Science and Technology Committee
Behaviour Change
Written Evidence from N-R

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Introduction

1. The National Institute for Health and Clinical Excellence (NICE) is the independent organisation responsible for providing national guidance on promoting good health and preventing and treating ill health.

2. NICE’s Centre for Public Health Excellence produces guidance for the NHS, local government and other sectors about populations, communities, groups and individuals on activities, policies and strategies that can help prevent disease or improve health. The guidance may focus on a particular topic (smoking), a particular population (schoolchildren) or a particular setting (the workplace). All recommendations, standards and services are developed in consultation with independent advisory committees which include experts and members of the public and which examine the best available evidence of effectiveness (does it work?) and cost effectiveness (is it good value for money?).

3. The Centre for Public Health Excellence is a national leader in the synthesis and review of the evidence about health related behaviour change. The Centre utilises a broad multidisciplinary perspective drawing upon health, economics, social and behavioural sciences, and has developed one of the most robust systems in the world for evaluating the evidence about the effectiveness of behaviour change interventions across the full spectrum of the UK population, both in specific topics and generically.

4. In October 2007, NICE published Behaviour Change recommendations for NHS and other professionals with responsibility for helping people to change their health-related knowledge, attitudes and behaviour so that they can lead healthier lives. The guidance is based on a comprehensive assessment of the evidence on what approaches and strategies are effective in bringing about health-related benefits for the population as a whole. Our submission reflects some of the recommendations in this and other related NICE guidance, a full list of which can be found on our website at www.nice.org.uk/Guidance/PHG/Published.

Summary

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548 www.nice.org.uk/PH6. The guidance is due for update at the end of 2010
5. We are pleased that the importance of health-related behaviour change is being recognised. Medicine can achieve only so much in treating disease and disability. A genetic predisposition to disease is difficult to alter, and a person's social circumstances can also be difficult to change, at least in the short to medium term. However, changing people’s behaviour — as individuals and collectively — may be easier. Evidence shows that approaches and interventions aimed at changing people’s behaviours, and also at preventing harmful behaviours from being taken up in the first place, can be both effective and cost effective.

6. There is an enormous amount of high-quality evidence on behaviour change at individual level which NICE has reviewed,\(^{549}\) and the psychological techniques and principles have been well researched and understood. However, the evidence base is not complete, and it is only relatively recently (and most notably in the years following publication of NICE’s guidance) that researchers and policy makers have begun to piece together the evidence from different disciplines and levels of intervention into co-ordinated theories of change\(^ {550}\). As the evidence has been collated and assessed, it has become increasingly clear that although we know what works — and why — in some areas, in other areas the evidence is less clear cut, contradictory, or even absent.

7. The majority of experimental evidence about behaviour change relates to individual approaches, and comes largely from disciplines within psychology. Some of this evidence is compelling, and it can be used to make clear recommendations about how best to influence people’s health-related behaviours. However, much of the evidence is limited and it is rare that this evidence can be extrapolated or generalised from those interventions to the wider population with confidence, and without caveats. Additionally, theoretical evidence and accounts of how and when change happens (for example, psychological theories of change) is often narrow, fairly speculative and based on the favoured position of the author, for example whether they are informed by behaviourism, social cognitive or social constructionist theories about the nature of behaviour.

8. There is less experimental evidence about what works to influence behaviour when working with or at community and population levels. But other types of evidence, for example from observational and other less controlled types of studies, evidence from practice, and the accumulated experience of policy implementation and subsequent social change, can be pieced together to help understand what works. The NICE guidance on behaviour change considered the full range of evidence in making recommendations about what works.

9. Many attempts to encourage health-related behaviour change by the NHS and other organisations are limited in their effectiveness, or actually fail, because
   - they do not take account of the evidence

\(^{549}\) A useful place to start is in the ‘background information’ section of our Behaviour Change guidance, which includes a summary of the key behaviour change theories, an economic evaluation and a number of reviews commissioned by NICE.

they do not take account of the theories and principles of successful planning, delivery and evaluation, and/or
they are based on non-evidence-based precepts and theories.

10. This could be avoided by following the principles outlined in the NICE behaviour change guidance. These include:
   • The need to ensure that the best available evidence is used.
   • The need to carefully plan interventions and programmes aimed at changing behaviour, taking into account local and national contexts, and working in partnership with recipients
   • The need to adequately equip practitioners with the necessary competencies and skills to support behaviour change, using evidence-based tools
   • The need to co-ordinate behaviour change interventions on individual, community and population levels.
   • The need to evaluate interventions, and learn from the findings of those evaluations, using the evidence to inform policy and practice

11. Although these principles are straightforward, achieving behaviour change is not simple, even though (or perhaps because) it appears to be so. The reality of changing individual or societal behaviour is complex. One-off solutions or interventions are usually not enough. For example, in many parts of UK society we have de-normalised smoking as a socially acceptable activity, but it has taken nearly 60 years of intervention and action at different levels to do so — since Doll and Hill’s first paper on the link between smoking and lung cancer\footnote{Doll, R & Hill, A.B. (1952) Smoking and carcinoma of the lung, \textit{British Medical Journal}; 2: 84-92.} — and smoking is still very much acceptable and engrained in some population groups.

12. At present, there is no strategic approach to behaviour change across government, the NHS or other sectors, and many different models, methods and theories (many of which are not evidence based) are being used in an uncoordinated way.

13. Interventions with individuals can be a very effective way of changing some behaviours in some circumstances, especially when those interventions are of appropriate intensity, delivered by a trained professional, focused, tailored to the individuals needs and sustained long enough for change to be engrained. For example, cognitive behavioural therapy (CBT) can be effective for people with mild or moderate depression\footnote{See NICE clinical guideline CG90: Treatment and management of depression in adults, including adults with a chronic physical health problem, \url{www.nice.org.uk/nicemedia/live/12329/45890/45890.pdf}}. But individually-based approaches can also be expensive compared with interventions that target communities or populations and may not be effective or cost effective unless they clearly target the groups who are at most risk if their behaviour does not change. What is more, although consciously engaging individuals in behaviour change can be effective and worthwhile, it can also bring into play a host of social and psychological factors in terms of their self-efficacy (belief in their own ability to change), their history, how they see themselves in relation to others, and their motivation. If there is no expertise or flexibility in the intervention to address some of these barriers, it may not be effective.
14. Sometimes legislation, regulation or some other change to the social and economic environment that people inhabit is needed to produce or support behaviour change.\textsuperscript{553} Relatively simple things, like changing the default option to a healthier choice, using opt-out rather than opt-in techniques\textsuperscript{554} or making the healthier choice the easier or less expensive one, can have a huge influence on behaviour. Even here, though, the relationship between intervention and behaviour is not straightforward and other factors can have an impact on the outcome. For example, legislation enacting the smoking ban, and the introduction of mandatory seat belts were both successful – we can show a definitive reduction in deaths in hospital admissions and RTAs respectively since the bans – but the ban on mobile phone use whilst driving has arguably been less effective.

15. People from some groups, for example, lower socioeconomic groups or black and minority ethnic groups may face economic, social or cultural barriers which hinder efforts to change their behaviour or make healthier choices. Sometimes, interventions that benefit the majority of the population may act to widen inequalities in health (by improving the health of the majority whilst leaving others behind), or may even be harmful to some groups. The potential impact of interventions on health inequalities should be assessed on a case-by-case basis, and action may be needed to specifically target or support those less able (or willing) to change their behaviour.\textsuperscript{555}

16. Despite the great strides made in recent years, NICE’s work on developing guidance on behaviour change has identified a number of gaps in the evidence related to behaviour change interventions and programmes:

- Evidence about the cost-effectiveness of behaviour change evaluations in some topics is lacking, in particular, in relation to specific sub-groups (for example, 19–30 year olds, low-income groups and particular ethnic and disadvantaged groups).
- Evaluations of behaviour change interventions frequently fail to make a satisfactory link to health outcomes. Clear, consistent and specific outcome measures need to be specified.
- Evaluations of interventions based on specific psychological models tend not to relate the outcome measures to the model. As a result, it is difficult to assess the appropriateness of using the model as a means of describing behaviour change.
- Few studies explicitly address the comparative effect that behaviour change interventions can have on health inequalities, particularly in relation to cultural differences.
- There is a need for more information on the links between knowledge, attitudes and behaviour. Conflation between them should be avoided.

\textsuperscript{553} A review of the evidence on road safety and pro-environmental behaviour, carried out to inform the behaviour change guidance, contains some excellent examples of these sorts of interventions www.nice.org.uk/nicemedia/live/11868/44522/44522.pdf

\textsuperscript{554} See draft NICE guidance on increasing the uptake of HIV testing in men who have sex with men: www.nice.org.uk/nicemedia/live/12065/50930/50930.pdf

• There is a lack of reliable data from which to extrapolate the long-term health outcomes of behaviour change interventions.

Questions posed by the committee

Research and Development

I. What is known about how behaviour can be influenced? What special considerations apply to addictive behaviour?

We know a great deal about how to influence behaviour – both about how to stop people from taking up harmful behaviours in the first place, how to help people to change those harmful behaviours, and the contexts in which those harmful behaviours are more likely to develop in the first place. The NICE guidance on behaviour change contains a set of evidence-based principles for people working with individuals, communities or populations about how best to change behaviour. Other NICE public health guidance556 provides recommendations on how to influence specific health-related behaviours, such as smoking, physical activity, weight management, and alcohol misuse. In short we know that in order to effect change, commissioners, practitioners and policy makers should:

a. Base their intervention on the best available evidence and be clear about the theory that underpins the behaviour change desired – in other words, why they think this intervention will work, under what circumstances, for whom, and how;

b. Carefully plan interventions and programmes aimed at changing behaviour, taking into account local and national contexts, and working in partnership with recipients;

c. Make the most of key ‘teachable’ moments in the life-course – points of change (e.g. leaving or changing schools, changing or losing a job, having a baby, divorce, retirement) where people may be vulnerable to risk factors (behaviours that might harm their health), but also more open to positive change;

d. Train and equip practitioners with the necessary competencies and skills to support behaviour change, using evidence-based tools;

e. Co-ordinate behaviour change interventions on individual, community and population levels, and ensure that both policy and delivery infrastructures are there to support, monitor and improve intervention and practice;

f. Evaluate interventions, and learn from the findings of those evaluations, using the evidence to inform policy and practice.

Addictive behaviour does pose particular challenges, as the behaviours have taken time and effort to establish (smoking, for example, is rarely experienced as pleasurable when first tried), are usually deeply engrained, supported and reinforced by the individual's lifestyle and / or social context, and very difficult to influence. Additionally, by definition, addictive substances perpetuate a desire for their continued use, physically, psychologically or both.

556 See, for example, NICE guidance on school-based interventions to prevent smoking www.nice.org.uk/PH23 or promoting physical activity in the workplace www.nice.org.uk/PH13
Some population and community-level interventions have been effective in some areas, but rarely without good-quality, appropriate intervention with the individual themselves. In fact, what we know from areas like smoking is that concerted action at all levels is required to effect change. Nevertheless, there is some good evidence – and NICE public health guidance – about individual interventions influencing a range of addictive behaviours, including preventing alcohol misuse, smoking prevention and cessation, and drug misuse. For example, in the development of NICE guidance on brief interventions and referral for smoking cessation, several interventions were found to be effective and highly cost effective: brief advice lasting 5 minutes, brief advice plus self help material and brief advice plus nicotine replacement therapy.

It may sometimes be easier (and more cost effective) to identify those at risk of taking up addictive behaviours and intervene appropriately, than subsequently to change an addictive behaviour. In many cases the risk factors for various addictive behaviours can be identified in early/mid childhood, before the behaviour has been initiated, with a reasonable degree of accuracy. NICE guidance on school based interventions to prevent the uptake of smoking recommended that peer-led interventions with the following characteristics would be likely to be effective (and cost effective) at preventing smoking uptake if they

a. Linked to relevant PSHE activities
b. Were delivered both in class and informally, outside the classroom
c. Were led by young people nominated by the students themselves (the peer leaders could be the same age or older)
d. Ensured the peer leaders were trained outside school by adults who have the appropriate expertise
e. Ensured peer leaders received support from these experts during the course of the programme
f. Ensured young people can consider and, if necessary, challenge peer and family norms on smoking, discuss the risks associated with it and the benefits of not smoking.

Although individual-based approaches to addictive behaviours can be effective, they are more likely to be effective if they are supported by a range of co-ordinated activities and information at community and population levels, and where there is appropriate and sustained support at national and local level to train staff appropriately, support and deliver interventions, monitor and evaluate services.

One of the key issues is distinguishing between the initial cues to action and sustaining the behaviour change by reinforcement. For example, in smoking cessation we have found evidence that different factors are related to attempts to stop and the success of those attempts. Interventions to increase smoking cessation in the population therefore need to take account of this. In one study beliefs about the effects of smoking on future health and having a partner who disliked their smoking were positively associated with making a quit attempt at follow-up, while reporting enjoying smoking at baseline was negatively associated

557 www.nice.org.uk/PH1
with making a quit attempt at follow-up. How long from waking to the first cigarette of the day and age of starting smoking were positively associated with success of quit attempts.559

2. What are the policy implications of recent developments in research on behaviour change?

There is a marked lack of information about what works to change behaviour at policy level, in part because few policies have been evaluated in these terms (and those that have – in full, or part – have not necessarily been well or appropriately evaluated). What we do know about developing policy for behaviour change is contained within the NICE guidance.

Some of the most important non-psychological research about behaviour change has been done by Dr Ray Pawson560. His work emphasises the importance of describing the detailed causal pathways from intervention to outcome and the connections between the different points along the pathway. Clearly describing the intention, pathway and outcome of interventions then in turn provides a clear framework for evaluation of the intervention – its pros and cons – and its effects over time. This approach can also help us to learn from experience and the evidence, because it is easier to ensure that the results of that evaluation are used to inform and develop what we do. We are of the view that this approach – articulating the causal pathway of intervention at this level - is vitally important and should be routinely used in planning and implementing interventions561.

3. Is there adequate research capability within the United Kingdom to support the current pace of developments in behaviour change policy interventions? Is there sufficient funding for the evaluation of behaviour change interventions?

A considerable amount of public health research – especially evaluation research - is at least implicitly concerned with behaviour change. There is less research that explicitly concerns itself with testing different models or approaches for change.

The UK’s capacity for this kind of research is good, with much potential, but the approach is disparate and often highly individualistic. There is not enough funding available for behaviour change evaluation. In the past many policies were not rigorously evaluated. This has changed in that the vast majority of new project funding is contingent upon an evaluation being built in; however it is difficult to access this highly disparate data.

All NICE public health guidance contains a list of gaps in the evidence, and recommendations for research to fill these gaps. These are based on thorough consideration of the evidence, and are fed into research funders’ strategies. Funding needs to be sustained – it is often difficult to show short-term effects, and policy makers / funders should understand that they are in it for the long haul. See our earlier comments on smoking policy for example –

sometimes, population-level change can take concerted effort across multiple levels over a decade or more.

Research should also be sufficiently powered (include enough people) to pick up on changes arising from the ‘intervention’. As a rule of thumb, for interventions that are intended to be rolled out nationally at least 10% of the total budget should be spent on research. There is little point in encouraging ad hoc, small scale local evaluations that tell us very little. An initiative to capture and share evaluation findings - so that they may be used to develop and inform planning and purchasing – would be of universal benefit.

4. **Are there adequate structures and expertise across government and the public services more generally to support the translation of research developments in behaviour change into policy interventions?**

It sometimes appears that research is not fed back into policy and practice, and cross-departmental mechanisms in government for sharing knowledge / evidence do not have the status that is needed. Evidence from both research that specifically evaluates different behaviour change theories and models, and from the more ‘routine’ evaluation of public health interventions, is often left out of the next cycle of planning, commissioning and delivering policies and services. We suggest that better cross departmental mechanisms in government for sharing knowledge / evidence are required. This could include, for example:

- a. Developing shared understanding of what behaviour change activities are undertaken, how they would work, and with whom (understanding the ‘causal pathways’ of policy interventions) within and between departments
- b. Collating evidence about the impact and effectiveness of behaviour change interventions across all levels, for dissemination to Government and the public sector
- c. Providing training and support for planning and evaluation

It needs to be explicitly recognised that research, suitably synthesised and appraised, with relevant training, is a core part of government and the public service.

5. **What should be classified as a behaviour change intervention?**

Anything that seeks to influence behaviour, either at a population or individual level. This is generally at the heart of most work in government and public service. Much policy has a behavioural component that requires people to act in certain ways or to change, regulate or modify their behaviour. It may be wiser to consider the behavioural components of all policies rather than label certain interventions as ‘behaviour change’

6. **How should different levels of intervention (individual, organisational, community and national) and different types of intervention (legislative, fiscal, educative) interact in order to achieve policy goals more effectively?**

The NICE behaviour change guidance explores this in detail. See paragraph 10 of our summary.

It is worth noting, too, that although of late there has been much scientific and policy level discussion of ‘behaviour change’ as a distinct field of activity, it is in fact engrained in much of
what the public sector does on a day-to-day basis. Much (if not the majority of) public health intervention is concerned with influencing behaviour in some way. Although it is helpful to synthesise evidence across the board, from a range of disciplines and activities, about what works to change behaviour, it is not necessarily helpful to see this work as separate from the remainder of public activity and intervention. So in addition to synthesising and developing the evidence base on what works to change behaviour, the findings – and an overall ethos of behaviour change – need to be integrated across the public sector.

7. Should behaviour change interventions be used in isolation or in combination with other policy interventions?

Much of policy is concerned with influencing behaviour – of individuals, families, groups, organisations or services - by preventing it, changing it, or stopping it altogether.

It may be unhelpful, then, to think about behaviour change as something separate from other types of intervention or policy goal or behaviour more generally. In fact, we know that multicomponent interventions, operating at different levels and on different aspects of the problem, tend to be more successful than more narrowly focused activities. Evidence shows that the most useful way to think about this issue is in relation to packages of interventions and activities.

8. Have publicly funded behaviour change interventions been both evidence-based and subject to effective evaluation? How successful have such interventions been?

There are some examples of publically funded behaviour change interventions that have been evidence based, and others that have been appropriately evaluated – there are fewer to which both apply. Others may have been developed using the best available evidence, but poorly or only partially implemented. Our published public health guidance includes recommendations about effective interventions across a range of topic areas – most if not all of these will have been publicly funded, and in order to feature in our guidance they will have been robustly evaluated. The evidence reviews that are produced to inform our guidance also all contain comprehensive evidence tables of UK and non-UK intervention studies, evaluations, RCTs and other trials.

More specifically, we have examples of tobacco control strategies that have included interventions targeted at all levels, from population (taxation, smokefree legislation, mass media) through to community and individual level, which have been aimed at preventing uptake of smoking as well as smoking cessation. They have been aimed at different age groups – children, adolescents, adults, older people, and taken place in different settings – GP practices, community settings (church halls, libraries, supermarkets) and workplaces. All have good evidence of effectiveness and cost effectiveness.

Another example is the recent obesity strategy 'Healthy Weight, Healthy Lives' This was guided by the conclusions of the 2007 Foresight report and used a cross government expert advisory group. Evaluation was embedded in this work (e.g. rigorous evaluation of the Healthy Towns initiative) but the results of this are not yet available, and if halted risks being another short term strategy.
In general, there has been too much time and other resource expended upon short-term pilots – which are often strategically and theoretically unrelated to the evidence base or to other initiatives, and for which it is hard to demonstrate short term success.

9. **Within government, how are the lessons learnt from the success or lack of success of behaviour change interventions fed back into the design of future interventions? Are lessons learned from industry and voluntary sector behaviour change activities also taken into account?**

More needs to be done in this respect. The ‘silos’ that exist between teams and Government departments also seem to operate between public sector organisations, and also across parliamentary terms. Lack of shared understanding about behaviour change, a lack of common ownership for projects that should be cross-departmental or cross-organisational, lack of platforms or repositories for evidence, and the short-term nature of many funding initiatives mean that lessons are often lost. Unfortunately when organisations involved in implanting behaviour change interventions are closed or reorganised, little is done to retain their institutional knowledge.

10. **What mechanisms exist, at national and local government level, to provide advice and support during the design, piloting, implementation and evaluation of behaviour change interventions in order to ensure that they achieve intended policy goals and also cultural changes within government and public services more generally?**

There needs to be a more systematic approach to this at both local and national level, although NICE provides a very well-informed set of public health guidance and recommendations aimed at doing just that. It would benefit from expanded capacity for implementation.

11. **What mechanisms exist within government to coordinate and implement cross-departmental behaviour change policy interventions?**

12. **What mechanisms exist within government to cascade learning and best practice on behaviour change policy interventions?**

See question 4 on translation. This is difficult to answer from outside government. If such mechanisms exist they are not sufficiently visible.

13. **When is it appropriate for the state to intervene to influence the behaviour of members of the public and how does this differ from when it is appropriate for the commercial or voluntary sector to intervene? In particular, when should this be done by outright prohibition and when by measures to encourage behaviour change? Are some methods of producing behaviour change unacceptable? Which and why?**

This is a difficult and contentious area. Generally speaking, public health follows the principle that if the behaviour directly harms others, the state has a duty to intervene. If the behaviour harms self, then advice and education is the appropriate way forward. If some members of society are particularly vulnerable and are unable to act on their own behalf (children, the very old and frail) once again the state has a duty to intervene. A difficult and sensitive area is where people’s behaviours do not directly harm others (e.g. by causing cancer or road
deaths), but where the consequences of their behaviour (e.g. being obese, smoking) result in the use of considerable amounts of public money (such as the NHS) to treat or support. These general principles have been explored in detail by the Nuffield Council on Bioethics\(^{562}\). However, these principles are sometimes complex to enact and due account of freedoms and liberties need to be borne in mind. NICE’s Citizens’ Council has explored some of these issues\(^{563}\).

14. **Should the public be involved in the design and implementation of behaviour change policy interventions and, if so, how? Should proposed measures for securing behaviour change be subject to public engagement exercises or consultation? Should they be piloted? Do considerations differ in the case of interventions aimed at changing addictive behaviour?**

Yes, and this is already the case with NICE guidance, which is sent out for consultation (via stakeholder groups) before being published. NICE has produced guidance on community engagement\(^{564}\) - the process of getting communities involved in decisions that affect them. The guidance recommends how communities can be effectively involved in the planning (including priority setting and resource allocation), design, delivery and governance of health promotion activities, and activities and initiatives to address the wider social determinants of health.

In our other guidance, there are recommendations related to the need to address local concerns during the development of initiatives, for example about the cost of a healthier diet, the risks of cycling, and concerns about crime.

**International comparisons**

15. **What lessons can be learnt from previous successful or unsuccessful behaviour change interventions in other countries? Which countries provide the most helpful examples of best practice? Are behavioural change interventions generally transferable between different societies?**

The US Surgeon General, among others, has identified the importance of a comprehensive approach to tackling the use of tobacco. Cancer Research UK has been funding an international comparative study of tobacco control strategies. NICE has also identified an internal comparative study on rates of unintentional injuries and strategies to reduce them. However, we always need to give careful consideration to the applicability of work in other countries to the UK context. As we pointed out earlier, social and cultural factors can be highly influential in determining the success (or failure) of an intervention, and so applicability needs to be carefully considered.

**Tackling Obesity**

16. **The Committee would particularly welcome submissions on behaviour change interventions, whether in the public sector, the private sector or**

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\(^{564}\) [www.nice.org.uk/PH9](www.nice.org.uk/PH9)
by voluntary organisations, designed to tackle obesity, in the United Kingdom or internationally, in order to examine:

a. the latest developments in the evidence-base in relation to changing eating and physical activity behaviour;

b. who are the most effective agents for the delivery of behaviour interventions to tackle obesity;

c. how current behaviour change interventions tackle obesity and what use is made of available scientific evidence;

d. whether such interventions are appropriately designed and evaluated; and

e. what lessons have been learnt and applied as a result of the evaluation process.

NICE has issued a range of recommendations for a wide range of organisations, including the NHS, on behaviour change that will directly or indirectly impact on efforts to tackle obesity. These include public health and clinical recommendations in the 2006 guidance on the prevention and management of obesity and public health guidance on weight management before, during and after pregnancy (2010), the prevention of cardiovascular disease (2010), physical activity in children and young people (2009), and maternal and child nutrition (2008).

Guidance on a whole system approach to preventing obesity is currently being developed.

The introduction to the 2006 guidance on obesity noted that small, sustained improvements to daily habits help people maintain a healthy weight but making changes can be difficult and is often hindered by conflicting advice on what changes to make. It is stressed that

a. People choose whether or not to change their lifestyle or agree to treatment

b. Barriers to lifestyle change need to be explored and

c. Advice needs to be tailored for different groups.

In this and other guidance, is it noted that health professionals have on-going training needs in order that they might best support behaviour change. In this and other guidance of relevance (as above), consistent evidence has been identified that:

- Promotional, awareness raising activities should be part of long term, multi-component interventions rather than one off activities (and should be accompanied by targeted follow-up with different population groups).
- Behavioural change programmes should be supported by tailored advice for people who are motivated to change.
- Family based as well as individual interventions considered for families of children and young people identified as being overweight.
- Programmes should have a clear aim to improve weight.
- Population programmes should address the concerns of local people – such as the cost of changing behaviour.
- **Interventions to increase physical activity** should focus on activities that fit easily into people’s everyday life (such as walking), should be tailored to people’s individual
preferences and circumstances and should aim to improve people’s belief in their ability to change (for example, by verbal persuasion, modelling exercise behaviour and discussing positive effects). Ongoing support (including appropriate written materials) should be given in person or by phone, mail or internet.

- **Interventions to improve diet (and reduce energy intake)** should be multicomponent (for example, including dietary modification, targeted advice, family involvement and goal setting), be tailored to the individual and provide ongoing support.

Multicomponent interventions are the treatment of choice for individuals identified as being obese. Weight management programmes should include behaviour change strategies to increase people’s physical activity levels or decrease inactivity, improve eating behaviour and the quality of the person’s diet and reduce energy intake. The guidance states that behavioural interventions for adults should include the following strategies, as appropriate for the person:

- self monitoring of behaviour and progress
- stimulus control
- goal setting
- slowing rate of eating
- ensuring social support
- problem solving
- assertiveness
- cognitive restructuring (modifying thoughts)
- reinforcement of changes
- relapse prevention
- strategies for dealing with weight regain.

Behavioural interventions for children should include the following strategies, as appropriate for the child:

- stimulus control
- self monitoring
- goal setting
- rewards for reaching goals
- problem solving.

Although not strictly defined as behavioural techniques, giving praise and encouraging parents to role-model desired behaviours are also recommended.

Self help, commercial and community weight management programmes should only be recommended if they meet best practice, of which one aspect is including some behaviour change techniques, such as keeping a diary and advice on how to cope with ‘lapses’ and ‘high-risk’ situations.
NICE has also made many recommendations on changes to the wider environment (including built environment, schools, workplace or LA and NHS premises) which can support individual or population behaviour change. In line with the conclusions of the 2007 Foresight report, the evidence NICE has reviewed suggests that the role of the “obesogenic environment” cannot be ignored when considering the effectiveness of interventions aiming to change behaviour.

Significant gaps in the evidence exist. For example, it is not possible to state with certainty who are the most effective agents for the delivery of behaviour change interventions to tackle obesity.

All NICE guidance makes research recommendations. Many of the research recommendations made in guidance of relevance to this inquiry (as above) will be of interest. Research recommendations include:

- Interventions should be undertaken in ‘real world’ everyday clinical and non-clinical settings and should investigate how the setting, mode and source of delivery influence effectiveness. There is a need for research evaluating multicomponent interventions to manage obesity in primary care, because factors such as the types of participant, the training of staff and the availability of resources may affect the results.

- Evaluation of campaigns (including social marketing campaigns) should go beyond the ‘reach’ of the campaigns and more fully explore their effectiveness in changing behaviour.

8 October 2010
Supplementary memorandum by National Institute of Health and Clinical Excellence (NICE) (BC 118)

Introduction

1. The National Institute for Health and Clinical Excellence (NICE) is the independent organisation responsible for providing national guidance on promoting good health and preventing and treating ill health.

2. NICE’s Centre for Public Health Excellence produces guidance for the NHS, local government and other sectors about populations, communities, groups and individuals on activities, policies and strategies that can help prevent disease or improve health. The guidance may focus on a particular topic (smoking), a particular population (schoolchildren) or a particular setting (the workplace). All recommendations, standards and services are developed in consultation with independent advisory committees which include experts and members of the public and which examine the best available evidence of effectiveness (does it work?) and cost effectiveness (is it good value for money?).

3. The Centre for Public Health Excellence is a national leader in the synthesis and review of the evidence about health related behaviour change. The Centre utilises a broad multidisciplinary perspective drawing upon health, economics, social and behavioural sciences, and has developed one of the most robust systems in the world for evaluating the evidence about the effectiveness of behaviour change interventions across the full spectrum of the UK population, both in specific topics and generically.

Summary

4. As well as reducing emissions from vehicle use, modal shift towards active travel plays an important role in delivering the health benefits from an active population. The majority of the adult population are not active at a level to provide the health benefits. This not only has significant effects on individuals but also contributes considerably to NHS costs and to loss of earnings from ill health.

5. To date, NICE has published four pieces of guidance that look specifically at promoting physical activity using various approaches in several setting with different population groups. In addition, physical activity plays an important part in other public health guidance and in a wide range of NICE clinical guidelines.

6. Achieving behaviour change in any area is likely to need long term, persistent, coordinated action that address a wide range of issues at various levels. These include individual, community and policy level approaches.

7. Although NICE has not specifically examined techniques to achieve modal shift across the board, several pieces of NICE guidance contain recommendations for action that will support modal shift towards physically active transport.
Transport and health

8. This call for evidence notes that ‘although technological measures are important in reducing emissions and may be effective in the long-term they are not sufficient to achieve the necessary reduction in carbon emissions in the short-term. Getting individuals to reduce the amount that they use their cars is necessary if the UK’s carbon reduction targets are to be met successfully’. In addition to being important in reducing carbon emissions from transport, modal shift towards active transport has important implications for the health of the population. The NICE briefing on transport and health noted that ‘It is clear that transport and health are inextricably linked. Transport has major health impacts – through accidents, levels of physical activity undertaken, effects on air pollution, and access to a range of services.’

Promoting physical activity by encouraging walking and cycling plays an important role in both reducing car use in towns and cities and in addressing the health disbenefits of inactive lifestyles.

9. NICE has published several pieces of guidance aimed at supporting people becoming more physically active. Our submission reflects some of these recommendations. A full list of NICE guidance can be found on our website at www.nice.org.uk/Guidance/PHG/Published.

