Service Commission, 2007)
Social Cognitive Theory	Social Cognitive Theory states that behaviour change can be induced by increasing self-efficacy. Self-efficacy refers to a person’s confidence in their ability or capacity to take action and to persist with that action such as persisting with lifestyle changes for health or environmental reasons. Self-efficacy can be increased in a variety of ways – including by rewarding achievement.
Interpersonal Level Theories	
Authority Theory	The theory suggests that behaviour can be changed by using authority. The idea is that most people readily comply with authority they consider legitimate. The most famous example from social science research is the willingness of people participating in an experiment to administer electric shocks to others, ostensibly as a form of teaching, under the instruction of an authoritative experimenter.
Reciprocity Theory	Reciprocity Theory states that people’s behaviour can be influenced by giving them the sense that they are in some sort of debt. The model is reflected in marketing techniques of wine tasting – where people after tasting wine at vineyards often feel obliged to buy wine.
Societal Level Theories	
Social Capital Theory	Social capital theory suggests that whatever behaviour change initiative, it is more likely to be successful in a closely linked-up community (with close relationships and norms). One of the mechanisms underlying this is that communities with higher social capital allow for quicker flows of information related to behaviour change initiatives.
Diffusion of Innovation Theory	Diffusion of innovation theory is that behaviour change can be influenced by means of ‘sneezers’ – i.e. people that are trusted by people. These people tend to be skilled socially and good at absorbing information and news. The main implication of the diffusion of innovation theory is that any organisation in order to communicate successfully, should aim to influence and engage with sneezers in the first place.

2.3 Bringing together the different models of behaviour change

The different models of behaviour change as addressing different (sets of) determinants of behaviour. A common feature of many of these behaviour change models is that they do not engage with how the different models can be helpful in a public policy context, failing to ask, for example, what model is most appropriate, in what situation and why; whether models are substitutes or complements and, to the extent that they are complements, whether they should be used at the same time or sequentially.

In this section we use Ajzen's simple theory of behaviour to illustrate how the different models of behaviour change link up. As an example, Conditionality Theory suggests that behaviour can be changed by changing attitudes – "I like going to the gym, because I associate it with good health and stunning looks" – while Cognitive Consistency Theory suggests that behaviour can be changed by exploiting people's moral feelings - "I go to the gym, because I said last week I would come". The table below (Table 2-2) gives a brief summary of how the different behaviour change models map into Ajzen's theory.

Table 2-2: Linking up Models of Behaviour Change

Behaviour Change Model	Determinant(s) primarily addressed	Explanation/Example
Conditionality Theory	Attitudes (hot and cold)	"I like going to the gym, because I associate it with good health and stunning looks."
Cognitive Consistency Theory	Personal norm	"I go to the gym, because I said last week I would come."
Social Cognitive Theory	Perceived behavioural control	"I go to the gym, because I do not give up."
Authority Theory	Social norm	"I go to the gym, because my wife forces me to go."
Reciprocity Theory	Personal norm	"I go to the gym, because I used to date my instructor and now feel obliged to go."
Social Capital Theory	Perceived behavioural control	"I go to the gym, because I know that my friends will support me."
Diffusion of Innovation Theory	Social norm	"I go to the gym, because all the interesting people I know go to the gym."

Several interesting observations flow from this mapping exercise. Firstly, most models of behaviour change focus on one determinant of behaviour only. This may explain why certain initiatives (that are based on just one behaviour change model) sometimes work and other times do not; to the extent that there is a whole range of determinants of behaviour, changing one determinant may or may not be sufficient to change behaviour.

As an example, among a group of young people who understand the importance of doing sports, who like doing sports, and who live in a social environment that encourages exercise, providing them with e.g. a basketball court (i.e. changing actual behavioural control) is more likely to result in sports activity than in a situation where the group of young people is neither motivated nor encouraged to do sports.

If one initiative is not sufficient in a particular situation but requires the implementation of a number of initiatives, there is then a question about the sequence in which these should

be put in place; is it, for example, more appropriate to launch all initiatives at the same time, or should certain initiatives be started before others?

In fact, there is a large body of literature which discusses exactly this question. For example, Prochaska and DiClemente (1983) argue that attitudes should generally be addressed before norms, and norms should be addressed before behavioural controls. According to this view, therefore, in the example from above, people should be made aware of the importance of doing sports before appealing to their social and personal norms, and before providing them with a basketball court.

2.4 **A framework to analyse DH behaviour change initiatives**

Just as using Ajzen's Theory of Planned Behaviour can help to structure our thinking about models of behaviour change (as outlined in the last section) it can serve as an analytical tool to think about the DH initiatives reviewed in Chapter 5.

The idea is to capture, for every initiative, what determinants of behaviour it addresses (ranging from hot and cold attitudes to social norms to behavioural controls) etc. In the absence of much empirical evidence, this allows us to assess how likely these initiatives are to be successful given the performance of similar initiatives addressing the same determinants.

It is important not only to look at the determinants that are being addressed by an initiative (e.g. building a basketball court) but also all other determinants (such as attitudes or social norms). As discussed earlier, whether an initiative takes place in a favourable environment (where, for example children have a positive attitude towards playing basketball) or an unfavourable one (where they do not) is likely to affect the effectiveness of a programme to influence behaviour.

In addition, capturing what determinants the different initiatives address allows us to get an impression as to whether the DH tend to address the whole spectrum of determinants or focus on one or two determinants exclusively. This is relevant because, as mentioned before, the literature suggests that successful initiatives typically require (depending on the context) a whole set of initiatives addressing a range of factors influencing behaviour change.

Finally, making sure we understand what determinants of behaviour the different DH initiatives address is interesting because it allows us to illustrate whether and to what extent the initiatives are based on an overall strategy that carefully combines different initiatives or not. Again, as discussed earlier, the literature suggests that the sequence of behaviour change initiatives is critical for the ultimate success of an initiative (e.g. to make people go to the gym more often).

2.5 **Closing remarks**

This chapter presents a theoretical basis for understanding the determinants of behaviour change, which can be used (as we illustrate chapter 4) to plan, engage critically with, and more clearly articulate, the 'intervention logic' of particular behaviour change initiatives.

This is, of course, only one possible approach to structuring our understanding of how initiatives and programmes aim to influence behaviour. The use of insights from the empirical literature on the effectiveness of behaviour change programmes can also be used in planning, critically examining, and communicating about such activities. In the next chapter, we provide details of four current DH behaviour change initiatives, which are then mapped onto the analytical framework presented here.

The theoretical and empirical approaches outlined in the previous two chapters aim to provide further insights into the challenges and opportunities of current approaches to influencing healthy living in the UK. This can be most effectively done by examining specific initiatives in more detail, which is the focus of this Chapter.

This Chapter looks at four behaviour change initiatives undertaken by the Department of Health:

- **Frank**, which focuses on the risks and dangers of drug use
- **Change4Life**, which centers on obesity prevention in children under the age of 11;
- **Know Your Limits**, a joint campaign between the DH and the Home Office to raise awareness of the dangers of excessive alcohol consumption; and
- **5 a day**, the campaign that encourages people to eat at least 5 portions of fruit and vegetables a day.

These campaigns were chosen as they represent some of the most salient current initiatives in the public health field, and were mentioned by interviewees as four of the most notable examples of this kind of activity, in spite of their significant differences in focus, structure and implementation. While recognizing that examining only four behaviour change programmes limits the extent to which we can make general statements about the overall use of such activities, the limited scope and timeframe for this project meant that other potentially informative programmes had to be excluded. Department of Health initiatives such as *Stroke – Act F.A.S.T*, *Condom Essential Wear*, the *Smokefree* programme and *Hepatitis C: Are You at Risk?* could also be examined in future research to gain useful insights. It is worth noting, however, that with the exception of smoke free initiatives, none of these were mentioned by interviewees in this study. Initiatives from other government departments could, equally, enable interesting insights about the wider use and understanding of how to influence behaviour change to improve outcomes; in this study we focused only on DH activities, following the specification of the National Audit Office.

For each of these campaigns, we have aimed to assess how they have been defined (i.e. what terms have been used to publicise the campaign and what this implies); which objectives and targets have been set for the campaign; its components and any evidence of impact and effectiveness of the campaign. In addition, where information was available, we

have also included details of any pre-campaign work that was carried out, more detailed information about the target population of the campaign and we have also flagged up any conceptual issues regarding the campaign and/or its evaluation.

3.1 **FRANK campaign**

FRANK is the government's current campaign to raise awareness of the risks and dangers of drug use. The campaign, which operates in England and Wales only, was conceived in 2002 – following the government's update of its drugs strategy - to replace the National Drugs Helpline. Ultimately, the FRANK campaign aims to contribute to the government's objectives on tackling drug misuse, including specific Public Service Agreement (PSA) targets such as reducing the use of Class A drugs and the frequent use of any illicit drug among all young people under the age of 25 and increase the number of problem drug users in treatment (Home Office, 2006).⁷ The campaign is not specifically defined as a programme to change behaviour; rather, it is defined as an information initiative. However, it was included in this analysis for a number of reasons. First, it was mentioned by a number of our interviewees as an example of current DH behaviour change campaigns. Second, it is the main programme on the issue of illicit drug use. Third, because the campaign provides resources in addition to information (such as resources for community organizations, a helpline for users and those at risk, and self-help resources like guidelines on cutting down on cannabis use), the campaign goes beyond the provision of information and in some ways makes a direct attempt to change behaviour.

How the campaign is defined

The campaign is described as a new 'brand', a 'communication tool' meant to be a credible, discreet, non-judgmental and reliable source of information to the target audience (defined in one document as 'anyone involved in the drugs area'⁸) (Home Office, 2006).

An interesting element of the FRANK campaign is that its target audience is defined as both drug users and those at risk of drug use (particularly young people), as well as those 'informing people about the dangers of drugs'.⁹ In addition to providing information, self-help resources and a helpline for drug users and those at risk, FRANK was designed as an 'umbrella' campaign meant also to be used for stakeholders at the local level for their own drug communications and campaigns with young people, parents and the wider community.

The information, resources and services provided to these two target audiences are relatively distinct; for example, there are 'packs' of information and activities to assist local

⁷ It is worth noting that the FRANK campaign does not address alcohol misuse, although there is a significant co-occurrence of illicit drug and alcohol use, including among young people (see for example: Coulthard et al, 2002).

⁸ See: <http://drugs.homeoffice.gov.uk/publication-search/frank/Meet-frank.pdf?view=Binary> (last accessed April 2009).

⁹ See: <http://drugs.homeoffice.gov.uk/publication-search/frank/Meet-frank.pdf?view=Binary> (last accessed April 2009).

organizations, parents and others raise awareness about drugs, while the website (<http://www.talktofrank.com/>) appears to be directed primarily at drug users or those at risk of taking drugs (providing, for instance, a tool to stop or cut down cannabis use, or to help young people deal with peer pressure to take drugs).

Main objectives/targets

As mentioned above, the overall aim of the FRANK campaign is to contribute to the government's objectives on tackling drug misuse, including specific Public Service Agreement (PSA) (Home Office, 2006). According to the campaign's 2004-2006 review, its specific objectives are:

- To help prevent or delay the onset and escalation of drug use;
- To help increase the number of appropriate referrals to support/treatment;
- To raise awareness of the harms from drug use through FRANK's communication activity, which includes harm-reduction messages;
- To empower young people to resist peer pressure to take illegal drugs (Home Office, 2006).

What are the components of the campaigns?

The FRANK campaign aims to ensure that:

- young people understand the risks and dangers of drugs and their use;
- young people know where to go for advice or help;
- parents have the confidence and knowledge to talk to their children about drugs;
- professionals who work with young people, especially vulnerable groups, are supported.¹⁰

In order to achieve these aims, the FRANK campaign uses a variety of channels including advertising, public relations (PR), resources for stakeholders including local organisations, parents, carers and others, and a helpline and website.

More specifically, the 'resources' that the campaign makes available consist primarily of 'packs' with information, guidance and suggested activities to assist stakeholders (local organizations, sports clubs, schools, parents, etc.) develop local FRANK resources to raise awareness about the risks from drug use. In 2006, there were 5,500 stakeholders registered with the campaign (Home Office, 2006). There are currently 23 examples on the Home Office website of local initiatives under the FRANK umbrella. Support for the development of FRANK peer-to-peer marketing activities is also part of the campaign. These initiatives range from theatre programmes for women in prison who have drug-related offending behaviour, to an initiative to find ways to provide information to ethnic

¹⁰ See: <http://drugs.homeoffice.gov.uk/communications-and-campaigns/frank-campaign/Strategy/> (last accessed April 2009).

minority parents and carers about young people's substance misuse issues.¹¹ Other resources provided to stakeholders include posters, postcards and dog tags to hand out to young people.

In terms of advertising, the FRANK campaign involves a number of activities such as the distribution of information on drugs at places frequented by young people (local newsagents, music shops etc), and signposting the FRANK campaign, helpline and website through various media ('ambient media', TV, radio and online) and radio sponsorship. 'Partnership marketing' is also used, which entailed partnering with popular youth brands to maximise FRANK's promotional opportunities and extent its reach (Home Office, 2006).

FRANK also launches regular campaigns on particular issues within the drugs field. For example, a campaign to raise awareness specifically of the risks and harms from cocaine use was launched in December 2008 which used TV and online videos to target 15-18 year-olds. The campaign provided opportunities for local activities to be organised. Another recent campaign, focusing on cannabis, was launched in January 2009 targeting 11 to 15 year-olds with the key message that stronger strains of cannabis have harmful effects on the brain. Other activities have included a FRANK bus visiting schools in different regions, a 'Drugs Week' advertised through media outlets, and others.

Its PR activities have consisted of generating articles and publicity, targeting young and very young people, and parents, in particular (Home Office, 2006). The FRANK campaign also gives awards recognizing people who have raised awareness of drug issues and/or reduced harm through innovative use of FRANK since January 2007. Awards are given in two categories: FRANK communications aimed at young people and FRANK communications aimed at the wider community.

Evidence of impact

According to the campaign's 2004-2006 review, its success is measured through 19 key performance indicators, focused on six areas:

- Young people's and parents' awareness of FRANK
- Their affinity with FRANK – i.e. whether they trust and listen to FRANK
- How likely they are to contact FRANK
- How likely stakeholders in local services are to recommend FRANK to others
- The number of referrals to local treatment services
- The number of phone calls and website hits.