Physical activity and health

10. Physical activity not only contributes to wellbeing, it is essential for good health. Increasing physical activity levels in the population will help prevent or manage over 20 conditions and diseases. This includes coronary heart disease, diabetes, some cancers and obesity. It can help to improve mental health. It can also help older people to maintain independent lives.

11. In 2004, the DH estimated that physical inactivity in England cost £8.2 billion annually (this included the rising cost of treating chronic diseases such as coronary heart disease and diabetes). It is estimated that a further £2.5 billion each year is spent on dealing with the consequences of obesity. Again, this can be caused, in part, by a lack of physical activity (DH 2004).

12. Levels of physical activity in the population are low. The 2008 Health Survey for England looked in detail at physical activity. It found that based on self-reported physical activity, 39% of men and 29% of women aged 16 and over met the Chief Medical Officer’s minimum recommendations for physical activity in adults (achieving at least 30 minutes of at least moderate intensity physical activity on 5 or more days a week). Using an objective measure of physical activity, only 6% of men and 4% of women met the government’s current recommendations for physical activity.

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13. As noted above, the current recommendation is to accumulate at least 30 minutes of at least moderate intensity physical activity on 5 or more days a week. Moderate-intensity activity will usually lead to an increase in breathing and heart rates (to the level where the pulse can be felt) and a feeling of increased warmth. It may also cause the person to sweat on hot or humid days. This level of activity can be achieved during daily life, for example, by walking at a brisk pace (at least 3 miles per hour or 5 kilometres an hour) and cycling.

Physical activity in NICE guidance

14. Four pieces of NICE public health guidance have focused on promoting physical activity. These are ‘four commonly used methods to increase physical activity’ (PH2)\(^{568}\), ‘physical activity and the environment’ (PH8)\(^{569}\), ‘promoting physical activity in the workplace’ (PH13)\(^{570}\) and ‘promoting physical activity for children and young people’ (PH17)\(^{571}\). Physical activity is also an important element of other NICE public health guidance, including ‘mental wellbeing and older people’ (PH16)\(^{572}\) and ‘prevention of cardiovascular disease’ (PH25)\(^{573}\). Physical activity is a key element in the NICE clinical guideline on obesity (CG43)\(^{574}\) and is identified as an important element in preventing or treating the condition in around 30 other clinical guidelines. These range from the importance of exercise to induce better sleep in people with Parkinson’s disease (CG35)\(^{575}\), advice on the role of physical activity on breast cancer risk (CG41)\(^{576}\), the role of physical activity to promote exercise capacity following heart attack (CG48)\(^{577}\) and the importance of physical activity in osteo-arthritis (CG59)\(^{578}\).

Questions posed by the committee

What are the most influential drivers of behaviour affecting an individual’s choice of mode of travel?

15. Individual behaviours, including choice of mode of travel, are influenced by a range of factors. The guidance on physical activity and the environment (PH8)\(^{579}\) noted that ‘a range of economic, social, cultural and environmental factors influence physical activity levels and the overall impact may be synergistic rather than simply cumulative’.

\(^{568}\) http://guidance.nice.org.uk/PH2
\(^{569}\) http://guidance.nice.org.uk/PH8
\(^{570}\) http://guidance.nice.org.uk/PH13
\(^{571}\) http://guidance.nice.org.uk/PH17
\(^{572}\) http://guidance.nice.org.uk/PH16
\(^{573}\) http://guidance.nice.org.uk/PH25
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\(^{577}\) http://guidance.nice.org.uk/CG48
\(^{578}\) http://guidance.nice.org.uk/CG59
\(^{579}\) http://guidance.nice.org.uk/PH8
Achieving behaviour change is generally not a straightforward process and frequently takes time and concerted effort to achieve. Current behaviours (including travel choice decisions) have developed over a considerable period. The guidance on physical activity and the environment notes that the distance people walk and cycle has declined significantly in the last 3 decades. The average distance walked, per person per year, has fallen from 255 miles in 1975/76 to 201 miles in 2006. Bicycle mileage for the same years fell from 51 to 39 miles per person per year. Past policy and practice has often – perhaps not intentionally – given priority to sedentary modes of transport and ways of using buildings. Over recent decades, environmental changes in England have made habitual activity less common. However, many components of the environment can be modified to make it easier for more people to be physically active. The design and layout of towns and cities can encourage or discourage travel and access on foot or by bicycle. Similarly, building location and design can encourage (or discourage) the use of stairs and other physical activities. These modifications can be achieved by public sector agencies working in partnership with other organisations, including those in the voluntary and community sectors. The need for long term, consistent effort to achieve behaviour change is demonstrated in the guidance on the prevention of cardiovascular disease (PH25). This recommends that regional programmes to prevent cardiovascular disease (for which physical inactivity is an important risk factor) are sustainable ‘for a minimum of 5 years’.

It is possible to identify evidence about the effectiveness of individual interventions in achieving specific outcomes, and this is frequently what NICE guidance attempts to do. However, real world actions are rarely limited to single interventions in the absence of complicating factors. It is likely that programmes taking different approaches to the same issue will interact and, as indicated above, these interactions may be synergistic rather than simply cumulative. This is further illustrated in the NICE guidance on the prevention of unintentional injuries on the road in children and young people (PH31). This focused on road design and modification to reduce injuries and makes a number of recommendations in these areas. The guidance notes that the recommendations ‘should be implemented as part of a broader strategy that includes driver and public education and enforcement activities’

What is the role of infrastructure in encouraging and facilitating changes in travel-mode choice?

The NICE public health guidance on physical activity and the environment (PH8) looked for evidence relating to changes to the physical environment and changes in physical activity. Interventions included changes to the road environment but were not limited to these. As a result, the committee were able to make a number of recommendations that have relevance to the role of infrastructure in encouraging physically active transport. At a local planning level, the guidance recommended that those responsible for strategies, policies and plans should:

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581 http://guidance.nice.org.uk/PH25
582 http://guidance.nice.org.uk/PH31
583 http://guidance.nice.org.uk/PH8
• involve all local communities and experts at all stages of the development to ensure the potential for physical activity is maximised.

• Ensure planning applications for new developments always prioritise the need for people (including those whose mobility is impaired) to be physically active as a routine part of their daily life.

• Ensure local facilities and services are easily accessible on foot, by bicycle and by other modes of transport involving physical activity. Ensure children can participate in physically active play.

• Assess in advance what impact (both intended and unintended) the proposals are likely to have on physical activity levels. (For example, will local services be accessible on foot, by bicycle or by people whose mobility is impaired?) Make the results publicly available and accessible. Existing impact assessment tools could be used.

19. The guidance also made two recommendations aimed at local planning. The first was to ensure pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads. (This includes people whose mobility is impaired.) Use one or more of the following methods:

• re-allocate road space to support physically active modes of transport (as an example, this could be achieved by widening pavements and introducing cycle lanes)

• restrict motor vehicle access (for example, by closing or narrowing roads to reduce capacity)

• introduce road-user charging schemes

• introduce traffic-calming schemes to restrict vehicle speeds (using signage and changes to highway design)

• create safe routes to schools (for example, by using traffic-calming measures near schools and by creating or improving walking and cycle routes to schools).

20. The second transport recommendation was to plan and provide a comprehensive network of routes for walking, cycling and using other modes of transport involving physical activity. These routes should offer everyone (including people whose mobility is impaired) convenient, safe and attractive access to workplaces, homes, schools and other public facilities. (The latter includes shops, play and green areas and social destinations.) They should be built and maintained to a high standard.

21. Recommendation four looked at public open space. It includes elements of infrastructure by saying ‘ensure public open spaces and public paths can be reached on foot, by bicycle and using other modes of transport involving physical activity. They should also be accessible by public transport.’ Recommendation five looked at the role of buildings and campuses in promoting active travel. It says:
Those [architects, designers, developers, employers and planners] involved with campus sites, including hospitals and universities, should ensure different parts of the site are linked by appropriate walking and cycling routes. (Campuses comprise two or more related buildings set together in the grounds of a defined site.)

Ensure new workplaces are linked to walking and cycling networks. Where possible, these links should improve the existing walking and cycling infrastructure by creating new, through routes (and not just links to the new facility).

What are the latest developments in the evidence-base in relation to changing travel-mode choice and the implications of those developments for policy?

22. The guidance discussed above (physical activity and the environment PH8) was published in January 2008. The evidence reviews used to inform it were carried out in 2005-6 and captured evidence published before that. As part of usual NICE processes, the guidance has been considered for updating. This has involved a meeting of an expert group to consider the state of the evidence in this area to identify whether the guidance needed updating. It was the view of this group that there was not sufficient new evidence that would make a substantial difference to the recommendations. This view is currently undergoing consultation with stakeholders.

What are the most appropriate type and level of interventions to change travel-mode choice?

23. The response from NICE to the committee’s original call for evidence noted that to achieve behaviour change commissioners, practitioners and policy makers should ‘Co-ordinate behaviour change interventions on individual, community and population levels, and ensure that both policy and delivery infrastructures are there to support, monitor and improve intervention and practice’. In addition to the recommendations identified above relating to environmental/infrastructure changes, other NICE public health guidance has made recommendations which are relevant to promotion of active travel (recommendations included here are those which directly refer to the promotion of active travel. Other guidance includes recommendations for promotion of physical activity which could include walking and cycling as transport.) These address achieving change by action at different levels.

24. NICE has considered the promotion of physical activity in the workplace (PH13\(^\text{584}\)). This recommended the development of an organisation-wide plan or policy to support physical activity. This should link to relevant national and local policies (for example, on health or transport). It also recommended the introduction and monitoring of an organisation-wide, multi-component programme to encourage and support employees to be physically active. This could be part of a broader programme to improve health and could include— policies to encourage employees to walk, cycle or use other modes of transport involving physical activity (to travel

\(^{584}\) http://guidance.nice.org.uk/PH13
to and from work and as part of their working day). A physical activity programme should (among other issues) encourage employees to walk, cycle or use another mode of transport involving physical activity to travel part or all of the way to and from work (for example, by developing a travel plan).

25. PH17585 considers the promotion of physical activity for children and young people. Recommendations relevant to the promotion of active travel include ensuring there is a coordinated local strategy to increase physical activity among children and young people, their families and carers. This strategy should ensure local transport and school travel plans are coordinated so that all local journeys can be carried out using a physically active mode of travel (recommendation 2). Recommendation 5 aims to ensure that local transport plans are aligned with other plans which may impact on physical activity of children and young people. Transport plans should aim to increase the number of children and young people who regularly walk, cycle and use other modes of physically active travel. Transport planners should continue working with schools to develop, implement and promote school travel plans. School travel plans should continue to encourage a culture of physically active travel (such as walking or cycling). They should have physical activity as a key aim, in line with existing, and integrate with the travel plans of other local schools and the local community.

26. PH25 (prevention of cardiovascular disease)586 addresses physical activity as part of broad population level prevention strategies. The guidance identifies actions which could be considered for action at a national level to support physical activity. These are:

- Ensure guidance for local transport plans supports physically active travel. This can be achieved by allocating a percentage of the integrated block allocation fund to schemes which support walking and cycling as modes of transport.

- Create an environment and incentives which promote physical activity, including physically active travel to and at work.

- Consider and address factors which discourage physical activity, including physically active travel to and at work. An example of the latter is subsidised parking.

Locally, in addition to the recommendations from PH8587 and PH13588, the guidance makes the following recommendations:

- Apportion part of the local transport plan (LTP) block allocation to promote walking, cycling and other forms of travel that involve physical activity. The proportion allocated should be in line with growth targets for the use of these modes of transport.

585 http://guidance.nice.org.uk/PH17
586 http://guidance.nice.org.uk/PH25
587 http://guidance.nice.org.uk/PH8
588 http://guidance.nice.org.uk/PH13
Supplementary memorandum by National Institute of Health and Clinical Excellence (NICE) (BC 118)

- Ensure cycle tracks created under the Cycle Tracks Act 1984 are part of the definitive map (the legal record of public rights of way).

- Align all ‘planning gain’ agreements with the promotion of heart health to ensure there is funding to support physically active travel. (For example, Section 106 agreements are sometimes used to bring development in line with sustainable development objectives.)

27. The NICE guidance documents discussed above make recommendations at various ‘levels’. These include options for national policy (the guidance notes that the final decision on whether these policy options are adopted – and how they are prioritised – will be determined by government through normal political processes); those making plans or programmes at a local or regional level as well as those involved developing transport plans as well as those developing programmes of activities.

28. Recommendations also address organisations who own, manage or otherwise influence the space used routinely by the public and so can influence people’s ability to be physically active. (For instance, the location and accessibility of a building can affect whether or not people choose to walk or cycle there). These organisations include public sector landowners and managers (such as local authorities, the education sector and the NHS) as well as private organisations (including businesses) and voluntary sector or non-governmental organisations (NGOs). Interventions can and should be taken at a variety of levels to influence travel-mode choice.

Who are the most effective agents for the delivery of behaviour interventions to change travel-mode choice?

29. It is frequently difficult to identify how factors such as job title influence the effectiveness of interventions. An additional complication is to identify not just the most effective agents but how cost-effectiveness varies with different deliverers.

30. While there may be differences in effectiveness as a result of aspects of the agent’s position or relationships with the subject of the intervention (such as the possibility of a different response to someone perceived as being in authority or someone perceived as a ‘peer’) it is probably as important that the deliverer is equipped with the necessary skills and information to deliver the intervention. NICE guidance PH6 on behaviour change recommends that training and support for those involved in changing people’s health-related behaviour be provided so that they can develop the full range of competencies required. These competencies include the ability to:

- identify and assess evidence on behaviour change
- understand the evidence on the psychological, social, economic and cultural determinants of behaviour
- interpret relevant data on local or national needs and characteristics

389 http://guidance.nice.org.uk/PH6
Supplementary memorandum by National Institute of Health and Clinical Excellence (NICE) (BC 118)

- design, implement and evaluate interventions and programmes
- work in partnership with members of the target population(s) and those with local knowledge.

**How do current behaviour change interventions seek to change travel-mode choice and what use is made of available scientific evidence?**

**Are current policy interventions addressing both psychological and environmental barriers to change?**

**Are policy interventions appropriately designed and evaluated?**

31. The difficulties of carrying out high quality evaluations of policy interventions are compounded by the wide range of factors at a policy level that may influence individual behaviours such as modal choice. The NICE guidance on physical activity and the environment (PH8)\(^{590}\) notes that ‘past policy and practice has often – perhaps not intentionally – given priority to sedentary modes of transport and ways of using buildings’ [emphasis added]. Given the huge range of policy issues that may influence travel choice (for instance fiscal policy, land use, planning, environment, employment and economy, health and education as well as transport policy) the potential for unintentional impacts are substantial.

**What lessons have been learnt and applied as a result of the evaluation of policy?**

**What lessons can be learnt from interventions employed in other countries?**

32. NICE guidance generally incorporates evidence from other countries in its reviews and so lessons are incorporated into NICE recommendations. This is supported by the consultations with stakeholders which would be able to identify and incorporate any key evidence that has been missed.

33. While it is clear that evidence from other countries may be relevant it is important to be aware that it may not be possible to translate a study from one country directly to the situation in this country. NICE reviews attempt to address this by considering the ‘applicability’ of evidence. Assessing applicability requires a judgement of the extent to which evidence in a review applies to the areas for which recommendations are to be developed. This does not imply that evidence from other countries is not applicable, nor that all evidence from this country is applicable to the specific situation under consideration. It raises issues that may be important in the process of translating evidence into recommendations. The NICE public health methods manual\(^{591}\) identifies several characteristics that need to be taken into account when considering applicability. These include:

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\(^{590}\) http://guidance.nice.org.uk/PH8

• Population: Age, sex/gender, race/ethnicity, disability, sexual orientation/gender identity, religion/beliefs, socioeconomic status, health status (for example, severity of illness/disease), other characteristics specific to the topic area/review question(s).

• Setting: Country, geographical context (for example, urban/rural), healthcare/delivery system, legislative, policy, cultural, socioeconomic and fiscal context, other characteristics specific to the topic area/review question(s).

• Intervention: Feasibility (for example, in terms of health services/costs/reach), practicalities (for example, experience/training required), acceptability (for example, number of visits/adherence required), accessibility (for example, transport/outreach required), other characteristics specific to the topic area/review question(s).

• Outcomes: Appropriate/relevant, follow-up periods, important health effects.

13 January 2011
1. **Background**

1.1 The National Obesity Observatory (NOO) provides a single point of contact for wide-ranging authoritative information on data, evaluation and evidence related to weight status and its determinants.

1.2 NOO is a specialist observatory and a member of the Association of Public Health Observatories, and is sited alongside the South East Public Health Observatory. The National Obesity Observatory works closely with a wide range of organisations and provides support to policy makers and practitioners involved in obesity and related issues.

1.3 NOO was established in December 2007 and received core funding from the Department of Health in April 2008. The main functions of the Obesity Observatory are to:

- Analyse, signpost and report on obesity and related surveillance data
- Produce evidence and data briefings
- Develop innovative analytical and data presentation tools
- Describe and map data on weight status and associated indicators
- Develop guidance and tools to support the evaluation of interventions targeted at obesity
- Provide guidance and support to policy makers and practitioners working to tackle obesity
- Communicate relevant developments and information on obesity and its determinants.

1.4 In this submission we address our attention to question 16 which focuses on obesity and asks for “…submissions on behaviour change interventions, whether in the public sector, the private sector or by voluntary organisations, designed to tackle obesity, in the United Kingdom or internationally, in order to examine:

- *a.* the latest developments in the evidence-base in relation to changing eating and physical activity behaviour;
- *b.* who are the most effective agents for the delivery of behaviour interventions to tackle obesity;
- *c.* how current behaviour change interventions tackle obesity and what use is made of available scientific evidence;
- *d.* whether such interventions are appropriately designed and evaluated; and
- *e.* what lessons have been learnt and applied as a result of the evaluation process.

2. **The background context**

2.1 **The challenge of obesity: a complex adaptive system**
Obesity is the result of a large number of interacting influences, working at individual, family, group and societal levels. Behaviour change is an important element in tackling this complex adaptive system, but it must not be treated in isolation. We think it is essential to consider the nature of the environment in which these behaviour change interventions take place.

The NOO Director was closely involved with the drafting of the influential Foresight report on obesity (Butland et al., 2007) which focused on taking a systems approach to obesity. The report stated:

“...energy balance (or imbalance) is determined by a complex multifaceted system of determinants (causes) where no single influence dominates. Altering this complex system to tackle obesity will be far from straightforward. Currently, the evidence for effective preventative measures is weak. There are few international examples of success on which the UK can draw, although a growing number of demonstrator projects offer some promise.” (Butland et al., 2007, page 7).

We think the Committee would benefit from considering the Foresight report in some detail, to provide important context to consideration of the challenge of behaviour change. The critical point is that behaviour change interventions on obesity (or indeed on any other public health issue) do not operate in a vacuum. They are part of a complex system of determinants of behaviour – both positive and negative. Such a system-wide problem requires system-wide solutions, rather than a raft of small and unconnected behaviour change interventions.

The lack of evidence of effectiveness
Another critical point raised by Foresight is that there is a relatively poor evidence base for the effectiveness of interventions to tackle obesity. This is particularly true of the ‘upstream’ of system-wide approaches, where there are very few examples of successful approaches to date. We therefore think it is absolutely critical to invest in evaluation of ongoing initiatives, to help expand our knowledge of the most effective and cost-effective approaches. NOO’s approach to evaluation is described later in this submission.

Detailed comments

3.1 a. The latest developments in the evidence-base in relation to changing eating and physical activity behaviour
We have recently summarised the evidence base for the effectiveness of interventions in the following briefing papers. These are short summary papers, so rather than reproduce them here we have attached them in full as appendices.

3.2 Treating adult obesity through lifestyle change interventions: a briefing paper for commissioners Download document
This briefing paper aims to support commissioners by providing a brief guide to current best available evidence on the effective treatment of obesity through lifestyle change interventions for adults who are overweight or obese. Published March 2010. Covers topics such as:

- The importance of multi-component tailored interventions
• Physical activity component of interventions
• Dietary component of interventions
• Behavioural component of interventions
• Commercial and community-based weight management programmes
• Specific issues and population groups
• Outcome measures

3.3 Preventing childhood obesity through lifestyle change interventions. A briefing paper for commissioners Download document
This paper focuses on best available evidence on effective obesity prevention interventions for children and young people. Published November 2009. Topics include:
• Intervention content: tackling diet and physical activity together; the role of family and peer support
• Outcome measures; goal setting; long-term outcomes
• Additional NOO recommendations; evaluation; links to government programmes

3.4 Treating childhood obesity through lifestyle change interventions. A briefing paper for commissioners Download document
As above, with a focus on the best available evidence for treating obesity in children and young people. Published November 2009. Topics include:
• Intervention content: tackling diet and physical activity together; the role of family and peer support
• Outcome measures; goal setting; long-term outcomes
• Additional NOO recommendations; evaluation; links to government programmes

3.5 There are also a number of key data briefings available on adult weight; child weight; adult diet; child diet; adult physical activity; child physical activity. See http://www.noo.org.uk/NOO_pub/Key_data

3.6 b. Who are the most effective agents for the delivery of behaviour interventions to tackle obesity?
As obesity is a complex system problem, it cannot be tackled effectively by individual agents, but needs a system approach. Few studies have compared the effectiveness of different delivery agents. However, there are some indications from the available evidence:
• Health professionals have an extremely important role in delivering behavioural interventions. These include GPs; practice nurses; dietitians; health visitors; community nurses.
• Health professionals can: identify at risk patients; refer to appropriate services; provide counseling and support; ensure appropriate follow-up; link to other statutory and non-statutory agencies (such as leisure services or commercial weight loss companies).
• Other key delivery agents include: local authority staff such as leisure services officers; school nurses and physical education staff (for children); commercial weight loss services.
3.7 **c. How current behaviour change interventions tackle obesity and what use is made of available scientific evidence**

One of the drivers behind the establishment of NOO was concern that current obesity interventions may not be based on the best available evidence. In many cases, NHS commissioners are uncertain which interventions to commission, and do not have easy access to evidence of effectiveness and cost-effectiveness. This is compounded by the lack of effectiveness studies, and insufficient priority being given to evaluation of new initiatives.

3.8 **d. Whether such interventions are appropriately designed and evaluated**

We have significant concerns about the lack of emphasis being given to evaluation of weight management interventions. Although quantitative data are lacking, indications are that very few interventions are evaluated to an adequate degree. Problems include: lack of skilled staff; confusion over appropriate evaluation methods; lack of validated measurement tools; insufficient emphasis in the commissioning process; insufficient budgets being allocated to the evaluation component of a programme/project.

3.9 To attempt to address this issue we have:

- Developed the Standard Evaluation Framework (SEF) for weight management interventions. [www.noo.org.uk/SEF](http://www.noo.org.uk/SEF). This aims to support high quality, consistent evaluation of weight management interventions in order to increase the evidence base. The SEF provides introductory guidance on the principles of evaluation, and lists 'essential' and 'desirable' criteria. Essential criteria are presented as the minimum recommended data for evaluating a weight management intervention. Desirable criteria are additional data that would enhance the evaluation. The supporting guidance describes why particular criteria have been categorised as essential or desirable, and gives further information on collecting data. A summary of SEF Core Criteria is available to download. The SEF is supported by a review of dietary assessment methods exploring the application, reliability and validity of available tools to measure dietary intake and dietary behaviours; and a review of physical activity measurement tools, which can be used to assess energy expenditure from physical activity. The SEF has been very well accepted, and is used increasingly in the field. It is recognised nationally and internationally as a leading example of the development of a tool for generating practice-based evidence.

- Run training workshops on evaluation and the SEF

- Launched a Collection of Resources on Evaluation [http://www.noo.org.uk/evaluation_portal](http://www.noo.org.uk/evaluation_portal). This aims to provide information and resources to support practitioners with an interest in the evaluation of interventions related to obesity, overweight, underweight and their determinants. It covers evaluation guidance; reports from evaluation of nationally-initiated schemes; and evaluation websites.

3.10.1 **e. What lessons have been learnt and applied as a result of the evaluation process**
As outlined above, we do not think that lessons have been learnt and applied properly as a result of any evaluations. For this reason the priority should be to ensure that there is proper emphasis given to the evaluation of all new initiatives, to ensure that learning is fed back into practice.

4. References


7 October 2010
Research and Development

1. What is known about how behaviour can be influenced?

There are a number of different disciplines which provide insight into why people behave in a certain way; in particular psychology, behavioural economics, sociology and anthropology. Social marketing is a discipline in its own right, however it draws on, and is influenced by, all of the social sciences listed above, as well as neuroscience. Therefore, social marketing can provide clear insights into why people adopt problematic behaviours.

By taking a holistic approach to a problem, social marketing tries to identify and replace the seeming benefits that people currently receive from their problem behaviour. For example, research conducted by the NSMC showed that drinking alcohol gives young people a sense of confidence, makes them feel sexy and part of the gang. If you want them to stop drinking, or reduce the amount they drink, your intervention must look to replace the current benefits they receive from drinking alcohol.

Since the National Social Marketing Centre (NSMC) was set up in 2006, they have conducted research into understanding how people behave and what influences their behaviour. Government departments, such as the Department of Health, as well as regional and local bodies, have worked with the NSMC to develop truly consumer-centred behaviour change programmes. As opposed to a group of subject experts determining what the interventions should be, research has been conducted with the target audiences to understand what they would value as an exchange, how to replace the benefits they currently receive from the problematic behaviour. The interventions developed have been based on these insights. Details of the NSMC’s projects, which have demonstrated successful behaviour change, can be found at: www.nsmcentre.org.uk/showcase-case-studies.html.

2. What are the policy implications of recent developments in research on behaviour change?

Behaviour change is key to all areas of government policy and a range of government departments are working with the NSMC to draw on the best available evidence of what works. A recent social marketing project conducted by the Department of Health, Healthy Foundations, has statistically proved what anecdotal evidence had previously suggested: that there are clear cross-overs between problematic health behaviours.

Problematic behaviours should no longer be seen in isolation; a cross-cutting approach is needed. For example, evidence shows that young people who try cigarettes, are more likely to go on to smoke Class C drugs, such as marijuana, binge drink and have unsafe sex.

Health should also not be seen in isolation. To tackle the most entrenched problems in health, a holistic view has to be taken, including issues such as social housing and educational outcomes.

3. Is there adequate research capability within the United Kingdom to support the current pace of developments in behaviour change policy interventions? Is there sufficient funding for the evaluation of behaviour change interventions?
Clear and robust evaluations need to take place, however financial resources are finite, and history shows us that in times of leaner government spending, monitoring and evaluation budgets are often the first to be reduced or axed completely.

The NSMC advocates that every behaviour change programme, nationally and locally, should be evaluated fully and that evaluation should include hard data around behavioural objectives (i.e. solely showing impact on awareness, knowledge and attitudes is not sufficient). Research capacity is limited and employing external companies to do this work is often costly. Therefore, in an effort to reduce costs and enable national departments, as well as local bodies, to evaluate their programmes, the NSMC has developed, and are developing further, a number of useful tools:

- **Value for Money/cost-benefit tool.** An on-line tool which calculates the value for money/cost-benefit of behaviour change projects. This tool, which is simple for the commissioner or practitioner to use, helps in the decision making on whether to:
  - To continue funding a programme; or
  - To allocate a set budget into the programme at all; or
  - Look for a better ROI somewhere else

Currently this tool is being developed for health, however it can be tailored to address a whole range of behaviour change issues, such as recycling, problem gambling, etc.

- **A Quality Improvement Framework tool,** developed based on the successful framework tried and tested by New Zealand’s Health Sponsorship Council. The Quality Improvement Framework is designed to provide an organisation with independent and practical recommendations for improving the way it delivers initiatives.

- The **One-Stop-Research-Shop** has been developed in conjunction with the Department of Health and COI. It holds a wealth of research conducted nationally and locally on a range of issues, such as tobacco, unsafe sex, etc. This tool is freely available for those working within government and the NHS. By accessing this data, money can be saved as duplication of research will be reduced.

**Translation**

1. **Are there adequate structures and expertise across government, and public services , to support the translation of research developments in behaviour change into policy interventions?**

It is often difficult to move from the research phase of a project, into developing an intervention based on the key actionable insights – sometimes it is difficult to identify what the key insight is and where the tipping point might be.

Social marketing is as much an art as it is a science, and deals with complex and often deep-routed behaviours. The research may identify a number of themes which could be insights and turned into policy, however pre-testing is needed to identify which ones will actually result in the desired behavioural shift. That is why monitoring and evaluation is crucial; if something does not work, it needs to be stopped immediately to save funds. This is what occurs in the commercial marketing world; mistakes are still made, but through monitoring and evaluation, they are stopped immediately if they do not result in the desired behaviour change, thereby reducing financial loss.
Policy design and evaluation

1. What should be classified as a behaviour change intervention?

2. Should behaviour change interventions be used in isolation or in combination with other policy interventions?

Social marketing is a planning process which can successfully bring about behaviour change. Therefore it should be classed as a tool for achieving behaviour change as opposed to being a behavioural change intervention in its own right.

Social marketing, with its influence coming from behavioural economics, develops multi-pronged interventions which address both supply and demand (it is detrimental to increase demand for a service if the supply chain is not in place). For example, one of the NSMC’s demonstration site projects looking to increase the number of GP screens for chlamydia included the following interventions to achieve their behavioural goal:

- Training for GPs to how on broach the subject of chlamydia screening with a young person who has come in for an unrelated health issue
- DIY kits which the young people can take home and post away to find out the results
- Health education in schools with school counsellors so they encourage young people to present for screening
- Using Facebook and word-of-mouth to promote DIY kits and GP screening opportunities
- Developing a Service Level Agreement to pay GPs per screen.

As the example shows, structural changes and the way health professionals operate are often key to achieving a positive behaviour change. Therefore, a suite of interventions to meet the different segments’ needs, supported by policy (in particular to support the supply side) is preferable.

3. How should different levels of intervention (individual, organisational, community and national) and different types of intervention (legislative, fiscal, educative) interact in order to achieve policy goals more effectively?

How the types of interventions interact and what mix you use, should be based on research to understand the target audience, and the key factors which determine their current problematic behaviour. For example, we know that simply educating people about smoking does not change behaviour (all adult smokers know that smoking is bad for them - although they may not believe it; tweens when they start smoking know that it is harmful to their health, however they smoke for different reasons, such as looking ‘cool’, rebellion, feeling part of their peer group, etc). Nor will solely increasing taxes stop people from smoking, as cigarettes are inelastic goods.