The performance evaluation of FRANK's activities in 2004-6 and 2007-8 measured a number of outputs, including awareness of the FRANK adverts, numbers of visits to the

¹¹ See: <http://drugs.homeoffice.gov.uk/communications-and-campaigns/frank-campaign/case-studies1> (last accessed April 2009).

website, number of emails received, satisfaction with FRANK support for local awareness raising activities and so forth (Home Office, 2006).¹²

There are various issues that this type of evaluation raises. First, it is unclear whether the survey is of a representative sample of the population (information on this is not publicly available), or even whether it should be. Given that the target audiences are those using drugs or at risk of drug use, and those helping raise awareness about drugs, it is possible that the most informative survey would have been among a sample from these groups, as it would have given a more accurate picture of the extent to which FRANK's target groups are aware of, and would use, the campaign. A second concern also relates to the survey and is that it measures intermediate rather than final outcomes (e.g. awareness of the campaign), so the effectiveness of FRANK in reducing drug use remains unknown.

Similarly, the use of 'output' indicators, such as numbers of calls to the helpline, numbers of emails received and number of website visits does not provide information about the impact, influence of and thus extent to which any of these services led to a reduction in drug use. Moreover, because the data is not aggregated (i.e. not about individual callers or visitors to the website) it is unclear whether the campaign is reaching and being used by those at most risk from drug misuse. It is possible that many of the helpline callers and website visitors are those who were least at risk in the first instance, a self-selected group who are already aware of the risks of drug use.

A third element of the evaluation of FRANK in 2007-8 was a number of interviews (225) with FRANK stakeholders representing DATs, youth workers, health promotion practitioners and others. The main measure in this survey was satisfaction of the stakeholders with the resources of the FRANK campaign, which was assessed through a number of related questions. The interviews found high levels of satisfaction with the campaign. However, while this assessment is informative about the extent to which stakeholders value the campaign, there is no reporting in this evaluation of the effectiveness of the activities of individual stakeholders in reducing drug use.

3.2 **Change4Life**

Change4Life is "England's first ever national social marketing campaign to reduce obesity and the most ambitious to launch anywhere on this topic" (Department of Health, 2009c, p.3). The campaign was launched at the beginning of 2009.

The campaign has many partners including:

- Seven founding partners: Tesco, ASDA, National Convenience Stores, Kellogg's, PepsiCo, Fitness Industry Association and ITV (Department of Health, 2009c, p.37);
- Other government departments that will take part in Change4Life by aligning their material and communications including the Department for Children

¹² Also see: <http://drugs.homeoffice.gov.uk/publication-search/frank/frankpresentation?view=Binary> (last accessed April 2009).

Schools and Families, the Department for Transport (through Walk4Life and Bike4Life), the Department for Culture, Media and Sport (Swim4Life), Defra (MuckIn4Life). The involvement of these government departments also include the use of the Change4Life brand as a co-brand on other Government communications (e.g. on DCSF's cookbook for school children and parent Know How guides for new parents) (Department of Health, 2009c);

- Leading NGOs and other government agencies and programmes such as Cancer Research UK, Diabetes UK and the British Heart Foundation, the Healthy Schools programme and the Central Office of Information (COI)¹³.

Pre-campaign work

The design of this campaign was informed by “academic and commercial sector expertise, behaviour-change theory and evidence from successful behaviour-change campaigns in other categories (particularly tobacco control)” (Department of Health, 2009c, p.3). The work on the campaign began six months before it was launched to the public with “engagement with partners and with workforces, local service providers, potential local supporters and non-Governmental organizations, so that, when national marketing started, the public would encounter an informed and supportive local environment” (Department of Health, 2009c, p.7). The Department used a lot of different initiatives and activities in this pre-campaign phase such as: “social marketing training (including briefing on the research findings), face-to-face presentations and direct marketing” (Department of Health, 2009c, p.7).

In addition, the Department appointed a specialist agency to develop materials and community outreach programmes for the campaign that would be culturally specific and appropriate for ethnic minorities (Department of Health, 2009c, p.10).

How the campaign is defined

This campaign is defined as a “national social marketing campaign to reduce obesity” (Department of Health, 2009c, p.3) and also as a “prevention strategy” (Department of Health, 2009c, p.28). In other words, this campaign is not focusing on children or families who are already seriously overweight or obese but on families with children *at risk* of becoming seriously overweight or obese. The rationale behind the campaign's focus on prevention is that it is generally easier to prevent the onset of unhealthy behaviour rather than act to correct and replace such behaviour with healthier alternatives.

What are the components of the campaigns?

Change4Life includes a variety of components ranging from (Department of Health, 2009c):

- Direct mail,

¹³ The DH used the Artemis tool of the COI, this tool forecasts response and conversion based on media spend and mix. “COI Artemis was specifically developed to better evaluate government and public sector campaigns whose principal objectives are to bring about changes in behaviour and attitudes rather than drive purchase” (Department of Health, 2009, p.28).

- Face-to-face support,
- Interactive television,
- A website,
- Locally-searchable dataset of services provided accessible via the website and by telephone to enable the target audiences to find activities they can get involved in locally,
- Use of mass media.

Target population

“The targeting of this campaign has been driven by an extensive body of academic and consumer research, to understand both which audiences are most in need of support and those with whom marketing can have most impact. The focus will be on pregnant women (an ever-changing universe of up to 600,000 women), the 1.4 million families who have children aged under two, the 1.6 million families with children aged 2-10 whose children are most at-risk of weight gain and those ethnic minority communities (particularly Black African, Bangladeshi and Pakistani) where levels of childhood obesity are particularly high” (Department of Health, 2009c, p.6).

The focus of the campaign will also evolve to include a wider range of at risk groups as the campaign progresses:

- In Year 1, Change4Life will focus on families and in particular on those with children under the age of 11 (Department of Health, 2009c, p.3).
- Year 2 and 3 will focus and expand to address other at-risk groups (Department of Health, 2009c, p.3).

Main objectives/targets

The Department acknowledges that achieving behaviour change is not easily done, despite a well-researched campaign (Department of Health, 2009c). In the case of obesity, a lot of beliefs and assumptions will need to be addressed in the target population (for example, it has been stated that healthy living is seen as a “middle class” preoccupation for many in the target population and that a majority of people with obese or overweight children do not see them as such and routinely overestimate the amount of exercise their children do whilst underestimating the amount of food they consume – Department of Health, 2009c). In addition, the Department stresses that there are currently no “harder levers” such as legislation and taxation related to obesity which is in contrast to public health issues related to alcohol and smoking for example (Department of Health, 2009c, p.26). All of these elements mean that significant levels of behaviour change should not be expected for some time after the launch of the campaign (Department of Health, 2009c, p.26).

The aim of Change4Life is to achieve 8 behaviours amongst its target populations (Mapstone, J. and Fox, C., 2009, slide 21):

- Reduce sugar intake
- Increase consumption of fruit and vegetables

- Have structured meals, especially breakfast
- Reduce unhealthy snacking
- Reduce portion size
- Reduce fat consumption
- 60 minutes of moderate intensity activity every day
- Reduce sedentary behaviour

In addition, the Department has set itself the target of encouraging 400,000 families to change their behaviour, including (Department of Health, 2009c, p.33):

- 200,000 using Change4Life materials → leading to 33,333 achieving long term change
- 200,000 changing independently → leading to 16,667 achieving long term change

As well as setting the above targets, the Department has also set detailed incremental targets for the campaign (Department of Health, 2009b, p.3).

Table 3-1: Change4Life targets

	End March 2009	End December 2009
Reach (% of target audience who have an opportunity to see the messages)	95%	99%
Awareness (% of target audience who recall seeing the Change4Life advertising)	75%	82%
Logo recognition	42%	44%
Response to How Are The Kids? (completed questionnaires received)	100,000	NA
Response (number of people responding via internet, post or telephony)	1,000,000	1,500,000
Sign up (number of people signing up for the behaviour-change programme)	100,000	200,000
Sustained interest (number of people interacting with Change4Life for at least six months)	NA	33,333

More broadly, the following objectives were set in the marketing plan for each group of stakeholders (Department of Health, 2009b, p.4):

“For the public:

- Reframing obesity in terms of behaviours and consequences rather than obesity as an outcome itself

- Increasing the number of people who recognise that their lifestyle choices around diet and exercise are threatening their own and their children's health
- Increasing the desire amongst people to take steps to improve their health
- Encouraging a significant number to seek further information or advice
- Providing people with tips and strategies for achieving change
- Providing a definitive source of advice, backed by sound science

For external stakeholders:

- Coalescing disparate partners into a co-ordinated movement to provide advice and ideas on how to tackle obesity-related behaviours
- Changing the way overweight and obese people (and the causes of obesity) are depicted and reported in the media
- Squeezing out rogue and unhelpful fad diet stories in favour of consistent advice

For public sector stakeholders:

- Uniting existing service providers under a common banner
- Providing centralized support for their programmes"

Change4Life uses a "campaign tracker" to measure awareness of the Change4Life logo, advertising and messages "as well as attitudes and claimed behaviours around healthy eating and physical activity with the target audiences of: mothers with children 0-11 (including a sample of ethnic minority mothers), pregnant women and the wider audiences of adults (15+) and teens (12-14 year olds)" (Department of Health, 2009b, p.2).

The campaign has also put in place a Customer Relationship Management Programme to "provide encouragement, information and support for families to get their children eating better and moving more. Some families will want more support than marketing can provide and Change4Life will signpost these families to face-to-face interventions at a local level" (Department of Health, 2009c, p.9).

Evidence of impact

Given that the campaign was launched at the beginning of 2009, there is very little in the way of information assessing the successes and failures of the campaign so far. As stated in Table 3-1, the campaign does have some targets and objectives set for the end of March 2009 so we can expect that these should be made available in the near future. It is important to note that that the Department has not only set output indicators for its campaign (i.e. reach, awareness, number of people responding and signing up to the programme), but also outcome indicators such as setting targets for the number of families who should achieve long term change through the use of its material for example. This is a marked difference from some of the other DH campaigns we reviewed which overly focused on output indicators and were therefore not able to estimate the behaviour change effect they had on their target population.

As noted by the DH itself, two important factors should be taken into account when trying to estimate the level of behaviour change that can be achieved with this campaign

(Department of Health, 2009c, p.31): firstly, people will need to change multiple behaviours rather than one (i.e. behaviour change to reduce obesity does not just require people to eat less but also to move more, eat healthier food, smaller portions, less fat and sugar, etc) and secondly, people will need to change the behaviours of their children and families: “whether this is harder (persuading someone else to change could be harder than changing one’s own behaviour) or easier (children’s ability to determine their own behaviour is relative: if they prefer to be driven to school rather than walking, they can complain, but they cannot physically drive the car) is a matter of conjecture. Since there is currently no conclusive evidence one way or the other, we will assume that the impact of this factor is neutral, pending further data” (Department of Health, 2009c, p.31).

Both of these issues are likely to make it more difficult for the campaign to achieve large scale behaviour change. However, the future evaluation of Change4Life will serve to inform knowledge about complex multiple-behaviour change and the ability of social marketing to address it successfully.

3.3 Know Your Limits

Know Your Limits is a national campaign to improve the public’s understanding of alcohol and its potential harms. The campaign is jointly funded by the Department of Health and the Home Office, which have invested £6 million and £4 million respectively. It was launched in May 2008¹⁴.

There are two phases to the campaign (Department of Health, 2008a):

- Phase 1, led by the Department of Health, focuses on improving people’s knowledge of alcohol units and recommended guidelines, and targets people over 25;
- Phase 2, lead by the Home Office, focuses on improving people’s understanding of the link between their alcohol consumption and their health, and targets 18 to 24 year olds.

There is very little information publicly available about the Know Your Limits campaign. In addition, whilst reviewing the information made available to us by the Department of Health and found through our own search, we felt that the way in which the campaign was communicated was rather confusing: firstly because the campaign has two strands with different lead government departments and target populations as well as different objectives and secondly because some of the campaign’s material is branded in different ways (e.g. the campaign’s website is called Know Your Units and not Know Your Limits) What is more, the documentation reviewed shows little focus on behaviour change itself or on the potential impact the campaign could have on behaviour change, as much of the emphasis of the campaign is put on increasing awareness of guidelines, units and health risks of excessive alcohol consumption.

¹⁴ See:

http://www.utalkmarketing.com/pages/Article.aspx?ArticleID=10390&Title=New_%C2%A310_million_alcohol_awareness_campaign (last accessed July 2009)

How the campaign is defined

The campaign is defined in turn as an “alcohol awareness campaign”¹⁵, a “national advertising campaign”¹⁶ and simply a “national campaign”.¹⁷ This emphasizes the fact that the campaign is primarily media-based and does not make substantial use of other initiatives. In addition, it puts emphasis on the fact that the campaign’s primary objectives are to provide information and raise awareness rather than achieve behaviour change. It is possible that the thinking behind the campaign was that by raising awareness and providing information, behaviour could be changed, however, this is not made explicit in the documents reviewed and current thinking on behaviour change campaigns makes it clear that information and awareness raising activities alone will not achieve behaviour change.

What are the components of the campaigns?

The Know Your Limits campaign is a media-based campaign (i.e. it is largely based on the use of the media and does not include other significant components or initiatives such as personalized support or links to services). Its main components are (Department of Health, 2008a):

- Advertising in TV, newspapers, magazines, billboards etc.;
- New Units website;
- Digital campaign - This is defined as consisting of “three strands – paid for search, sponsored links with match keyword searches to trigger our advert, advertising and mobile telephone activity via sponsorship of 118 118 messages);
- PR – defined as “media engagement based on journalists’ own knowledge of units and the portrayal of alcohol and drinking behaviour in TV drama/fiction” and “traditional consumer media work which included stories delivered from a survey to assess attitudes to drinking”;
- Stakeholder engagement – “aimed at uniting and engaging stakeholders across all alcohol campaigns at national, regional and local level”.

Main objectives/targets

The Know Your Limits campaign’s objectives are as follows (Department of Health, 2008a):

- Raise awareness and understanding of units and recommended guidelines;
- Raise understanding of consequences of excessive drinking health/appearance;
- Provide motivation and skills to act on information and change behaviour.

¹⁵ See:

http://www.utalkmarketing.com/pages/Article.aspx?ArticleID=10390&Title=New_%C2%A310_million_alcohol_awareness_campaign (last accessed May 2009).

¹⁶ See: <http://www.alcoholpolicy.net/2008/06/home-office-lau.html> (last accessed May 2009).

¹⁷ Department of Health (2008),

The campaign also has a set of objectives or Key Performance Indicators (KPIs) with regard to the following (Department of Health, 2008b):

- Public acceptance – attitudes towards social norms (acknowledgement that there is an issue/problem);
- Personal awareness and motivation measures (including awareness of the campaign adverts and messages, awareness of the number of units, awareness of health harms and consequences, emotional impact of campaign);
- Digital measurements such as number of clicks on the Units website, average unique visits to the website per month;
- Consumer media relations indicators such as number of stories developed and items of national media coverage for a single story on a number of occasions;
- Partnership activity measured as the number of gyms taking part in partnership activity;
- Media engagement measured through the number of meetings/briefings organized with umbrella media bodies or journalists/editors or the number of conferences organized to discuss the media's role in the alcohol debate.

Importantly, all of the indicators above are “output” indicators rather than “outcome” indicators about the impact of the campaign on the behaviour of its target population. In addition, because the data is not individual-level data (i.e. about individual visitors to the website or about at risk individuals' awareness and acceptance of guidelines and units), it is not possible to ascertain whether the campaign is reaching those individuals that are most at risk of excessive alcohol consumption and/or changing behaviour generally. In that sense, it is possible that many of the visitors to the Units website are those who were least at risk in the first instance, a self-selected group who are already aware of the risks of alcohol abuse.

Evidence of impact

There is so far limited evidence as to the success or failure of this campaign. TNS conducted two waves of national surveys to measure awareness of the campaign's messages both before and after the first wave of the campaign¹⁸ but there is no evidence of behaviour change resulting from the campaign (TNS, 2008). The national surveys carried out by TNS measured the following:

- Awareness of advertising;
- Knowledge of units;
- Knowledge of guidelines;
- Attitudes to general health and drinking and sensible drinking behaviour.

¹⁸ By this we mean that TNS measured people's awareness of different potential harms of alcohol or their knowledge of the number of units they are advised to limit themselves to before and after the first wave (i.e. first wave is defined as the 'first burst of advertising) of the campaign to gauge whether the campaign had any impact in raising people's awareness of these guidelines and information.

Results from the TNS national surveys were rather mixed (TNS, 2008). As an illustration of this, awareness of the campaign's advertising was rather high with 80% of the target audience (up from 56% pre-wave) remembering "seeing or hearing advertising about the number of units in alcoholic drinks from at least one of the sources prompted with in the last few months" (TNS, 2008). However, fewer respondents said they knew what the term unit means at mid-wave compared to pre-wave (78% pre and 77% mid) and "when the drinkers interviewed were asked how many units they believed were in commonly consumed drinks, few could answer accurately, although there has been an improvement wave on wave for some of the drinks included – particularly wine" (TNS, 2008).

Overall, there is very limited information on the Know Your Limit campaign generally and there is in particular very little information on the effectiveness of the campaign. All of the KPIs used to measure the effectiveness of this campaign either relate to people's awareness of alcohol units, alcohol's potential harms or to indicators focused on the campaign's activity (for example, there are indicators that relate to the number of clicks on the Units website or the number of meetings organised with the press). There does not seem to be much emphasis on the effectiveness of the campaign in changing people's behaviour towards alcohol. To some extent, this is consistent with the campaign's focus on providing information and raising awareness of its target populations rather than providing them with services or links to other initiatives that could have a more direct impact on changing their behaviour towards alcohol.

3.4 **5-a-day**

The '5 a day' programme is a Department of Health initiative aimed to improve access to, and increase consumption of, fruit and vegetables thereby contributing to a reduction in some forms of cancer and in coronary heart disease, and to a reduction in health inequalities.¹⁹ The programme is comprised of five strands: the School Fruit and Vegetable

¹⁹ It is interesting to note that variations on the '5 a day' programme theme were implemented in a number of countries, at the national and local level. For example, in 1988 the California Department of Health Services embarked on a social marketing campaign to increase fruit and vegetable consumption, called the '5 a day – for better health!' campaign. The campaign consisted of extensive use of mass media, partnership between the state health department and the produce and supermarket industries, and extensive use of point-of-purchase messages. Over its three years of operation in California, research shows that the campaign appears to "have raised public awareness that fruits and vegetables help reduce cancer risk, increased fruit and vegetable consumption in major population segments, and created an ongoing partnership between public health and agribusiness that has allowed extension of the campaign to other population segments, namely children and Latino adults". In 1991 the campaign was adopted as a national initiative by the National Cancer Institute and the Produce for Better Health Foundation (Foerster, 1995). A similar campaign was implemented in Victoria, Australia (the '2 Fruit n' 5 Veg Every Day' campaign) aimed to increase awareness of the benefits of fruit and vegetables, and to encourage increased consumption. The campaign, which ran over three years (1992-1995) consisted of a range of social marketing and communication activities "encompassing both demand- and supply-side strategies aimed at increasing fruit and vegetable consumption in Victoria" (Dixon, *et al*, 1998). Research conducted on the campaign shows that while people were more likely during and after the campaign to believe that they needed to eat the recommended amount of fruit and vegetables, consumption remained below the recommended minimum (Dixon, *et al*, 1998). Beliefs and levels of awareness tended to parallel the campaign's level of media investment, suggesting that changes in awareness and beliefs may not be sustainable after campaigns finish.

Scheme (SFVS), local '5 a day' initiatives, national/local partnerships, a communications programme including a '5 a day' logo, and work with industry (producers, caterers and retailers). The strands are themselves underpinned by a monitoring and evaluation strategy.

How is the campaign defined/main objective/target

According to its website, the '5 a day' programme (also often been referred to as the '5 a day' campaign) aims to "change the way people think, and highlight the health benefits of eating more fruit and vegetables".²⁰ The programme is not targeted to any particular group, although elements of it are (for example, the SFVS which is targeted to school-children).

Components of the campaign

As mentioned above, the programme is comprised of five strands:

- The School Fruit and Vegetable Scheme (SFVS);
- Local '5 a day' initiatives;
- National/local partnerships;
- A communications programme including a '5 a day' logo, and;
- Work with industry (producers, caterers and retailers).

The SFVS entitles all four to six year old children in Local Education Authority (LEA) maintained infant, primary and special schools to a free piece of fruit or vegetable each school day. In 2000-2001, a number of pilots were conducted with around 500 schools taking part, after which £42 million of lottery money was allocated for the expansion of the scheme to all the regions. The DH funded the scheme once lottery funding ended in early 2005. The scheme roll out was completed in November 2004, by which point nearly 2 million children in over 16,000 were receiving a piece of fruit or vegetable every day.

The local '5 a day' initiative was funded by £10 million provided from the Big Lottery Fund. It aims to encourage people in 66 programme areas to eat at least five portions of fruit and vegetables a day. This initiative grew out of a pilot conducted and evaluated by the DH in five areas. The initiative is implemented in collaboration with 66 Primary Care Trusts (PCTs) which conduct various activities in their local areas. The Big Lottery Fund allocated £150,000 to each PCT over two years for the activities. These activities included:

- Home delivery services;
- Improving transport to local markets;
- Voucher schemes;
- Media campaigns;
- Growing and cookery skills, and;
- Promoting networking among existing healthy food groups.

²⁰ See: <http://www.5aday.nhs.uk/WhyEat5aday/About5aday.aspx> (last accessed April 2009).

Not all areas carried out all the activities. For example, an evaluation of the programme in 2006 found that work with school age children was conducted in 82% of the areas, mass media campaigns in 70% and home delivery and transport schemes in only 12% (Brenner, *et al.*, 2006). Most of the PCTs worked with various partners, typically including Local Education Authorities (LEA), schools, councils, voluntary organisations and businesses.

Given existing health inequalities in the areas, the PCTs were tasked with addressing the needs of the following groups:

- People who are socially and economically disadvantaged
- People without access to affordable food for a healthy diet
- People with poor diet
- People who lack the opportunity to make choices about healthy eating
- People in manual labour/low socio-economic groups
- Children
- People at high risk of developing coronary heart disease due to other factors such as ethnicity

Details on the other three strands of the programme (national/local partnerships; a communications programme including a '5 a day' logo, and work with industry (producers, caterers and retailers)) are less precise. It is not entirely clear from the materials publicly available what these three strands consist of, whether they have been evaluated and what their impacts have been.

Evidence of impact

While the DH claims that all the strands are underpinned by an evaluation and monitoring strategy, evaluations and assessments have been particularly prominent for the SVFS and the local '5 a day' initiatives.

For example, an evaluation of the local '5 a day' pilot initiatives (using questionnaires posted to just under 2000 individuals in intervention and control areas before the pilot was launched and after it had been running for one year) conducted in 2002 suggests that access to fruit and vegetable had improved more for those in the intervention areas than for those in the control areas.²¹ The evaluation also reports that "overall, the intervention was found to have had a positive effect in people with the lowest intakes [...] Those who ate less than five a day at baseline increased their intakes by 1 portion over the course of the study".

In 2006, the rolled out '5 a day' community initiatives are evaluated, using a mix of qualitative and quantitative methods (Brenner *et al.*, 2006). Findings from this evaluation included lessons on the implementation and partnership-working of the initiatives, on staff

²¹ See: http://www.5aday.nhs.uk/original/locally/documents/Pilot_executive_summary.pdf (last accessed April 2009).

performance, and on changes in awareness and behaviour. The latter was measured, like in the pilots, through surveys conducted with intervention and control groups before the programme started and after it had been running for a year. Interestingly, the study found that while there were overall increases in fruit and vegetable consumption, there is no statistically significant difference in the increase between the intervention and the control group. This not only means that the claimed impact of the '5 a day' programme on fruit and vegetable consumption must be taken with caution; the evaluation also indicates that any increases in consumption should not be attributed to any individual factor (Brenner *et al.*, 2006).

Similarly, an evaluation of the impact of the SFVS was conducted in 2005, using a quasi-experimental approach (an intervention and a control group) to monitor changes in consumption and in attitudes to healthy eating in children before and after they receive the free fruit or vegetables (Schagen, *et al.*, 2005).²² One of the most interesting, and perhaps unexpected, findings from the evaluation was that "in the intervention group, fruit and vegetable consumption declined at home and increased in school, suggesting that the scheme did not encourage additional consumption outside of the direct influence of the SFVS [...] On the contrary, it would appear that for some children the SFVS fruit and vegetables had replaced those ordinarily consumed outside school" (*ibid.* p.56). It was also reported that any improvements in consumption of fruit and vegetable that did take place were not sustained once the children's participation in the scheme came to an end. The evaluation also found that the intervention group had greater awareness and knowledge of healthy eating and the benefits of eating fruits and vegetables than the control group, although the difference was approximately the same as before the programme even started; that is, the '5 a day' programme is unlikely to be the reason for this difference in awareness and knowledge. Nevertheless, it is important to note that the evaluation was conducted in only two areas, the North East and Yorkshire and Humber, neither of which is fully nationally representative, which means that the impact of the SFVS could be different elsewhere.

3.5 Closing remarks

The information in this chapter does not constitute evaluations of the programmes included. It also does not provide a fully comprehensive picture of the programmes. For example, the information here cannot answer questions regarding the extent of cross-governmental working in some of the areas relevant to more than one Department, or provide specifics on the implementation of some aspects of the programmes. Rather, this chapter gives an overview of four of the most prominent current behaviour change programmes of the DH. These are initiatives that were mentioned by most of the interviewees in the course of this research (see Chapter 5), and thus provide useful starting

²² The evaluation notes that "because the SFVS was rolled out on a regional basis, it was not possible to undertake a nationally representative evaluation. The intervention schools had to be drawn from a single region (the North East of England), and the comparison schools from a different region (Yorkshire and The Humber)" (Schagen, *et al.*, 2005, p.3). While the two regions are a relatively close match, the known regional variations in eating patterns reduces the robustness of the evaluation and reliability of the findings.

point to gain insights into the nature, scope and rationale for these kinds of activities, to which we return in later Chapters. Also, while recognizing the limitations that examining only four such initiatives entails, this exercise nonetheless raises interesting questions about, among other things, the ways in which these initiatives are resourced and implemented, whether and how they are evaluated and how insights from evaluations are used.

The preceding chapters provide brief overviews of some of the main theoretical models of behaviour change which have been used to understand how to influence behaviour and of prominent examples of current behaviour change activities within the DH. In this chapter, we aim to integrate the two, and provide a tool to help further develop current (and structure future) thinking about behaviour change activities in the UK.

4.1 **Behaviour change theory and current behaviour change initiatives**

In this section, we provide a summary table that maps some of the information from the DH behaviour change programmes examined in Chapter 3 onto a number of the key factors identified through the review of theoretical literature as important in understanding whether, or how, behaviour change might occur. It is also possible, and useful, to do this with insights from the review of empirical evidence. However, using the theoretical framework to examine current DH initiatives is both more novel and possibly more informative because, unlike the case with the empirical evidence, the theory enables us to directly address the underlying link between a particular activity and the mechanism through which it aims to change behaviour. Because the information we have on these four campaigns is not comprehensive, it is possible that we do not have a complete picture for each of these campaigns. The table, therefore, only provides some preliminary analysis that may act as a template for future similar reviews of behaviour change programmes.

The table is organised as follows. The row at the top represents the determinants of behaviour change discussed in chapter 2. The first column on the left indicates the programme or campaign examined. Brief descriptions of how each of these programmes addresses the different determinants are provided in each cell. Cells are left blank where it appears that an initiative does not address a particular determinant. The last column (on the right) indicates whether evaluations of the programme have been conducted, providing brief overview of evaluation findings if available. While not discussing determinants of behaviour change, this final column aims to place the rest of the exercise in context by presenting available information on some of the programme's key achievements.