Social marketing advocates the use of legislative, fiscal and educative interventions, however it also recognises that these alone will not always bring about the desired behaviour change. By conducting research with the target audience to understand their values, beliefs, what moves and motivates them, a mix of interventions can be developed. Much work in social marketing is around ‘facilitation’. Social marketing develops a suite of interventions which offers people an exchange they will value i.e. If I do X, you will do Y. Therefore, social marketing helps governments move away from the controlling ‘nanny state’, to one where
voluntary behaviour change occurs as the exchange offered to the target audience is one that they value.

**Practical application**

1. Have publicly funded behaviour change interventions been both evidence-based and subject to effective evaluation? How successful have such interventions been?

There have been some notable successes in publicly-funded interventions, in particular at a local level. Examples of such projects are part of the award-winning National Demonstration Site Scheme and the Beacon Partnership Projects, both set-up by the NSMC.

The National Demonstration Site Scheme consisted of ten locally-run social marketing projects, which looked at a variety of health issues ranging from tobacco control and breastfeeding to sexual health screening and kerbside binge drinking. The scheme, and the projects involved, were evaluated by PHAST (who conducted the process evaluation) and London School of Hygiene and Tropical Medicine (who conducted the outcome evaluations).

Some of the key outcomes, included:

- **North Tyneside** demonstration project:
  - A 30% decrease in anti-social behaviour and alcohol-related incidents in the pilot area, compared to the same months in the previous year
  - Reduced binge drinking reported by young people, especially amongst females

- **NHS Lewisham** demonstration project:
  - A notable increase in the number of residents entering the NHS Stop Smoking Service in the two pilot wards (21.3% and 115%).

- **NHS Norfolk and Great Yarmouth and Waveney** demonstration project:
  - 300% increase in chlamydia screens taking place in pharmacies
  - After a training programme was implemented as well as various other interventions aimed at GPs, such as monetary payment for screening. General practice was the venue in which the biggest increase in the number of completed chlamydia screens was seen.

Other projects have also demonstrated success. The NSMC’s case study database, ShowCase, includes over 60 case studies which have been successful. International, national, regional and local case examples are included on the site.

2. Within government, how are the lessons learnt from the success, or lack of success, of behaviour change interventions fed back into the design of future interventions? Are lessons learned from industry and voluntary sector behaviour change activities also taken into account?

More work in this area is needed; no behaviour change project is 100% effective or a 100% failure. Negative findings are rarely published or reported, however these findings are as valuable as the successes, so not to duplicate costly mistakes. The NSMC are working to address this issue through their programme of work funded by the Department of Health. The NSMC’s ShowCase is being developed further to highlight what worked, and what did not work as well, what the barriers encountered were to implementation, and how these were overcome.
3. What mechanisms exist, at national and local government level, to provide advice and support during the design, piloting, implementation and evaluation of behaviour change interventions in order to ensure that they achieve intended policy goals and also cultural changes within government and public services more generally?

The NSMC has developed an on-line planning guide for the Department of Health which helps national departments as well as those working at local level. The guide is aimed at those working to achieve beneficial behaviour change by taking them through the six key stages of the social marketing planning process and includes tools, guides and case studies. A generic version is available on the NSMC website at: http://www.socialmarketing-toolbox.com/. Bespoke versions have also been created for NHS Scotland, the Department of Health’s Cancer Team and more recently, for the British Council.

A guide explicitly for policy makers is currently being produced. This will be a practical step-by-step guide that will enable policy teams to use social marketing principles to design more customer-centered policies which will influence the behaviour of specific targeted audiences. The resource will also provide a number of case studies on how customer centred policy has been developed, implemented and evaluated.

Cross-government coordination
1. What mechanisms exist within government to cascade learning and best practice on behaviour change policy interventions?

The NSMC is a strategic partnership between DH and Consumer Focus. It works with both public and private sector organisations nationally and internationally to develop best practice behavioural change tools and resources to improve efficiency and reduce costs associated with preventative behavioural interventions. The NSMC is currently working collaboratively to support a range of UK government bodies including DH, NAO, DFID, DEFRA, and the DCLG. This year, the NSMC’s work programme focuses on the development of programmes and tools for dissemination across government which will further improve efficiency and reduce costs.

International comparisons
1. What lessons can be learnt from previous successful or unsuccessful behaviour change interventions in other countries? Which countries provide the most helpful examples of best practice? Are behavioural change interventions generally transferable between different societies?

The NSMC works with both public and private sector organisations nationally and internationally to develop best practice behaviour change tools and resources. These help to improve efficiency and reduce the costs associated with preventative behavioural interventions.

The NSMC is now a recognised world leader in the field and functions as an international linchpin, drawing on learning from the UK, USA, Europe, Asia and the Pacific and adapting the knowledge gained to meet the needs of UK audiences across the public sector. The NSMC has strong working relationships with the World Health Organisation (WHO), Academy of Educational Development (AED), the European Commission (EC), the Centre for Disease Control and Prevention (CDC) and the Pan-American Health Organisation (PAHO) and the Department of Health in Hong Kong and China.
Relevant and useful lessons can be taken from the Academy of Educational Development (AED) which has an extensive behaviour change programme. At the AED Center for Social Marketing and Behavior Change (CSMBC), they examine not only what people think, but also what they do and why they do it. They then put those insights to work in innovative, multifaceted programmes that shape attitudes and motivate people to act. AED have a vast wealth of practical experience from the USA and developing countries and work closely with the NSMC to transfer those learnings.

**Tackling Obesity**

16. The Committee would particularly welcome submissions on behaviour change interventions, whether in the public sector, the private sector or by voluntary organisations, designed to tackle obesity, in the United Kingdom or internationally, in order to examine:
   a. the latest developments in the evidence-base in relation to changing eating and physical activity behaviour;
   b. who are the most effective agents for the delivery of behaviour interventions to tackle obesity;
   c. how current behaviour change interventions tackle obesity and what use is made of available scientific evidence;
   d. whether such interventions are appropriately designed and evaluated; and
   e. what lessons have been learnt and applied as a result of the evaluation process.

The NSMC has worked on a number of projects addressing obesity, working in partnership with organisations such as Tesco. Each of the projects conducted research with the target audience at the start of the process. They then looked at the following areas:

- Exploring the link between obesity and food purchasing behaviour in the West Midlands – working with the University of Kent and using Tesco Clubcard data to analyse consumer behaviour and develop their intervention based on this information
- Motivating men with poor health to improve their diet, increase their activity levels and quit smoking – working with Newcastle United Football Foundation, the local NHS, and the local voluntary sector/Health Trainer programme
- ‘Naturally Active’ provides and promotes activities for people in Dartford and Gravesham, using urban green spaces and adjacent countryside to improve both physical activity levels and mental well-being
- Changing behaviour within the takeaway industry in the East Midlands – working with the local government office, Food Standards Agency, Consumer Direct and Trading standards in a bid to ensure takeaways provide healthier food options for consumers.
- Increasing the adoption and duration of breastfeeding in Cornwall and Isles of Silly – working in partnership with the PCT, local Council and the social enterprise, Real Baby Milk.

*October 2010*
Memorandum by the National Trust and we will if you will (BC 84)

Summary

The National Trust is a charity that looks after special places for ever, for everyone, throughout England, Wales and Northern Ireland. Through ownership and management National Trust protects and welcomes the public to explore 709 miles of coastline, 254,000 hectares of land of outstanding natural beauty, and more than 300 historic houses. We engage people in a range of ways, through practical conservation, learning and discovery, and encouraging everyone to visit and enjoy their national heritage. Much of this is done by working in partnership with others.

As part of our core purpose to promote special places for ever for everyone we need to be sustainable for the long term: financially and environmentally. We want to tell the story of how the National Trust as an organisation is becoming more sustainable and reducing its environmental impact from the way we heat our properties, to the way we farm land, and the food we serve in our cafés and restaurants. Through telling the story of our work we want to inspire our member and supporters to become more sustainable too. This work can be seen as behaviour change.

This response is on behalf of the National Trust and we will if you will – an initiative delivering a series of new and unique collaborative efforts between business and civil society to encourage and enable people to live more sustainable lifestyles. The response is focused on case studies that share experience from recent National Trust and we will if you will behaviour change projects to inform the following areas raised in the call for evidence. We would be happy to contribute further analysis if that would be helpful to the Committee:

- the extent to which behaviour change interventions require a mixture of different tools to succeed;
- how behaviour change interventions and activities are coordinated across government and beyond;
- the extent to which, and ways in which, government should be accountable to, or engage with, the wider public about the use of behaviour change policy interventions;
- the role of industry and the voluntary sector in shaping behaviour patterns;
- the relationship between government, industry and the voluntary sector in promoting behaviour change to achieve policy goals;
- what should be classified as a behaviour change intervention?
- the enquiry seeks to examine the extent to which behaviour change interventions require a mixture of different tools to succeed
- how should different levels of intervention (individual, organisational, community and national) and different types of intervention (legislative, fiscal, educative) interact in order to achieve policy goals more effectively?
- should behaviour change interventions be used in isolation or in combination with other policy interventions?
Key Learnings from delivering behaviour change campaigns

Campaign strategy
- Government, business and civil society have complementary roles to play in changing behaviours and the most powerful results are achieved when all three sectors work together with a coherent and shared strategy.
- Securing mass behaviour change is usually limited to small shifts in behaviour
- Research, insight and testing campaign materials is essential to develop effective strategy

Getting people involved
- Experiential and fun events is most effective in influencing peoples’ behaviours
- Desired behaviours need to be illustrated to people and their benefits highlighted

Collaboration works
- Partnerships between businesses and civil society bodies have an impact greater then the sum of their parts
- Forward planning is important to create truly joined up activity when working with many partner organisations

Shared campaign strategy
- ‘Open source’ materials that can be tailored by different partner organisations are very effective
- Behaviour change campaigns benefit from the message being delivered through different communications channels at the same time

Government’s role
- Perceived independence from government is important to guarantee effective involvement from leading businesses and ngos in publicly visible campaigns.
- Government often underestimates its key role in building a supportive policy framework to enable business and individual action.

Case Study - Social Marketing Campaign, Food Glorious Food
In 2009, the National Trust initiated social marketing activities as a new approach to engaging supporters in specific causes, central to its work and survival. This approach aims to inspire, influence and empower individuals to make lifestyle choices and change behaviour in line with our own long-term organisational objectives, to promote both The National Trust and a wider care and engagement with for the environment.

Practiced by many other organisations in the public and private sector, this emerging form of marketing places the individual’s current activity or lifestyle at the centre of its thinking and creates communications to enable positive, voluntary change.

Developing an Approach

One of the keys to the success of any behaviour change campaign is focusing on an area that you have a relevant voice on and that has resonance with the intended audience. The National Trust is involved in every part of the food chain and as a major landowner, plays a vital role in British food production. With research showing that an estimated 40% of the UK’s carbon footprint is generated through food production processes and waste, the National Trust identified that shifting consumer demand for sustainable produce is one of the ways in which it can mitigate the impact of climate change on special places, and raise awareness of its role in this context.
Using focus group research the Trust identified that many of its supporters are already concerned about climate change, however their needs from the National Trust revolve around having positive leisure experiences. They were significantly more likely to be attracted to food or nature based family experiences than activities about ‘environmental issues or green living’. This research influenced the decision to create social marketing around food and to engage supporters in green behaviours through positive, fun and enjoyable leisure experiences. The social marketing campaign that was delivered was Food Glorious Food.

**Campaign Objectives:**
- To inspire supporters to eat more local and seasonal food, and to grow food at home.
- To shift perceptions of the brand towards an increasingly inclusive, informal and relevant part of supporter’s everyday lives.

**Key barriers:**
- Local & seasonal food is perceived as more expensive and less easily available.
- The National Trust is not known as a food organisation or authority

**Key messages:**
To overcome these barriers the campaign focused on a small number of simple messages that could be effectively conveyed across a wide variety of channels. This enabled visitors and supporters to see National Trust linked with a local and seasonal food message consistently and developed National Trust’s reputation as a food organisation.

- Growing and eating local and seasonal food is easy, tasty and fun – and makes for a better life
- The Trust is passionate about food and we're involved in every stage of the food chain
- We're committed to growing, cooking and promoting local and seasonal food
- We’re on a journey with our local food work – we’re not there yet, but you can join in and come with us

The campaign was viewed as a success and utilised a wide variety of communication channels available to the National Trust to reach the widest number of people. As an organisation we have a broad supporter base of 3.7 million members who each engage with us differently: some only visit properties, some want to take part in events, and others are more engaged with online channels and sign up to regular email newsletters. We also reached out to non-members through above the line advertising. We believe this diversity of channels is key to the success as it reached the widest number of supporters and potential supporters and helped create a ‘surround sound’ so the messages were reinforced through repetition.

**Channels utilised in the campaign:**
- Above the line advertising – e.g. print media, national and local press
- Events at National Trust sites – e.g. Learn to Grow events
- At home activity ideas and collateral – e.g. seed giveaway
- Articles on National Trust website and print magazine – e.g. ‘My Patch’ interactive game
- Emails to supporters
By showing people how to grow their own food and highlighting what food is in season when the key barrier of local & seasonal food being perceived as more expensive and less easily available was countered in a creative and engaging way.

The social marketing campaign was also firmly embedded in substantial contextual activity on our part to change the way in which we related to food as an organisation e.g. the creation of allotment space on our land.

This social marketing campaign can be viewed as a change intervention as it delivered key behaviour change messages using a variety of communications channels to inspire and enable change around seasonal food and grow your own. Visitor surveys carried out at properties illustrate the successes:

- **78%** of visitors said that it was ‘likely’ or ‘very likely’ that the event had inspired them to eat more local and seasonal food – the primary behavioural objective of the campaign

- **86%** of visitors said that it was ‘likely’ or ‘very likely’ that the event had inspired them to grow their own food (with 97% intending to grow their free seed or seedling).

Food Glorious Food was successful as it reached a lot of people and it managed to shift perception on food. The most effective form of engagement was through events where visitors to National Trust properties could see and try growing and eating seasonal food. Events that involved the whole family were also effective as behaviour change in groups has a greater chance to stick as people can support each other. In contrast to this press coverage of the events for promotion yielded the least return on time and money and so this has been less a feature of suture campaigns.

Leaning from the first Food Glorious Food campaign especially around the success of face to face events informed the design of the Eat into Greener Living project and the focus on training National Trust staff on communicating food and behaviour change messages.

**Case Study - Eat into Greener Living**

‘Eat into Greener Living’ is a current National Trust project, funded through the Defra Greener Living Fund, designed to build on the Food Glorious Food campaign for 2010, providing visitors and communities with a deeper, more participative experience of food.

The project aims to inspire National Trust visitors, staff, volunteers, and tenant farmers to buy, eat and grow more sustainably produced, local food. It is also designed to help us to improve the visitor experience of our food story, contributing to our drive towards improved visitor enjoyment and behaviour change.

The project provides tangible, inspiring food experiences at our properties, where people gain first hand information, ideas, support and practical experience to enable them to eat sustainable food and grow it at home. The key target audience is families. Working through 30 target properties and through the National Trust as a whole, this project aims to influence 400,000 people to make more sustainable food choices as a way into a more sustainable lifestyle.

The project consists of three complementary elements
Memorandum by the National Trust and we will if you will (BC 84)

- Family engagement;
- Community growing spaces; and,
- Improving engagement skills of staff and volunteers.

This is only one approach that can be taken but for the National Trust an organisation that interacts with our supporters in their leisure time it is the most effective as it is fun and inspiring as well as educational.

This project is still in progress but already the money has been used to deliver training for 210 staff and volunteers trained directly who have in turn passed on their learning to a further 240 colleagues so far. With word of mouth one of the most effective and trusted modes of communication, this training should inspire and aid effective behaviour change. The initial feedback from visitors to participating properties illustrates this:

- 81% of participants have a greater knowledge of sustainable food
- 88% understand the National Trust’s position on sustainable food

The project has also shown food growing is a very effective way to build a lasting relationship with visitors and members. These deeper relationships are more effective in bringing about long term change as the positive behaviour is reinforced over time and inspiration and enthusiasm can be developed into skills and commitment. Defra money was used to develop and deliver this training.

Feedback has also been very positive around group activity as people feel they are part of a movement and can learn from each other as well as group leaders and so are reassured that the new behaviour is being taken up on a wider scale.

The money from Defra was essential to getting these projects up and running as it was used for set up infrastructure such as water supply and raised beds for allotment sites.

Food is just area The National Trust could engage its supporters and members around behaviour change. Future funding from across government could be used effectively for further behaviour change work. For example there is a lot of scope to communicate messages around energy efficiency in the home through our properties.

**We will if you will**

*We will if you will* is an innovative 5-year project, to make sustainable living appealing and accessible to the mainstream UK population, through unprecedented collaboration between business, civil society and government.

The project is led by Fiona Reynolds (Director General, National Trust) and Ian Cheshire (CEO, Kingfisher). Now in its second year, *we will if you will* is being taken forward by Behaviour Change, a not-for-profit social enterprise with the aim of working with government, business and civil society to make it easier, cheaper and more appealing for people to lead greener lives.

The *we will if you will* objective is to normalise green behaviour for mainstream, hard working UK families. This is being done by building a powerful coalition of influential organisations, co-ordinating a series of campaigns designed to target specific environmental behaviours, and lobbying government to overcome policy barriers.
The campaigns harness the existing relationships of trust that businesses and charities have with their stakeholders to bring positive and practical solutions to their customers, supporters, communities and employees. A centrally managed programme is delivering a series of separate campaigns focused on specific behaviours. Each involves:

• Aligned activity from a large group of relevant corporate and civil society partners, delivering mass reach and credibility to achieve tipping points on iconic environmental behaviours.

• Active promotion of collaboration between organisations to help unlock challenging behaviours.

• An emphasis on making it easier for the public to act (e.g. through making it cheaper for people to do so) rather than just telling them what to do.

• Centrally developed ‘open source’ materials that can be used by partners to promote the campaign and present a consistent voice to the public.

• An accompanying policy discussion with government to help remove barriers to the behaviours.

**Eat Seasonably Pilot Campaign**

Eat Seasonably is the pilot campaign of the *we will if you will* initiative. Launched in spring 2009, the campaign set out to create a movement to reconnect people with their food and the seasons in which it grows. Eating locally in-season food is one of Defra’s pro-environmental behaviours.

The campaign was designed to inspire and enable people to eat more locally in-season fruit and vegetables, and assist them to grow their own. It launched with Grow Your Own activity, focusing on aligning existing practical help, information and expertise, and launching easy products and services to encourage first-timers. The seasonal eating phase followed, with the launch of a new label and calendar designed to highlight what’s in season when and to raise awareness of the benefits of eating seasonal food.

An unprecedented coalition was built to support the campaign: 35 organisations from across the business and civil society sectors gave it their active support, launching new products and services, entering into new collaborations, using the campaign’s ‘open source’ materials and communicating its central messages to their customers and supporters. In addition over 100 smaller partners have made contact through the campaign website and are now promoting Eat Seasonably to the public.

A website was launched pulling together partner activities and promoting the campaign’s core messages. Along side this was a PR campaign and a multi-media marketing push.

Consumers responded well to the campaign, its messages, its materials and the activities of its partner organisations. The campaign succeeded in hitting the zeitgeist in helping create a Grow Your Own movement, and also in starting to shift public awareness and attitudes to seasonal eating. The research evidence to date shows that Eat Seasonably messages resonate with the public and that behaviour has started to shift; positive partner sales results add
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weight to this. Central campaign communications achieved high levels of reach and consumer engagement.

Partners were generally positive about their experiences, feeding back that the strategy was pitched correctly and was timely. There is also high regard for the resources and materials that were made available. Eat Seasonably has great long term potential and most partners expressed interest in being involved in the future, should Eat Seasonably continue. By working together companies and civil society groups can feel that they are not putting themselves out on a limb or coming across as ‘radical’ but rather as being part of a movement.

The campaign used intervention by community groups, businesses and charities and included fiscal incentives from some partners and education from others e.g. special offers on seasonal food and collateral with information of what was in season during the year. A combination of approaches will have created a sound argument that appealed to different peoples needs. There is no one size fits all approach for behaviour change work.

Core open source resources funded by Defra worked effectively as a model and encouraged participation. Partners found these resources such as a list of ‘hero’ fruit and veg in season across the year useful as it was both credible and easily accessible.

Beyond providing seed funding and support in collateral development Defra and wider Government were not visibly involved in this campaign. Many of the partners felt this independence was a key condition to their participation.

Partners also liked having collateral provided but without overly prescriptive rules on their usage. This allowed them to pick and choose the most apt collateral for their supporters and customers and tailor them as they saw fit. The messages struck the right tone at the right time. Grow Your Own particularly hit the zeitgeist with a feeling among partners that the campaign had begun to shift the ‘old man/Good Life’ image of growing your own fruit and veg and made it aspirational to younger and family audiences.

Stakeholder events and follow up support by campaign organisers brought like-minded organisations together and encouraged collaboration between them. Without this role many of the collaborations between businesses and NGOs that sent a powerful message to consumers would not have happened.

The campaign was also successful as the partner activity was backed with a strong media presence. This brought the issues into the mainstream and widened the appeal. However greater transparency and communication would have motivated the partners even more.

As a pilot, Eat Seasonably also identified how similar campaigns could be run more successfully in the future. Longer term planning timescales was the biggest improvement identified by partners to increase the effectiveness of the campaign as it would have allowed, for example, businesses to integrate the campaign logo/materials more with their own brand. The same is true for NGO’s and community organisations some of which have a year-out planning cycles which are hard to influence once in motion.

Partners felt that the campaign would have benefitted from closer and earlier collaboration on planning with partners. For NGO’s there were also financial barriers and had additional
funding been available to them they would have been able to better support the campaign as they could have produced more collateral and put on more events.

Some partners reiterated that encouraging people to eat less meat and dairy is the biggest issue in terms of sustainability and food. However to be effective behaviour change need to nudge rather then dramatically change behaviours and so this message would not be a palatable mass consumer facing campaign at the moment. This is a recurring limitation of behaviour change work.

Eat Seasonably is continuing in 2010/2011 informed by the lessons form the pilot year and this year is focussing on seasonal eating, working closely with the food service industry to help them celebrate seasonal fruit and vegetables with their customers.

We will if you will set out to engage the public with pro-environmental behaviours and at the same time to get requisite support from government. The support being asked of government came in two forms: firstly monetary support to facilitate the initiative (partner organisations paid for their own contributions), and secondly policy change to enable and encourage people to take up the area of behaviour being focused on, to deliver long lasting change.

The experience of developing and delivering the Eat Seasonably campaign informed the development of the policy asks of Government. Initial research was undertaken into the consumption and production of UK in-season produce, followed by consultation with a number of the business and NGO partners involved in Eat Seasonably and other representatives of the UK fruit and vegetable production industry. This work isolated enabling actions that are needed from government to support individual behaviour change, as follows:

• introducing mandatory public procurement of sustainable food,
• defining what constitutes a sustainable diet; plus necessary government intervention in three broad areas:
  • helping growers increase the production of seasonal fruit and vegetables in the UK,
  • enabling more land provision for food growing, for individuals, communities and market gardening,
  • increasing skills, so that people know how to grow, cook and procure seasonal UK fruit and vegetables.

Then Secretary of State for Environment, Food and Rural Affairs Hilary Benn chaired a Fruit and Veg Roundtable on 20 July 09. The objectives of the meeting were to consider barriers to increasing production and consumption of fruit and vegetables in England, and to consider what solutions might be available and how to take them forward. The policy recommendations from Eat Seasonably were used as the basis for this meeting and the results fed into the Government’s food strategy.

However, the policy change to enable more sustainable eating was limited. The behaviour change campaign could have stimulated a wider, more coherent and longer lasting policy response that would have led to greater behaviour change in the short and longer term.

8 October 2010
Memorandum by NHS Leeds (BC 90)

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Questions
Research and Development
What is known about how behaviour can be influenced?

There is considerable evidence linking personality and health behaviours (see Vollrath, 2006) which would indicate that interventions to positively influence health related lifestyle behaviours need to be tailored to the individual. Individuals may recognise their personal responsibility for their own health, however, confidence (self-efficacy) to change a behaviour such as smoking can be a stronger predictor of intention and resulting behaviour change (Rodgers, Conner, & Murray, 2008). This indicates that support mechanisms to build self-confidence are imperative in policy and practice around behaviour change.

Fishbein et al., (2001) set down eight determinants needed for successful behaviour change:

- strong intentions
- the necessary skills to perform the behaviour
- absence of environmental constraints on the behaviour.
- seeing that the advantages of performing the behaviour outweigh the disadvantages
- perceiving the social (normative) pressure to perform the behaviour to be greater than not performing the behaviour
- believing that the behaviour is consistent with his or her self-image
- anticipating the emotional reaction to performing the behaviour to be more positive than negative
- high levels of self-efficacy.

The above should be considered when designing policy, interventions and services to support behaviour change.

What are the policy implications of recent developments in research on behaviour change?

There is a strong body of evidence to indicate that behaviour is affected by interpersonal processes and social or moral normative beliefs. Parental models are important in instilling health behaviours early in life (Connor & Norman 2005). Peer influences are important, in the initiation of smoking (e.g., McNeil et al., 1988). Viner and Macfarlane (2005) found that during adolescence young people begin to explore adult health behaviours and new health behaviours are laid down which follow into adulthood, these can influence health throughout life. Cultural values influence the exercise behaviour of women across cultural groups (e.g., Wardle & Steptoe, 1991). The evidence suggests that an individual’s very self-identity is contextualised by the society and local culture in which they live and that self-identity is reflected in one’s own actions. Thus, a cultural change in attitudes is needed. Research and
initiatives based on changing or influencing social norms are few in the UK and warrants further consideration. Changing social norms away from binge drinking or an acceptance that most of us are ‘carrying extra weight’ has policy implications across education, media, the food/drink industry, the built environment, taxation, legislation etc. Tangibly supporting people to live healthier lives needs to be embedded into living, working and learning environments.

Policy implications of this research are that we need to take forward a co-ordinated life path approach to behaviour change which requires cross governmental support from children to older people from health to city development. It requires value to be placed on supporting people to achieve their own goals in relation to behaviour change within the context in which they live.

**Translation**

Are there adequate structures and expertise across government and the public services more generally to support the translation of research developments in behaviour change into policy interventions?

Structures and expertise within NHS Leeds to support the translation of research development into behaviour change interventions are quite strong and growing:

1. NHS Leeds and the Institute of Psychological Sciences (University of Leeds) are collaborating on a 2 year Knowledge Transfer Partnership (KTP) supported by funding from the Department of Health, the Technology Strategy Board, ERSC and NHS Leeds. The partnership is driven by the need for development of comprehensive, practical and empirically-based strategies for primary care in changing key health behaviours (smoking, physical activity, diet) amongst deprived and vulnerable communities residing across the city of Leeds. The project has been following guidance consistent with the Medical Research Council Framework for the design and evaluation of complex interventions. A substantial part of the initial phase of the project has involved systematically reviewing evidence in order to establish not only what the most effective behaviour change techniques are to tackle unhealthy behaviours, but also what are the determining factors underpinning behaviour that mediate such change. Through conducting a series of meta-regression analyses we will be able to pinpoint the most effective techniques upon which a ‘behaviour change toolkit’ can be designed. The ‘behaviour change toolkit’ will be a computer-backed, tailored, evidenced based intervention that will be tested initially in primary care settings.

The perspective of the associate who is project managing the KTP, a trainee Health Psychologist is that within the NHS more awareness is needed around health psychology theories and behaviour change and the role that Health Psychologists can play in supporting the research, design and implementation of such interventions. Expertise exists, but often within academic institutions. With regards to the KTP there has been two-way translation of expertise in reference to behaviour change. Specifically, the academic partners have gained from having access to deprived populations to test and develop interventions with, (much existing evidence is based on student populations). This has helped bridge the gap in Leeds between evidence and practice. NHS Leeds has also gained from collaborative working with experts in the field of health psychology as this has helped broaden the use of behaviour change theory in the design of a range of interventions.
Memorandum by NHS Leeds (BC 90)

Other relevant research within NHS Leeds

1. NHS is also a partner in a CLARHC (Collaborative Leadership in Applied Health Research and Care) theme focusing on improving the prevention of vascular events in primary care. The aim here will be to translate the research findings into practical applications.

2. NHS Leeds also has a partnership with York University with a NRPB programme to evaluate the NHS Health Check and its outcome of reducing the risk of vascular disease. This also has relevance for future policy in relation to behaviour change.

Communication skills and competences to promote behaviour change in the public are patchy amongst front line staff in health services and good practice is often based on intuition and life experience rather than learned knowledge and skills. In accordance with NICE guidance (2007), NHS Leeds is seeking to invest time and resources in training front-line health and social care staff in behaviour change theory and techniques with a particular focus on developing generic behaviour change skills and competences with an emphasis on effective communication. We are using a competency framework for prevention and lifestyle change developed by the regional Strategic Public Health Workforce Action Group (PHWAG) in partnership with Sheffield Hallam University.

In NHS Leeds we have a successful approach to smoking cessation, benefitting from colleagues working with the NCSCT. We are currently in the process of building on the successes of this evidence-based systematic approach, broadening it to other unhealthy behaviour prevention strategies and spreading the systematic approach across our health economy.

NHS Leeds and the Local City Council are also collaborating to support healthy lifestyle behaviours amongst LCC staff, based in part on evidence from pilots funded by Local Government Innovation and Development (formerly the IDeA). In Leeds, lessons learned from industry tend to concentrate on advertising and marketing techniques such as insight and translated into social marketing approaches.

Ethical considerations

When is it appropriate for the state to intervene to influence the behaviour of members of the public and how does this differ from when it is appropriate for the commercial or voluntary sector to intervene? In particular, when should this be done by outright prohibition and when by measures to encourage behaviour change? Are some methods of producing behaviour change unacceptable? Which and why?

There is a strong correlation between unhealthy lifestyles and inequalities in health; smoking remains one of the biggest causes of the substantial and growing inequality in health between higher- and lower-income groups (Information Centre for Health and Social Care 2007); obesity is strongly linked to social class and gender; people with low incomes eat less fruit and vegetables and take less exercise than those with higher incomes; women in manual social classes are more likely to be obese (28 per cent) than those in non-manual social classes (19 per cent), although the reverse is true for men, with those in the non-manual social classes more likely to be obese (Zaninotto et al 2006). Private industry has a profit motive and is happy to support people who can afford to pay, as exemplified by the growing
diet and fitness industry. The State and tax payers have to pick up the long term consequences of wide spread unhealthy lifestyles of the rich and poor alike, therefore affordable interventions have to be targeted to those in greatest need, this may be done by charitable organisations or needs to be undertaken or at least influenced by Statutory organisations. Whether legal enforcement or supportive measures are used to effect behaviour change requires debate according to the behaviour and measure proposed. Looking back at the seat belt campaign of the 70s and 80s – all the campaigning did not change behaviour but created an environment where the public accepted legislation which then had a dramatic effect on behaviour and positive health impact.