Table 4-1: Mapping current initiatives onto behaviour change theory

	Affect (hot) <i>'I love/hate going to the gym'</i>	Evaluation (cold) <i>'I know that going to the gym is good for me'</i>	Personal norm <i>'I feel I have to go to the gym to be a good role model for my children'</i>	Social norm <i>'My friends say going to the gym is cool'</i>	Perceived behavioural control Actual <i>'I think the gym is closed anyway'</i>	Perceived behavioural control Perceived <i>'I am just too unfit, I might die' (Self-efficacy)</i>	Habit <i>'I go to the gym because I have always gone to the gym'</i>	Evaluation
Change4Life	✓ TV ads focus on the joys of 'moving more', showing how much fun it is to play in the park, eat fruits, etc.	✓ Provides information on the health benefits of exercise and nutrition through leaflets, the Change4Life website, direct mail,	✓ Targets parents of children at risk of obesity; it shows parents that promoting healthy diet and exercise will make their children happier and healthier.	✓ One of the programme's stated aim is to inspire people to change by convincing them that "change is normal" (i.e. that people like themselves are already making changes).	✓ Seeks to 'break down barriers' to exercise for example by providing a database of activities available locally. Also, the campaign provides advice to parents to walk to school with their children or take walks at the weekends and other activities which do not cost anything.	✓ The campaign encourages people to engage in healthy behaviours such as cooking from scratch and exercising through the provision of easily accessible information	✓ The campaign encourages people to change their habits in relation to diet and exercise through the provision of information on websites, leaflets and other initiatives such as local activities with schools (e.g. work with local sports club, links with supermarkets, etc).	This campaign started at the beginning of 2009 and there has been no published evaluation of it so far.
5 a day		✓ The campaign reinforces positive messages about fruit and vegetable consumption (i.e.			✓ The campaign provides direct access to fruits It also provides transport for accessing	✓ The campaign provides cooking lessons so that people become more confident in their ability to cook	✓ Through the campaign's regular provision of fruits to children in schools, children are getting <i>used to</i> consuming	- Evaluation of '5 a day' community initiatives found no statistically significant differences in fruit and vegetable consumption between intervention and control

	Affect (hot) 'I love/hate going to the gym'	Evaluation (cold) 'I know that going to the gym is good for me'	Personal norm 'I feel I have to go to the gym to be a good role model for my children'	Social norm 'My friends say going to the gym is cool'	Perceived behavioural control Actual 'I think the gym is closed anyway'	Perceived behavioural control Perceived 'I am just too unfit, I might die' (Self-efficacy)	Habit 'I go to the gym because I have always gone to the gym'	Evaluation
		eating 5 portions of fruit and vegetables a day has many positive benefits for health).			markets and shops and also provides cooking lessons to teach people how to cook healthily and from scratch.	healthy meals from scratch (it empowers people by showing them that they are capable of cooking healthy food).	fruit on a regular basis (School Fruit and Vegetable Scheme)	group - Negative results of evaluation of the School Fruit and Vegetable programme where consumption of fruit and vegetable at home was found to have declined.
FRANK		✓ Through shock messages and images, the campaign seeks to make its targeted population feel strongly that doing drugs is bad for them and has negative consequences.		✓ Some of the campaign's messages aim to influence the way drug use is perceived (for example, through their hard-hitting posters such as "Cocaine – confidence, charm and a very limp dick")		✓ The campaign seeks to empower young people by showing them how to resist peer pressure and say 'no' to drugs		- Evaluations of the campaign measured intermediate (e.g. awareness) rather than final outcomes (i.e. effectiveness in reducing drug use). - They found high levels of satisfaction of stakeholders with FRANK materials.

	Affect (hot) 'I love/hate going to the gym'	Evaluation (cold) 'I know that going to the gym is good for me'	Personal norm 'I feel I have to go to the gym to be a good role model for my children'	Social norm 'My friends say going to the gym is cool'	Perceived behavioural control Actual 'I think the gym is closed anyway'	Perceived behavioural control Perceived 'I am just too unfit, I might die' (Self-efficacy)	Habit 'I go to the gym because I have always gone to the gym'	Evaluation
Know Your Limits		✓ The campaign seeks to show how dangerous alcohol abuse can be (e.g. linking excessive consumption of alcohol with liver cirrhosis)				✓ One of the campaign's stated aims is to 'provide motivation and skills to act on information and change behaviour' – (although it is not clear from campaign documents how this will be achieved)		- Evaluation measured intermediate (i.e. awareness, knowledge) rather than final outcomes (i.e. change in consumption/harms). - High levels of awareness of the campaign's advertising but evidence of little improvement of knowledge in some areas (e.g. units in particular drinks).

The table above provides only an illustration of the way in which this kind of framework can be used. The aim of this exercise is to suggest ways in which the insights from the theory on behaviour change can be used to reflect on current or previous activity in this area. This also provides a template for how a similar exercise can be conducted using insights also from other areas of relevant research, such as empirical research into the effectiveness of behaviour change programmes (such as that presented in chapter 3), behavioural economics (for instance some of the insights from *Nudge* (Thaler and Sunstein, 2008) could be usefully added to this framework), and so forth.²³

Nevertheless, several insights can be gained from this very preliminary analysis. For example, while this exercise cannot, nor does it aim to assess the extent to which each individual programme is or can be effective, it is interesting that the *Change4Life* programme seems to be the most comprehensive not just in the types of activities it includes but also in the mechanisms through which it aims to effect behaviour change. This may be at least in part a result of this particular programme having been developed following the social marketing approach which, by virtue of encouraging a more thorough understanding of what affects people's choices, may lead to greater focus on multiple determinants of behaviour. From the data and materials we examined, the other three programmes tend to focus on two or three of the determinants, and not always in a systematic and deliberate way (for instance, *Know Your Limits* addresses perceived behavioural control but from the materials reviewed, it is not clear how it seeks to address this, other than by providing information on units and harms from excessive alcohol consumption). Also, only *5 a day* and *Change4Life* seem to have engaged directly with the actual behaviour control determinant, for example by setting up cooking classes and transport to markets and shops. Why these differences exist, and what their impact might be, are questions that would require further research.

4.2 **Why map current practice onto insights from theory**

This table serves a number of purposes. First, it can be used as a heuristic for planning or examining behaviour change initiatives. It can do this by providing a clear organisational framework for thinking about the desired change in behaviour, the context in which this would take place, the factors that may help or hinder this change in behaviour, and the ways in which particular activities would address these issues.

Second, the table can be a useful tool for the process of evaluation of individual initiatives, by providing an accessible, transparent overview of the ways in which an initiative attempted to influence behaviour, looking beyond specific activities and elements of a campaign, for example, and focusing rather on the mechanisms through which it was expected that these activities would achieve the desired goal. Retrospectively, setting out the various aspects of initiatives in this way can also help identify what they did *not*

²³ Darnton's review (2008a) also discusses ways in which models and theories of behaviour change can be used by policy-makers as tools in the design of interventions. Darnton states that "While models can't account for all the complexities of behaviour and determine how people behave, they can help to identify some of the factors that influence those outcomes" (*ibid*, p.21).

address, which can in turn be useful in highlighting weaknesses or areas for improvement. It is worth noting, though, that this kind of tool does not aim to indicate that in order to be effective, particular initiatives must respond to each item identified through reviews of the theoretical (and potentially empirical) literatures. Rather, it is a tool for reflection on the ‘theory of change’ of each intervention.

Finally, the table can provide a clear, understandable and comprehensive way for organizations to set out, examine and assess information about the nature of current (or previous) behaviour change activities, what approaches are most commonly used and which ones are not.

It is worth noting, however, that as Darnton’s review states (2008b) there are limits to how much models of behaviour can tell us about interventions to influence behaviour. For instance, models fail to differentiate between people, thus limiting analysis of an intervention’s potential effect on different groups. Also, most models assume that social-psychological factors precede behaviour, which is not always the case. Darnton explains: “... there are instances where people are compelled to change their behaviour first, which then leads to a change in the social-psychological variables (e.g. attitudes and norms) afterwards” (*ibid.* p.37). He then goes on to say that this suggests that “interventions do not always have to work through social-psychological factors, although they do need them to be in line for behaviour change to be sustained” (*ibid.* p.38).

4.3 Closing remarks

As mentioned earlier in this chapter, the synthesis exercise above aims to provide an illustration of ways in which theory (and empirical evidence) can be used to reflect on current (or previous) behaviour change activities. It is an example of how such evidence can be usefully and clearly triangulated and synthesised to arrive at comprehensive overviews of the nature of ongoing activities. It could be adapted, modified and expanded to fit the analytical needs of particular organisations aiming to review and clearly articulate the nature, scope and rationale of these activities. It can also potentially be a useful communication instrument and contribute to evaluation processes, particularly as a tool for ‘formative evaluation’ (i.e. the process of ensuring the optimally effective design of an intervention) (Wellings and Macdowall, 2000).

Having examined current behaviour change programmes within the DH, and presented an analytical framework that helped unpick at least part of their ‘intervention logic’, we now turn to another key question of this enquiry: how to public health practitioners understand behaviour change initiatives, and what do they view as their main opportunities and challenges in the UK?

CHAPTER 5 **Influencing healthy living: perspectives from the inside**

This Chapter provides a brief overview of how understandings of behaviour change initiatives have evolved in the last few years, and what are some of the current perceived challenges and opportunities in this area.

Over the last few years, public health approaches to the promotion of healthier lifestyles in the UK have evolved significantly. This evolution is evident in recent government papers including the Wanless report *Securing our Future Health – Taking a Long-Term View* (DH, 2002), the White Paper *Choosing Health – Making Healthy Choices Easier* (DH, 2006), as well as the independent review on social marketing, *It's our Health* (NCC, 2006), commissioned by the DH as a commitment from the *Choosing Health* White Paper. Based on a review of relevant materials and on key informant interviews, this chapter examines this evolution and highlights some of the challenges and opportunities it presents.

5.1 **Changing approaches to promoting healthy living**

In 2002, the Wanless report highlighted the importance of understanding the ways in which future demand for health care could be reduced through health promotion activities. The 2006 report *Choosing Health* stated that the persistent and new public health problems affecting the UK call for “a step change in health improvement [that] will involve millions of people making different choices about the things they do in everyday life which impact on their health” (DH, 2006, chapter 1, p.16), and argues for “developing a new demand for health” (ibid, p. 12). Later that year, *It's Our Health* concluded that “continuing with existing methods and approaches was not going to deliver the type of impact on key health-related behaviour that was needed” (NCC, 2006: p. 7) and recommended that the government, and the DH in particular, adopt a *social marketing strategy* for health promotion and improvement. The establishment of the National Social Marketing Centre in December 2006 clearly signaled the government's commitment to developing new approaches to improving and promoting health.²⁴ Social marketing and communication-

²⁴ The concept of social marketing, however, has been in use for a few decades now. Between the 1950s and the 1980s marketers and public health experts in particular developed thinking around the use of commercial marketing approaches for social change in developing countries (Stead *et al*, 2006). During the 1980s this thinking became more prominent in the developed world; programmes such as *The National High Blood Pressure Education Programme* in the United States provided the initial impetus for the debate on how a 'social

based activities, however, are only one element in a wider government strategy to influence healthy living, which includes initiatives such as family-nurse partnerships, Health Trainers, and others.

In spite of its growing popularity and usage in the international public health community, understandings of social marketing are not always uniform. For example, a review of international literature on health promotion has shown that social marketing is sometimes perceived as a predominantly promotional, or even more narrowly, a communication activity, rather than as “a programme-planning process that applies commercial marketing concepts and techniques to promote voluntary behaviour change” (Hill, 2001, cited in Grier and Bryant, 2005, p.321).

In the UK, social marketing has been defined by the National Social Marketing Centre (NSMC), as “the systematic application of marketing, alongside other concepts and techniques, to achieve specific behavioural goals, for a social good”.²⁵ In addition, the NSMC offers a definition of *health-related* social marketing specifically: “the systematic application of marketing, alongside other concepts and techniques, to achieve specific behavioural goals, to improve health and to reduce inequalities”.²⁶ Most of the key elements of a social marketing approach identified by the NSMC are broadly the same as those in much of the peer-review academic literature; namely, exchange theory, audience segmentation, competition, the ‘marketing mix’, and consumer orientation.²⁷

Understanding social marketing in the UK

Thirteen interviews were conducted for this study with Regional Directors of Public Health (RDoPH), as well as with representatives of the Department of Health and the Director of the National Social Marketing Centre, which provided insights into perceptions of the nature and importance of social marketing in public health in the UK. A number of interviewees indicated that within government, particularly the DH, understandings of what could be effective mechanisms to promote healthy living are increasingly sophisticated, and that sympathy for the social marketing approach to health promotion in particular is growing. In fact, many of the interviewees recognised the growing importance in the UK of the social marketing approach to influencing behaviour,

marketing’ approach could contribute to the effective formulation and implementation of broad-based behaviour change programmes in public health (Lefebvre and Flora, 1988). Since then, social marketing (defined in one instance as “the use of marketing to design and implement socially beneficial behaviour change”) has continued to grow in popularity within the international public health community (Grier and Bryant, 2005, p. 1).

²⁵ Available at: <http://www.nsms.org.uk/public/default.aspx?PageID=10> (last accessed May 2009). Other definitions of social marketing have also been proposed, for instance Andreasen’s (1995): “Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society”. These definitions, however, provide a broad characterisation of an approach without themselves actually specifying what features a particular intervention has to have to qualify as social marketing (Stead *et al.*, 2006).

²⁶ Available at: <http://www.nsms.org.uk/public/default.aspx?PageID=10> (last accessed May 2009).

²⁷ See <http://www.nsms.org.uk/public/default.aspx?PageID=10> (last accessed May 2009) and Grier and Bryant, 2005.

and discussed the challenges and opportunities this presents. One of them went further, suggesting that these kinds of activities can have an important role in increasing the public acceptability of other measures aimed at influencing healthy living, such as the introduction of new legislation in a particular area (for instance, certain types of alcohol licensing, seat-belt legislation, drug re-classification, and so forth).

One interviewee described the social marketing approach by saying that “social marketing helps in understanding what will trigger people’s changes in behaviour”. In a similar vein, another interviewee described social marketing as an approach that can help elucidate “how best to influence different people’s choices to achieve social benefit”. Specifically, interviewees stated that there is growing awareness of the need for targeted messages addressing the specific needs and circumstances or particular groups through particular methods. In particular, four interviewees stressed the importance of gaining a better understanding of the determinants and motivation of change of different target groups so as to produce informed campaigns that are adequately targeted at specific at risk groups for example.

One of these interviewees gave the example of the *Know Your Limits* campaign on alcohol which targets young people, part of which includes shock advertising about the consequences of binge drinking. The interviewee held that this campaign fails to effectively target a large group of people who drink to excess such as “newly divorced men in their 40s and 50s” but who do not feel that the adverts of young people engaging in excessive drinking apply to them as well. The same interviewee mentioned that this particular group of men were also, according to research, likely to engage in unprotected sex but that sexual health campaigns addressing condom use and communicating messages about sexually transmitted infections are generally aimed at young people, thereby alienating this group of older men once more because they feel this message is not addressed to them or does not concern them. This and other interviewees remarked on the complexity of effectively targeting messages to particular groups, and on the need to improve on the ability to segment the audience and tailor messages without “turning off” other groups.

The definitions and understandings of social marketing did not vary significantly within the group of interviewees, nor were they significantly different from that offered by the NSMC. In particular, interviewees largely recognised and highlighted some of what the NSMC poses as the key features of a social marketing approach, most notably “audience segmentation”, a strong “consumer orientation”, and a clear understanding of “behaviour and behavioural goals”. Nevertheless, other important aspects of the social marketing approach were much less frequently mentioned, for example the use of (commercial) marketing techniques to achieve the desired goals, and the “exchange” element of social marketing, which entails recognising that social marketing offers benefits that customers value, but for which they often incur costs (Grier and Bryant, 2005). The latter point was emphasised by only two interviewees, one of whom argued more broadly that social marketing is also a tool to help design better services which will “please and attract consumers”. Social marketing, they argued, goes beyond changing people’s behaviour; it is also about helping service providers understand their ‘customers’ and improve service provision.

Regionalising behaviour change programmes

Most of the RDoPH interviewed highlighted the importance of ‘regionalising’ behaviour change programmes. According to interviewees, ‘regionalisation’ is key to the effective targeting and delivery of initiatives to influence healthy living because regional and local authorities and agencies are better able to accurately assess the needs and attitudes of people in their communities.

One interviewee stated that “programmes need to be tied closely to the needs of communities” and that the development of such programmes should ideally include careful local level assessment of “what support is needed, and what communities would like to see happen” in the creation of an environment that stimulates healthier behaviours. In a similar vein, another interviewee argued that national behaviour change campaigns and programmes should be “flexible to be adaptable to local conditions and contexts”.

This view was shared by our interviewees within the DH itself. They stated that the DH aims to “provide a more coordinated strategy approach from the centre, whilst maintaining room for different areas and organisations to experiment”. The goal, then, is a “balanced approach between support and initiatives from the centre, and local freedom to try new approaches” at the local level.

Resources in the regions

The ways in which this ‘regionalisation’ occurs, however, varies widely between regions as well as between areas of public health. Given the importance of ‘regionalising’ behaviour change initiatives, it is therefore interesting to explore the issue of the resources necessary and available to accomplish this effectively. For instance, one interviewee stated that at the time of the interview (early June 2009), there were no financial resources available in her region for *Change4Life* in addition to some materials and advice from the Department. In contrast, another interviewee explained that while there were significant financial resources available for *Change4Life* and obesity-related activities in her region, resources for other interventions were not as plentiful. Nevertheless, because alcohol was identified as a key priority for that area in particular, additional programme-specific resources were sought and obtained to complement and add to central government’s *Know Your Limits* campaign. The campaign, in the words of this interviewee, “had an extra push” in that region. For other issues that are not identified as key public health priorities, however, it is not always possible to mobilise extra resources to ‘regionalise’ and contribute to central government programmes.

Most (if not all) regions, however, seem to be able to lever local funding (for example from PCTs or SHAs) to enhance national initiatives (which receive funding directly from the DH). One example of this is *SmokeFree* South West, a tobacco control programme that builds on national tobacco campaigning. The programme had a total budget of £2.9 million per year, of which £2.5 million were provided by the PCTs in the South West with size of the contributions determined by the size of the population in each PCT. Still, the question of why some differences exist between the resources available in each region remains unclear from this research.

In developing and implementing local activities springing from, or in support of, central government initiatives such as *Change4Life*, *FRANK* and others, the RDoPH all mentioned

that each region has a representative of the NSMC (a Regional Development and Support Manager), who supports this work. According to the NSMC, the remit of this role is to directly assist the regions in promoting the adoption and integration of social marketing approaches, as well as “linking to and operating alongside the DH national support team work designed to assist PCTs to reach their targets and goals”.²⁸

Also importantly, many of the interviewees mentioned collaborative work with PCTs, schools and others as key partners in the promotion of public health through social marketing and other activities. These partners appear to often provide some of the resources necessary to complement those available through the Government Offices and Strategic Health Authorities.

5.2 Components of behaviour change programmes

There was also widespread agreement among the interviewees that effective health promotion approaches needed to include more than media-based campaigns. One interviewee, for example, stated that “media campaigns alone are of limited value” in promoting behaviour change, and that they are for the most part likely to have no more than “a small and short-term impact”. Another interviewee said that initiatives to promote healthy behaviour should not be merely “about providing information”. A third one argued that initiatives to influence behaviour change should be integrated with service delivery chains and are therefore unlikely to be effective if based only on media campaigns. One of the interviewees succinctly put it: “...for behaviour change to happen you need mutually reinforcing methods”.

Nevertheless, interviewees seemed to agree that the media element of health promotion programmes was important; they recognised the value of information provision in and of itself, and stated that there is a role for this in influencing healthy living. In order to increase its reach and effectiveness, interviewees argued that media-based campaigns also needed to deliver targeted messages. One interviewee stated that the DH appeared to have improved significantly in this respect, developing media campaigns that were “much sleeker” than they used to be. Another interviewee, however, was of the opinion that to a certain extent, some of the DH campaigns seem “haphazard, failing to approach the issues with a view to reducing health inequalities, which should ultimately be the aim of these campaigns”. This interviewee gave the example of the *Know your Limits* campaign, which “seems to be targeting middle-class wine-drinkers” and not the more problematic groups engaging in beer and spirit binge-drinking.

There was less agreement among interviewees regarding what, in addition to information provision, a programme to promote healthy living should consist of. Some interviewees argued that effective behaviour change programmes needed to include initiatives and services that made it easier for people to choose healthier lifestyles. Others highlighted the importance of comprehensive programmes that included a range of measures, from messages delivered through the media, to improvements in the delivery of relevant services,

²⁸ See: http://www.nsms.org.uk/images/CoreFiles/dft_Work_Programmeme_Sep_2008.pdf (last accessed June 2009).

to the provision of incentives (such as increased taxes on alcohol or tobacco, which raise prices and can lead to lower consumption). One interviewee argued that the social marketing approach helps in understanding what services and incentives should be provided which are likely to positively influence people's choices and behaviour.

Equally, there was little consensus about whether programmes should focus on one or more health-related messages. For example, only two interviewees highlighted the importance of adopting "holistic" behaviour change campaigns which, instead of focusing on a single issue, address a range of behaviour change issues that are often interlinked. One of these interviewees stressed that it is often common for people who eat junk food to also be physically inactive, smoke and drink to excess. As such, *Change4Life*, the new Department of Health campaign aimed at preventing obesity, was highlighted by those interviewees as a good example of a campaign that is more "holistic" because it is aimed at addressing multiple behaviours related to obesity and because it uses a "person-centred" approach that is more sophisticated and targeted. In a similar vein, one interviewee raised a question about the use of incentives in behaviour change programmes, which is not typically fully problematized in existing initiatives.

5.3 Implementing effective behaviour change programmes

In spite of broadly converging views on the importance of careful targeting and comprehensive approaches to positively influence behaviour, interviewees identified a number of challenges with the widespread implementation of such initiatives.

Most interviewees agreed that funding is a key confounder. Two key issues were identified in this respect. First, annual budgets, which to a large extent are set historically, place serious limitations to the scope and nature of health promotion initiatives. One interviewee gave the example of funding for alcohol-related programmes, which has historically been low (often less than £10 million²⁹), whereas *Change4Life*, a comprehensive programme to promote diet and exercise and prevent obesity has an annual budget of £90 million³⁰, which this interviewee considered more adequate given the expected impact.

A second, related challenge mentioned by interviewees was that funding for regional initiatives within a wider programme for behaviour change is often extremely limited. As mentioned above, the 'regionalisation' of campaigns and programmes was considered a key element of effective, well-targeted initiatives to promote healthy choices. However, some interviewees reported that these smaller scale initiatives were not adequately funded even when they could deliver "more value for money" than national approaches. One interviewee explained: "the *Change4Life* campaign has a budget of around £90 million a

²⁹ For example, the budget of the joint Know Your Limits campaign between the Department of Health and the Home Office was £10 million (£6 million from the DH and £4 million by the Home Office) (Source: http://www.utalkmarketing.com/pages/Article.aspx?ArticleID=10390&Title=New_%C2%A310_million_alcohol_awareness_campaign)

³⁰ The DH's budget for the *Change4Life* social marketing campaign is of £75 million over 3 years. In addition to this amount, the Advertising Association has pledged £200 million of media value to the campaign (Department of Health, 2009)

year, but we often get £150,000 for ‘regional adaptation’ of the campaigns”. On this topic, another interviewee said that in the *Change4Life* programme, for example, money is spent nationally but whether or not there is money available regionally or locally is often dependent on the ability of people at those levels to redeploy resources from other programmes. He went on to say: “In my view there is a clear failure to build activity at regional and local level into some of the programmes and to provide the resources to ensure that the campaigning is universal rather than randomly distributed across the country”.

Another challenge identified by some interviewees, particularly RDoPH, was the lack of piloting and evaluations that would enable them to more effectively design, implement and target initiatives. One interviewee mentioned that there was a need for more systematic research (including through focus groups) prior to launching a campaign in order to understand how best to target messages and services. Another commented that even where there is evidence of effectiveness from small scale pilots in the regions, this evidence is often not used for the development of larger-scale initiatives. This, in turn, links back to the issue of resources discussed above. While it may appear that resources are not sufficient to conduct robust exploratory research, piloting and evaluations, it is possible that, ultimately, investing in these activities would enable a more efficient allocation of resources later on, for example by improving the targeting of a particular initiative.

5.4 **Future challenges for behaviour change initiatives**

Looking to the future, a few interviewees mentioned that the current economic climate is likely to put pressure on resources for behaviour change campaigns. One interviewee in particular mentioned the importance of safeguarding resources for such campaigns in addition to preserving and increasing resources for preventive care generally because “it will save a lot of money in the long term”. The same interviewee also stressed that such campaigns and public health generally will increasingly need to address mental health issues in the future as the current economic climate will generate a surge of mental health problems such as anxiety and depression and as often, unhealthy behaviours such as excessive drinking, drugs and diet-related issues are interlinked with such problems.

In spite of these challenges, there are indications (such as the (relatively) recent establishment of the NSMC and the continued development of new and innovative initiatives like *Change4Life*) that behaviour change and social marketing approaches to public health seem likely to continue to grow in importance.

One interviewee raised the question of the role of new social networking media as a tool for public communications, especially around behaviour change, given that behaviour change programmes are expected to continue and even grow in importance over the next few years. While this was not a point raised by other interviewees, its relevance to broader questions around potential changes in the ways in which behaviour change activities are delivered makes it an interesting issue for further enquiry.

5.5 Closing remarks

This chapter provides a short overview of how approaches to influence healthy living in the UK have evolved in recent years, how this is perceived by the DH and regional 'implementers', and what are seen as the main challenges and opportunities of this evolving approach. It also provided useful additional context to understand how some of the most salient current initiatives to influence healthy living in the UK, such as *Change4Life* and *Know Your Limits* are perceived by these stakeholders.

The previous chapters in this report addressed the first two overarching issues in this research: understanding behaviour change programmes, and opportunities and challenges in using behaviour change programmes in the UK. In the final chapters of this report we explore the third issue, on assessing the effectiveness of behaviour change programmes. In order to do this, we first review international empirical evidence on the effectiveness of behaviour change initiatives, and then discuss some of the key issues in conducting evaluations of such activities.

CHAPTER 6 **International evidence on the effectiveness of behaviour change programmes**

While theoretical literature on what affects behaviour change is abundant (as described in Chapter 2), a separate body of research describes empirical observations on what works in influencing healthier choices. This chapter gives an overview of some of this empirical evidence, drawing on it to highlight some of the characteristics of approaches that have been found effective (and those found ineffective) in changing behaviour.

The literature review aimed primarily to provide additional evidence to understand the activities carried out by the DH to influence health-related behaviour. Given time constraints, the review focused primarily on existing systematic reviews and meta-analyses, which synthesize and summarize findings from individual studies. The evidence gathered and reviewed was organized across three areas of concern for public health: tobacco smoking, obesity and alcohol. These areas were chosen for two main reasons. First, these are three of the key areas on which current UK government behaviour change work in the health field focuses. While work is being done by the UK government in other areas as well (sexual health, cardiovascular problems, hepatitis C, and others), programmes in the fields of smoking, obesity and alcohol have been particularly prominent and visible in recent times. Second, there is an important body of evidence on the effectiveness of interventions to affect behaviour in these fields. While evidence of what works in other fields of concerns for public health such as sexual health and drug use amongst others, is also extensive a wider review of the literature to include these fields was not feasible within the scope and timeframe of this study. Nevertheless, we also reviewed a number of broad systematic literature reviews and meta-analyses in order to extract wider evidence of good practice of behaviour change campaigns across different public health fields.

While this review focuses primarily on literature on behaviour change campaigns with a mass media element, much of this research includes considerations of elements of programmes in addition to their mass media component. This widens the scope of possible insights from this literature, and its relevance to this research.

The findings from this review are organized into five sections: the first section looks at evidence on the effectiveness of behaviour change campaigns; the second section details the characteristics of effective campaigns; the third section highlights some of the reasons why different campaigns have been found to be ineffective; the fourth section looks at the

impacts of contextual factors on campaigns' effectiveness and; the last section focuses on the importance of target population characteristics.

The majority of the literature reviewing the effectiveness of behaviour change programmes in the area of public health comes from the US (N=19), followed by studies from Australia and New Zealand (N=5), Canada (N=4) and the UK (N=4). These figures indicate the geographic distribution of English language reports of evaluation research activity in this topic area. Notably, all of the evaluation literature covering campaigns on general health promotion, alcohol and obesity included effectiveness studies from the US. The following table summarises the countries covered in meta-analyses or reviews, by health topic area. As the table indicates, the health topic which has greatest geographic research coverage is obesity³¹, which includes literature on the effectiveness of programmes to either increase physical activity or improve diet and nutrition or both.

Table 6-1 Overview of countries covered in meta-analyses or reviews included in the literature review by health topic area of interest

Country, or Region	Alcohol	Tobacco	Obesity	General
Australia	X	X	X	X
Canada		X	X	X
Denmark			X	
UK		X	X	
Ireland			X	
New Zealand	X			
Norway		X	X	
Spain		X		
Sweden			X	
Switzerland				X
United States	X	X	X	X
Europe		X		X
Global				X

6.1 Evidence on the effectiveness of behaviour change campaigns

In this section, we examine existing evidence of the effectiveness of behaviour change campaigns, outlining some of the overall findings of the reviews and meta-analyses consulted. It is important to note, as previously stated, that the behaviour change campaigns that the literature refers to were not limited to mass media campaigns only but also comprised a wide range of accompanying initiatives geared towards changing the behaviour of their target population such as community-based programmes, education or counseling amongst others.

It is worth bearing in mind at this stage that it is a possibility that “studies with positive findings are more likely to be published or to be identified in a systematic review search” (Elder *et al*, p.63) and that this could impact on our conclusions regarding the effectiveness of behaviour change campaigns generally.

³¹ Please note that some of the meta-analyses or reviews included in this literature review covered more than one country.

6.1.1 Evidence from meta-analysis of behaviour change campaigns across different public health areas

The reviews covered here demonstrate that effectiveness is measured in different ways, with evaluations measuring campaign effectiveness in changing the behaviour of its target population, as well as antecedents or intermediate variables such as awareness, knowledge, belief, etc. For example, research found that a condom use media campaign combined with meetings with community leaders, formation of community advisory groups, and distribution of materials through schools and health fairs increased exposure to the message but did not increase actual condom use (Randolph and Viswanath, 2004). Most of the behaviour change campaigns comprised many components, with media being just one channel or aspect of the campaign – for instance media and face-to-face support were used in school-based interventions to reduce drinking and driving, or to increase fruit and vegetable consumption. Overall, we found only two meta-analyses out of thirty-eight that provided an estimate of campaign effect size.