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6 October 2010
Memorandum by the NHS Stop-Smoking Services and the NHS Centre for Smoking Cessation and Training (NCSCT) (BC 27)

**Memorandum by the NHS Stop-Smoking Services and the NHS Centre for Smoking Cessation and Training (NCSCT) (BC 27)**

**A publicly funded evidence-based behaviour change intervention, its evaluation and the development of evidence base and training to advance its success**

This submission summarises what we believe to be the UK’s most highly developed, evidence-based national behaviour change provision, the NHS Stop Smoking Services (SSSs) in England and the NHS Centre for Smoking Cessation and Training (NCSCT, [www.ncsct.co.uk](http://www.ncsct.co.uk)). It is most relevant to the call’s section on ‘Policy design and evaluation – Practical application’. The NCSCT is a model for behavioural interventions in the UK, being based on good scientific evidence, with training and robust assessment of knowledge and skills at its heart. The partnership of academics and practitioners in leading the programme has ensured that feasibility, implementation, cost considerations and scientific evaluation have been built in from the start.

The SSSs provide publicly funded, evidence-based and cost-effective behaviour change interventions to help smokers stop smoking. This programme was a pioneer internationally and has overall been a significant success, currently ‘treating’ some 700,000 smokers each year, with each SSS yielding an estimated gain of 481.9 life years at a cost of £684 per life year gained [1, 2]. However, throughput and success rates vary considerably as does the way that the services are configured and the level of training of staff. In order to improve the quality of the services and their success rates and reduce variation over Primary Care Trusts, the NCSCT was launched by the Department of Health in 2009. Its aims are to establish for the first time in any country a formal, evidence-based set of competences for Stop Smoking Practitioners (SSPs), a corresponding set of assessments and a system of certification. It provides and commissions training and continuing professional development to ensure that all SSPs operate to a minimum standard of competence. This is underpinned by a continuing scientific research programme designed to establish best practice in this area. The NCSCT therefore is a unique Government initiative, developing evidence-based training and building in, and learning from, high quality scientific evaluation from the start.

The key generalisable conclusion from the experience of the SSSs and the NCSCT thus far is that when establishing a national programme for supporting behaviour change that is based on strong epidemiological and clinical evidence, it is important to establish alongside it a body to ensure that practice follows the evidence base, that experience of implementation is shared and that research continues to be undertaken and collated to support improvements in the service.

This submission will summarise activities of and evidence accumulated by the NCSCT to date.

**Smoking cessation - Evidence background**

Currently, about a fifth of adults in the UK smoke [3]. Smoking leads to increased morbidity and premature mortality and is the leading cause of preventable death and health inequalities in England [4]. Stopping smoking improves current and future health and reduces the risk of premature death [5, 6].
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There is strong evidence that the best chance of success at stopping smoking is obtained by using medication (nicotine replacement therapy, bupropion or varenicline) together with what has come to be termed ‘behavioural support’ (advice, encouragement and monitoring) by a trained health professional [7, 8]. When implemented well, a package of medication and behavioural support can be expected to increase permanent cessation rates by 300%, saving lives very cheaply.

Practical application - strengths and weaknesses

Due to the detrimental effect of smoking on morbidity, mortality and health inequalities, smoking cessation has been identified as one of the top priorities by the Department of Health in the UK in several policy and strategy papers (e.g.,[4, 9, 10]). Following the publication of the DH's White Paper on Tobacco in 1998, NHS stop smoking services (SSSS) were introduced across England in 1999. Using SSSS significantly increases smokers' chances of quitting successfully and the introduction of SSSS is a highly cost effective initiative [8]. Since 1999, smoking prevalence among adults has decreased by a quarter partly as a result of this [11]. In 2009/10, 256,713 smokers in England reported at four-week follow-up that they had quit successfully with the help of the SSSs and this was confirmed by measuring the concentration of the gas carbon monoxide (CO) in their expired air. From what is known about the rate of relapse after this [12], we can project that 64,178 (25%) will still be abstinent after 12 months compared with 10,269 (4%) if they had tried to stop without help [12, 13]. However, CO–verified success rates vary widely across services, from 58.3% to 2.7% [2]. This variation in success is partly due to variations in the delivery of the SSSS. Service delivery will vary in three important aspects: how the intervention is delivered, i.e. the style, mode and context, who delivers it, e.g. nurses, pharmacists, psychologists and what is delivered, i.e. the content of the programme, which includes the medication used and the behaviour change techniques (BCTs) employed by the practitioner [14]. A lack of intervention standards e.g. in the form of standardised treatment manuals and a lack of training standards for practitioners probably contribute to large variations on all three aspects.

Need for the NCSCT

Despite the success of the SSSS to date, the variation in success rates indicates a need to lift success rates across many services to a higher level. Evidence is required on factors associated with higher and lower success rates to inform approaches to improve the provision of stop smoking support. Evidence-based development of treatment and training standards is needed and cost-effective, continuous professional development of SSPs needs to be initiated to ensure provision of high quality behavioural support to smokers based on the most up-to-date evidence available. The Department of Health funded the NHS Centre for Smoking Cessation and Training (NCSCT) for a period of three years initially to achieve these aims. The NCSCT is a consortium combining expertise from different sectors; it is based at and led by an academic team of smoking researchers and health psychologists at University College London (UCL) and includes partners NHS Leeds and the charity Quit (www.quit.org.uk). It was established in 2009 to assess training needs, develop training standards, pilot and evaluate training programmes, develop a certification system for smoking cessation practitioners, deliver the training across England and continuously evaluate it, develop an accreditation system for trainers and courses and contribute to national policy development.
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Development of evidence base to underpin the work

Assessment of success rates needs a standard for the recording of successful quit attempts at each SSS; otherwise results cannot be compared across services and poor practice cannot be reliably differentiated from good practice, thus undermining motivation to engage in good practice. Therefore the NCSCT trains SSSs to use the clinical Russell Standard of data recording, which has been developed by the UCL-based research team [15].

To provide an evidence base for the competences in which to train SSPs, an expert panel identified relevant behaviour change techniques (BCTs) from evidence-based reviews [16, 17] and guidance documents describing recommended practice for one-to-one and group behavioural support for smoking cessation. These were analysed using a coding manual [18] based on a reliable taxonomy developed for other behavioural interventions [19]. The taxonomy was refined by asking all 144 SSSs in England (at the time of the study) to send the local service protocols (sometimes referred to as treatment manuals). Of 98 services that responded, 43 had treatment manuals (the NCSCT will work to achieve 100% adoption of local service protocols). A reliable taxonomy of 43 BCTs specific to smoking cessation with accompanying labels and detailed definitions was developed. BCTs were theoretically categorised according to their main function in behaviour change: addressing motivation, maximising self-regulation, promoting adjuvant activities and providing general support for other BCTs [18]. Type and number of BCTs across treatment manuals varied widely, from 9 to 37 (median 23, mean 22.1) [14]. A subsequent NCSCT study found that nine BCTs were associated with self-reported and CO-verified four-week quit outcomes and a further four were associated with CO-verified but not self-reported quit rates [14]. The number of sessions in the manuals showed a wide range; services that used more sessions had higher quit rates.

These results from NCSCT research [14, 18] show that many SSSs do not have treatment manuals and that existing manuals vary widely in the extent to which they follow recommended practice. The results provide a starting point for establishing best practice by providing evidence of associations of better outcomes with certain BCTs and number of intervention sessions.

The development of the taxonomy of BCTs made it possible to establish the core competences (knowledge and skills) required by SSPs to deliver one-to-one and group behavioural support [20]. Existing guidance documents and treatment manuals (source documents) were analysed by extracting competences that were either specifically mentioned or derivable from a BCT in the form of statements such as ‘a specialist should be able to undertake this activity.’ Competences were compared and matched across source documents to arrive at a single list of 71 one-to-one and 23 additional group behavioural support competences for which there was broad agreement as to their necessity. An evidence-based sub-set was created of those mentioned in at least two source documents and supported by good evidence of effectiveness in at least two randomised controlled trials within Cochrane systematic reviews [16, 17] (risk ratio ≥1.5 and difference statistically significant compared to control condition). A single merged list of 14 one-to-one and three additional group behavioural support competences that are recommended and evidence-based was thus obtained [20]. Four of the competences for individual behavioural support were also found to be effective when deriving competences from the BCTs associated with higher success rates in SSSs [14]. No data on group-based support were available from the SSSs study.

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The list of competences [20] was the basis for developing standardised learning outcomes by the NCSCT. The identified competences were classified as being based on skills or on knowledge and categorised according to one of the behaviour change functions (addressing motivation, maximising self-regulation, promoting adjuvant activities and providing general support). This list of competences will be reviewed and amended as necessary as new evidence emerges. To arrive at standardised learning outcomes for training of SSPs, the full list of competences was translated into a learning outcome format, separated into one-to-one and group behavioural support [21]. These outcomes represent a recommended and evidence-based set of skills and knowledge which practitioners who deliver smoking cessation interventions should possess. They can be used to identify services and specialists where competences fall below an acceptable level and where training is needed.

In a process similar to that used to identify BCTs in smoking cessation in general, BCTs that occur in effective behaviour change interventions for smoking cessation in pregnancy have been identified [22] and will provide a foundation to develop recommendations and training to optimise smoking cessation interventions in pregnancy. A similar process is underway to identify BCTs in effective smoking cessation interventions for smokers with mental health problems.

The NCSCT has developed a training needs assessment and a two-stage training programme for SSPs, which covers both knowledge and skills central to the delivery of stop smoking interventions. The first stage, an online training and assessment programme, covers provision and assessment of knowledge in core areas such as statistics on smoking in the population, the process of smoking cessation and the effectiveness of various interventions. This can be viewed at http://ncsct-training.co.uk. The second stage of training is a two-day face-to-face group training in behaviour change and communication skills. This skills training has been piloted and will be rolled out across England from October 2010. The NCSCT training is set up in two stages to achieve most efficiently the objectives of improving both knowledge and skills. The internet-based delivery of knowledge assessment and training ensures that the face-to-face training courses can focus on skills and rely on a pre-existing minimum level of knowledge. Practitioners who pass the first stage and successfully complete the second stage assessment achieve full NCSCT certification.

Translating the work on identification of BCTs and competences associated with successful interventions for practical use, the NCSCT has also developed a standard treatment programme for smoking cessation. The standard treatment programme was also informed by the practical experience of SSPs currently working for and running SSSs, reviews of research evidence and existing training programmes and consultation with an expert panel comprised of clinicians, service managers, commissioners, academics and policy advisers. The programme provides guidelines for an assessment session, a quit date session and four weekly post-quit sessions and includes descriptions of BCTs and competences for each session. Standard treatment programmes for specific populations such as pregnant smokers and those with mental health problems will be modified according to research currently underway at the NCSCT.

Assessment and training are continually monitored and revised as necessary in order to learn from experience and to take account of scientific advances, new evidence and contextual changes. This ensures that services and practitioners benefit from advances in the field of smoking cessation via the continuing professional development provided by the
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NCSCT. The training is evaluated by its impact on stop smoking success rates, using comparisons of success rates of practitioners prior to and following the training and of success rates of practitioners who have participated and those who have not. Participants’ feedback on the training as well as their self-reported confidence in their competences are also assessed and used to evaluate training.

Several research studies are currently underway to underpin the work of the NCSCT and improve the success of the SSSs. Data sets from 23 SSSs with a total of over 130,000 clients are currently being used to assess associations between service characteristics and success while controlling for client characteristics. Other studies include the tracking of service throughput and success rates of SSSs and an annual survey of commissioners, managers and practitioners. Further studies focus on the development of a reliable method for characterising smoking cessation behavioural support in practice, the assessment of fidelity of behavioural support to treatment manuals, factors associated with smoking cessation behavioural support in practice, the association between behavioural support and outcome and the validation of the theoretical grouping of smoking cessation BCTs. The research findings of the NCSCT are regularly disseminated both at scientific conferences and in academic journals, and in meetings of practitioners, commissioners and policy makers.

Conclusion and outlook

The NHS stop smoking services are an example of a publicly funded, evidence-based behaviour change intervention which successfully supports the achievement of the Government’s policy goal to reduce mortality, morbidity and health inequalities due to smoking. With the inception of the NCSCT and its research initiatives, the evidence base for their performance is broadened and deepened. Assessment, constantly evaluated training and development of guidelines by the NCSCT support further improvement in success of the intervention by ensuring that practice is based on latest available evidence and subject to effective evaluation. The NCSCT is a partnership of the academic sector, the voluntary sector and the NHS, thus ensuring that lessons learnt from each sector are taken into account. Its support by and cooperation with the Department of Health ensures that results of its work are directly fed back into the development of future interventions as well as to policy makers. The work of the NCSCT provides advice and support during the design, piloting, implementation and evaluation of behaviour change interventions in smoking cessation. The extent to which its results are transferable to behaviour change interventions in other areas of health is being investigated by the academics associated with the NCSCT. Following the three years of its initial funding, the NCSCT aims to become self-financing through providing assessment, training, continuous professional development and consultancy services to stop smoking services in England and comparable initiatives in other countries. The role of the NCSCT is already recognised internationally, with many international invitations to talk at meetings and provide training from Dubai to China. We consider that the model presented here is not only a flagship for smoking cessation but a model for the development, evaluation and implementation of all behaviour change interventions aimed at improving health.

References

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**Memorandum by the Nuffield Council on Bioethics (BC 75)**

**Ethical considerations**

When is it appropriate for the state to intervene to influence the behaviour of members of the public and how does this differ from when it is appropriate for the commercial or voluntary sector to intervene? In particular, when should this be done by outright prohibition and when by measures to encourage behaviour change? Are some methods of producing behaviour change unacceptable? Which and why?

1 Chapter 2 of the Council’s report *Public health: ethical issues* reviews the role of the state in public health and then outlines a framework for a public health policy, based on a classical liberal conception of the state’s role. While this framework is suitable to address some of the principal issues arising in the context of public health, it also has certain limitations. We therefore propose a revised and extended version of the initial framework, which we call the **stewardship model**.

2 The report concludes that the state has a duty to help everyone lead a healthy life and reduce inequalities in health. Our ‘stewardship model’ sets out guiding principles for making decisions about public health policies.

**The stewardship model**

Concerning goals, public health programmes should:

- aim to reduce the risks of ill health that people might impose on each other;
- aim to reduce causes of ill health by regulations that ensure environmental conditions that sustain good health, such as the provision of clean air and water, safe food and decent housing;
- pay special attention to the health of children and other vulnerable people;
- promote health not only by providing information and advice, but also with programmes to help people to overcome addictions and other unhealthy behaviours;
- aim to ensure that it is easy for people to lead a healthy life, for example by providing convenient and safe opportunities for exercise;
- ensure that people have appropriate access to medical services; and
- aim to reduce unfair health inequalities.

In terms of constraints, such programmes should:

- not attempt to coerce adults to lead healthy lives;
- minimise interventions that are introduced without the individual consent of those affected, or without procedural justice arrangements (such as democratic decision-making procedures) which provide adequate mandate; and seek to minimise interventions that are perceived as unduly intrusive and in conflict with important personal values [para 2.44]
3 The stewardship model and the principles that underpin it do not provide a fixed set of rules, but elaborate factors to be taken into account when developing policy (paragraphs 2.44, 2.52, 8.3–8.12).

Role of third parties

4 Although the state should be guided in its public health policies by the concept of stewardship, this does not absolve other parties, in particular the corporate sector, from their responsibilities. We discuss the concept of corporate social responsibility, and note that while companies may have different motivations for pursuing social responsibility strategies, they increasingly recognise that they have obligations beyond simply complying with relevant laws and regulations. If industry fails to meet these obligations and the health of the population is significantly at risk, the market fails to act responsibly. In such cases, we argue, it is acceptable for the state to intervene (paragraphs 2.47–2.50, 5.26, 5.16–5.25, 6.18–6.31, 8.24).

Proportionality

5 The 'precautionary principle' is often invoked where there is some evidence of a serious threat to health, safety or the environment. The precise meaning of the principle has been the subject of much debate and it would be wrong to see it as a simple rule. This is why we prefer the term precautionary approach, rather than precautionary principle (paragraphs 3.15–3.16).

6 A Communication by the European Commission on the matter helpfully suggests that five main elements can be distinguished: (a) scientific assessment of risk, acknowledging uncertainties and updated in light of new evidence; (b) fairness and consistency; (c) consideration of costs and benefits of actions; (d) transparency; and (e) proportionality.

7 Whether an intervention is proportionate depends largely on: whether the public health objectives are sufficiently important to warrant particular laws, policies or interventions; how likely the intervention is to achieve certain ends; and whether the means chosen are the least intrusive and costly whilst still achieving their aims (paragraphs 3.16–3.19). The concept of proportionality is closely linked to what we call the 'intervention ladder'.

The intervention ladder

8 Our ‘intervention ladder’ (attached) is a method of thinking about the acceptability and justification of different public health policies. In general, the higher the rung on the ladder at which the policy maker intervenes, the stronger the justification and the stronger the evidence has to be. A more intrusive policy initiative is likely to be publicly acceptable only if there is a clear indication that it will produce the desired effect, and that this can be weighed favourably against any loss of liberty that may result [para 3.37].
The intervention ladder

**Eliminate choice.** Regulate in such a way as to entirely eliminate choice, for example through compulsory isolation of patients with infectious diseases.

**Restrict choice.** Regulate in such a way as to restrict the options available to people with the aim of protecting them, for example removing unhealthy ingredients from foods, or unhealthy foods from shops or restaurants.

**Guide choice through disincentives.** Fiscal and other disincentives can be put in place to influence people not to pursue certain activities, for example through taxes on cigarettes, or by discouraging the use of cars in inner cities through charging schemes or limitations of parking spaces.

**Guide choices through incentives.** Regulations can be offered that guide choices by fiscal and other incentives, for example offering tax-breaks for the purchase of bicycles that are used as a means of travelling to work.

**Guide choices through changing the default policy.** For example, in a restaurant, instead of providing chips as a standard side dish (with healthier options available), menus could be changed to provide a more healthy option as standard (with chips as an option available).

**Enable choice.** Enable individuals to change their behaviours, for example by offering participation in a NHS 'stop smoking' programme, building cycle lanes, or providing free fruit in schools.

**Provide information.** Inform and educate the public, for example as part of campaigns to encourage people to walk more or eat five portions of fruit and vegetables per day.

**Do nothing or simply monitor the current situation**

October 2010
Brief Summary of the Doctoral/Research Study

Youth disaffection within the school context has been a major concern in the UK and elsewhere in the World (i.e. 21st Century Schools Paper, 2009; VISTA, 2006). In parallel, investment on Physical Education & School Sport (PESS) programmes as a way to tackle youth disaffection has seen a great expansion (i.e. PESSYP, 2008; Sport for a Culture of Peace/UNESCO, 2001). Furthermore, evidence suggests that PE teachers – as role models and significant adults - may have a powerful impact on these young people (Sandford et al., 2008). It is, therefore, essential to ensure that the PE teachers are appropriately prepared – through Initial training and Continuing Professional Development (CPD) programmes – in order to re-engage effectively these young people into the education context. Briefly, the purpose of this study was to address and explore issues of: a. Disaffected behaviour during Physical Education & School Sport (PESS); b. the role of PESS in re-engaging these young people in education and further, in society; c. the relevant CPD training, which PE teachers possibly had undertaken throughout their careers and any future training they need to make them effective in this field. In order to understand teacher learning, principles of the theories of ‘social constructivism’ and ‘situated learning’ were employed (Vygotsky, 1978; Lave & Wenger, 1991). Data collection incorporated an open-ended survey and a two-tier case study approach (11 single interviews & 3 school-visits). Data were analysed using main points of constructivist grounded theory (Charmaz, 2006) and thematic analysis (Bryman, 2008). Main results indicated that the majority of the PE teachers had experienced disaffected/disruptive behaviour in their classes; PE was perceived to play a positive role in managing disaffected/disruptive behaviour; almost all PE teachers reported that they had received no specific training on the role of PE in addressing youth disaffection, both in past and recent CPD activities; their CPD needs appeared to be the content of the CPD programmes and the expertise of the CPD trainers.

1. Introduction

This paper will focus on one of the three areas of interest of this research study: Disaffected Youth in Physical Education & Education-Definition & Reasons. In particular, it will consist of: background; rationale; research design - theoretical framework, research methods (data collection; data analysis techniques) and relevant results along with their discussion.

2. Background

The British government’s concern about youth disaffection and disengagement from education has been expressed through official government policies, such as Every Child Matters (2005) and documents, such as the 21st Young People Paper (2009) that among other aims, target disaffected young people in terms of their re-engagement in the contexts of education and society. In parallel, the use of Physical Education and School Sport (PESS) as a powerful ‘tool’ to re-engage young people and positively influence their physical, psychological and social development (Sandford et al., 2006) has led to the establishment of the Physical Education and School Sport for Young People (PESSYP, 2008 formerly called PESSCL, 2003) strategy. Further, in the Report ‘Child Poverty in Perspective: An overview of child well-being in economically advanced countries’ published by UNICEF (2007), the UK
ranked 21st out of the 21 economically advanced countries that participated in the section related to behaviours and risks among adolescence. Thus, Youth disaffection and disruptive behaviours, especially within the school context have been and continue to be a major concern for the UK government (Elton Report, 1989; Green Paper, 2002; White Paper, 2009). Tackling disaffection and re-engaging these young people into education and more broadly in society have been at the core of numerous government funded school based projects, i.e. Sky Sports: Living for Sport, which is now accessible to all secondary schools in the UK (2009).

As a term 'disaffection' is 'a complex and multidimensional phenomenon, which is influenced by numerous, interrelating factors' (Sandford et al., 2006, p.251). In particular, disaffection in relation to the school context and according to research evidence is used to mean: disengagement from education (Huskins, 1998), lack of affection for school and lack of participation in school (Hayden & Blaya, 2002; 2005), disobedience and physical aggression (Charlton et al, 2004), non attendance (Shumer, 2005) and engagement in disruptive behaviours (Brown & Fletcher, 2002). In addition, the distinction between being actively and passively disaffected is highlighted by Sandford et al. (2008), where active disaffection is defined as ‘disruptive behaviour, truancy and exclusion’ and passive as the one that involves ‘low academic achievement, non-participation and alienation (p.97). In the context of Physical Education and School Sport (PESS), disaffected/disruptive behaviours can be defined from a similar point of view, i.e. active and passive. Therefore, there could be disruptive behaviours in the form of ‘misusing’ school equipment, obstructing their own learning and that of their own classmates, disrupting the PE teacher from appropriately delivering the lesson, and exhibiting aggressive behaviours towards their teacher and classmates (Education and Inspections Act, 2006; Ntoumanis et al., 2004, Evans et al. 2002). It is important to note that the main focus of the particular research study was disaffected youth who engage in disruptive behaviours. However, does disaffection among youth and within education and physical education hold a precise definition; do we know why pupils may possibly exhibit such behaviours?

3. **Rationale**
In fact, evidence shows that we know very little on disaffection within PE. This research study attempted to address issues surrounding these questions and to fill ‘gaps’ in our (i.e. researchers, PE teachers, policy makers) knowledge. It was therefore, important to establish definitions of disaffected/disruptive pupils in schools, in physical education as well as in this research. For once more, it should be noted that for the needs of this study disaffected young people were defined as the ones, who mainly exhibit disruptive behaviours within a PE class.

4. **Research Design**

4a. **Theoretical Framework**

The learning theories of social constructivism and elements of situated learning informed the choice of the research methodology and provided an appropriate framework for this study. In brief, ‘constructivism’ emerges as ‘a guiding light for the implementation of successful changes in teaching practice’ (Light, 2008, p.22 & 26). Social Constructivist theory (Vygotsky, 1978) and the theory of Situated learning (Lave and Wenger, 1991) put the learner at the heart of the educational process as an individual actively engaged in the environment constructing knowledge while at the same time acknowledge the learners'
previous experiences. As Lave and Wenger (1991) argued, learning is an activity related to the social world and it is inseparable from the socio-cultural environment and social practice. To sum up, learning is active, teacher is the facilitator and the learning occurs through participating in the community of practice. In relation to PE, Kirk and Kinchin, (2003) supported the role of situated learning by arguing that ‘it is useful to think in relation to school PE, because it allows us to explore the complex between forms and cultures, on the one hand and forms of consciousness on the other (p.224).

4b. Data collection

Data collection was divided into two phases. The first phase involved the administration of open-ended questionnaires to both Partnership Development Managers and Heads of the PE departments of all types of secondary schools in the area of Midlands in England. The second phase involved the implementation of two – tier case study approach. The first part included eleven (11) single cases and the second part, three (3) schools as multiple cases. In regard to the first phase of the data collection, the survey was administered via email and post to both PDMs and Heads of PE of all kinds of secondary schools in the area of Midlands in England. In total, 275 questionnaires were sent out and 80 were returned. The first part of the second Phase of the data collection involved in – depth, semi-structural interviews with two (2) Partnership Development Managers (PDMs) and nine (9) Head teachers of PE (four (4) in mainstream and five (5) in Emotional Behavioural Difficulties (EBD) schools]. The second part of the second phase of the data collection involved three (3) schools, which were examined as multiple Case Studies. The three (3) secondary schools were a Mainstream secondary school, a School Sport Specialist College and an EBD school. Research tools that were used to acquire data were: policy documents from each school, single, semi – structured interviews with members of the PE department, observations of PE lessons and focus group interviews with four (4) disaffected pupils after each lesson. Qualitative research methods were used for the collection and analysis of data, as they can provide an opportunity to understand and explain social complex phenomena in context (Merriam, 1998).

4c. Data Analysis

Data analysis took place using a Constructivist approach to Grounded Theory (Charmaz, 2006, 2009) as well as Thematic Analysis (Bryman, 2008). In general, Grounded Theory allows the generation of theory from data and concepts are systematically constructed from data (Glaser and Strauss, 1969). In particular and in relation to the Constructivist approach, Charmaz advocated (2006; 2009) that knowledge is perceived to be socially constructed, acknowledging multiple standpoints.

5. Results & Discussion

In relation to youth disaffection in secondary schools and in particular in PE, results after data analysis of the survey, the individual and school case studies majorly indicated that:

- Almost all the PE teachers reported that they had experienced behaviour problems from disaffected young people in their PE classes; furthermore, they referred to its definition, to possible reasons for its exhibition and ways to cope with such behaviours and attitudes within the lessons and the school.
Disaffection among young people is widely recognised as rising worldwide (i.e. European Commission White Paper, 2001; Australia - Savelsberg et al. 2008) and in the UK (Every Child Matters, 2003). Generally and in line with research conducted by Stinchcomb et al. (2006), disaffection/disruption here appeared to challenge ‘the longstanding image of schools as tranquil sanctuaries’ (p.123) In this project, the majority of the participants (66 respondents out of 75 in the survey and every participant in the 14 case studies) replied that they had encountered incidents of disaffected/disruptive behaviours throughout their careers, in their school and their PE lessons. Their views illustrated the broadness of the phenomenon in today’s schools and justified relevant concerns as expressed by policy makers in significant policy documents (i.e. White Paper [England] 2005; Youth Crime Statistical Release [England], 2009).

→ Definitions
Vagueness about the meaning of the term ‘disaffection in PESS’ is understandable since there is no ‘official’ definition for the term in the literature of PESS and policy documents and consequently a shared understanding of ‘disaffection in PESS’ may be shadowed with uncertainty. However, disaffection is a term widely used in relation to policies and practices in education (i.e. TDA, 2007) and currently in physical education and school sport (PESSYP, 2008; Sandford et al., 2006; Sandford et al.2008). In education, ‘disaffection’ is often interchanged with ‘disruption, disengagement, or marginalisation’ (i.e. Hayden and Blaya, 2005). In this study definitions for disaffected/disruptive attitudes and behaviours in PESS varied among participants both in the survey and the case studies. In the survey, examples of given answers were: ‘disaffection’ (i.e.Q22), ‘disruption’ (i.e.Q3); ‘bad behaviour’ (i.e.:Q65); ‘they disrupt PE through non-attendance, no KIT and low level input - same small number’ (Q50); ‘behaviour attempts to distract from their deficiencies’ (Q44); ‘bad behaviour as a way to distract the teachers from the real them’ (Q65); ‘deploy and annoy teachers’ tactics’ (Q1); ‘disagree with decisions’ (Q68). Overall, the majority of the PE teachers identified the term ‘disaffection’ as a synonym to ‘disruption’ and in the course of their answers they provided details for how these attitudes and behaviours tend to be exhibited within a PE lesson. In addition, ‘disaffection’ was noted to be synonymous with the misuse of the lesson’s equipment, i.e. ‘disruption in PE is throwing equipment and running away’ (Q68) as well as – in more extreme manner - through personal assaults to PE staff and other pupils. i.e. ‘have experienced death threats to staff and pupils; physical and verbal assaults to staff and pupils & destruction of property’ (Q31). Throughout these findings, there were important similarities with existing research as well as differences. Indeed and similarly to this study’s results, the term disaffection was identified as ‘extreme disruptive behaviour’ by Gutteridge (2002) and as ‘disobedience and physical aggression’ by Charlton et al (2004). Moreover, Cooper (2005) talked about ‘Emotional difficulties and Social Isolation within the School’. As a term and dissimilarly to current policy documents, past policy documents such as the Underwood Committee (1981) children, who exhibited disaffected and disruptive behaviours and attitudes in the school context were defined as ‘maladjusted’ and recently, as ‘Hardest to Help Young People’ (RR366DFCS/Golden et al. 2002).

From the perspective of the Case Studies and according to some examples, PDM1 defined disaffected pupils as: the ‘ones, who really are not going to get involved’ whereas Craig argued that they are the ones,

‘who do not do what they’ve been told […] & disaffection tends to be very much aligned to disruption; it’s not just not taking part, but spoiling the opportunities
of others as well; so, the key definition for me of disaffection would be the effect they have on other pupils, not just themselves.

These answers were in line with research conducted by Brown & Fletcher (2002), who identified disaffection as 'engagement in disruptive behaviours' and with Huskin (1998), who argued about disaffection within school to be disengagement from education. Overall, the diversity of the opinions of the PE teachers may explain first, why Pearce and Hillman (1998) referred to disaffection as:

an umbrella term to cover young people in compulsory education, whether they are non-attenders or exhibit behavioural difficulties and/or anti-social behaviour

and second, what Zionts et al (2002) argued in relation to the term; ‘there is ‘no difference in exhibited behaviour and attitudes, but in the labels given by the personnel’. Concluding, nearly all of them agreed about the behaviour and the element of disruption within disaffection and overall on disengagement from learning within the PESS and generally the education context.