While it is difficult to make direct comparisons of the effectiveness of campaigns in different fields, one meta-analysis (Snyder *et al.* 2004) does just this, by computing the effect size (i.e. proportion/size of target population that changed its behaviour as a result of the campaign) for different campaigns. The meta-analysis revealed that campaigns with the greatest effect sizes were for seat belts and oral health (see Table 2 in Snyder *et al.*, 2004). In Europe, immunization campaigns had the greatest success of any health topic (Snyder, 2007). This suggests that the effectiveness of a behaviour change campaign may be associated with the specific type of behaviour being promoted (Snyder, 2007; Randolph and Viswanath, 2004).

Although most meta-analyses do not report on campaign length, they conclude that mass media campaigns have a small but tangible effect *in the short-term* (i.e. effect measured straight after the campaign) on changing behaviour by 8% on average – the authors suggest using this figure as a benchmark for measuring any new campaigns (Snyder *et al.*, 2004).

Alcohol

From our search of meta-analyses and reviews on these topics, it is clear that there is a very significant body of literature that examines the impact of campaigns to reduce alcohol-related harms. The range of initiatives that has been assessed within this literature is considerable, making it difficult to draw overall lessons. Some of the activities that have been evaluated include mass media awareness and education campaigns, school-based campaigns, campus-based communication strategies, counter-advertising and even warning labels. The aims of such initiatives have also varied, ranging from prevention of drink-driving, to prevention of drinking during pregnancy, to overall messages regarding the harmful consequences of drinking above the recommended limits.

Much research has been conducted internationally (particularly in the US) about the effectiveness of campaigns to prevent and reduce drink-driving. There is some evidence that mass media campaigns can be effective in reducing drink-driving and alcohol-related crashes, although most of the campaigns found to be effective were implemented in communities that had existing drink-driving prevention activities, including strong enforcement efforts (Elder *et al.*, 2004). This evidence, therefore, suggests that “*under some conditions*, well-executed media campaigns can contribute to a reduction” in drink-driving

and alcohol-related crashes, although very few studies actually provide “unequivocal evidence that a given campaign actually reduced” drink-driving and alcohol-related crashes (*ibid.*, p. 63, emphasis added).³² Other reviews, however, have found that the impact of evaluated programmes tend to be relatively small and do not persist in the medium- and long-term (Babor *et al.*, 2003). The evidence in this field remains relatively inconclusive, particularly because research has not provided clear evidence on the ways in which the different campaigns lead to, or fail to lead to, changes in people’s drinking behaviour.

Tobacco

A majority of the articles reviewed on tobacco campaigns found the initiatives to be effective, or effective to some extent, in reducing smoking prevalence amongst the target population. In general, those campaigns found to be effective combined use of the mass media with other initiatives (e.g. face-to-face support, Nicotine Replacement Therapy, etc) and tended to use provocative and/or aggressive messages. However, two of the articles found tobacco campaigns not to be effective in reducing smoking prevalence, these articles referred either to a specific population, smokers of low socio-economic status, or to workplace smoking interventions. In particular, it is worth noting that one review (Nierdeppe *et al.*, 2008, p.1343 and p.1352) found that there was “considerable evidence that media campaigns to promote smoking cessation at the overall population level are often less effective, sometimes equally effective and rarely more effective among low socio-economic status population relative to high socio economic status population” and that “many of the media campaigns targeted at the overall population could have the unintended effects of increasing or maintaining existing disparities in smoking rates and the mortality burden of tobacco by socio-economic status.”

Obesity

For physical activity campaigns, the reviews examined here found little evidence of changes in behaviour at the population level (i.e. they found limited evidence of increased physical activity, change in diets, changes in weight, etc). For those studies reporting evidence of increased physical activity in the review by Finlay and Faulkner (2005), the effect and the results were limited to certain segments of the overall target group (i.e. non-obese individuals, and walking as the physical activity that increased). One of the reviews (Cavill *et al.*, 2004) found a third of studies (5 out of 15) reported an increase in physical activity but two-thirds (10 out of 15) showed no sign of increase. The strongest evidence of campaign effect related to an increase in awareness (Cavill *et al.*, 2004). Notably, any changes reported in studies were short-term effects.

For diet and nutrition campaigns, the review by Knai *et al.* (2006) found campaigns had no detrimental effect on consumption of fruits and vegetables and the majority of studies (10 out of 15) had a positive effect. Moreover, the three studies with the most effect lasted the longest (12 months), and the highest increases in fruit and vegetable consumption occurred for campaigns where exposure was the most intense such as the *5-a-day Power Play!* campaign in the US (Knai *et al.*, 2006).

³² Once more, it worth bearing in mind that the authors of the Elder *et al.* 2004 meta-analysis indicate that a “potential bias that could distort the conclusion [...] is the possibility that studies with positive findings are more likely to be published or to be identified in a systematic review search” (p. 63).

The evidence on impact of diet and nutrition campaigns was strongest for multi-component interventions (e.g. the Eat Well, Keep Moving campaign in the USA was linked with local organizations facilitating access to low-cost fruit and vegetables as well as physical activity) (Knai *et al.*, 2006). Similarly, for physical activity campaigns, community-wide campaigns were most effective when high visibility media was combined with support and self-help groups, counselling, screening and education, community events and walking trails; or when the media campaign was integrated with sport and recreation sectors, policy or legislation which was the case for campaigns in Finland and New Zealand (Cavill *et al.*, 2004).³³

6.2 Characteristics of effective campaigns

The literature reviewed here identifies a number of important characteristics of effective public health behaviour change programmes which we have summarised in the points below. These are generic characteristics that can apply to all types of behaviour change campaigns and are for the most part, identified in the literature as complementary and good practice characteristics which, if incorporated in behaviour change campaigns, can significantly increase the likelihood of their success in changing the behaviour of their target populations.

Programme components – Comprehensive programmes appear to be more successful; for instance, mass media campaigns are more effective when they are complemented by other initiatives.

The types of initiatives that have been used in conjunction with mass media are varied and include: school education programmes, community-based interventions, general outreach work, regulatory, legislative enforcement of laws, investment in resources and infrastructures (e.g. provision of training to healthcare staff, expansion of infrastructure, etc) (Cavill *et al.*, 2004; Randolph and Viswanath, 2004, Elder *et al.*, 2005; Knai *et al.* 2006; Black *et al.* 2000).

Structural/ecological elements – Behaviour change programmes are most effective when they seek to eliminate or reduce access barriers to healthier lifestyle choices, and when they include a wide range of initiatives. Evidence suggests that comprehensive behaviour change campaigns addressing all of the following are most effective:

- Policy and environmental constraints;
- Individual factors in behaviour change (knowledge, attitudes, beliefs);
- Social influences on target population.

³³ Recent research from the United States has suggested that the recent obesity epidemic in developed countries is largely a consequence of excessive availability of food, combined with an overabundance of powerful ‘cues’ to eat (Cohen, 2008). According to this research, while current approaches to tackling the obesity epidemic have focused on information, willpower and making better choices in diet and exercise, the mechanisms that affect overeating are likely to operate, to a significant extent, beyond the level of individual awareness and control. Given people’s limited cognitive ability to control their own responses to food and to eating cues, researchers have argued for more careful regulation of the food environment, including limits on the number and types of food-related cues, portion sizes, food availability, and food advertising (*ibid.*).

Adoption type – It is typically harder to change behavioural habits than to promote the adoption of new behaviour:

- Commencement of new behaviour, or replacement of old with new, is more effective than either cessation of unhealthy behaviour already in place, or prevention of risky behaviour;
- Cessation campaigns are more effective with enforcement messages aimed at the target population than without;
- Among cessation campaigns, campaigns to cease non-addictive behaviours are more effective than campaigns to cease addictive behaviours. As an illustration, it is presumably harder for someone to quit smoking (because of its physically addictive nature) than for someone to quit eating certain foods.

Target group – There is evidence that developing a more accurate understanding of determinants of behaviour change according to each target group can help develop effective programmes:

- Community-based organisations are better at targeting specific groups within the community than government or education organisations at the national level;
- Campaigns targeting groups by medical condition (or stage of behaviour) are more successful than general health promotion campaigns;
- Universal campaigns are less effective for sub-groups such as those at high risk.

Maximise length and frequency of media-based campaigns – Greater duration and frequency are associated with greater behaviour change and awareness of campaigns' messages by the target population because it creates a greater opportunity for the target population to be reached.

Message framing, tailoring and content - The framing of campaign messages (e.g. gaining health benefits, or losing good health) is important to campaign success.

- Minority and underserved groups require targeted messages that take into account their cultural and social environment in order to be able to fully engage with the messages of the campaign³⁴;
- Messages that contain 'fear appeals' in addition to suggestions of skills and actions are more effective in changing behaviour compared with fear-based messages alone because they provide the target population with the means to address the issue (e.g. as such, an anti-smoking campaign which only presents the hard health

³⁴ One example of evaluation of an unsuccessful anti-tobacco campaign referred to the fact that the campaign and its messages were aimed at the 'general' population rather than at specific groups and that it therefore did not produce any positive effects on smokers who were part of lower socio-economic groups because it did not effectively address barriers to access to services and information (Niederpepper *et al*, 2008). Another example in the literature reviewed related to cervical cancer screening amongst immigrant women in Canada. The article referred to the importance of cervical cancer screening campaigns addressing language barriers as well as cultural and social issues, in order to be effective amongst this particular target population (Black *et al*, 2002).

facts about smoking without providing information about quit-smoking services will be less effective than one that does both);

- Provocative and aggressive messages that deliver stark facts have been shown to be effective especially in comparison to directive messages;³⁵
- Messages that provide information and also incorporate cognitive and emotional components (i.e. messages should clear up misconceptions and address real or perceived barriers to change) are most effective.

6.3 Why are some campaigns ineffective?

Many evaluations of behaviour change campaigns failed to explain why a campaign was not successful. Only one of the reviews examined here highlighted some of the reasons why campaigns on school children's diet and nutrition may be ineffective (Knai *et al.*, 2006). It found these reasons:

- individual factors (e.g. children's naturally erratic eating behaviour);
- environmental factors (e.g. the omnipresence of fast food; poor access to quality produce; high cost of fruit and vegetables; etc); and,
- competition with other school priorities for financial and other resources.

In the literature, the most detail provided on characteristics of ineffective campaigns concerns anti-tobacco smoking initiatives. The articles reviewed highlighted two reasons why some anti-smoking campaigns were ineffective: campaigns did not adopt a 'comprehensive' approach making use of mass media campaigns and other initiatives instead of a single component, and campaigns used an ineffective media strategy and ill-adapted messages. On this second point, the kinds of messages that were shown to be either ineffective or to have reverse consequences on the target populations (e.g. make the target population have a more positive view of the tobacco industry for example) included directive messages such as in the "Think, Don't Smoke" campaign of Philip Morris. One review (Farrelly *et al.*, 2002) stressed that directive messages as used by the Philip Morris campaign could actually have adverse consequences and engender more favourable feelings towards the tobacco industry amongst young people. This kind of directive messages includes telling youths not to smoke and that smoking is uncool. On the other hand, Farrelly *et al.* (2003) stressed that messages concerned with the health (including disease and death) and cosmetic (i.e. smoking causes bad breath and yellow teeth) consequences of smoking were shown to be ineffective in reducing intentions to smoke. However, it is worthy to note that a majority of the articles we reviewed on anti-smoking campaigns did not refer directly to the type of messages used in effective campaigns but rather focused on the importance of the use of multiple components in addition to a media element for these

³⁵ For example, "the truth" campaign in the United States demonstrated that shock messages can have a striking influence within a short period of time on attitudes toward tobacco and the tobacco industry amongst young people (an example of a shock message of the campaign is an ad that showed 1,200 body bags being piled up in front of a tobacco company's headquarters, to illustrate the fact that this number of people die each day of tobacco-related illnesses in the US) (Farrelly *et al.*, 2002).

campaigns to be effective in reducing smoking prevalence. However, the articles that did mention the type of messages used in successful campaigns stressed that these were aggressive, provocative and evoked strong emotions (Farelly et al, 2003; Friend and Levy, 2002 and Sowden, 1998). By comparison, those that were found to be less effective or ineffective were either humorous or directive (Farelly et al, 2003 and Friend and Levy, 2002).

6.4 Impact of contextual factors

Given the known difficulty of establishing causality in observational studies, such as pre/post evaluations of campaigns, it is important to understand the wider context in which mass media and social marketing health campaigns are implemented. It is often the case that factors external to a campaign can enhance, or act as barriers to its success. By understanding what the literature identifies as relevant contextual factors that influence a campaign's effectiveness, it becomes possible to design a campaign whereby such factors are harnessed, or addressed, to optimize a campaign's impact.

6.4.1 Why does context matter?

External factors are as important in influencing people's healthy or unhealthy behaviours in the first place as they are in influencing people's ability to change their behaviour.³⁶

For example, research has indicated that factors such as unemployment, lack of social support, living in an unsafe neighborhood, not having enough financial resources to meet food and medical care needs as well as having caring responsibilities increase the likelihood that someone will take up smoking and become regular smokers (Sorensen, 2004). In addition, it has been observed that "success with quitting was highest amongst those with the most socioeconomic resources" (Sorensen, p. 230). Equally, recent research has focused on the role of "obesogenic" environments (i.e. environments "encouraging consumption of energy and discouraging expenditure of energy" (Hill *et al*, 2003, p.853)) in increasing the number of dangerously overweight people. Hill *et al* (2003) highlight some of the factors that create this type of environment, these include: "easy availability of a wide variety of good-tasting, inexpensive, energy-dense foods in large portions", "reductions in jobs requiring physical labour, reduction in energy expenditures at school and in daily living, and an increase in time spent on sedentary activities such as watching television, surfing the Web, and playing video games" (Hill *et al*, 2003, p.853). It is clear that some of these factors pose significant hurdles to behaviour change campaigns which are trying to counter their influence. For example, time pressures and lack of cooking skills both combine to create a powerful disincentive for people to cook healthy meals from scratch, whilst the availability and affordability of cheap ready-made meals creates an easy option for people. Hill *et al* make an important point when they state that "health is only one factor contributing to the decisions that people make every day about food and physical activity and, because its consequences are long-term, it often has less impact than factors with immediate influence, such as short-term reward and convenience" (Hill *et al*, 2003, p.854).

6.4.2 **The impact of context on the effectiveness of behaviour change campaigns**

The meta-analysis by Snyder *et al* (2004) found that the enforcement of policies and interventions as part of, or alongside, a campaign was strongly related to campaign effect size (by 17%) and critically determined the extent to which the behaviour change promoted by the campaign was adopted among the targeted population. For example, the most successful drink-driving campaigns were found in those areas with high levels of pre-existing law enforcement (Elder *et al.*, 2004; 2005). Elder *et al* (2005) found that the greatest effect in reducing overall rates of drinking and driving was achieved when random breath testing was taking place alongside a drink-driving campaign.