→ Reasons
The majority of the respondents provided answers for possible reasons, which could explain why incidents of disaffection/disruption could happen in PESS. The reasons mentioned more often included: Gender, PE KIT & Changing, family; PE teachers; socioeconomic background.

Gender:

As a starting point, the factor of gender seemed to play a significant role in the answers of the PE teachers, since every participant referred to gender as an important factor that leads to disaffected behaviours within PESS. Therefore, they referred to both girls and boys being disaffected/disruptive, however with an emphasis on girls. Specific examples were: ‘mainly 11-14 years old/both girls and boys’ (Q11); ‘girls never bringing PE KIT, poor attitudes, lots of jewellery - girls are often disaffected/not interested in taking part and doing any activity; boys are often deliberately disruptive, loud, aggressive, No KIT, consistently removed from the lesson’ (Q22). In line with research conducted by Flintoff and Scraton (2001) found that young girls felt ‘uncomfortable’ in PE when their bodies were ‘showing’ such as when swimming or when wearing short games’ skirts. Additionally, research conducted by Evans (2006] highlighted the complexities and contradictory experiences in a negative way of girls’ bodies and school sport.

Drawing on the findings from the case studies, Andy (EBD) particularly said ‘the differences are between the boys and the girls. Girls for example could be turned off by team sports rather than individual sports’ and similarly Digby stated: ‘Yes, in boys […] Ok, let’s say that at the moment in this school are 3 to 1 and is getting bigger and bigger all the time’. Research conducted by Clark and Paechter (2007) examined the reactions of girls in participating in a sport like ‘football’; the consequences were disruptive behaviours and not equal participation. The research suggested that that happened because of boys’ power and ‘automatic rights and girls’ ‘marginal tenancy’. From the Mainstream sector Peter and Craig argued: Peter: ‘I think that it is more in boys, but, I personally find girls hard to deal with’; Craig: ‘I think more girls than boys kick back at the idea of doing their PE lesson […] as a more general comment – girls are more disaffected than boys’. To sum up and in a similar
vein, research conducted by Grossbard et al 2009 showed that girls reported greater levels of anxiety than boys, whereas boys reported higher disruption of their concentration during sport.

**PE KIT & Changing**

Issues surrounding the PE KIT & Changing were highlighted and illustrated through the answers provided by the participants. Examples included: 'not bringing PE KIT and refuse to borrow it' along with 'slow changing' (Q1); 'disruptive because of not bringing PE KIT and having a conflict of borrowing (Q18); misbehaviour because they decide not to take part, therefore not have brought PE KIT -possibly, due to inadequate/dirty KIT (from seeing previous KIT) (Q44). This study suggested that the PE KIT and the process of Changing play a topical role in the young people’s exhibited behaviours during PESS and appeared to be consistent with research conducted by O’Donovan and Kirk (2007), who stated that the process of ‘changing’ (i.e. changing rooms) holds a prominent role in the course of a PE lesson (i.e. the element of ‘how does a pupil look after changing’). Further, all interviewees/case studies referred to PE KIT as a reason for a child to exhibit disaffection/disruption in PESS. In particular, Dawn linked girls’ disaffection with the PE KIT:

I think really for Girls’ PE in particular, disaffection starts by not bringing the PE KIT; refusing to bring the KIT, refusing to tie their hair back, refusing to bring trainers, they don’t want to go outside – you are torn one way or another really.

Similarly, Sandra argued

[...] the whole changing thing can be very negative for some pupils; well, it can be very frustrating; yeah, because they have to get changed in public – we have to ask 40 girls to go into a large changing area and you know they don’t want to get changed publically, so this is an issue. Some of them don’t want to wear shorts; they don’t want to show their legs.

Moreover, body image appeared here as prominent along with the PE KIT and gender— it’s not only the process of changing but also how a pupil will look like after changing – ‘it’s about Image’. Azzarito (2009) suggested that there is a need for a comprehension of the construction of girls’ and boys’ body image in regard to gender and race and that it’s necessary to create ‘pedagogical spaces in schools to destabilize and subvert the gendered, racialized social norms of the ideal body’ (p.19).

**Other Social Factors**

**Family:** What may cause a pupil to become disaffected/disruptive in PE and school was the family support along with family problems: i.e. 'those, who have an unstable home life' (Q35). Within the case studies, family support also emerged as prominent for a pupil being disaffected/disruptive. For example, Ian illustrated his point as follows:

Oh, gosh – neglect. I think is the first – neglected from their families; also, some of their parents have died for whatever reason; or they have also been removed from their families because of abuse and extreme neglect; I do not know the exact reasons for these people being neglected.
Report by Desforge & Abouchaar (2003/RR433) highlighted the importance of the family in the adolescent’s life as well as research conducted in EBD schools by McCrystal et al. (2007) also supported the role of the family and parental support in the exhibition of disaffected/disruptive behaviours during the period of adolescence.

**PE teachers as significant others:** Hilton (2006) supported the notion of key adults in influencing positively disaffected pupils in mainstream schools. ‘PE staff and problems’ was a reason that was mentioned as crucial for a child to become disaffected in PE from PDM2 as well: She argued:

> some of our city schools have got huge staffing problems, where they have continual changes in staff; staff on long-term sickness. Staff, who unfortunately the kids don’t trust them, because the teaching staff, either they aren’t there or they are running late/out of time and I think in PE, more that in any other subject the teacher must be able to trust you and believe in you and see the bad side of things as well, yes.

Hagger et al. (2009) also suggested that the influence of PE teachers in affecting positively pupils to take part is even more important that the influence of their own family during adolescence

**Socioeconomic background:** In regard to disaffection in PESS and social class research by Sandford et al (2006) also mentioned socioeconomic background as a reason for the exhibition of disaffection within PESS. Issues of socioeconomic background reported as significant for affecting negatively these young people, especially concerning the area of residence, i.e. ‘working in a school in an economically deprived area - lots of social issues influencing students’ attitudes and behaviours (Q2). In the same vein, Neil from the EBD sector stated:

> I have also worked in other schools in xyz city, where there is a high percentage with low socioeconomic background pupils <...>. Straight away, I was working with disaffected young people, who were coming from poor socioeconomic backgrounds.

Socioeconomic background and its’ effect on PESS – either positive or negative - has been examined and discussed by numerous researchers all around the world (i.e. Green et al. 2005; Azzarito & Solomon, 2005). Findings of this research also indicated that not all the times the ‘blame’ goes to the socioeconomic background; for example, Craig from the mainstream sector argued that: ‘I have seen children from excellent, upper class families to behave inappropriately’.

6. **Conclusion**

Overall, data indicated strongly that more could be done to support physical education teachers to maximise the potential of the PESS environment in re-engaging disaffected/disengaged/disruptive youth in education. Definitions of disaffection in PE and their ‘roots’ were presented, explored and discussed in order knowledge to be enhanced and policies to be inspired by them.

*October 2010*
1. Lessons from the Evaluation of Behaviour Change Programmes: A Summary

1. How behaviour is changed

1.1. Modern public policy is not without ambition. Persuading the overweight to slim, prisoners to go straight, NEETS to enter the workforce, smokers to quit, addicts to become clean, sink communities to swim, motorists to bus and so on are tasks of considerable complexity. The simple phrase ‘behavioural change’ belies the enormous transformation in individual and collective reasoning that is involved. The programmes that attempt to do so do not work through Pauline conversions, divine deliverance, instant redemption or miracle cures. They work by persuading subjects to change. And subjects, from the very beginning, will be relatively recalcitrant or willing. Subjects on the threshold of a programme will ponder, wait, figure, investigate, and change their minds. Subjects over the threshold will dive in, tread warily, pull out, dawdle, support, sabotage, take over, malinger, proselytise and so on. Programmes work to the extent that they can shift the tide, moving sufficient numbers of the marginal and refractory into compliance and commitment with the intervention goals. The co-ordination of a whole set of ideas, individual and institutions is required to create durable change. Programmes need to construct runways rather than springboards for behavioural change.

1.2. Too much attention in policy making and evaluation has been directed at the ‘manifest’ content of interventions. Policy-making is energised by the hot new idea. Attention is thus drawn immediately to the unique properties and powers of the latest ‘measure’, ‘treatment’, ‘therapy’ or ‘forum’. Thus NEETS are offered ‘mentoring’, the obese are provided with BMI calculators, addicts are introduced to ‘peer learning’, motorists face ‘congestion charges’, prisoners are encouraged to improve their ‘cognitive skills’ and so on. Interventions find support and are brought to life if there are persuasive reasons to believe that a new-fangled idea might have a significant leverage on a long-standing problem.

1.3. But what happens next? The machine takes over. The intervention is assembled in a series of standard procedures. The programme has to be organised and delivered – sites are mulled over and selected, resources are acquired, and staff roles are allocated. Processing a subject through such an apparatus involves a long sequence of behavioural accommodations. Participants need to be: persuaded that there is a problem; made aware that the programme offers a solution; induced into thinking that the solution is for them; recruited efficiently onto the scheme; and offered some immediate gratification for entry (quick wins). Once positioned on a scheme longer-term commitment needs to be reinforced. Subjects need to recognise that as routine members they become co-producers of the schemes, expectations about transferable skills and post-programme lessons need to be inculcated, some process of certification then prepares participants to exit and proselytise. A successful programme will cater for all of these stages and research (see section 3) is now able to show that these ‘latent’ features, the generics of programme building, often have as profound an influence on programme subjects as do the ‘big ideas’.

1.4. It is a familiar psychological cry that subjects vary substantially in their readiness and preparedness to undertake behavioural change. All practitioners will also affirm that once on
a programme subjects also vary in willingness to heed, follow, support and apply the guidance on offer. Accordingly, all policy making on behaviour change and all evaluations of programmes designed to induce such change should be underpinned by a model of incremental motivational shifts. Such models are developed in part 3 of this submission. Interventions that seek to carry subjects from behaviour X to behaviour Y must do so via a series of micro dispositional adjustments. To enable this, the programme must insinuate a corresponding series of micro inputs to spur on the subject to the next stage. A simplified graphic (Figure 1) captures the sequence – following changes in the subject’s thinking (in black) and the parallel intervention response (in red):

![Figure 1: A general model of the behaviour change pathway](image)

2. Some key examples of the significance of ‘latent mechanisms’

2.1. The Dodo’s verdict.

Alice, during her adventures in Wonderland, comes across a bizarre competition officiated by a dodo bird. It is a simple enough contest, a race around a lake. She is bemused, however, because apparently no one bothers to measure times, distances, placements and so on. Instead, the dodo decrees: “Everybody has won and all must have prizes.”

Psychotherapy has always been a challenging topic for evaluation. There are many, many different therapeutic schools. One count, made forty years ago (Parloff, 1986), estimated the number at 418. A longstanding critique argues that the specific techniques associated with specific schools (e.g. Freudian, Jungian, Rogerian, Adlerian, behavioural, cognitive, gestalt, existential, etc.) serve very limited purpose. Every one becomes a winner, however, since most of the positive effect is gained due to the therapeutic relationship. This hypothesis known as ‘common factor theory’ associates positive change with ‘non-specifics’ emanating from purposeful, warm, respectful, tailor-made, one-to-one relationships between practitioner and client.
Common factor theory has been investigated by a method known as ‘active treatment comparisons’. Instead of randomly placing patients in treatment and control conditions, they are assigned to one of two treatments (e.g. cognitive vs. behavioural). This ensures ‘fair’ comparison on a matched population. And as these studies gathered pace it became possible to conduct meta-analyses of the efficacy of ‘x versus y’. Systematic reviews of this ilk in 1975, and repeated in 2002 with a much larger sample of primary studies, came down heavily in favour of the dodo bird verdict. Very few primary studies demonstrated the superiority of one treatment over another. In the round, meta-analysis of the effect size attributable to specific therapy techniques weighs in with a Cohen’s $d$ coefficient of only 0.2 (small and insignificant in lay parlance). Whilst debate continues to rumble about the precise magnitudes of such estimates, few deny the significance of the ‘non-specifics’.

2.2. Anticipatory effects in crime reduction. Crime reduction, for the most part, works by persuading potential offenders that the risk of apprehension and arrest increases under a newly installed programme. Perception is the key to behaviour change and the ‘anticipatory effects’ hypothesis posits that the threat of action of an intervention is as powerful of as the specifics of action. For instance, a 1997 Oxford study of the effects of security cycle patrols on parking lot crime showed that simply announcing the impending scheme was followed by a reduction in crime before ‘foot was ever laid to peddle’.

Many other programmes appear to show a perverse improvement (crime reduction) before the programme is up and running. Indeed, some seem to work without them being properly enacted. This hypothesis is examined in a 2002 review of the UK crime prevention literature. A search was undertaken locating studies that contained time series data sufficiently powerful to distinguish crime fluctuations before, during and after the introduction of prevention programmes. 52 such reports were uncovered that revealed an unexpected pre-initiative drop in crime statistics. Of these 22 had strong prima facie evidence that allowed causal attribution to ‘something’ occurring within the early inception of the scheme.

That something has become known as the anticipatory effect. Criminals (the programme subject in this case) make it their business to assess the risks. They may prefer to lie low on first news of a potentially powerful new scheme, awaiting their own ‘evaluation’ of its effectiveness. Publicity, hearsay or even disinformation may thus be the triggers to such behavioural accommodation. The point for reinforcement is that widespread promotion of the intervention is hardly the intended measure but merely a step in implementation (and thus open to further and more mindful manipulation by programme planners).

2.3. Failures in Replication. A frustrating pattern observed frequently in behavioural change interventions is the shining success of major demonstration projects followed by the failure of subsequent ‘replications’. Why is this misfortune familiar? A good example is the US Big Brother Big Sister Programme (BBBS), the 1998 evaluations of which show benefits for disadvantaged youth in terms of better school performance, decreases in drug abuse and improvements in relationships with parents and peers. Partly as a result of such success, many mentoring programmes were subsequently established in the UK. There, a more familiar outcome for the disaffected mentee is progress and setback, progress and setback, with the mentor having to spend considerable time ‘fire fighting’ family feuds, drug relapse, gang violence and so on.
The explanation for this contrast between originator and imitators lies in the distance to be travelled along the behaviour change pathway. A close look at the BBBS eligibility requirements reveals some vital clues on the participants' dispositions. It is a venerable programme, having existed for a hundred years, and thus sufficiently cherished to demand a waiting list. Admission to the programme thus requires screening, which involves: an assessment for a ‘minimal level of social skills’; ensuring that youths and parents actually ‘want a mentor’; gaining the ‘agreement of parent and child to follow agency rules’; successful completion of ‘orientation and training sessions’; and the fulfilment of ‘residential and age limitations’. Once on the programme there is ‘close supervision and support of each match by a case manager who makes frequent contact with the parent/guardian, volunteer, and youth and provides assistance when requested’.

This welter of selection and support mechanisms is, of course, significant. It is not too brave an inference to observe that by the time it comes to evaluation, the programme is dealing with a relatively compliant and particularly persevering set of mentees. In such conditions, and via the latent preliminaries, ‘mentoring works’.

3. Implications for the committee's investigation

3.1. Whilst behavioural change is core ambition in modern policy making, the concept of the ‘behavioural change intervention’ is too loose and too ambiguous to motivate coherent forward planning. There is a danger that such programmes are presented as groundbreaking – the ‘next big thing’ – thus requiring the creation of a new institutional apparatus to design, pilot, promote and organise them. In the limit one can say that all successful social programmes – new or old and whether they wield carrots, sticks or sermons – rest on a sustained sequence of behavioural adjustment. For instance, legislative interventions might seem to be of a different order and to work though compulsion – behave or be punished. But even here it turns out that efficacy rests on gradual shifts in custom and public opinion. A good example is the relative success of ‘smoke free’ legislation, which rests significantly on a process of ‘denormalisation’. Smoking bans have been enacted on public transport, followed by office and indoor workplace restrictions, followed by smoke-free restaurants and finally bars, pubs, and gambling venues. Through this incremental process public opinion becomes primed for the next location (private cars?).

3.2. Sustained behavioural change is difficult to accomplish and requires much more than a well-aimed ‘nudge’ in the right direction. Programmes need to construct runways rather than springboards for change. The problem raised here is that tempo of construction of modern programmes often rides roughshod over the realisation of the vital preparatory and consolidatory stages of behavioural change. Perhaps the key change in policy architecture in the UK recent years is the dislocation of interventions and services. Once upon a time it was the task of the big public agencies (schools, hospitals, local councils, police, etc.) to tackle generic and longstanding issues. This often left them weak at responding to new challenges but with a strong organisational capacity. Nowadays, the tendency is to design made-to-order programmes aimed at specific and pressing problems. The upshot, already dubbed ‘interventionitis’, is that reform is led by a constant stream of pilot programmes, demonstration projects, new deals, modernisation initiatives and so on. With so many interventions created afresh it is little wonder that many of them do not possess the infrastructure to carry participants through all stages of a behavioural change pathway. Often especially weak are the preliminaries on publicity, promotion, recruitment and induction,
3.3. Behavioural change policies are unlikely to be implemented successfully in isolation by novel, singular interventions. They require the coordination of a range of programmes and services as well as infrastructural change. For instance, public health ‘smarter choice’ measures to encourage people to cycle to work are often designed on behaviour change principles. Information and training is provided to shape knowledge, attitudes and, hopefully, behaviour. Hope has more chance of becoming expectation if cycle discounts, cycle pathways and secure cycle parking are also offered.

3.4. One common reason for programme failure is to aim a potentially efficacious measure at the wrong subjects. Individuals and groups lie in different states of readiness for change. They make behavioural adaptations at quite different rates. Relapse and backsliding are common when programme objectives are far distant and hard to accomplish. Accordingly, the long runways that cater for behavioural change also need to accommodate multiple entry points and repeated opportunity for entry at second, third and subsequent ‘attempts’. The coordination of such systems and services is one of the greatest challenges for contemporary social policy.

3.5. Evaluation research in the UK has become industrial in proportion. Although there is extensive research capacity, it is not clear that there is expertise in methods appropriate to evaluate complex behavioural change. The favoured model for evaluating impact is the trial testing whether a treatment ‘works’ by applying it to an experimental group but not to a control and then comparing outcomes. Such programme-on / programme-off comparisons work well enough for clinical interventions in which the treatment is singular, tangible, and clearly-defined. The logic comes unstuck whether the intervention is complex, incremental and prone to change in different circumstances. The basic model of gradualist change presented above has profound implications for outcome evaluation. The sweeping interlinkage of mechanisms described above is the programme. Evaluation strategies that attempt to excise, minimise, partial out, or control for latent effects are missing the point. In behavioural change programmes it is impossible to scrape away to the kernel agent for change, because change is always gradual and must be prompted gradually.

3.6. Understanding the processual nature of behavioural change should persuade us, and hardly for the first time, that the evidence base to support such intervention needs to harness a multi-method, multi-case and multi-objective approach. There is a need for close monitoring and rigorous summative evaluation to chart progress through many intermediate outputs and a significant range of outcomes. Qualitative research is needed to understand the interpretative process, through which subjects move in and out and in and out of interventions. Comparative research is required to understand the powerful influence of local and institutional contexts in shaping which pathways are followed in which circumstances. Research synthesis is required to understand the history of success and failure of families of programmes.

3.7. Durable behavioural change requires the coordination of a range of programmes and services as well as infrastructural change (3.3). Accordingly, the most pressing problem for evaluation is to investigate the extent and success of such coordination. Such an approach is sometimes referred to as ‘meta’ or ‘mega’ evaluation. It remains an embryonic approach given the difficulties in capturing empirically the joint action of administratively separate bodies and agencies. The approach is being piloted in the evaluation of a forthcoming mega-event, the 2012 London Olympic Games.
3.8. More research attention should be focussed upon the latent preliminaries of interventions – they should become objects of inquiry in and of themselves. For instance, in the recruitment phase, many behavioural change programmes have to create waiting lists. In the BBBS example (2.3) the wait for a place provides a valuable ‘proving ground’ ensuring that the appropriate subjects were recruited. In other circumstance such an interlude might feel more like a ‘detention bloc’ or ‘avoidance technique’ and have negative consequences. Another familiar behavioural strategy on the importance of ‘quick wins’ has never been put to test – just how important and for whom are early and visible signs of success?

3.9. Rather than only pursuing newly-minted programmes, more long-term evaluation of existing interventions should be conducted. What happens upstream clearly conditions what occurs downstream. Most obviously, a poorly recruiting programme or one that recruits the ‘wrong’ type of subject is already on the highroad to failure. Many other flows and blockages occur throughout the life of a programme, with equal significance for its fortunes. There are always refractory phases in the intervention pathway and longstanding programmes stand longest because they are likely have deciphered the optimal routes. They will have tinkered; they will have cracked the recruitment problem; they will have learned how to promote reliance and stubbornness in mid phase; and so on. Learning about the ways and means is crucial to understanding ends. The evaluation of programme history is maddeningly absent in programme planning.

10 September 2010
Examples of interventions which were not effectively evaluated

It is easy to list the ingredients of a worst case scenario. Most evaluations are hindered by at least some of the following points:

1. Many evaluations are put out to tender and organised with a rhythm that excludes the evaluation team from the programme design stage. Most of them begin research during the early implementation of the programme – arguably, as many witnesses appear to have said, too late to have any influence in fine-tuning the intervention.
2. Joining in on an unfolding programme creates its own problems – principally because it will be unclear whether subsequent results will demonstrate success or failure or simply that the intervention is half-baked.
3. A further problem often occurs with the specification of the research design in the ITT. These tend to be rather formulaic (e.g. stipulating brands of evaluation and outcome measures) and may restrict the possibility of valuable adaptation and trial and error on method in the mid-course of research.
4. Often the evaluation will be managed from a Department with an eye on targets (x interviews by such and such a date) rather than on the quality of the policy inferences that are made in the research (much harder to judge).
5. Often the (brightest) civil servant responsible for managing the evaluation will be transferred to another post in the midst of the research - to be replaced with another with a slightly different research agenda.
6. Often evaluations will be asked to report before a programme has fully matured (time is money). Again, there is an especial problem here of distinguishing between programme failure and incomplete implementation.
7. In some instances (e.g. disappointing, ambiguous, contradictory findings) an evaluation final report will be ‘sat upon’ by a Department. This despite, from an evaluation perspective, that nuances and diversity of the finding may well be a sign of rigorous research.
8. Sporadically, evaluation findings are cast into the wilderness because the policy agenda has moved on and a new wave of schemes and programmes has come to the fore.

7 December 2010
Memorandum by Peterborough City Council (BC 152)

This memorandum describes Peterborough’s experience of being a Sustainable Travel Town.

Success of devolving responsibility for sustainable transport to local authorities:

- The approach we took in our original funding proposal, agreed by the Department for Transport, was specifically tailored to focus on the needs of the local area. We feel this approach and the flexibility granted to us on behalf of the DfT strongly contributed to the success of Travelchoice. We were able to devise locally driven programmes to suit the needs of Peterborough and our residents, delivering tailored solutions that have proved to be viable in the longer term. This approach worked well in Peterborough because of several different factors including:
  - High level support – the scheme received good support from Senior Council Officers and several members
  - Governance – from the outset a strong governing group were established. This ensured projects were scrutinized and progress consistently monitored and therefore driven forward
  - Cohesive delivery – the project successfully brought together different aspects of work and areas of local authority influence to deliver joined up schemes
- Conversely, we were required to report to the DfT on a monthly basis however we received very little feedback to guide the programme. Whilst from one perspective we feel this may have aided the programme, i.e. it ensured we were able to continue to develop tailored solutions for the city, we also feel that we may have missed out on opportunities to learn from others.
- Travelchoice has been adopted into main council business following completion of the original programme, albeit on a smaller scale. This demonstrates the success Travelchoice has achieved in raising awareness of the importance of such issues locally.

The main difficulties we faced during the programme:

- The programme itself ran very smoothly with no major obstacles that we could not overcome. Some projects changed slightly from what we originally intended such as the delivery of smart card technology, however the resultant programme still proved to be successful from other perspectives.
- In some cases we found that significant local support existed for planned schemes and where this was the case we were able to implement initiatives with greater ease. However in some cases progress was not as straightforward often due to a lack of understanding around sustainable travel issues.
- Throughout the programme we were very aware of the natural links our work had with other initiatives such as the Primary Care Trusts aim to get more people active. Whilst these links were clear, lack of certainty surrounding the work of local partners and their funding streams meant we were not able to maximize the effect of these linkages resulting in missed opportunities.
- With retrospect we would like to have implemented more schemes embracing new technologies which have developed significantly during the Travelchoice project and beyond, however at the time these were an unknown entity.
Whether sufficient guidance was made available from central government to help you design the programme:

- Whilst guidance was provided we feel more regular feedback and discussion would have been beneficial to the programme (see point above)

How, if at all, the programme is being taken forward:

- Travelchoice has been adopted as business as normal within the council and the remit has expanded to include the rural areas of the city. However, primarily due to a lack of available funding locally, the programme has reduced in capacity significantly. One significant benefit however is that whilst the team are now significantly smaller, some aspects of work are now delivered by different officers within the council or external organizations where the work has become embedded in their respective roles i.e. the local police are doing more work to encourage people to lock their bike securely and wear appropriate clothing for night time cycling.
- We are currently developing an application for the LSTF in order to drive this work forward and bring a wider array of programmes on line.
- We are looking at opportunities to link new initiatives to London 2012 in order to gain maximum benefits from this initiative.

Sufficient skills and expertise in house:

- We are very keen to monitor the medium to long term effects of the Travelchoice programme and immediately after the end of the DfT funded phase were in discussion with the DfT to enable this. Unfortunately this has not progressed at this stage however we remain optimistic that this may be enabled with the aid of LSTF funding.
- The programme required a broad range of skills including communications skills, specialist expertise etc and we found that often we did have these resources in house, however an effect that we noted is that due to insufficient resources people are often taken away from their area of expertise to backfill another area of work - which means peoples time is on occasion not used as effectively as it could be.

January 2011
Memorandum by the Plunkett Foundation (BC 41)

1. Summary

The summary of our submission is as follows:

- Communities are the most effective way of influencing positive behavior change
- Co-operatives, Mutuals and Social Enterprises such as community-owned shops and co-operative pubs are an effective mechanism for behavior change in communities
- Co-operatives, Mutuals and Social Enterprises require support to establish and thrive in order to be able to act as an effective mechanism for behaviour change
- We call for the government to share with civil society organisations their growing understanding of behaviour change tools that can be utilised by such organisations in order to better achieve their social missions

The focus of the response has been in addressing question 6 of the inquiry, How should different levels of intervention (individual, organizational, community and national) and different types of intervention (legislative, fiscal, educative) interact in order to achieve policy goals more effectively.

2. About the Plunkett Foundation

2.1 The Plunkett Foundation helps rural communities through community-ownership to take control of the issues affecting them. Plunkett supports co-operatives, mutuals and social enterprise models which enable communities to set up and run viable businesses that are community-owned, community-led and address challenges that a community is facing.

2.2 Plunkett supports the network of community-owned village shops across the UK. There are now 244 community-owned village shops in the UK with a record 39 opening in 2009 alone. Community-ownership now saves ten percent of village shops that would otherwise have closed. In 25 years, only 10 community-owned shops have ever closed out of 254 that have opened.

2.3 Plunkett also works to raise the awareness of and support for the potential for rural communities to set up and run wider forms of community-owned enterprises whether this comes in the form of co-operative pubs, community-owned broadband, community-owned energy and using faith buildings for community enterprise activity. The Plunkett Foundation has recently worked with a range of co-operative development organisations to develop a support package for communities looking to us co-operative approaches to save their local pub.

2.4 Plunkett helps rural and urban communities to establish community food enterprises as a way of helping them to take ownership of their food and where it comes from. Working with a range of partner organisations, Plunkett has supported over 700 such community food enterprises since 2008.

2.5 Founded in 1919, Plunkett is true to the vision that it was established to take forward. Plunkett helps communities to address their own challenges as they are best placed to identify and address such issues. We work with communities to set up community based
communities.

Communities as the most effective building block for positive behaviour change

Communities have for generations been an extremely effective building block for positive change. Communities have always played a role in providing key services where the public and private sector have failed or chosen not to provide services to.

Behaviour change theory puts great emphasis on the fact that it is not only the message but the messenger that individuals receive in from that matters. Community is a powerful messenger as it has credibility in the message receivers world and help to build social norms that reinforce positive behaviour change.

The Plunkett Foundation works with rural communities to help them to set up and run co-operatives, mutuals and social enterprises as a way of improving their lives. This could be in the form of a community working together to save their local shop and post office or pub, or a community working together to set up a community food growing scheme improving access to fresh and healthy food.

Communities we feel are the best building blocks for behavior change as the people affected by an issue or range of issues are often best placed to solve them. Plunkett has seen that when you empower communities by giving them greater ownership over the issues affecting them and by providing access to community-based enterprise models, this can lead to transformed communities.

An example of such a change occurs in communities which lose their last shop or pub. No longer are people walking to the shop, meeting people and creating social capital via strengthened social bonds and so people consider their community to be dying. When the community responds to such a challenge by working together to save their shop, it creates a stronger community that has greater belief in their ability to tackle difficult issues and this feeling of empowerment plus the existence of the community-owned shop that they helped to establish, it has often been said to us that is puts the heart back in a community.

The Plunkett Foundation has in recent times begun to explore the role that behavior change can play in developing sustainable community-owned enterprises. Specifically, we are currently undertaking two research projects which are relevant to this issue. Making Local Food Work, a programme that the Plunkett Foundation leads, has commissioned the Food Ethics Council to explore the gap between consumers stated intentions to buy local food and their actual buying behaviours. This is being undertaken in a behaviour change context and will focus on the role of community organisations in the process of behaviour change. The second is an action research project funded by Defra and the Cabinet office looking at the role that social enterprises play in delivering food policy objectives. The research includes working closely with Defra’s Sustainable Behaviours Unit (the lead department for this work) and is one of the first research projects to explore the role of social enterprise as trusted community based organisations have in behaviour change.

Co-operatives, Mutuals and Social Enterprises as an effective mechanism for behaviour change in a community
The Plunkett Foundation has seen since we were founded 91 years ago that the most effective models for long term behaviour change through community activity involve three key aspects:

- They adopt enterprising approaches in order to ensure the long term sustainability of the service
- They apply principles of community-based enterprise where all members of the community are encouraged to participate
- They plan to provide a whole range of economic, social and environmental outcomes that the community want and need

**Individual change:**
Co-operatives, Mutuals and Social Enterprises, such as community-owned village shops, have the ability to influence positive behaviour change in a community. For example Plunkett are working with ten community-owned shops to work with their members and wider community to adopt pro environmental behaviours. Some community-owned shops have pledged to stock a greater range of environmentally friendly products such as low energy lightbulbs or composable bin liners and they work had to educate their customers about their reasons for making such a change. Through this work we have seen that individuals and families are much more likely to adopt pro environmental behaviour through a community intervention than a government or private sector intervention.