For those campaigns that rely on health service utilization, Caldwell and Miaskowski (2002) noted that differences in existing social structures play a role in determining how campaign messages are delivered and received and how health services are utilized. While the authors' remarks concerning unequal insurance coverage, high financial barriers to healthcare, and a more competitive media environment may be more relevant to the US context, the UK is also affected by inequalities in health, including unequal access to health services.

In the case of tobacco, other interventions and health promoting activities already in place may contribute to increasing smoking cessation attempts by smokers (Friend, Levy, 2002). These interventions and activities can include: smoke-free legislation (e.g. no smoking permitted indoors in public areas such as bars and restaurants), excise taxes on tobacco products, youth access restrictions and enforcement.

The literature assessing the effectiveness of campaigns engages further with factors that are primarily economic, social or cultural, particularly to indicate, in each particular case, which ones seem to be of particular importance. Further research would be necessary to shed more light on the way in which these external factors influence, or should be taken into account in, individual campaigns for specific public health issue.

6.5 **The impact of target population characteristics**

In examining the research literature on effectiveness of mass media campaigns, the issue of target group – be it the general population, 18-25 year-olds, individuals at high-risk, etc. – is clearly important. Existing evidence suggests that campaign messages and strategies often need to be targeted carefully because different groups receive and respond to campaigns in very different ways.

For example, the impact of gender on the effectiveness of different campaigns has been found to vary depending on the type of campaign itself (Snyder, 2007; Caldwell and Miaskowski, 2002). Gender differences were found for mass media campaigns aimed at reducing help-seeking delay for myocardial infarction as these campaigns reduced delay in help-seeking among men more than among women (Caldwell and Miaskowski, 2002). The authors of the reviews offer several reasons to explain this finding such as gender roles, pain perception, atypical symptoms of women. The opposite pattern of gender differences was found for mass media campaigns on nutrition (e.g. 5-a-day) where a greater level of awareness was attained among women than among men (Snyder, 2007). This finding

implicates the gender role of women as the family's meal providers and hence their higher sensitivity to nutrition messages.

The reviews of evidence on the effectiveness of campaigns to reduce drinking and driving commented that it remains a question for future research whether effectiveness varies by recipient characteristics (Elder *et al.*, 2004; 2005). Although some studies found that universal programmes were less effective for high-risk youth, or that middle or junior high school students were a more effective target population, an opposite pattern was also reported by other studies. Hence, Elder *et al.* (2005) concluded that the results of the evidence in this area were "inconclusive and inconsistent" on the differential impact on high versus low risk as a determining characteristic of campaign effectiveness.

Similarly, Cavill *et al.* (2004) found that campaigns to increase physical activity were more effective for particular target populations than others. In particular, the authors concluded that campaigns were more effective for those individuals in socio-economic groups that are already contemplating healthy lifestyles, including being already motivated to be more active. Such individuals are likely to have higher levels of education and knowledge about risk factors and the importance of adopting a healthy lifestyle and they are equally likely to have access to the resources (financial and otherwise) needed to support healthy living. Similarly, the findings by Finlay and Faulkner (2005) seem to corroborate the conclusion of Cavill *et al.* (2004) on the difference made to campaigns' effectiveness by recipient characteristics. More specifically, one media campaign reviewed by Finlay and Faulkner (2005) reported significantly poorer recall of the physical activity promotion campaign in individuals with lower education levels and from ethnic minority groups.

6.6 Closing remarks

The literature reviewed here represents only a very small proportion of the behaviour change literature, which is large and varied. There are a number of limitations associated with such a restricted review. In particular, given the limited timeframe and scope of this study, our narrow focus on existing systematic reviews and meta-analyses means that some of the granularity and richness of individual studies on what works in changing behaviour is lost to the analysis. Moreover, because systematic reviews and meta-analysis are few and far between relative to individual studies, it is possible that some of the more recent peer-reviewed research is also overlooked. Finally, focusing primarily on research in the fields of tobacco smoking, alcohol and obesity excludes a broad and informative body of research into behaviour change and choice in other areas of public health such as drug use and sexual health, and more widely in fields as varied as road safety and seatbelt use, behaviour related to pensions and savings, and use of public versus private transport amongst others.

Nevertheless, the findings presented in this chapter aim to provide some useful, if limited, insights into some of the broad factors that have been found to make behaviour change programmes more effective. Of particular note, the evidence strongly suggests that such programmes are most effective when complemented by other, parallel initiatives (for example, combining use of mass media to raise awareness with school-based interventions, engagement of GPs, and so forth). The evidence also indicates that sustainability of these

programmes over longer periods, and careful and targeted framing of messages, can have greater impact.

Drawing on insights from this and previous chapters, the following chapter discusses some of the key issues in conducting evaluations of the impact of behaviour change initiatives. Engaging critically with evaluation issues is of great importance in a context in which behaviour change activities are set to continue growing in centrality and much public investment is made on them.

CHAPTER 7 **Challenges in evaluating behaviour change initiatives**

In the previous chapters, we have focused on findings from theoretical and empirical research on how behaviour change initiatives work, and examined in more detail how these findings map onto current DH understanding and programmes to influence healthy living. But as much of the literature and many of the interviewees suggest, a key element of effective approaches is programme evaluation. Evaluations not only enable authorities, practitioners and other stakeholders to learn lessons about what works and what does not in order to improve practice. They also enable assessments of some of the returns on investments in such programmes, which can then inform future funding decisions and assist in more considered allocation of resources.

However, evaluations of programmes to influence behaviour are not straightforward, and many considerations need to be taken into account in deciding how best to conduct such an assessment. The literature and interviews have highlighted many issues that need to be considered for the evaluation of behaviour change programmes. Some of the key evaluation issues are described below.

7.1 **Evaluation challenges**

Gap in the evaluation of the sustainability of campaigns and programmes

One of the biggest gaps in evaluation knowledge and assessment measures of the effectiveness of public health programmes with a media component is sustainability. Many reviews and meta-analyses discuss the absence of long-term outcome assessment measures to evaluate effectiveness from a sustainability perspective (Randolph and Viswanath, 2004; Snyder, 2007; Cavill *et al.*, 2004; Caldwell and Miaskowski, 2002).

Evaluating and considering the unintended consequences of campaigns and programmes

Similarly, it has been argued that future campaign evaluations need to consider unintended consequences, as well as long-term impacts (Randolph and Viswanath, 2004). One main reason identified in the literature for why sustainability is the biggest challenge identified concerns the design of some of these programmes, especially the ones centered around mass media campaigns; such campaigns are, by design, of relatively short duration. Only one review (Cavill *et al.*, 2004) highlighted one specific case of the longest known campaign in Canada from 1971 to 2000 called ParticipACTION. The authors considered

that this continuous campaign likely provided high levels of brand recognition and may have contributed to the social climate favoring physical activity in Canada. The importance of systematically measuring sustainability in campaign evaluations stems from the mixed evidence regarding changes in effects over time (Elder et al., 2005; Snyder, 2007), and that for many but not all types of campaigns “initial effects tended to dissipate over time”, such as for instructional programmes to decrease drinking and driving (Elder et al., 2005, p. 293). Similarly, the level of recall for health-enhancing physical activity campaigns was found to decline over time (Cavill et al., 2004).

Understanding the magnitude of campaign and programme effects

From a general evaluation methods perspective, the meta-analysis of Snyder (2007) emphasized that knowing whether campaigns are effective or not is at least as valuable as knowing what is the magnitude of the campaign’s effect. Although many evaluations of programmes report on changes in behaviour as the outcome, several review authors suggest that there is a need to assess intermediate measures, or moderator variables, of effectiveness such as knowledge improvement, attitudes, beliefs, exposure (Snyder *et al.*, 2004; Randolph and Viswanath, 2004; Cavill *et al.*, 2004; Snyder, 2007).

Assessing the information environment as an influencing contextual factor

Randolph and Viswanath (2004) suggested that, since few campaigns assess the information environment as an influencing contextual factor, evaluators need to assess: (1) environment hostility/hospitability; (2) competitors’ strengths and behaviours (this is what the anti-tobacco “Truth Campaigns” did specifically); and, (3) impact of unplanned media coverage outside the campaign (given that unplanned media coverage can result in modest increases in health services utilization). Two other health topic-specific reviews made the same point about current evaluations not considering the impact of unplanned media: Elder et al. (2004) noted that the effects of “earned media” such as news stories related to drink-driving have not been evaluated, and Finlay and Faulkner (2005) remarked that “incidental coverage” is not considered in evaluations of physical activity promotion campaigns.

Evaluating the messages used by campaigns and programmes

Elder *et al.* (2004) discussed several issues related to the evaluation of messages within these campaigns. These issues included the following: evaluating message content effects; evaluating message delivery effects; evaluating message/recipient interactions; and improving research design. One important issue related to message content (as distinct from message delivery) is the fact that, “decisions related to message content are generally made based on the opinions expressed by experts or focus groups rather than on evidence of effectiveness in changing behaviour [sic]” (Elder *et al.*, 2004, p. 57). Among the common motivational themes in programmes centered around mass media campaigns to reduce drink-driving (e.g. fear of arrest and legal consequences of arrest; promotion of positive social norms; fear of harm to self, other or property; and stigmatizing drinking drivers as irresponsible and dangerous), there is continuous controversy in the literature over the effectiveness of fear-based drink-driving campaigns – fear appeal can increase the probability of behaviour change but also increase defensive avoidance. Elder *et al.* (2004) refer to a meta-analysis of fear appeals (Whitte and Allen, 2000) which concluded that anxiety-arousing messages that are accompanied by specific information about actions that

people can take to protect themselves can maximize behaviour change while minimizing defensive avoidance.

Choosing the appropriate measures of effectiveness and defining effectiveness

The literature highlights that there are many ways in which effectiveness of behaviour change campaigns has been measured. For example, some have measured awareness and recall rates of the campaign, others have looked at accomplished behaviour change (e.g. number of smokers who have quit, number of women being screened for cervical cancer, etc) or changed in attitudes and beliefs (e.g. changes in young people's attitude towards tobacco smoking or exercise, etc). This issue is linked to the central question of what constitutes meaningful change?' (Knai *et al.*, 2006).

“Effect modification” or interaction between message content and delivery

There is an evaluation issue of “effect modification”³⁷, or interaction, between message content and delivery. As Elder *et al.* (2005) discussed, campaigns with effective message content are also more likely to be delivered interactively – degree of interaction is a characteristic of effective campaigns. Thus, evaluations of campaigns must consider (and, ideally report on) the joint action between causal partners, message content and message delivery.

Attribution of programme effects to external factors

The impact of mass media campaigns cannot be distinguished from the consequences of changes in laws or enforcement that are combined with a campaign. There often are a multitude of external factors (i.e. factors not related to the campaign) that can impact on effectiveness and it is not always easy or possible to dissociate the effects these external factors might have on the target populations of these campaigns. For example, enforcement of legislation and regulation, increases in excise duties (e.g. increase in the price of tobacco or alcohol) and media coverage of issues dealt with in the campaign can all have an impact on the target population. It is important to note that in some case, these external factors will have been in place before these campaigns are under way whilst at other time, these factors might be introduced during or after the campaign and that the timing of these external factors might impact differently on the target population's attitudes and behaviours towards a particular issue, such as smoking.

Attribution of programme effects to different programme components

There are evaluation issues related to the fact that often, campaigns are multi-components programmes which makes it is often hard if not impossible to dissociate the effects of a single component, such as a mass media element. For example, none of the articles reviewed indicated that media campaigns were most effective on their own, whereas a majority highlighted instead that media campaigns were an essential *component* of effective programmes.

³⁷ For further information on the statistical implications of this key concept in epidemiology, please see: Susser E, S Schwartz, A Morabia and EJ Bromet. *Psychiatric Epidemiology: Searching for the causes of mental disorders*. Oxford: Oxford University Press; 2006.

Data robustness and validity

There is an evaluation issue related to the fact that a majority of these campaigns rely on self-reported data and that this data might not have been collected robustly and/or used appropriately which raises concerns about the validity of some evaluation results.

Selecting an appropriate control group

In addition to these issues, there are more general issues surrounding evaluations of effectiveness that lie in the need for an appropriate control group or control situation to adequately measure campaigns' impact on their target population. If an adequate control group or control community can be found, this could address the afore-mentioned issue of external factors that might influence the effectiveness of programmes; this will only be the case if the control situation is appropriately chosen to contain the same external influences as the "campaign situation".

All of the issues mentioned above apply to behaviour change campaigns generally and those using a mass media component in particular. These issues should ideally be taken onboard at the onset of a behaviour change campaign when considering the evaluation of their effectiveness on their target populations.

7.2 Closing remarks

The importance of assessing the impact of social interventions is increasingly recognised in academia and in the public policy sphere. Nevertheless, for the reasons outlined above, it remains a challenging area in some fields, including in the evaluation of the impacts of programmes to influence healthy living. As a result, opportunities for learning and improvement are often missed from initiatives in the UK and elsewhere, and the ability of policy-makers to make informed decisions about the kinds of activities that can deliver good value-for-money may be compromised. In the UK, our research suggests that there is still some way to go in establishing a strong culture of evaluation of these kinds of activities. By providing an overview of some of the challenges in conducting robust evaluations in this field, and thus highlighting areas which need to be taken into consideration in assessing impact, this chapter can help inform strategies for improving evaluations of behaviour change initiatives.

The information and analysis provided in this document address some of the questions posed by the National Audit Office for this research. In particular, the key questions for this research were around understanding more about the main health programmes in which influencing behaviour is a central element; how these programmes are perceived, planned and implemented within the DH; what the main challenges and opportunities are with this approach to achieving public health goals, and; what the challenges are in evaluating the programme's impact on behaviour change. This document suggests an analytical framework within which to examine DH behaviour change activities, explores current understandings of these activities through interviews and document reviews, and discusses some of the key issues in evaluating them.

The findings so far raise a number of interesting questions, for example around: the limited integration of theoretical and empirical understandings of how behaviour change can best be achieved; how will understandings of behaviour change initiatives within the DH (and beyond) continue to evolve; what are some of the pressures faced by regions trying to deliver 'regionalised' and/or 'localised' versions of the national DH behaviour change programmes, and how these pressures can be addressed; and the challenges in evaluating such programmes.