An example of best practice is the community-owned shop in Brockweir, Gloucestershire. The shop has been at the forefront of a drive to encourage members of their community to sign personal pledges that they will adopt more pro environmental behaviours receiving over fifty pledges so far. They have also run a community recycling day and as a result have provided greater recycling facilities for the community at their shop.

The community-owned shop in Ryburgh, Norfolk has also spearheaded a local campaign to encourage community members to sign personal pledges relating to pro environmental behaviours. They have also established a community composting facility for the village to use. The key point is that very few of the individuals who have pledged would have done so if it was not because of the trusted relationship they have with their community-owned shop.

Community-owned shops also have a strong record of encouraging behaviour change in relation to health. They provide opportunities for volunteering for all members of the community but particularly for older members of the community. This can often act as a transition from a major life event such as a health problem or retirement and provides an opportunity to keep active for longer within a community. For example, Plunkett has recently undertaken research looking at the role and value of volunteering for older people within rural communities which have a community-owned shop. The evidence suggests that the volunteering opportunities through the community-owned shop provide a lifeline to many people including those in their 80s to participate fully within their community.

Plunkett is working with a range of partners to promote and support the development of community food enterprises through a programme called Making Local Food Work. This programme supports a wide range of community enterprise in relation to every aspect of food production, distribution and supply. One form of community food enterprise which is
delivering positive behaviour change in relation to specifically pro environmental behaviours and better health is Community Supported Agriculture (CSA). CSA comes in many forms but typically it involves a group of people coming together to grow food in the way they decide. Typically these are organic or use low impact production methods which produces as a whole vegetables and fruit for consumption by local members from the local community. By producing health food that is affordable and accessible, it enables a greater proportion of a community to access food that should improve their health. CSAs also provide health benefits by encouraging members to become actively involved in food production which provides exercise and also therapeutic benefits.

**Community behaviour change:**

Co-operatives, Mutuals ad Social Enterprises also have the potential to influence the ongoing behaviour of entire communities. When a community comes together to form a co-operative, mutual or social enterprise to address an issue important to them for the first time, this creates the social capital and knowledge required for communities to use these approaches to tackle a different problem. For example, 82 communities have contacted the Plunkett Foundation since January to enquire about support for community-owned pubs. Eight of these communities, around ten percent, have already have gone through the process of saving their shop through community-ownership and it is clear that this experience and the stronger community that it creates enables and empowers communities to take on other issues and challenges that may come up in the future.

Going through the process of setting up and running a community-owned enterprise is transformative for a community. They learn what is possible through working together and they also learn how use widespread community engagement and participation as effective enterprise model. This leads to confident and empowered communities which are ready to tackle the challenges that rural communities can and do face.

Communities are also demonstrating their interesting in and ability to learn from other communities who have established community-owned enterprises which promote positive behaviour change. In March the Plunkett Foundation launched a new Community Shops Network (www.plunkett.co.uk), a new online facility for knowledge exchange between communities who are running existing community-owned shops and those communities who are interested in establishing one. This enables firstly for the sharing of best practice between existing community-owned shops. This if often relating to best practice and also frequently relates to positive behaviour change such as promoting better health and pro environmental behaviours. It is also used to help communities looking to undergo the process how they can do this for the maximum benefit – economically, socially and environmentally – for their communities.

There is great interest from rural communities in adopting such approaches as a way of improving their communities. For example, the number of community-owned shops opening per year have quadrupled since 2006.

**The need for Government to share its growing understanding of behaviour change tools with civil society organisations in order for them to make better use of them in their delivery**
Policy formers have begun to see the role of using community to influence positive behaviour change. The Plunkett Foundation calls for the government to share its growing understanding of behaviour change and behaviour change tools with civil society organisations including co-operatives, mutuals and social enterprises in order for them to make greater use of them in the delivery of their social mission.

**The need to support Co-operatives, Mutuals and Social Enterprises as behaviour change influencers**

The development of Co-operative, Mutuals and Social Enterprises requires access to support infrastructure. They are effective models for behaviour change and as such as cost effective mechanisms for supporting positive behaviour change in a community.

There are three distinct stages of development that each form of Co-operative, Mutual and Social Enterprise goes through. This model has been tried and tested right back to the mid 19th century with the development of community-owned co-operative stores.

**Stage 1: The Pioneers**

The first stage is where there is a handful of pioneering communities who have established specific forms of community-owned enterprise. They tend to be well resourced communities in terms of access to finance and business support and another quality that they have in common is that they are led by a person or a group of people who are willing to run through brick walls so set something up and will work tirelessly to make sure it is an ongoing success. There is typically a very high success rate for pioneers in terms of long term business sustainability.

**Stage 2: The Enthusiasts**

The enthusiasts define the second stage of development where wider adoption takes place. This tends to be where people have heard about or come across a pioneer and they look to replicate these using very similar or commonly very different methods. At this stage lessons are learned about which models work and which do not and therefore there are failures at this stage. Communities at this stage commonly do not have access to the range of business and financial skills and therefore the community-owned enterprises are greater risk. This is the quickest of the three stages but also it is the most critical as it will define how the specific sub sector of community-owned enterprises will develop.

**State 3: The Mainstream**

Once stage 2 reaches a critical mass of communities, their development can explode outwards as it is seen as a viable and sustainable enterprise model that works in a variety of different communities and circumstances. At this stage communities have greater access to finance and business support as awareness of and interest in the community-owned enterprise model increases. It is critical at this stage that support infrastructure is in place and also the individual enterprises must be supported to connect up to each other, to learn from each other and prevent them from having to reinvent wheels.

**Support needs: Belief – Business Support - Finance**

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The needs at each stage of development are common. There needs to be resources for belief building so that communities understand community-ownership and have confidence with themselves to deliver the end product - a community-owned enterprise. There needs to be access to business support at each stage and there also needs to be access to finance - grants and/or loans and Community Shares support. Funding the development of community-owned energy schemes can draw on some similarities with funding other community-owned enterprises but the scale of the funding required, the payback time and the risk capital required to get schemes through the planning process raises distinct challenges.

The Big Challenge

The big challenge is how you move distinct types of Co-operatives, Mutuals and Social Enterprises through the three stages of development. There is a need to learn lessons from the development of community-owned village shops and a number of other forms of co-operative, mutual and social enterprise in order to develop such enterprises as effectively as possible.

8 October 2010
Memorandum by Professor Colin Pooley, Dr David Horton, Dr Griet Scheldeman, Lancaster University (BC 123)

This evidence is provided on an individual basis and does not represent the view of Lancaster University

1. The evidence base
1.1. The three authors of this evidence have extensive experience of social science research on travel, transport and human mobility. Information used to compile this evidence is drawn from a wide range of current and recent research projects with the most relevant current project being: ‘Understanding walking and cycling,’ funded by EPSRC 2008-11 (in conjunction with Universities of Leeds and Oxford Brookes). This project focuses on travel behaviour for short trips in urban areas, and uses an innovative mixture of quantitative and qualitative evidence to examine in detail the practicalities of everyday travel. Data were collected from four urban areas in England: Leeds, Leicester, Worcester and Lancaster. The evidence presented here will focus especially on walking and cycling for short trips in urban areas and is drawn mainly from this on-going project. Relevant publications by the authors are listed at the end of this evidence.

2. What factors determine travel modes for short trips in urban areas?
2.1. In general terms the factors that shape everyday travel, and which encourage people to use cars for short trips in urban areas, are well known. These include journey purpose, the composition of the travelling group, time pressures, weather and other environmental factors, perceptions of risk and the mobility identities of individuals (see for instance: Mackett, 2003; Anable, 2005). However, our current research particularly demonstrates the ways in which these (and related) factors interact to produce particular outcomes. Rather than any one individual factor determining travel-mode choice it is both the complexity and the contingency involved in most journeys that makes behaviour change difficult. Almost all journeys are the outcome of a carefully considered decision-making process, and are to some degree contingent on the needs and behaviour of others. This means that even households that have a high environmental awareness, and a willingness to travel more sustainably, often fail to do so.

2.2. Our recent qualitative research makes it very clear that where the household has access to a car, it has become the default option for the majority of journeys because the urban environment has increasingly been shaped in ways that make the car seem like ‘the right choice’, whilst the alternatives of walking and cycling seem like ‘the wrong choice’. As we elaborate below (section 3), for most people there are still far too many affordances to using the car for short urban journeys, and too many barriers to making those journeys on foot or by bike. Correspondingly, we are caught in a vicious circle, whereby many of the people we spoke to who are very clear that they would like to walk and/or cycle more, are still nonetheless jumping into their cars because they perceive currently dominant conditions for walking and cycling as simply too hostile. This is even more clearly the case when journeying with others (especially children) over whom one has relationships involving responsibility and care.

This point can be illustrated by one typical quote from a respondent in the ethnographic field work (all names are pseudonyms): Usually I go with the car because of convenience, less time, because sometimes J [age 3] is tired when I pick him up from nursery and I would have to carry...
him, and I have my books as well, and when there’s two of them... In the week [I use the car] for two days a week, at some point I might even try just walk with the kids, but it's usually because with the two kids they have different energies, and R runs and J is a bit more like staying here and hanging round here and there, so that creates some kind of tension and also I’m on pressure to get on time to work, then it's really much more convenient to just strap them on the seats and take them and leave them and that’s it. Apart from that I would just walk. (Don, Lancaster).

2.3. A questionnaire survey conducted in the four case study towns was used to assess attitudes to walking and cycling, and hence the factors that influence travel behaviour. It was found that the single most important motivating factor for both walking and cycling was perceived health benefits. General environmental factors, such as reducing the impact of climate change, were of secondary importance though reducing local air pollution was thought to be more significant. These data suggest that people are more likely to structure travel behaviour around their perception of benefits to themselves or their local community, rather than in response to more remote environmental concerns.

2.4. Respondents were also asked about their enjoyment of walking and cycling. Here there was a noticeable difference in responses between the two modes of travel. Whereas most people felt they would enjoy walking more and that walking would bring health benefits, this was not the case with cycling. While the health benefits of cycling were widely recognised, cycling was much less frequently viewed as enjoyable. This suggests that there is much less resistance to walking than to cycling as a means of everyday travel.

3. What interventions are effective for reducing car use in urban areas?

3.1. Our research suggests that a single intervention is unlikely to have a significant impact on the level of car use in urban areas. There needs to be a combination of interventions that both encourage/promote more sustainable forms of transport and which restrict car use. Due to the complex factors (outlined above) that influence travel behaviour, a single intervention (such as cycle infrastructure) is unlikely to have a major impact.

3.2. Most interventions to promote cycling focus on infrastructure. Whilst the provision of cycle lanes is important, they are not sufficient on their own and must be provided in a form that meets the expectations and which quells the fears of potential cyclists. Even in Cycle Demonstration Towns (CDTs) the provision of cycle lanes is often inadequate in that they are rarely segregated from traffic, tend to end abruptly, and sometimes take inconvenient routes. Two quotations from respondents in Lancaster District (a CDT) illustrate this point:

“My ideal would be if it were possible, transport wise, for cycle paths to be absolutely physically removed from roads as in a proper kerb separating cyclists from traffic so that cyclists didn’t have to use the pavement but weren’t sharing the road with cars then cycling would definitely be an option and I’d find ways around the other inconveniences of cycling. But as I say, with cyclists having to mix with traffic it just seems crazy”. (Holly, c30)

“The way that cycle lanes have been developed around here it’s very hard not to feel a certain cynicism about it, and feel that cynicism has crept in somewhere. There’s a large number of places in Morecambe I can think of where you cycle along, there’s a cycle lane and you get to somewhere where it’s difficult; traffic lights or bus stops and suddenly it disappears. Well, this is only playing at it isn’t it?” (Adam, c60)
For cycling infrastructure to be effective it should wherever possible, and especially on busy roads, be completely segregated from both road vehicles and from pedestrians, and must be provided consistently on such roads throughout an urban area. To make cycling more attractive on all roads, including those where segregated routes are not practicable, other measures to restrict car speeds and influence driver behaviour are essential. These could include the introduction of 20mph speed limits throughout an urban area, the use of ‘modal filters’ such as bollards to remove or restrict cars in residential streets, and changes to liability law following traffic accidents so that responsibility is always placed on the most powerful and physically protected road users (vehicle drivers). This is the case in much of continental Europe and is currently being advocated by a number of organizations in the UK (see: http://www.stricterliabilityforus.org.uk/).

3.3. Interventions to improve infrastructure for pedestrians are relatively neglected with a tacit assumption that as pavements exist in most places this is sufficient. However, the condition of the pavement in terms of its uneven surface, failure to clear slippery leaves or ice, parked cars and intrusive street furniture can be a major disincentive for walking and a real barrier for some (for instance parents with push chairs or pedestrians using mobility aids). Interventions to improve pavement conditions and to restrict pavement obstructions would encourage more people to walk in urban areas.

3.4. There have been a number of recent schemes to promote mixed use space where pedestrians, cyclists and (sometimes) cars share road space and have to accommodate each other. Whilst this can work in some situations it has to be very well regulated with clear rules and priorities. In the case study town of Leicester mixed-use space in the town centre (which excludes cars) was discussed at length with a group of residents who had a range of impairments that restricted their mobility. They found mixed-use space especially problematic. In developing interventions it is important that potential negative impacts on particular (minority) groups are not overlooked.

3.5. Many interventions that have taken place also include the promotion of sustainable travel and the provision of information on how travel behaviour might change. Whilst well-targeted schemes, linked to other interventions, can have an impact, on their own such schemes are unlikely to be effective. For instance, although one of our case study towns (Worcester) has been a ‘Sustainable Travel Town’ for the past five years, with substantial funding put into promoting more sustainable travel, our research shows that whilst there is awareness of alternatives, most everyday travel in Worcester remains highly car dependent. This, in part, is due to the very poor infrastructure for utility walking and cycling. Although a new cycle and pedestrian bridge has recently been completed, the views of respondents suggested that this would be useful mainly for leisure activities rather than for utility cycling and walking (such as travel to work).

3.6. Our research has not included a community which has restricted car use, but there is clear research evidence that in London introduction of the congestion charge had a major influence on reducing car use and in persuading commuters to switch to other forms of transport (Santos and Shaffer, 2004). Although London has many exceptional qualities in terms of urban transport, including a pre-existing high use of public transport, similar effects are likely to be felt elsewhere. Crucially, the congestion charge has also been linked to (first) an improvement in bus services and (later) the development of new cycle routes and a cycle hire scheme (www.tfl.gov.uk). This again emphasises the need to combine interventions that restrict car use and promote alternative means of travel.
4. What will change everyday travel behaviour in urban areas?

4.1. Following from the above we suggest that to be successful interventions to change everyday travel behaviour must include at least four different elements:

1. The provision where possible of excellent, fully segregated cycle and pedestrian routes throughout an urban area together with high quality public transport
2. The restriction of car use within the urban area (through such schemes as congestion charging, road pricing, parking controls, speed limits, restricted access etc.)
3. Strategies to make sustainable travel choices easier for complex everyday journeys (including children).
4. Promotion of sustainable urban travel to make non-car travel normal, and through peer pressure (backed up where appropriate by legislation such as changes to legal liability following an accident) to make urban car use as unacceptable as (for instance) driving whilst under the influence of alcohol is today.

Whilst the first two interventions can and have been achieved (to a limited degree) in some British towns, and have been much more fully achieved elsewhere (for instance in Copenhagen or Amsterdam – see Puscher and Buehler, 2008), the other two are much more problematic. We explain below exactly what may be required.

4.2. Making travel choice easier and normalising non-car travel require changes in both societal attitudes and in the structures of everyday life which shape such attitudes. Governments (central or local) clearly have limited direct impact on such factors, but there are things that can be done to shape travel behaviour. Relevant examples where significant changes in behaviour have been achieved relatively quickly might be the use of seat belts in cars, the acceptability of driving after drinking alcohol, and of smoking in enclosed public spaces. Whilst improved public transport, better cycle and pedestrian infrastructure and restrictions on car use must be part of the package, there also need to be changes in the shape and structure of cities (controlled by planning legislation) to ensure that key services are available close to residential communities (thus reducing the need to travel), and increased flexibility in working hours to make it easier for parents and children to plan and structure travel arrangements around other needs. There also needs to be a large-scale education campaign against car use in urban areas so that driving in cities becomes the exception rather than the norm. This is not necessarily an anti-car message – it is a message about using cars responsibly (for those trips where alternatives are not available) – and is similar to many past campaigns on road safety including speeding, drink driving, seat belt and mobile phone use whilst driving.

4.3. While it is recognized that governments (national or local) do not control all of the above factors, government can be very influential in both setting examples and influencing behaviour in both the public and private sector. This can be achieved through both direct legislation and fiscal intervention. However, the most effective agent of change is likely to be peer pressure. When enough people believe that using cars for short trips in urban areas is wrong then alternative means of travel will automatically become normal, and leaving the car at home for short urban journeys would become second nature. Education campaigns, in schools and through the media, can all influence such attitudes but ordinary people working in communities, talking to their neighbours and setting examples of sustainable travel are likely to be just as influential.
4.4. The key message from our research has to be that achieving change in travel behaviour to reduce car use in urban areas has to be tackled through a range of complementary measures, and has to be seen as the responsibility of all.

References cited:

*18 January 2011*
Memorandum by the RAC Foundation (BC 121)

1. Introduction

1.1 The sub-committee is inquiring into interventions that can reduce car use in urban areas and has invited responses to ten questions to assist it in that task. Most of these questions merit substantial, and sometimes complex, responses to give full and convincing answers. For example a thorough assessment of the impacts of public transport fares and service level effects on public transport and car use required a study resulting in a report over two hundred pages in length. However this note sets down brief comments identifying the key points.

1.2 Reducing car use is not the only means of controlling congestion and emissions in urban Britain and the potential of other measures should not be overlooked. Road improvements and better traffic management can reduce congestion and accidents; and technological change can reduce the environmental impacts of traffic. Also about a fifth of motorised traffic comprises lorries and vans.

1.3 In Great Britain about 85 percent of all mechanised passenger kilometres (i.e. excluding walking and cycling) are by car. Bus accounts for 5 percent and rail 8 percent. These modal shares vary depending on the degree of urbanisation as is illustrated in Figure 3 below. But even in Greater London, which has the densest public transport system in the country, 60 percent of all mechanised personal trips are by car. One implication is that a given number of individuals switching from car to one of the public transport modes will represent a relatively small proportionate fall in the car trips and a higher proportionate increase in the public transport trips. At the national level, a doubling of public transport trips from 12 to 24 percent of the market, by transfer from car (if that could be achieved somehow) would only achieve a reduction of the share of car from 85 percent to 73 percent.

1.4 Figure 1 illustrates how improved technology has reduced noxious emissions from car traffic over the last ten years.

1.5 To a lesser extent CO₂ emissions are reducing, with fuel consumption rates per vehicle kilometre of petrol engined cars having fallen 20% in the last decade and diesel by 14%. With the shift to more diesel cars this means that overall average fuel economy (and consequently CO₂ emissions) will have improved by 19% in ten years. Other changes in car technology are afoot but whilst, over time, these offer significant potential for reducing emissions their effects on traffic congestion are likely to be limited: acceptable low emission vehicles will almost certainly have to have similar performance characteristics to those of conventional internal combustion engined vehicles. So they will cause a similar amount of congestion.

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592 The demand for public transport: a practical guide. Full references are given at the end of this document.
593 Road works are estimated to cause 38% of London’s congestion: Travel in London Report 3, table 4.4.
594 Transport Statistic Great Britain 2010, table TSGB0101.
595 TSGB 2010, table ENV0103.
597 Market Delivery of Ultra-Low Carbon Vehicles in the UK: An evidence review for the RAC Foundation.
2. The most influential drivers of behaviour affecting an individual’s choice of mode of travel

2.1 Individuals choice of travel mode is dependent on:

- their personal circumstance (e.g. physical condition, income level, innate preference, time available);
- the type of journey they are making (alone/grouped, baggage, length/duration);
- the choices open to them (mode(including car availability), price, speed, reliability, frequency, security) and
- the information they have about these choices.

2.2 It would be too simplistic to treat all journeys as being equally susceptible to influences for change, as a car owning family with luggage going on a leisure journey is much less likely to be attracted to public transport than a individual travelling alone to and from work. In a similar vein it is unreasonable to expect someone under time pressure, heavily encumbered or with mobility problems to walk for more than a few hundred metres

2.3 It is convenient to classify measures to change travel behaviour as ‘restraining’ or ‘promoting’ and as long ago as in 1972 Thomson identified 35 methods of traffic limitation. Means of traffic restraint include, traffic regulations (e.g. access bans), parking regulations (e.g. yellow lines) and pricing (e.g. parking meters) and direct charging for road use (e.g. the Central London Congestion Charge). Promoting alternatives to car use include service improvements and fares promotions on buses and trains, traffic priorities for buses and cycles, park & ride schemes, cycle hire schemes and a variety of travel planning and management measures. Recently the use of high quality electronic communications has allowed some activities formerly requiring physical movement to be replaced but this can
also generate some new journeys (e.g. home deliveries) and make business travel more attractive as being out of the office no longer means being out of touch.

2.4 Policies that provide a direct disincentive to car use are probably the most powerful, but may need to be accompanied by improvements to alternative services to attract sufficient public support. Parking controls can be effective in restricting car access to dense activity areas like town centres but need to cover all forms of parking (public and private, on street and off street) to get maximum effect. Outside such core areas most parking is freely available\(^{598}\) so, as things currently stand, parking controls have only limited potential in these areas. The limitations of 'destination' parking restraint have been addressed to some extent by the provision of powers for Workplace Parking Levies (WPLs) in 2000\(^{599}\) but, as yet, no scheme of this kind has been introduced although one is planned for Nottingham, which is scheduled to come into effect in April 2012. The effects of this proposal cannot be known at present but it has been estimated that it daily reduction of 460 to 1230 vehicles inbound during the morning peak period\(^{600}\).

2.5 A study of WPLs in London however concluded that this would provide less restraint and raise less revenue than congestion charging\(^{601}\). Residential parking limitation is also a consideration referred to in the response to question 7.

2.6 Congestion charging in London, despite the high cost of operating the scheme, has generally been regarded as successful. Traffic entering the charging area was 9% lower in 2007 than prior to its introduction in 2002 and car traffic about 20% lower (about 60 thousand cars a day)\(^{602}\). The extension westward, which was introduced in February 2007, has recently been withdrawn.

2.7 The only other congestion charging scheme in operation in Britain is on a single road in Durham where a £2 charge is levied and traffic has been reduced by about 85%\(^{603}\). However there is growing international interest in the use of distance based charging for road for both heavy lorries and more generally\(^{604}\).

2.8 Car ownership and use\(^{605}\) can also be moderated by vehicle ownership taxes and fuel duties. Indeed this was the aim of the fuel duty escalator introduced in 1993 at 3% each year above inflation - eventually increased to 6% each year above inflation until it was abandoned in 2000. However above inflation increases have returned recently. Whilst this has undoubtedly had an effect on car use this has not been strongly focussed on those journeys that cause the most congestion and pollution. Fuel duty has increased from 47.1p/litre in December 2006 to 58.95p/litre in January 2011 (25%) and, with two out of every three pounds paid at the pumps going in taxes, UK road transport fuels are the most highly taxed in Europe\(^{606}\).

\(^{598}\) Parking is Your Business: Setting the Scene.
\(^{599}\) Transport Act 2000, secs 178 - 190.
\(^{600}\) Workplace Parking Levy: Draft Business Case Appendices.
\(^{601}\) Road Charging Options for London: A Technical Assessment, sec. 5.10.
\(^{602}\) Congestion Charging: Impacts Monitoring Sixth Annual Report.
\(^{603}\) Sadler Street Road User Charging Scheme Monitoring Report.
\(^{604}\) International Scan: Reducing Congestion and Funding Transportation Using Road Pricing.
\(^{605}\) The effect of fuel prices on motorists, figure5.
\(^{606}\) Weekly Fuel Prices, January 2011.
2.9 In some countries (e.g. the Bermuda, Hong Kong and Singapore) there are limits on car ownership and Beijing has recently introduced a ration for only 240 thousand new cars to be registered in 2011 (one third the 2010 total). However there must be reservations about such a policy in the UK as, if it restricted the new acquisition of cars, it could bear most heavily on low income families where car ownership growth is greatest. It would also slow down the introduction of the more fuel-efficient modern vehicles in replacement of the oldest and least efficient. An alternative that has been tried in some counties (e.g. Athens) by limiting car use to alternative days according to the nature (odd or even) of the vehicles index number. This has been shown to be effective although it has been partly circumvented by car swopping and multi car ownership.

2.10 Banning cars entering busy areas can also have an effect on the appeal of travel by car. However the relatively small size of most restricted areas, and the fact that the days of most visitors being able to drive right up to their town centre destination are long gone, means that this will usually make only a small difference to central area accessibility by car.

2.11 The features of other forms of transport that affect their appeal include, speed, frequency, reliability, price, security, comfort and accessibility. The relative importance of these varies with both the user and the travel context. Thus a pensioner with a concessionary pass may be unconcerned about the fare he/she is forgiven, but be concerned about accessibility and comfort. On the other hand a well paid commuter may be less bothered about fare levels than frequency and reliability. In a small town speed may not be perceived as a major issue as distances travelled as small. At the other extreme in Greater London, with its long commute distances, speed can be an important consideration.

2.12 London is different from other parts of the country in a number of important ways for travel. Its rich rail and Underground networks, extensive bus service, congested roads, concentration of activities in Central London and high residential densities in inner London make public transport, walking and cycling much better aligned to getting people around. Although some other large cities exhibit these characteristics to some extent, none are like London and smaller cities and towns even less so. Care must be taken therefore in transferring experience from London to other urban areas and vice versa.

2.13 Promoting alternatives to travel by car driving can reduce car mileage. These include car sharing, increasing use of buses and trains, more walking and cycling. Whilst restrictions in car driving may lead to direct increases in alternative modes the increased use of alternative modes does not come directly from reduced car traffic. For example more bus travel from more attractive bus services will be a mix of greater use by 'existing' passengers and travel by former pedestrians, cyclists and car passengers as well as switching by car drivers. Table 1 shows how the use of buses varies with household car ownership and status.

2.14 People in households with cars use buses much (70%) less than people in non car owning households and those that can drive even more so (85%). These differences mean that there is more scope for improvements to bus services to attract people from car owning households. Although fares elasticities are below unity for both types of traveller

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607 Using a lottery system - BBC Asia Pacific News 23rd Dec 2010.
608 The Car in British Society, figure 3.8.
609 i.e. a 1% reduction in fares leads to an increase in travel of less than 1%.
they are higher for car owners than non car owners. On the basis that main drivers in car owning households make 124kms/year of bus travel if their fares were reduced by a third then using an elasticity of -0.75 then their bus travel would increase by 28kms/year. If this were all a substitute for car driving their car use would fall by about ½%. If we do the same calculation for other drivers the figure comes out at 66kms/year and 2½%. Overall then we could expect a fares change of this magnitude to reduce car traffic by order of one percent.

Table 1: Bus Travel Rates by Car Ownership & Driving Status

<table>
<thead>
<tr>
<th>Type of Person</th>
<th>Bus Trips/year</th>
<th>Bus Kms/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Car Owner (NCO)</td>
<td>194</td>
<td>872</td>
</tr>
<tr>
<td>CO Main Driver</td>
<td>15</td>
<td>124</td>
</tr>
<tr>
<td>CO Other Driver</td>
<td>46</td>
<td>293</td>
</tr>
<tr>
<td>CO Non Driver</td>
<td>73</td>
<td>424</td>
</tr>
<tr>
<td>CO All</td>
<td>39</td>
<td>246</td>
</tr>
</tbody>
</table>

*Source, NTS 2009, table NTS0702*

2.15 This is much less marked for rail as the frequency of rail does not vary that much between car or driving licence ownership. Outside London and a few other large cities urban rail travel is limited. Over half of all national rail journeys are to or from London and its surrounding counties as are all Underground journeys. This is because the rail network is heavily focussed on London. This is illustrate by the use of rail to get to work in different parts of the country as shown in figure 2. In Greater Manchester for example the rail network has a density of 0.133 rail stations per square mile whilst Greater London has 1.17, along with about 500 stations outside on the London commuter network.614

2.16 Whilst there is some scope for increasing off peak rail use in most of the areas shown above, peak capacity is under pressure as, since 1998/99, national rail use has increased by 26% compared with only a 13% increase in train miles. The public reaction to the fares increases in January 2010 contained claims that many commuters used rail for their journeys to work as a matter of necessity rather than choice.

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610 The demand for public transport: a practical guide, para. 6.9.1.
611 Including National Rail, Underground/Overground and Light Rail.
612 170 stations in an area of 1,276 miles².
613 700 stations in an area of 607 miles².
614 London Rail Study, table 7.1.
615 TSGB 2010, table 6.9.
2.17 The mix of attributes of service quality (speed, frequency, network density, etc.) make estimating the impacts of service changes more difficult. For all types of traveller, long run bus service elasticities have been estimated to be about +0.66 \(^{617}\). Assuming again that car driver elasticities are higher than average, if we take the matching figure as for fares (+0.75 \(^{618}\)) then the scale of effect of a one third improvement in bus service levels would be similar to that for fares noted above. These effects reflect the national mix of travel modes. Where the proportion of public transport travel is higher and car travel lower the effects will be greater. The ratios of these modes for different area types are illustrated in figure 3 and in urban areas the effects will be somewhat larger. To repeat these calculations for different types of area is a relatively easy task.

2.18 The proportion of distance travelled by walking and cycling is small for both car owning and non-car owning households (about 3½%).

2.19 Over the last decade or so \(^{619}\) there has been growing interest in a range of less traditional measures to change travel behaviour sometimes referred to as 'soft factors' or 'smarter choices'. These comprise a wide range of measures including place based travel plans, promotion of walking and cycling, and better public transport information and marketing. In the three (sustainable travel) towns where these have been introduced between 2004 and 2008 it is estimated that car driver kilometres have been reduced by about 10% \(^{620}\) and the programmes to achieve this were found to be cost effective.

\(^{617}\) The demand for public transport: a practical guide, table 7.5.
\(^{618}\) The sign changes as higher fares reduce demand whilst higher service levels increase it.
\(^{619}\) Started in the 1980s on the Continent, see: Evaluation of voluntary travel behavioural change: Experiences from three continents.
\(^{620}\) The Effects of Smarter Choice Programmes in the Sustainable Travel Towns: Research Report, table 21.1.
2.20 However a recent investigation into the effects of concerns about climate change and travel behaviour\(^{621}\) concluded that there are a wide variety of challenges to be addressed in order to enable and encourage more sustainable transport behaviour. These challenges varied for different groups of people and different types of locations and overall individuals tended to overstate their willingness to change their transport behaviour and would rather save energy at home. CO\(_2\) emissions were found to be of very low importance in determining transport choices for specific journeys. More trials of this approach are needed to get a reliable feel for the effectiveness and durability of this approach to urban Britain generally.

2.21 In the ten largest English urban areas programmes to reduce congestion have been pursued since 2006/07 supported by a four year £60m Congestion Performance fund. Initial research was unable to establish any measurable impact\(^{622}\) and more recent work\(^{623}\) concluded ‘There are not yet sufficient evaluations of specific congestion schemes to enable any firm assessment to be made of the effectiveness of congestion policy options. It is clear from this research however that no one single measure will be sufficient to achieve major reductions in urban congestion. An effective policy will depend upon a selection of measures, often packaged in the form of a primary measure supported by one or more complementary measures.’

2.22 The authors of the report however postulated what measures might have significant impacts and how these could be productively combined. The results are summarised in table 2.

**Table 2: Congestion Reduction Impacts from Individual Measures and Combinations.**

<table>
<thead>
<tr>
<th>Category of Measure</th>
<th>Overall Impact</th>
<th>Added Value of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Measure</td>
<td>SI  SR SE DC DR DB DI DL</td>
<td></td>
</tr>
<tr>
<td>Increase in road capacity (SI)</td>
<td>+    *        +    ++ ++ + + *</td>
<td></td>
</tr>
<tr>
<td>Reallocation of road capacity (SR)</td>
<td>+/-  +    -        +    ++ + + ++ *</td>
<td></td>
</tr>
<tr>
<td>More efficient use of road capacity (SE)</td>
<td>+    *        +    *        +    *        +    *</td>
<td></td>
</tr>
<tr>
<td>Charging (DC)</td>
<td>++    -        +    +    *        +    ++ ++ ++</td>
<td></td>
</tr>
<tr>
<td>Regulation (DR)</td>
<td>+    -        +    +    *        +    ++ ++ ++</td>
<td></td>
</tr>
<tr>
<td>Behavioural -(DB)</td>
<td>+    -        +    +    *        +    ++ ++ ++</td>
<td></td>
</tr>
<tr>
<td>Inducement to other modes (DI)</td>
<td>+    -        +    *        ++    +    ++ ++ ++</td>
<td></td>
</tr>
<tr>
<td>Land use change (DL)</td>
<td>+    +        +    *        +/-  +/- ++ ++ ++</td>
<td></td>
</tr>
</tbody>
</table>

Source: Evaluation of Congestion Performance Fund, table 5.2

**Key:** ++ strong positive added value
+ positive added value
+/− mixed impacts - congestion reduction may be partly offset
− negative added value
-- strong negative added value
* small or minimal added value impacts - i.e. are largely independent

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\(^{621}\) Climate Change and Transport Choices: Segmentation Study – Interim Report: Key Findings.

\(^{622}\) Evaluation of Congestion Performance Fund.

2.23 The increased use of telecommunications is also having an impact on travel patterns. The effects of these are unclear as they are varied, widely dispersed and associated with other changes in work, leisure and social habits. With the growth of household internet access from 9% in 1998\textsuperscript{624} to 73% today\textsuperscript{625} and most companies now using the internet, it is likely that the journey to work trip rate has fallen as the number of tele-workers has grown: currently 5% of people work at home - up from 3% a few years ago\textsuperscript{626}. We know that internet shopping has grown rapidly of late and this has probably reduced shopping journey rates as these have fallen by 16% over the last ten years\textsuperscript{627}. The effect on road traffic level is however less clear as, during this period van traffic has grown by 29%\textsuperscript{628}. The government’s plans for Britain to have the best superfast broadband network in Europe by 2015\textsuperscript{629} will help these trends to continue but in the short run the scope for public interventions to accelerate these trends is probably limited.

**Figure 3: Distance Travelled by Mode and Area Type 2002/03**

![Figure 3: Distance Travelled by Mode and Area Type 2002/03](image)


2.24 Land use densities and patterns have a strong effect on travel. Figure 3 shows how the volumes and means of travel vary between different types of areas. The general picture is that the larger the urban area the less the amount of personal travel (mainly as a result of shorter rather than fewer journeys) and the greater the proportion using bus and rail (the rail travel includes medium and longer journeys outside the immediate area). However the scope for moving people and jobs between different types of area is very limited in the short run and would not necessarily ease congestion as, although more people in large settlements

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\textsuperscript{624} Family Expenditure Survey 1998.
\textsuperscript{625} Internet Access 2010: Households and Individuals.
\textsuperscript{626} National Travel Survey 2009, table nts0804.
\textsuperscript{627} National Travel Survey 2009, table nts0403.
\textsuperscript{628} Transport Statistics Great Britain 2010, table TRA9901.
\textsuperscript{629} Britain’s Superfast Broadband Future, Exec Summary para. 3.
would mean less car travel, traffic density, and hence congestion, in these areas is higher and environmental impacts could also be worse in some respects - as higher densities can mean increased proximity between people and traffic.

2.25 Whilst more local changes to land use patterns can be crafted in shorter timescales what little evidence there is of their effects suggest that these are weak and even these are difficult to achieve quickly. Forecasts from the DfT National Transport Model (incorporating land-use, demographic and economic changes) show that over the next 20 years medium length car trips are forecast to grow faster than short distance trips, but not as fast as long distance trips\(^\text{630}\) so the trend appears likely to increase car travel rather than the reverse.

3. The role of infrastructure in encouraging and facilitating changes in travel-mode choice

3.1 The principal short run effects of infrastructure on travel mode choice are the changes that it brings to the cost, accessibility and capacity of travel in the area it serves. These are discussed in the preceding section. However new infrastructure can have effects beyond these. A new high capacity facility such as a new railway or motorway can produce a major increase in capacity in the corridor served. In the short run better (more frequent and more reliable) service and reduced crowding can make the modes benefitting from the new infrastructure more attractive. In the longer run further and more intensive development or redevelopment may well be stimulated in the zones well served by the new infrastructure which could lead to a wider orientation to the modes involved.

3.2 A classic example is the successive improvements of rail facilities to the London Docklands area which has enabled large scale development such that in 2005 75 thousand workers entered the area during the morning peak compared with only 15 thousand in 1990 and of these almost three quarters come by rail\(^\text{631}\). As well as direct improvements along the route of a new line or in the vicinity of a new station or interchange, relief may be provided to other parts of the transport network so creating indirect benefits from reduced congestion and crowding. This illustrates an important aspect of infrastructure investment. The 'right' kind of infrastructure can give developers, employers, public agencies and private individuals the confidence to invest in and move to the area it benefits. Thus a new railway is more likely to inspire development or redevelopment than improved bus services on existing streets.

3.3 New and improved transport infrastructure can also provide significantly safer travel and although this is not a major factor in mode choice for most people, it can make a difference for some for whom safety and security is a material factor in their choice of how to travel.

4. The latest developments in the evidence-base in relation to changing travel-mode choice and the implications of those developments for policy

\(^{630}\) Medium-length Trip Patterns: Stage 1 - report & discussion paper.
\(^{631}\) London Travel Report 2006, chart 1.4.3.
4.1 An extensive and well researched evidence base on factors affecting travel choice has been developed over several decades in the UK. To give an example the 2004 report The demand for public transport: a practical guide was an update of a British led international study that reported in 1980\textsuperscript{632} and it is possible to delve further back into the history of transport studies to find earlier studies of how people choose between alternative travel options\textsuperscript{633}.

4.2 It is important to ensure that research of this kind is brought up to date from time to time to reflect changing tastes, contexts, lifestyles and system characteristics (e.g. air conditioning and in vehicle communication aids may change the appeal of certain types of rail travel or in-vehicle satellite navigation encouraging timid drivers to embark on journeys that would otherwise find daunting). However this will usually lead to an evolution of our understanding of people's attitudes to travel, options rather than a revolution.

4.3 Over recent years there have been a number of changes that this traditional research evidence has been less useful in illuminating. One of these is the impacts of telecommunications on travel patterns and another is the impacts of, sometimes complex, packages of measures that are being used to try and manage urban transport demand. Whilst we know that modern telecommunications affect some aspects of travel; exactly how is less clear. There is some evidence that tele-conferencing replaces some business travel but at the same time the internet has tended to extend business linkages and consequently lengthen supply chains and possibly business trips. Also high quality telecommunication 'on the move' has reduced the disutility of business travel as being out of the office no longer means being out of touch.

4.4 We know that internet shopping has grown substantially in recent years\textsuperscript{634} and in some instances replaces physical transactions (e.g. music, books and airline tickets). But this may have also replaced catalogue, postal and telephone shopping as well as reducing journeys to the shops. There is some evidence that for certain purchases shoppers still like to view before they buy\textsuperscript{635} and many retail visits are not 'solo' but part of a trip chain which will still be made in a modified form. Also this has been associated with an increase in home delivery traffic; and we now sometimes buy goods from places we were unaware existed before internet access. Whilst parts of the picture of the impacts of improving telecommunications are becoming clearer the picture is far from complete and more research is needed on this issue.

4.5 It has long been a problem for researchers that transport interventions are implemented in packages and the effects of the different components have to be unravelled. Of late the use of packages comprising a significant number of relatively limited impact measures has made this more difficult. In the 'smarter choices' example referred to in the first section of this submission\textsuperscript{636} overall impacts have been identified with some confidence as have the effects of individual elements, however interactions between these are poorly understood (e.g. what effect does a parent changing to car sharing have on the child's participation in a school travel plan?). This is not a criticism of the research in question but

\textsuperscript{632} The Demand for Public Transport: Report of the International Collaborative Study of the Factors Affecting Public Transport Patronage.

\textsuperscript{633} For example London Transportation Study Phase III, Appendix 20A.

\textsuperscript{634} Retail Sales: Focus on internet: 25% Nov 2008 - 09 and 37% Nov 2009 - 10.

\textsuperscript{635} Motoring towards 2050: Shopping and transport policy, page 12.

\textsuperscript{636} The Effects of Smarter Choice Programmes in the Sustainable Travel Towns: Research Report.
rather an identification of the complexities these types of policies present to transport researchers.

4.6 In the monitoring of the urban congestion programme (see para. 2.21) there were eight types of intervention employed to varying extents and intensity with differences within these categories as implemented in the ten locations. The main conclusion of this study was that to obtain any significant effect measure needed to be implemented in complementary packages but improvements to traffic forecasting were needed before reliable comparisons could be made between actual and expected outcomes. Again this points to the need for improvements in analytical techniques rather than throwing any substantial new light on impacts on traffic congestion - except perhaps that as implemented the effects cannot have been large as they would have been clearly detected.

4.7 It is fair to conclude therefore that recent evidence has not yet added a great deal of policy guidance to that which can be gleaned from the large body of research results produced over recent decades. Whilst, as indicated above, more research is needed, existing policy shortcomings usually arise from failure to make best use of existing evidence rather lack of careful inquiry into factors affecting travel choice.

5. The most appropriate type and level of interventions to change travel-mode choice

5.1 The answers to this question derive from the understanding of what influences people's choice as described in the answer to the first question. As the committee's interest is focussed on the reduction of car use in urban areas, it is this aspect of travel mode choice we refer to. The single most effective means of reducing car use to urban centres is probably parking controls or road user charging. Whilst parking controls (charging, and limits on supply and access times) can be very effective in respect of the journeys to which they relate they suffer from much parking being outside public control and they do not restrict through traffic (indeed they can have the reverse effect). If used too vigorously parking controls can also have a negative effect on the economic vitality of town and city centres. They can be very blunt instruments so need to be designed carefully.

5.2 Public transport improvements (both lower fares and better services) also encourage switching from cars, but they are not focussed on car drivers and have to apply to all users. This means, for example, that to lower prices for a few former car drivers all existing users have to be charged less. This means that policies of this kind are very costly (in terms of increased taxpayer support) ways of achieving modal switching, although they produce benefits for all public transport users. Public transport improvements can be focussed more on car users by the inclusion of park and ride. This is especially effective in respect of rail and there are about 900 commuter/shopper park and ride facilities in Britain of which about 700 are at rail stations and, of these about 550 are on the London and South east network637.

5.3 Reallocation of road space to purposes other than for general motor traffic is sometimes advocated as a means of reducing car use. Whilst this may improve conditions

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637 Park and Ride.net, LRS table 7.1 and PTE websites.
for other road users it will only reduce car use at the cost of increased congestion, unless there are associated measures to divert car drivers to other routes or modes of transport. Providing priority lanes for buses can improve service speeds and reliabilities but most of these improvements can be achieved without introducing traffic 'chokes' and, if 'chokes' are introduced the costs of congestion to non bus traffic will usually far outweigh the small benefit (beyond those from uncongesting bus priorities) to buses from the introduction of such 'chokes'.

5.4 A clear message from recent work is that there are strong technical and public acceptability reasons for combining a range of measures to get a policy that is technically sound, makes acceptable demands on the taxpayer and is feasible in practice. Some form of restraint on car use is needed: mainly by pricing rather than rationing by congestion, coupled with improvements to public transport and park and ride (where practicable) which increase the acceptability of the policy as a whole and reinforce the effects of traffic restraint.

6. The most effective agents for the delivery of behaviour interventions to change travel-mode choice

6.1 It is assumed that the term 'behavioural' does not limit the range of interventions covered by this question. There are several types of actors on the urban transport scene who have roles to play in reducing car use and congestion. These include employers, public and private service providers (e.g. retailers, hospitals and operators of leisure facilities), public transport operators, local transport and planning authorities and central government. As a general rule it is to be expected that each type of player will only intervene to reduce car use when it is in their direct interest or in pursuit of their duties. Thus public transport operators will improve services and reduce fares when this is in their commercial interest, employers will introduce parking restrictions or introduce workplace travel plans when they have outgrown existing parking provision or want to develop car parking space for other purposes, or accept this as a condition of getting planning consent. Whilst such initiatives are to be welcomed it would be rash to rely on them as a main driver of reductions in car use. Indeed there will be many occasions where employers or retailers want to increase parking provision to attract labour or customers.

6.2 Under section 108 of the Transport Act 2000 local transport authorities must—
(a) develop policies for the promotion and encouragement of safe, integrated, efficient and economic transport facilities and services to, from and within their area, and
(b) carry out their functions so as to implement those policies.

6.3 Under section 16 of the 2004 Traffic Management Act local traffic authority to manage their road network with a view to achieving, so far as may be reasonably practicable having regard to their other obligations, policies and objectives, the following objectives—
(a) securing the expeditious movement of traffic on the authority's road network; and
(b) facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority.

6.4 So there is little doubt where the main responsibilities lie for transport policy at the urban level. In the former Metropolitan Counties Part 5 of the 2008 Local Transport Act created Integrated Transport Authorities with wider powers than the Passenger Transport Authorities which they superseded. It is local authorities therefore that have a clear duty to
manage traffic congestion. Similarly is a clear duty on local authorities to prepare action plans to address air quality deficiencies in their area.\footnote{Environment Act 2005, secs. 83& 84.}

6.5 Local authorities' abilities to act are however constrained by their dependence on funding by central government, the dependence on powers and regulations determined by central government and the need to formulate policies and plans in accordance with central government guidance. Where actions need to be initiated and coordinated at a regional or sub-regional level the demise of the Regional Development Agencies and Regional Funding Allocation arrangements is leaving a lacuna. Whilst central government policy and regulations are usually consistent with local authorities' plans to reduce congestion and promote modal change, the detailed requirements for planning and authorisation can be stifling and prolong timescales. The weakness of local government finance can mean that authorities too often are unable to provide high priority transport improvements and, from time to time, centrally determined policy can restrict local authorities' ability to implement their desired policies.

6.6 An example of this was the introduction of bus deregulation in 1986.\footnote{Transport Act 2005, Part I.} Whilst not the only consideration, the difference in bus use in London, where local bus services were not deregulated, and the other English Metropolitan areas where they were, despite the opposition of the Passenger Transport Authorities, indicates that this had a deleterious effect on bus use. In London bus journeys have increased by over 90% since 1986/87 whilst in the other English conurbations they have reduced by 40%. Outside the large cities bus travel has also reduced over this period by 18% in the English shires, 28% in Wales and 30% in Scotland.\footnote{Bus Statistics table BUS0103.}

6.7 Whilst a range of local actors have parts to play in changing travel behaviour in their area it is local authorities who should be best placed to take the lead by setting out relevant policies and plans, setting examples to private organisations, implementing appropriate schemes and helping coordinate the actions of other players. Central government should provide resources and guidance and ensure mechanisms for effective regional coordination where this is needed. Present arrangements fall short of this in a number of respects and need to be improved.

7. How current behaviour change interventions seek to change travel-mode choice and what use is made of available scientific evidence

7.1 Reducing congestion and carbon emissions are key aims of most transport policies and the 2004 DfT guidance on\footnote{Full Guidance on Local Transport Plans: Second Edition}. Local Transport Plans required local authorities to set indicators for:

- Accessibility
- Area wide road traffic mileage;
- Cycling trips;
- Mode share of journeys to school;

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\footnote{Environment Act 2005, secs. 83& 84.}
\footnote{Transport Act 2005, Part I.}
\footnote{Bus Statistics table BUS0103.}
\footnote{Full Guidance on Local Transport Plans: Second Edition}
Memorandum by the RAC Foundation (BC 121)

- Bus punctuality.
- **Changes in peak period traffic flows to urban centres, for authorities with urban centres populated by more than 100,000 people;**
- Congestion (vehicle delay), for the plans covering large urban area and
- A target related to air quality.

7.2 With optional indicators for:

- **Mode share of journeys to work;**
- **Mode share of peak period journeys to urban centres;**
- **Proportion of workforce covered by travel plans;**
- Total parking provision;
- Proportion of short stay parking;
- Price differential between long and short stay parking;
- Percentage of planning permission exceeding parking standards.

7.3 Of the fifteen indicators, six (highlighted) deal with aspects of travel mode choice and there can be little doubt that increasing the use of public transport, cycling and walking as alternatives to car use are is widely adopted as key elements of local transport policy in Britain today. Local policies often rely heavily on the promoting alternatives to car use rather than policies that restrict car use although there is evidence that well designed restraint measures can be very effective. Often local transport policies advocate better bus services yet, outside London, fares and service levels are determined mainly by private operators.

7.4 Often new transport initiatives cannot be based directly on strict scientific evidence but have to be analysed using mathematical models. Unfortunately these are not always fit for purpose. A review carried out for the Department for Transport in 2009 concluded that 21 of the 30 models examined were either unsuitable or had unknown suitability for testing any of four policy interventions (highways, public transport, parking and road pricing). In the evaluation of the urban congestion programmes referred to in paragraph 2.21 one of the main issues identified was the systematic overestimation of traffic growth.

7.5 Not all local authorities have the range of professional skills/resources to research and interpret what evidence there is. The DfT provides guidance in the form of Local Transport Notes and Traffic Advisory Leaflets and the Chartered Institute of Highways and Transportation also publishes well prepared technical guidance on a range of urban transport planning topics. Consultants can help, but their services are not always affordable as local authority budgets tighten. Of course, there is extensive literature in a wide range of professional and technical journals. However full advantage of these is not always taken.

7.6 Although not directly concerned with changing travel modes there appears to be bias in the government's transport policy against road transport and in favour of rail. The

642 Regional and Local Strategic Modelling and Appraisal Capability Final Report.
evidence base of benefit:cost ratios for the Eddington Study\textsuperscript{646} showed road schemes generally to have higher benefit:cost ratios than rail and in the recent announcement on strategic roads\textsuperscript{647} the Department states 'The 14 schemes confirmed today will make a major contribution to the development of Britain’s economy. For every pound invested, there will be over six pounds worth of public benefits. On some schemes, this figure will be higher than ten. Overall, these schemes will create more than £13bn of public value when completed.' Yet more is being invested in rail infrastructure than in roads\textsuperscript{648} despite roads carrying almost twelve times as much personal travel as rail\textsuperscript{649}. A recent reflection of this predisposition to rail is the interest in high speed rail with a benefit:cost ratio of HS2 lying between 2.4:1 and 2.7:1\textsuperscript{650} - below half that of the highway scheme referred to above.

7.7 The picture is therefore a mixed one of a general acceptance to base polices on reliable evidence but occasional disregard for the available evidence(see the speed camera example below), some bias in favour of 'popular' policies and shortcomings in technical analysis.

8. Current policy interventions addressing both psychological and environmental barriers to change

8.1 There is a long history of behavioural research in Britain which embraces those motivational and psychological factors affecting travel behaviour. There is little to suggest that this is not given due weight when evidence is used in transport policy decision. Good public transport marketing has long employed psychological factors in promoting behavioural change and the introduction of period tickets, zonal fares and smartcards all reflect this. The recent emphasis on 'soft factors' indicates a growing interest in more subtle approach to engendering behavioural change. However not all transport authorities have adopted such policies and a focus on environmental leanings is not necessarily the most effective approach\textsuperscript{651}.

8.2 Change is not only a matter of individual and group behaviour but also of organisational habits. Some local authorities are more progressive than others and relatively little attention has been paid to this aspect of performance of late. In the past there have been investigations of the roles played by individuals, different types of public agencies, pressure groups and other voluntary bodies in decision making processes but this do not appear to attract much attention currently. Nevertheless the interest by the government in increasing the number of directly elected mayors suggest that there may be scope for improving decision making in local government; although this particular initiative appears to be more a political judgement rather than a carefully researched policy.

8.3 Environmental barriers to change arise in two ways. Firstly there are the direct environmental consequences of changes in transport infrastructure and operations. These receive considerable attention and are often the subject of public objections to new policies.

\textsuperscript{646} The Eddington Transport Study.
\textsuperscript{647} Investment in Highways Transport Schemes para. 37.
\textsuperscript{648} £25.8bn compared with £23.1bn over the last five years (TSGB 2010, table TSGB0114].
\textsuperscript{649} TSGB 2010, table 1.1.
\textsuperscript{650} High Speed Rail London to the West Midlands and Beyond, figure 4.3a.
\textsuperscript{651} Climate Change and Transport Choices: Segmentation Study – Interim Report: Key Findings.
Memorandum by the RAC Foundation (BC 121)

These effects are required to be included in the assessment of transport policies and projects. There is little chance of such effects going unnoticed and generally policy makers and planners are well aware of them.

8.4 The form of the built environment has a powerful influence on travel demand patterns and the potential for the different means of transport in providing an acceptable service. Looking again at figure 3 it is clear that rail has much more potential in London than elsewhere, both because of the density and connectivity of the rail system and because of the density of homes and workplaces. In smaller towns and rural areas the near absence of rail stations means that it can be used for only a proportion of medium and longer distance journeys. In the same vein, even with the denser bus routes, walking and waiting times mean that going on foot or cycle can be quicker for short journeys and for medium and longer journeys cars will usually take less time.

8.5 There is relatively little that can be done to change this except at very high cost. The increase in residential densities of new development in England from 25 dwellings/hectare to 43 between 1999 and 2009 and the increase in development on previously developed land from 28% to 49% is helping to retain accessibility. However with over 22m dwellings and less than 120 thousand new homes completed in 2009/10 (about ½% of the stock) the impacts of this policy on transport demand will take many years. Moreover this has been associated with a reduction in family homes (three or more bedrooms) from two thirds of the total to a half since 1999 - which may not be sustainable in future.

8.6 This densification policy was associated with guidance to reduce residential parking provision to help curb car use. A tour round many inter-war housing estates or council estates built in the 1950s or 1960s, with their limited off street parking provision, shows just how powerful the desire for people to have a car is; and the unwelcome consequences of not providing decent residential parking accommodation for them. This is confirmed by the small minority who would consider selling their cars if they had no access to residential parking in their area. However this policy has recently been scrapped as part of the 'end of the war on motorists' and PPG13 (government planning policy guidance) has been changed accordingly. There have been similar policies to concentrate retail and commercial developments in existing town centres and urban areas for some years, initially through PPG6, PPS6 and more recently PPS4.

9. The design and evaluation of policy interventions

9.1 The extent to which transport policy initiatives are well designed and evaluated varies considerably in Britain. Good design requires creative thinking, sound professional and political judgements and thorough analysis based on whatever relevant evidence is available.

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653 Housing and Planning Statistics 2010, table 11.3.
657 6%: Motoring towards 2050: Parking in transport policy, table 1.2.
658 Pickles and Hammond to end the war on motorists.
available. At one extreme great care has gone into the design and assessment of major infrastructure projects. Indeed the extent of scrutiny and review of these types of scheme is an important contributor to the protracted timescale for their implementation. However there is evidence that the way some major projects are planned leads to underestimation of costs660 and overestimation of their benefits661. This has resulted in the introduction of corrections for 'optimism bias'662 which makes substantial adjustments to allow for these.

9.2 At the other extreme there are examples of initiatives with little attempt to assess their likely impacts. A recent example of this has been the moves to remove speed cameras. Research for the RAC Foundation663, looking carefully at the available evidence, has shown that if speed cameras were to be decommissioned across Great Britain then about 800 more people per year could be killed or seriously injured.

10. Lessons that have been learnt and applied as a result of policy evaluation

10.1 It is almost impossible to catalogue the lessons that have been learned from an assessment of past policy initiatives. However it is not too unfair to claim that transport planners have been ready to record their successes than their failures. As well as experience being fed into good practice guidance, there is extensive technical literature on transport polices and its impacts. With the growth of information on the internet this has become widely accessible and there are some websites that are specifically dedicated to providing information on the impacts of urban transport initiatives664.

10.2 Where there have been important new initiatives central Government often undertakes reviews such as those referred to above on the impacts of the 'Smarter Travel' and the Urban Congestion Programme. Ex post assessments have also been carried out on 'Park and Ride'665, major rail schemes such as the Jubilee Line extension666 bus deregulation667 and many other policies. As well as reviews by the responsible department of state from time to time the National Audit Office carries out its own reviews such as that into the scheme for relieving congestion on the M25668.

10.3 Whilst there has been a good deal of effort put into learning the lessons from past experience the extent to which these are being applied is less clear. The limited success of light rail scheme in Sheffield and Birmingham does not seem to have deterred other cities from pursuing their own. On the other hand no other authority has taken the step of introducing area wide road charging despite the success of the central London scheme. More disappointing, the government is not only committed to not introducing any form of

660 Department of Transport: Estimating and monitoring the costs of building roads in England.
661 Planning Major Projects.
663 The Effectiveness of Speed Cameras: A review of evidence.
664 e.g. Knowledgebase on Sustainable Urban Land Use and Transport (KONSULT) and Travel Demand Management Online Encyclopaedia.
665 Travel effects of park and ride.
667 Buses in London: A comparison with the rest of Great Britain.
668 Procurement of the M25 private finance contract.
pay-as-you-go charging for road use but has set its face against even making preparations for what is the most efficient and effective means of dealing with traffic congestion\textsuperscript{669}.

10.4 It is more difficult to point to where lessons have been taken into account as they often become absorbed into standard practice and applied invisibly. There can be no doubt that evaluations of past policies have been so absorbed but where, by whom and to what extent is impossible to say with any precision.

11. Lessons to be learnt from interventions employed in other countries

11.1 There is much to be gained from experiences in other countries and British transport planners and policy makers have observed these by overseas visits, comparative research, attending conferences and seminars and participating in international research and study programmes such as the European Commission Framework programmes. These have been running since 1984 and are now in their seventh phase which is allocating €7bn/year for this purpose. These have all contained substantial components relating to urban planning and transportation. In short many British transport planners and some policy makers are generally well informed in lessons from overseas experiences. Another EU collaborative programme is the INTERREG series of which in IVB there is a project, involving Blackpool, Kassel, Nijmegen, Valenciennes and West Flanders looking the scope for using tram-train technology in an area of north west England\textsuperscript{670}.

11.2 There are many examples of overseas experience influencing British transport planning. Home zones and shared space schemes are recent examples and London’s Crossrail reflects, in part, the success of the RER in Paris. The busway networks in Ottawa and Curitiba have been an inspiration for systems here in the UK and the bicycle hire scheme in Paris and other cities provided a model for that in London. Integrated city wide ticketing systems such as London’s Travelcard were introduced in most German cities in the 1970s. There have also been innovations in the opposite direction with British Urban Traffic Control systems having been world leaders since the 1970s and the introduction of competition in public transport service provision in the UK has been followed in many other countries.

11.3 There are several practices overseas which appear to have attractions but which have not been adopted here in Britain. The versements transports (a surcharge on employment costs) provide a source of reliable local funding which has enabled many French towns and cities to improve their public transport and construct light rail systems insulated from the vagaries of central financing. Ring roads taking traffic away from inner urban areas are more widely used on the continent. Germany, Austria, Switzerland, Slovakia and the Czech Republic have introduced successful electronic ‘Pay As You Go’ schemes for lorries whilst we are still in the planning stages with a paper based ‘vignette’ scheme.

11.4 Many other countries have achieved a greater consistency and continuity of purpose in developing and managing their transport systems than we have here in the UK. A classic example is that of London’s Crossrail & Thameslink and the Parisienne RER. Both conceived

\textsuperscript{669} Motoring towards 2050, Roads and Reality.
\textsuperscript{670} SINTROPHER [http://www.nweurope.eu/index.php?act=project_detail&id=3889].
in the 1960s. Crossrail was not established as a high priority project until 1989 and will not be completed before 2018. In the meantime the RER has seen almost continuous development and now has a five line network with a route length of 625kms.

11.5 The UK has generally lagged behind the rest of Western Europe in the development of its transport infrastructure as figure 4 illustrates for Motorways. Provision on a per capita basis, always low by continental standards has gradually fallen further behind to the point that we now have the lowest provision in Western Europe with the exception of Norway. Similar pictures are to be found in respect of airport runway capacity in the South East and national railway electrification.

Figure 4: Motorway Provision in Western European Countries, 1970 - 2007

![Motorway Provision in Western European Countries, 1970 - 2007](image)

Source: EU energy and transport and in Figures.

References


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671 London Transportation Study Phase III and Transport In Europe.
672 Central London Rail Study.
674 32% compared with 52% for the EU as a whole (EU energy & transport in figures, table 3.5.3).


• European Commission, *FP7 Tomorrows answers start today*, Brussels, October 2006.


• HS2 Ltd., *High Speed Rail London to the West Midlands and Beyond*, High Speed Two (HS2) Limited, December 2009.