Nevertheless, it is clear that these kinds of activities are considered important strategies for the achievement of public health goals in the UK, and that there is growing impetus across the DH to improve their effectiveness. The development and promotion of approaches that adhere to the social marketing framework seem to be a key way in which the DH and the regions are trying to make this happen, with growing emphasis on social marketing as a "powerful tool for bringing about behavioural change" (DH, 2008). However, as the *Ambitions for Health* paper of the DH states, "the systematic application of social marketing is still relatively new in England" (DH, 2008). It is so new, in fact, that there is still a limited evidence base on whether it *can* work in achieving the aim of influencing people to make healthier choices in diet, exercise, alcohol and drug use, sexual behaviour and other areas. The extent to which more sophisticated approaches to influencing behaviour permeate initiatives in the different areas of concern (diet and physical activity, tobacco, alcohol and drug use, sexual health and so forth), and what the impact is, will require further monitoring and analysis over the coming years.

There are other issues about approaches to influence behaviour towards healthier choices (to 'nudge' people to make the healthier behaviours and options (Thaler and Sunstein, 2008)) which remain unaddressed in the present study but could be of interest not only to

the National Audit Office but also to the DH itself and other stakeholders. For instance, there are questions about whether and how some of these approaches limit people's choices, and where they do, whether this is the right thing to do. There is also a question about whether and how these kinds of programmes can or should address some of the external, structural barriers to behaviour change; as much of the theory and empirical evidence indicate, influencing behaviour requires not just a shift in attitudes but also a reduction in the actual (rather than just perceived) barriers to behaviour change. While it is possible (although it has not been proven) that these external barriers only need to be addressed *after* attitudes and norms have been changed, it is also possible that attitudes and norms are *already* to a significant extent sympathetic to healthy behaviour change.³⁸ In its broadest incarnation, social marketing approaches aim to tackle these external, 'supply-side' constraints on behaviour, as well as attitudes and social norms. However, the extent to which social marketing is indeed used in this way remains unclear.

In addition, we still do not fully understand whether certain types of programmes and activities are more effective in one area than in others; for example, it may be the case that comprehensive programmes such as Change4Life can have a significant positive impact on diet and physical activity, but would be less effective, or ineffective, if applied to reducing drug use. Finally, there are questions about the value-for-money of these approaches; even where they have positive results, do behaviour change initiatives represent good value-for-money?

It is clear that even though influencing people's choices in health and other areas has been a subject of great research and policy interest for decades, many questions remain unanswered about how this is understood and applied in public health in the UK. As discussed throughout this paper, it appears that there is a growing drive towards better planning, conceptualising and implementing sophisticated approaches to behaviour change within and beyond the DH. It is likely that initiatives to influence people's lifestyles choices to improve public health outcomes will continue to be used in coming years, in public health but also in other areas. In this context, this briefing paper aims to provide the National Audit Office with a springboard for considering their own future value-for-money study programme in this area.

³⁸ Prof. Gregory Maio, personal communication.

REFERENCES

Reference list

- Agha, S. (2003) 'The impact of a mass media campaign on personal risk perception, perceived self-efficacy and on other behavioural predictors', *AIDS CARE* 15:6, pp. 749-762.
- Ajzen, I. (1991) 'The theory of planned behaviour', *Organizational Behaviour and Human Decision Processes* 50:2.
- Andreasen, A. (1995) *Marketing social change: changing behaviour to promote health, social development, and the environment*, Jossey-Bass, USA.
- Babor, T. et al (2003) *Alcohol: no ordinary commodity*, Oxford University Press, UK.
- Bala, M., Strzeszynski, L., Cahill K. (2008) 'Mass media interventions for smoking cessation in adults', *Cochrane Database of Systematic Reviews* Issue 1. Art. No.: CD004704. DOI: 10.1002/14651858.CD004704.pub2.
- Black, M., Yamada, J., Bakker, R., Brunton, G., Cava, M., Camiletti, Y., Colton, P., Harmer, M., Mann, V., Michel, I., Micucci, S., O'Brien, M. A., Rath, D., Varcoe, K. (2000) *Community-based strategies to promote cervical cancer screening*, Hamilton, ON, Canada: City of Hamilton, Social and Public Health Services Division. Effective Public Health Practice Project.
- Black, M.E., Yamada, J., Mann, V. (2002) 'A Systematic Literature Review of the Effectiveness of Community-based Strategies to Increase Cervical Cancer Screening', *Canadian Journal of Public Health* 93(5):386-93.
- Brenner, P., Dalziel, D. and Evans, L. (2006) *Evaluation of the 5 a day programme – Final report*, Big Lottery Fund, London.
- Byles, J.E., Sanson-Fisher, R.W., Redman, S., Dickinson, J.A., Halpin S. (1994) 'Effectiveness of three community based strategies to promote screening for cervical cancer', *Journal of Medical Screening* Jul;1(3):150-8.
- Caldwell, M.A., Miaskowski, C. (2002) 'Mass media interventions to reduce help-seeking delay in people with symptoms of acute myocardial infarction: time for a new approach?' *Patient Education and Counseling*, 46:1, pp. 1-9.

- Cavill, N., Bauman, A. J. (2004) 'Changing the way people think about health-enhancing physical activity: do mass media campaigns have a role?' *Journal of Sports Sciences* 22:8, pp. 771-790.
- Cohen, D. (2008) "Neurophysiological Pathways to Obesity: Below Awareness and Beyond Individual Control," *Diabetes*, Vol. 57, July 2008.
- Coulthard, M., Farrell, M., Singleton, N. and Meltzer, H. (2002) *Tobacco, alcohol and drug use and mental health*, Office for National Statistics, UK.
- Darnton, A. (2008a) *Practical guide: an overview of behaviour change models and their uses*, Government Social Research Unit, HM Treasury, UK.
- Darnton, A. (2008b) *Reference report: an overview of behaviour change models and their uses*, Government Social Research Unit, HM Treasury, UK.
- DeJong, W.J. (2002), 'The role of mass media campaigns in reducing high-risk drinking among college students', *Journal of Studies on Alcohol* Supplement 2002 March (14), pp.182-92.
- Department of Health (2008a) *Know Your Limits 08/09 campaign, 2008* (unpublished paper).
- Department of Health (2008b) *Alcohol Harm Reduction KPIs*, (unpublished paper).
- Department of Health (2009a) *The DH Marketing Evaluation Handbook*, UK: Department of Health.
- Department of Health (2009b) *Change4Life Evaluation Discussion paper February* (unpublished paper).
- Department of Health (2009c) *Change4Life marketing strategy – In support of Healthy Weight, Healthy Lives, April 2009* (unpublished paper).
- Dixon, H. et al (1998) 'Public reaction to Vitoria's '2 Fruit n' 5 Veg Every Day' Campaign and reported consumption of fruit and vegetables', *Preventive Medicine* 27, 572-582.
- Elder, R.W., Nichols, J.L., Shults, R.A., Sleet, D.A., Barrios, L.C., Compton, R. (2005), 'Effectiveness of School-Based Programmes for Reducing Drinking and Driving and Riding with Drinking Drivers: A Systematic Review', *American Journal of Preventive Medicine*, 28.
- Elder, R.W., Shults, R.A., Sleet, D., Nichols, J.L., Thompson, R.S., Rajab, W. (2004) 'Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involved crashes: a systematic review', *American Journal of Preventive Medicine* 27:1, pp. 57-65.
- Ennett ST, CL Ringwalt, J Thorne, et al. (2003) 'A comparison of current practice in school-based substance use prevention programmes with meta-analysis findings', *Preventive Science* 4: 1-4.

- Farrelly, M.C., Healton, C.G., Davis, K.C., Messeri, P., Hersey, J.C., Haviland, M.L. (2002) 'Getting to the truth: evaluating national tobacco countermarketing campaigns', *American Journal of Public Health* 92:6, pp. 901-907.
- Farrelly, M.C., Niederdeppe, J., Yarsevich, J. (2003) 'Youth tobacco prevention mass media campaigns: past, present, and future directions', *Tobacco Control* 12(Supplement 1) :i35-i47; doi:10.1136/tc.12.suppl_1.i35
- Fazio, R. H. (1990) "Multiple processes by which attitudes guide behaviour: the MODE model as an integrative framework", *Advances in Experimental Social Psychology* 23:75-109.
- Finlay, S.J., Faulkner, G. (2005) 'Physical activity promotion through the mass media: inception, production, transmission and consumption', *Journal of Preventive Medicine* 40(2):121-30.
- Foerster, SB. et al. (1995) 'California's "5 a day--for better health!" campaign: an innovative population-based effort to effect large-scale dietary change', *American Journal of Preventive Medicine* 11:2, 124-31.
- Friend, K., Levy, D.T. (2002) 'Reductions in smoking prevalence and cigarette consumption associated with mass-media campaigns', *Health Education Research* 17:1, pp. 85-98.
- Greenwood, T. (2001) 'Comparing Smoking Cessation Interventions for Work-Site Disease Management', *Disease Management & Health Outcomes* 9:12, pp. 565-576.
- Grier, S and Bryant, CA (2005) "Social marketing in public health", *Annual Review of Public Health* 26:319-339
- Halpern, D. et al (2004) *Personal responsibility and changing behaviour: the state of knowledge and its implications for public policy*, Primer Minister's Strategy Unit, Cabinet Office, UK.
- Hill, R. (2001) "The marketing concept and health promotion: a survey and analysis of 'recent health promotion' literature", *Social Marketing Quarterly* 2:29-53.
- Hill, JO, Wyatt, HR, Reed, GW and Peters JC (2003) 'Obesity and the environment: where do we go from here?', *Science, New series* 299:5608, pp.853-5.
- Hornik, R. (2002), 'Public health communication: making sense of contradictory evidence', in Hornik, R. (ed) *Public health communication: evidence for behaviour change*, Lawrence Earlbaum Associates, United States.
- Home Office in conjunction with the Department of Health and the Department for Education and Skills (2006) *FRANK Review 2004-2006*. Online, available: <http://drugs.homeoffice.gov.uk/publication-search/frank/FRANKReview2004-2006?view=Binary> (last accessed August 2009).

- Huhman M, LD Potter, FL Wong, SW Banspach, JC Duke and CD Heitzler (2005) 'Effects of a mass media campaign to increase physical activity among children: Year 1 results of the VERB campaign', *Pediatrics* 116: 277-284.
- Knai C, Pomerleau J, Lock K, McKee M. (2006) 'Getting children to eat more fruit and vegetables: a systematic review', *Journal of Preventative Medicine* 42(2):85-95.
- Lefebvre, RC and Flora, JA (1988), "Social marketing and public health intervention", *Health Education Quarterly* 15:3, 299-315.
- Mapstone, J and Fox, C (2009) *NHS South Central Change4Life Summit*. Online, available:
http://www.dh.gov.uk/en/News/Currentcampaigns/Change4Life/DH_092080. (last accessed April 14th 2009).
- Meshack, A. F., Hu, S., Pallonen, U. E., McAlister, A. L., Gottlieb, N., Huang, P. (2004) 'Texas Tobacco Prevention Pilot Initiative: processes and effects', *Health Education Research* 19:6, pp. 657-668.
- Niederdeppe, J., Kuang, X., Crock, B., Skelton, A. (2008) 'Media campaigns to promote smoking cessation among socioeconomically disadvantaged populations: what do we know, what do we need to learn, and what should we do now?', *Social Science and Medicine*, 67(9), pp.1343-1355.
- Peersman, G., Harden, A., Oliver, S. (1998) 'Effectiveness of health promotion interventions in the workplace: a review', *Health Education Authority*, 1998.
- Randolph, W, Viswanath, K. (2004) 'Lessons learned from public health mass media campaigns: marketing health in a crowded media world', *Annual Review of Public Health* 25: 419-37.
- Roe, L., Hunt, P., Bradshaw, H., Rayner, M. (1997) 'Health promotion interventions to promote healthy eating in the general population: a review', *Health Education Authority*, 1997.
- Schagen, S. et al. (2005) *Evaluation of the School Fruit and Vegetable Pilot Scheme – Final Report*, Big Lottery Fund, London.
- Secker-Walker, R.H., Worden, J.K., Holland, R.R., Flynn, B.S., Detsky, A.S. (1997) 'A mass media programme to prevent smoking among adolescents: costs and cost effectiveness', *Tobacco Control* 6(3):207-12.
- Snyder, L. and Hamilton, M. (2002): 'A meta-analysis of U.S. health campaign effects on behaviour: emphasise enforcement, exposure and new information, and beware the secular trend', in Hornik, R. (ed) *Public health communication: evidence for behaviour change*, Lawrence Earlbaum Associates, United States.
- Snyder, L.B. (2007) 'Health communication campaigns and their impact on behaviour', *Journal of Nutrition Education and Behaviour* 39:2, pp. S32-S40.

- Snyder, L.B., Hamilton, M.A., Mitchell, E.W., Kiwanuka-Tondo, J., Fleming-Milici, F. and Proctor, D. (2004) 'A meta-analysis of the effect of mediated health communication campaigns on behaviour change in the United States', *Journal of Health Communication* 9, Supplement 1, pp. 71-96(26).
- Sorensen, G, Barbeau, E, Kay Hunt, M and Emmons, K (2004) 'Reducing Social Disparities in Tobacco Use: A Social-Contextual Model for Reducing Tobacco Use Among Blue-Collar Workers', *American Journal of Public Health* 92:2, pp.230-9.
- Sowden, A.J. (1998) *Mass media interventions for preventing smoking in young people*, Cochrane Database of Systematic Reviews Issue 4. Art. No.: CD001006. DOI: 10.1002/14651858.CD001006.
- Sowden, A.J., Stead, L.F. (2003) *Community interventions for preventing smoking in young people*, Cochrane Database of Systematic Reviews 2003, Issue 1. Art. No.: CD001291. DOI: 10.1002/14651858.CD001291.
- Stead, M., Tagg, S., MacKintosh, A.M., Eadie, D. (2005) 'Development and evaluation of a mass media Theory of Planned Behaviour intervention to reduce speeding', *Health Education Research* 20:1, pp. 36-50.
- Stead, M., Gordon, R., Angus, K. and McDermott, L. (2006) 'A systematic review of social marketing effectiveness', *Health Education* 107:2, pp. 126-191.
- TNS (2008) *KYL Units Campaign – MID WAVE Topline summary* (unpublished paper).
- Thaler, R.H.; and Sunstein, C.R. (2008) *Nudge: Improving Decisions About Health, Wealth, and Happiness*; New Haven: Yale University Press.
- Tones, K. (2000), "Evaluating health promotion: beyond the RCT". In: Norheim L, Waller M. (eds) *Best practices: a selection of papers on quality and effectiveness in health promotion*, Estonian Centre for Health Promotion, 86-101, Estonia.
- Welling, K. and Macdowall, W. (2000) 'Evaluating mass media approaches to health promotion: a review of methods', *Health Education* 100:1, pp. 23-32.
- Whitte K and M Allen (2000) 'A meta-analysis for fear appeals: implications for effective public health campaigns', *Health education and behaviour* 27: 591-615.