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*January 2011*
Memorandum by Professor Imran Rasul F and Myra Mohnen, University College London (BC 96)

1. Overview

Understanding the causes and consequences of human behavior is at the heart of all social science disciplines. In this review, our analysis brings together economic frameworks for understand behavioral change, psychology based models, and insights from public health, neuroscience and sociology. Many of these disciplines provide overlapping or complementary insights on the drivers of behavior and potential policy instruments to change behavior.

For example behavioral economics uses insights from psychology as basis for its modeling assumptions, and then the standard tools of economic analysis to make predictions on behavior. Given this overlap, we will emphasize the common drivers of behavioral change that these disciplines suggest, rather than suggesting that one approach is inherently preferable to another. We will also review the evidence from these research fields. Throughout we emphasize that data generated by field experiments provide a gold standard for evidence based policy, ensuring policies are both effective and cost-efficient.

Individual behaviour can be understood as deriving from two factors. First there are factors that are internal to the individual. Examples include the individual’s preferences, beliefs, expectations, personality, and so forth. Second, there are factors external to the individual but that shape the environment in which individual decision making takes place. Examples include social norms and economic conditions they face.

Understanding whether and how individual behaviors can be affected essentially boils down to appreciating whether and how these internal and external factors can first be altered by policy, and second, how they impact on decision making in the short run and in the long run. Academic disciplines differ in the extent to which they recognize and emphasize different types of internal and external factor.

In Section 2, we begin by highlighting the different theoretical and evidence based insights of different disciplines. We provide a brief review of alternative approaches across the disciples of economics, psychology, neuroscience and sociology. Here we begin to address Question 1 in the call for evidence.

In Section 3 we describe in more detail the range of internal factors for which robust evidence has been found suggesting they influence individual decision making. Policies can shape individual behaviors through the following types of internal factor: self-efficacy; emotion; ego; altruism, fairness and equity; probabilistic judgments; salience and framing; time preferences; reference points; loss-aversion; bounded rationality; mental accounts;

675 Both authors are based at the Department of Economics, University College London. Mohnen is a PhD student and Rasul is a Professor of Economics. Rasul is additionally affiliated to the ESRC Centre for Economic Learning and Social Evolution (ELSE) and the Institute of Fiscal Studies (IFS). All errors are our own.
676 This multi-disciplinary view of research that brings together academics from different fields is a core principle behind the ELSE Research center at UCL. We return to this in our discussion of research capacity in the UK in Section 7.
choice from lists; information; scarcity. Each of these is thought to be an internal driver of behavior. For each we describe the evidence related to interventions that attempt to manipulate these factors to change behavior.

Later in Section 3 we focus on specific internal drivers of additive behaviors, as requested in the call for evidence. More precisely, we review the evidence related to addiction and self-control; habits; temptation and willpower. In summary, in Section 3 we further address Questions 1 and 2 in the call for evidence. Given the focus on addictive behaviors, the literature across academic disciplines on drivers of addictive behavior is summarized in the Appendix.

In Section 4 we review various forms of external factor driving behavior change, as emphasized in the social psychology, public health and sociology literatures. Through such factors, policies can try and shape community wide behaviors. The external factors we discuss are: norms; public commitments; reciprocity; regulations; persuasion; and contextual factors. This section completes our discussion of Questions 1 and 2 in the call for evidence.

In Section 5 we cover issues related to policy design. We reiterate that behaviour change interventions attempt to shift individual behaviour through changes in the internal and external factors that drive decision making. We then discuss how different interventions can be layered on top of each other if they are complementary. We provide real world examples of such layered behavioral change policies. In doing so we address Questions 5, 6 and 7 in the call for evidence.

In Section 6 we discuss further issues relating to ethical concerns of behavioral change policies, equity concerns, policy evaluation and public engagement. We again re-iterate the need for credible evidence based policy, where the gold standard is provided by carefully crafted field experiments. Hence in this section we address Questions 13 and 14 in the call for evidence.

In Section 7 we complete our discussion of some practical considerations related to behavioral change policies. This focuses on whether the UK has the research capability to support the levels of interventions being considered and implemented, and existing mechanisms linking local and national government to academics and others that can offer advice on how to design, implement and evaluate behavioral change. We also discuss the ability of government and academic to engage the public in discussion of behavioral change policies. In doing so we address Questions 3, 4, 10, 11 and 12 in the call for evidence.

In Section 8 we review the findings of some well known behavioral change interventions from a number of countries. These interventions cover a variety of policy spheres such social behavior, community participation, the environment and health. Some of these interventions have been conducted by policy makers, and others have been instigated by the voluntary sector. Here we address Questions 8, 9 and 15 in the call for evidence.

677 Although the call for evidence explicitly suggests consideration of measures apart from regulation and prohibition of choice, we find it useful to compare the evidence in support of such policies with that for other external factors driving behavior.
In the final section, Section 9, we address questions regarding the case study of tackling obesity. We discuss the evidence that attempts to identify the contributing factors of obesity in order to find potential points of interventions. We focus on those interventions that have been evaluated through controlled experiments. In the Appendix, we provide a detailed table highlighting all the studies on behavioral change in obesity. Here we address Question 16 in the call for evidence.

From the outset it is worth highlighting the common themes throughout all the sections. First, it is our aim to highlight that the insights on the determinants of behavioral change from different academic disciplines of economics, psychology, neuroscience and sociology are complementary to each other, not competing ideas. All of them can be framed within the structure of there being internal and external drivers of behavior. All of these are potential levers through which policy instruments can operate.

The second common theme is that there is a strong need to build a credible evidence base for behavioral change interventions. The most credible evidence relies on randomized experimental variation being induced so that some subjects are randomly assigned to receive some policy treatment, and others are randomly assigned to a control group without any treatment. The comparison of these otherwise similar subjects can be credibly argued to measure the causal impact of the policy intervention. The experimental variation induced can be either in a laboratory environment, as is often the case with research in psychology and neuroscience, or from field experiments, that is increasingly being used in economics and public health.

The essence of the field experiment research method involves researchers engineering carefully crafted exogenous variation into real world economic environments, with the ultimate aim of identifying causal relationships and mechanisms underlying them. A detailed discussion of the methodology of field experiments can be found in List and Rasul [2010]. Field experiments based on real world data differ from laboratory experiments in that provide data from an environment in which subjects naturally undertake behaviors and where the subjects do not know that they are participants in an experiment. Therefore, they neither know that they are being randomized into treatment nor that their behavior is subsequently scrutinized. Such an exercise is important in that it represents an approach that combines the most attractive elements of the laboratory and naturally-occurring data: randomization and realism. In addition, it is difficult for people to respond to treatments they do not necessarily know are unusual, and of course they cannot excuse themselves from being treated. Hence, many of the limitations cited in laboratory studies - such as the ability of subjects to choose not to participate - are not an issue when making inference from data generated by natural field experiments.

A third theme is that the voluntary and private sectors have long established methods of inducing behavioral change among consumers. For example, there is a vast economics and psychology literature on how charitable organizations try to induce individuals to donate to their cause. Often they exploit various internal and external factors that we discuss, such as making social comparisons, or appealing to an individual’s ego or sense of fairness. Private sector firms have long used various marketing ploys to exploit salience, inconsistent time preferences, default choices and so forth. There is potentially much policy makers can learn about inducing behavioral change, especially of individuals rather than communities, from this literature.
Finally, as noted in the original call for evidence, we have explicitly avoided replicating the discussion in previously commissioned government reports on behavioral change, such as MINDSPACE and other reports from the Cabinet Office. We have instead focused on our comparative advantage which is to give a sense of the existing credible evidence from a range of disciplines of whether and how policy interventions can leverage against internal and external factors to induce behavioral change. Section 3 focuses on factors that induce change among individuals, Section 4 focuses on community wide behavioral changes. Throughout we try to make clear the implications from evidence for being able to induce changes only in the short run, or whether long run and sustained change can be achieved.

While we mostly provide a brief summary of research findings in the main text, the footnotes provide more detail on each study. The appendices also provide more detailed overviews of the evidence related to addictive behaviors and obesity. We hope the committee finds our review of the evidence of use, and would be happy to provide further detail as required.

2. Understanding Behaviour

1. What is known about how behaviour can be influenced?

Economic Approaches to Behavioral Change

The neoclassical economic model of individual decision making emphasizes individual choices are rational in that they are: (i) always made in the individual’s self-interest; (ii) based on an assessment of the expected personal costs and benefits of any action over other possible actions. In short, individuals seek to maximize their utility subject to the constraints they face. Such constraints might include budget constraints embodying information on the prices an individual faces and the income they have, as well as regulatory constraints arising from policy interventions.

In the neoclassical framework, markets will exist, or firms will have incentives to establish them, that allow individuals to make rational choices and maximize their utility. Government intervention is then justifiable wherever an individual’s rational choice might be hindered by some market that fails to form, or some kind of market failure, such as imperfect or asymmetric information, externalities, or imperfect public goods provision.

The neoclassical model generates a rich set of insights and policy implications on how individual decision making is affected by changes in the constraints they face, and there are many decades of microeconomic research that support the basic predictions of this framework. For example a vast body of evidence confirms the predictions of neoclassical economic models in terms of how individuals respond to changes in price and income, the information they have, and the uncertainty they face.

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Utility theory is derived from axioms of preference that provide criteria for the rationality of choice. As discussed in Rabin (2002), in the neoclassical model individuals are assumed to be rational in that their preferences are ordered, known, invariant and consistent. Individuals maximize their expected utility, are Bayesian information processors, have well-defined and stable preferences, exponentially discount future well-being, are self-interested, have preferences over final outcomes not changes or process, and have only instrumental tastes for beliefs and information.
While the original formulation of the model emphasized behavior being driven by both internal factors – as embodied in the individual’s utility function – the model also allows for external factors such as prices. A recent wave of literature has also extended the neoclassical model to incorporate further external factors driving decision making such as concerns for fairness, altruism, group norms and peer influences. Many of these factors are discussed in more detail in Sections 3 and 4 below.

However, the framework has been criticized both by economists and psychologists. These concerns stem from the neoclassical model failing to take full account of internal factors determining decisions that often relate to individual psychologies. This has led to a burgeoning literature on behavioral economics that has integrated psychological understanding of decision-making into an economic framework. Hence internal factors such as habits or addictions, emotional responses and rules of thumb can be incorporated in research on individual decision-making. These factors are each discussed in turn in the next section along with the associated evidence that such internal factors do seem to be important drivers of behavior.

A key implication of behavioral economics is that traditional policies that assume rational behavior and therefore emphasize the importance of financial incentives or the provision of information, may be less effective. Instead, behavioral economics emphasizes policy-makers should also use tools that influence the internal factors relating to psychology, that drive decision making. These include changing the salience of different elements of choices, the importance of framing choices in one way or another, setting default options and emotive associations. Many of these are often referred to in policy debates as ‘nudges’.

A third relevant strand of the economics literature is based on neuroeconomics. This integrates methods from neuroscience, psychology and economics to study individual decision making. This reinforces and builds on the behavioral economics approach to add observations of the nervous system to the set of internal factors that drive decision making. For example, by examining the brain, processes associated with the perception of actions and choices can be analyzed. This helps provide a neurological foundation for some internal factors driving behavior, such as framing effects, that are emphasized in behavioral economics.

An important policy insight generated by this branch of research is to better understand the effects of rewards and punishments on behavior. Related to this, is conditionality, where a reward or punishment is contingent on behaviour change, can be another tool for policy makers. Conditionality has been discussed in UK policy circles in terms of a contract – an agreement on fixed terms. The individual receives a benefit, for

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680 D.J.F.de Quervain, U. Fischbacher, V. Treyer, M. Schellhammer, U. Schnyder, A. Buck and E. Feh. (2004) explore activations when agents decide to punish. In their experiment, players A and B are each endowed with ten “money units.” Player A can either keep his endowment of ten or send it to player B; money sent to player B is quadrupled by the experimenter, if A sends ten, then B has fifty. Next, B has the choice of sending back either nothing or half of the fifty. Finally, A has the option of “punishing” B by assigning up to twenty “punishment points”; the cost to A and B of this punishment varies over treatments. In condition IC, punishment is costly to player A and costly to player B; in condition IF, punishment is free for player A and costly to B. There were eleven subjects who punished maximally in IF. For these subjects, differences in activation levels cannot be due to the chosen punishment, so it is natural to interpret them as a sign of the “reward” to punishing.
example in the form of a right of access to a public service. In return, some kind of responsibility may apply.\(^{681}\)

Psychological Approaches to Behavioral Change

Psychologists explore the basic drives and motives of behaviour, social influences and emotions. **Cognitive psychology** in particular examines how people reason, formulate judgments and make decisions. The main basis of behavioral psychology is that all behaviors are learned. Learning can occur through associations (**conditioning**) or through rewards and punishments (**operant conditioning**). This approach emphasizes that factors such as timing, context, cues, internal states and recent events impact how quickly a behaviour is acquired, the strength of the response, the probability of relapse and the maintenance of a newly acquired behaviour.\(^{682}\)

This literature has wide implications in terms of how behavioral change might diffuse through a population. It also sheds light on how longer run changes in behavior can be induced and made self-reinforcing.

**Social psychology** places more emphasis on external factors driving decision making such as how individuals think about and relate to one another. Social psychologists typically explain behaviors as a result of the interaction of individual and **interpersonal factors**, where the latter consist of cultural norms, social influence, and group dynamics.\(^{683}\) A key policy implication is that the behavior of many individuals can be altered by manipulating these interpersonal factors, or perhaps targeting change first among focal individuals within a community. The latter strategy is well recognized among marketers.

Sociological Approaches to Behavioral Change

**Sociology** is a community level approach to understanding behaviour. It highlights the importance of an individual’s wider social context by examining interactions and exchanges at the micro-level and group dynamics, group development and crowds at a macro level. The role for government is to promote and ensure equal access to facilitating conditions.

3. Points of Intervention at an Individual Level

1. What is known about how behaviour can be influenced? What special considerations apply to addictive behaviour?

2. What are the policy implications of recent developments in research on behaviour change?

We now describe in more detail the range of **internal factors** for which robust evidence has been found suggesting they influence individual decision making. We focus on evidence provided by the broad economics and psychology literatures described above. Later in this section we focus on issues specifically related to addictive behaviors, habits, temptation and willpower. In the next section we turn to review the evidence on external factors

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\(^{682}\) M. Bouton (2000).

\(^{683}\) E. Smith and D.M. Mackie (2000).
driving decision making.

Self-Efficacy and Agency
Self-efficacy is a person's perception of his or her own ability to succeed in reaching a goal. It determines the initial choices made, and how much effort is exerted to make and implement these choices over time.

There are several ways to increase self-efficacy. First, setting small incremental goals can give the impression of success and help persistence. Second, self-monitoring, feedback and motivating rewards can reduce anxiety about one's ability to achieve a behavior change, thus increasing self-efficacy. Feedback can also help individuals learn about the returns to their effort, and which types of effort to exert to achieve any given goal. For example, cholesterol monitoring gives at-risk patients several useful forms of feedback: they can determine a target, measure process and seek advice. Third, interventions through access to skills, resources and training can enhance individuals' perceptions of self-efficacy.

Finally simply dictating the appropriate conduct reduces self-efficacy and is likely to encounter resistance. As discussed below in relation to informational policy interventions, in many circumstances the barrier to change is not that individuals lack information or are unaware of the consequences of their actions.

Agency is a person's belief that they can "make a difference" with their action. In the past, unsuccessful climate change interventions have been blamed on their lack of agency. From an individual's point of view, the problem of climate change might be perceived to be too large for a single individual's action to have a lasting impact.

Like self-efficacy, agency is not something policy makers need to view as unchangeable. For example, agency might be accumulated through personal experience or through working in groups of like-minded individuals. Hence promoting agency might be important for policy intervention related to climate change, for example.

For use both of these internal factors to change behavior, it is therefore important to encourage the active participation of the public. This can bring individuals in contact with others of similar beliefs, and help individuals to feel engaged with the policy and that they can make a difference. This helps change behavior and ensure behaviors remain changed in the longer term. On this point, research on Swiss cantons has measured the impact of referenda for making major decisions. It was found that this participatory approach not only improved policies but increased the well-being of citizens.

Emotion
Emotions can directly influence our judgment. Fear is an obvious example of an emotion that can take control of our action. People in a good mood tend to make unrealistically optimistic judgments, while people in a bad mood tend to be pessimistic. Playing with the emotions of the public is controversial as there can be unintended negative effects. Creating

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fear without a clear connection to a change in behaviour can lead to people continuing with their same actions but with increased anxiety.

Many social marketing campaigns have used the power of emotion. Emphasizing one particularly salient or emotional attribute may influence a decision more than providing information on all attributes. Selling comfort and fulfilled desires can motivate homeowners to renovate their home better than the prospect of energy efficiency. Drink-driving and seatbelt awareness have been successful interventions appealing to our emotions. When dealing with emotions, choosing the appropriate person can be crucial. Bringing offenders and victims face-to-face can produce strong emotional reactions such as guilt or anger. Some claim this system empowers victims and can reduce crime.

**Ego**

We tend to act in a way that makes us feel better about ourselves. Violent crimes are often related to low self-esteem and struggle for respect. Self-image campaigns can be a powerful tool. Anti-smoking campaigns have used this technique by showing how our physical appearance can deteriorate with smoking.

**Altruism, Fairness and Equity**

Altruism is a positive concern for others as well as yourself. Altruism can be either “general” (caring about everyone) or “targeted” (caring family and friends). Most often, the more a sacrifice helps somebody the more likely you are to be willing to make this sacrifice. Recent evidence from psychology and economics suggests individuals care, or derive utility from, fairness and equity concerns on how resources are distributed, not only their own personal well-being. Evidence also suggests individuals care about intentions and motives and often reciprocate the good or bad behaviour of others. The use of reciprocity in policy interventions to induce behavioral change is discussed further in the next Section on external factors.

Charitable giving towards the voluntary sector has been much analyzed in order to determine the underlying motivation. Two types of motivation can be distinguished: individuals like to give, for example because they have altruistic preferences or because of the warm glow they receive from giving, but that individuals would rather not give but dislike saying no, e.g., due to social pressure. These findings suggest that social pressure is an important determinant of door-to-door giving. Charities understand that these internal drivers of behavior can be manipulated, and many fundraising campaigns attempt to use these to increase giving behavior.

A study of particular note is S. DellaVigna, J.A. List and U. Malmendier (2009). They present evidence from a field experiment in which they design a door-to-door fund-raising drive.

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689 J.S. Walkera and J.A. Bright (2009) review studies from the last 20 years evaluating the relationship between self-esteem and violence. A theoretical model is subsequently presented in an attempt to integrate ideas about self-esteem, ‘machismo’, and violence. It is proposed that important cognitions relating to violence also relate to self-esteem and the (arrogant or aggressive) protection of low self-esteem in the face of humiliation.
690 M. Rabin. (2002) develops a framework in which this is predicted by simple altruistic preferences that assume people weight others’ utility positively in their own utility function. In this sense, assuming simple altruism provides insight into departures from self-interest.
691 B.S. Frey, M. Benz and A. Stutzer (2004).
Memorandum by Professor Imran Rasul F F and Myra Mohnen, University College London (BC 96)

In the experimental design some households are informed about the exact time of solicitation with a flyer on their door-knobs. Hence they can seek or avoid the fund-raiser. Findings suggest that the flyer reduces the share of households opening the door by 10 to 25 percent and, if the flyer allows checking a ‘Do Not Disturb’ box, reduces giving by 30 percent. The latter decrease is concentrated among donations smaller than $10.

This field experiment highlights a common theme underlying the evidence for behavioral change – if given the option to selfselect out of policy interventions, many individuals will choose to do so. Moreover, those that opt-out of policies might in many cases be precisely those that the policy is targeted towards.

Neuro-economics has further provided foundations for altruistic behavior. There has been evidence supporting the view that people derive non-pecuniary utility from mutual cooperation in social dilemma and from punishing unfair behaviour.

Probabilistic Judgments
We tend to overestimate the likelihood of something very frightening (plane crash) or exciting (winning the lottery). We also overestimate the probability of a recent experience and underestimate the probability of things that happen relatively often.

Policies that could use these internal biases might include careers guidance for disadvantaged young people that highlight examples of educational success, or advertising campaigns that make the consequences of drink-driving more memorable and familiar. When individuals base their decisions on anecdotes rather than reasoning probabilistically, they can become victims of shams. One study explored the market for quacks in which patients were modeled as relying on random, causal stories regarding the quality of a treatment to make a decision. As a result, patients were exposed to exploitation by healers. Even with governmental intervention, as long as the patients’ reasoning is not lifted above the anecdotal level, ordinary competition policies may be ineffective.

Salience and Framing
Salience is a technique based on the observation that individuals pay particular attention to what appears novel (messages in flashing lights), accessible (items on sale next to checkouts) and simple (snappy slogan). For example, to reduce driving speed, the government painted a series of white stripes onto the road that are initially evenly spaced but get closer together as drivers reach a dangerous curve. This environmental design gives the sensation that driving speed is increasing (even when the speed does not really change), which in turn triggers the driver’s natural instinct to slow down. The cost of sending such a visual signal is close to zero, but the effectiveness is very significant.

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692 E. Fehr, U. Fischbacher, and M. Kosfeld (2005) discuss recent neuro-economic evidence related to other-regarding (non-selfish) behaviors and the decision to trust in other people’s non-selfish behavior. Mutual cooperation that takes place despite strong free-riding incentives, and the punishment of free riders in games is not irrational, but better understood as rational behavior of people with corresponding social preferences.


taken sick leave from a six-month period into a lottery to win a prize. This approach effectively reduced the number of sick leaves.\footnote{Y.P. Kwan (2005).}

Individual preferences are not fixed. A decision often depends on how the available choices are presented or ‘framed’. Framing a decision as a choice between losses (glass half-empty) or gains (glass half-full) can lead to reversal in preferences even though the outcomes or expected values are identical.\footnote{D. Kahneman and A. Tversky (1979).} Experimental evidence shows that presenting a medical operation to a patient by saying "10% of those who underwent this procedure are dead after five years" or "90% were alive after five years" has a direct impact on the willingness of the patient to agree to such an operation.\footnote{D.A. Redelmeier, P. Rozin and D. Kahneman (1993) argue that individuals sometimes treat safety and danger categorically, undervalue the importance of a partial risk reduction, are influenced by the way in which a problem is framed, and inappropriately evaluate an action by its subsequent outcome. In the domain of emotions, people tend to consider losses as more significant than the corresponding gains, are imperfect at predicting future preferences, distort their memories of past personal experiences, have difficulty resolving inconsistencies between emotions and rationality, and worry with an intensity disproportionate to the actual danger.} Similarly, it has been tested that the way ads for bank loans are framed can have a substantial impact on market demand.

M. Bertrand, D.S. Karlan, S. Mullainathan, E. Shafir, and J. Zinman (2005) report on a field experiment designed to analyze framing. A South African lender sent letters offering incumbent clients large, short-term loans at randomly chosen interest rates. The letters also contained independently randomized psychological "features" that were motivated by specific types of frames and cues shown to be powerful in the lab, but which, from a normative perspective, ought to have no impact. Consistent with standard economics, the interest rate significantly affected loan take-up. Inconsistent with standard neoclassical economics, some of the psychological features also significantly affected take-up. The average effect of a psychological manipulation was equivalent to a one half percentage point change in the monthly interest rate. The psychological features appear to have greater impact in the context of less advantageous offers and persist across different income and education level.

This field experiment highlights another important element underlying the evidence for behavioral change: policies might have heterogeneous effects across individuals. As such policies might have adverse effects on equity. We return to this issue in Section 6 where we discuss the broader issues related to the ethical and equity concerns of policies designed to induce behavioral change.

Time Preferences
In contemplating a prospective decision, people judge the longterm benefit against short-term rewards which results in them having some implicit discount rate through which they weight future costs and benefits relative to current costs and benefits. Discount rates are found to vary from person to person\footnote{D. Halpern, C. Bates, G. Beales, and A. Heathfield. (2004).} and across settings.\footnote{S. Frederick , G. Loewenstein, T. O’Donoghue (2002).} Empirical and experimental evidence reveals that individuals do not make decisions in a time-consistent
manner using a constant discount rate. We tend to value today over tomorrow. As a result, immediate losses can be stronger incentives than long-term rewards. Thus, not only the amount but the timing of financial incentives should be taken into consideration when deciding on an intervention. For example, to encourage Canadians to install ultra-low-flow toilets and showers, customers were offered purchasers an interest-free loan to be paid off as part of the water bill. Not only was the equipment practically free, but water bills would be cheaper in the future.

These issues are key to ensuring long term behavioral change is induced.

Reference Points
Individuals often value items depending on the relative change in value from a reference point. Therefore utility is dependent on a reference point and is determined by gains and losses relative to this reference point, not final outcomes. An implication of this type of internal factor is that a small financial incentive could lead to large behavioral change if judged relative to an even smaller reference point. On the other hand, if expectations set a high reference point, certain outcomes may be perceived as losses or as unfair, reducing the utility associated with consumption or changes in behavior. Policy makers can better determine an appropriate amount of financial incentive by correctly evaluating the reference point, or manipulating the reference point say through changing default options.

Loss-Aversion
It has been shown that people put more effort into preventing a loss than securing a gain. For instance, people are ready to pay (willingness-to-pay) only a little to get something while they will demand more to give up something they already have (willingness-to-accept). Of relevance to policy, willingness-to-pay must be carefully compared with willingness-to-accept. Indeed a fine can be a much stronger disincentive than a reward is an incentive even if they are of comparable amount. David Pearce suggested that willingness-to-accept (i.e. a reward) should be used by policy makers when people have the right to something and willingness-to-pay (i.e. a fine) should be used when people only have the right to the status quo. For example, for preventive health care use, messages stressing the potentially negative consequences of ill health tend to be more effective than those that phrase the benefits in terms of potential gains.

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701. S. DellaVigna and U. Malmendier. (2004) analyse the sale of goods with delayed benefits (or delayed costs) to time-inconsistent consumers. Their motivating example is pricing at health clubs: they think of consumers as incurring a short-run disutility when visiting a club, and enjoying a delayed reward in the form of better health.
706. P. Heidhues and B. Koszegi (2004) explore many aspects of pricing to consumers who experience loss aversion. Consider a world in which demand and cost are both random and time-varying.
708. J.B. Detweiler, B.T. Bedell, P. Salovey, E. Pronin, and A.J. Rothman (1999) present evidence from an experiment comparing the effectiveness of four differently framed messages (2 highlighting losses and 2 highlighting gains) to persuade 217 beach-goers to obtain and use sunscreen. Attitudes and intentions were measured before and after the delivery of the framed information. People who read either of the 2 gain-framed brochures, compared with those who read either of the 2 loss-framed brochures, were significantly more likely to request sunscreen, intend to repeatedly apply sunscreen and intend to use sunscreen with a SPF 15 or higher.
People tend to over-react to changes, especially losses. People exaggerate how long sensations of gains and losses will last. By exaggerating the persistence of the sensation of loss and gain, we tend to overreact to changes. We also isolate particular experiences and decisions from each other. Losing $20 in a bet makes individuals feel bad, but tend to feel worse because individuals rarely think in broader, long-term perspective, where these losses will almost surely be overwhelmed in the longer term by other gains.710

Bounded Rationality

People are more likely to defer complex decisions and thus require significant mental effort. In other words, individuals' rationality is bounded by psychological and environmental constraints.711 Similarly, as the number of choices for a decision increases, so can sensitivity to regret, unrealistic expectations, and the opportunity costs of choosing one alternative.712 Consumers can prefer not to choose at all. This has been demonstrated for households' choice of electricity supplier in deregulated retail markets.713 In fact, people tend to choose "the path of least resistance" when faced with a difficult decision.

New formal approaches have been found to model differences in agents' cognitive abilities. One way is to allow some agents to implement very simple strategies (buying if price is above a threshold), whereas others can implement non-monotone strategies involving two or more cutoffs.714 Another way is to assume agents differ in the length of time of the history of prices they can recall.715 We are unaware of any evidence testing whether such new models of behavior are validated by behavior in the real world.

There is a wide range of possible intervention designs to reduce the burden of gathering and processing information. For instance, selecting a pension scheme can be difficult, especially because it deals with a far-off future. Information provision alone has not been successful because people may not act on it. To remedy this situation, the Pensions Commission changed pension defaults. Employees are automatically joined to a pension plan, but still have the option of opting out. In the same manner, setting a default option on organ donation greatly increases organ donation rates. Data suggest that changing the default position in the UK law could increase donation rates by 50%.716 In a recent US experiment, putting the tax on the label, rather than adding it at the till, led to a decrease of 8% in sales. This has been used to reduce alcohol consumption.717

Mental Accounts

709 D. Kahneman, L. Knetsch and R.H. Thaler (1990) describe a field experiment in which coffee mugs are randomly given to half the subjects in an experiment. Markets for the mugs are then conducted. Half of the mugs should be traded according to the Coase theorem but observe volume is always less.
710 M. Rabin (2002).
717 R. Chetty, A. Looney and K. Kroft (2009) show that consumers under-react to taxes that are not salient. First, using a field experiment in a grocery store, we find that posting tax-inclusive price tags reduces demand by 8%. Second, increases in taxes included in posted prices reduce alcohol consumption more than increases in taxes applied at the register.
People tend to categorize money into different budgets or mental accounts, such as salary, savings or expenses\(^{718}\). Consumption that is apparently suboptimal according to standard economic theory can be explained by differences in the decision criteria used in different mental accounts\(^{719}\). Identical incentives can thus have a very different impact depending on the context. A practical implication is that policies may encourage people to save or spend money by explicitly labeling accounts.

Choice from Lists

The standard economic choice model assumes that the decision maker chooses from sets of alternatives. However, in many cases, we can be faced with a choice from among a list. For example, job offers and online purchases are presented in the form of a physical list. Lists can also be virtual in the sense that the individual thinks of a set of alternatives in some sequential manner. It appears that the order in which we encounter the alternatives may affect our choice.

This can give rise to a primacy effect and a recency effect. The former gives advantage to the first few alternatives in a list since people examine them more attentively and the latter gives advantage to the last few alternatives as people recall more vividly what they have just seen. Special attention can be paid to alternatives that stand out relative to their neighbors in the list. For instance, a low-priced item will draw special attention if it is surrounded by high-priced items. In addition, the first element in a list may serve as a reference point to which subsequent alternatives are compared\(^{720}\) and thus choice may depend on the element that appears first. For example, if the items in a list differ in quality, then that first item may serve as a benchmark to which the quality of subsequent items is compared.

Several empirical papers have reported on order effects in panel decisions in contests such as the World Figure Skating Competition\(^{721}\), the Eurovision Song Contest\(^{722}\), the International Synchronized Swimming Competition\(^{723}\) and the Queen Elisabeth Contest for violin and piano\(^{724}\). In these contests, the contestants appear sequentially and each judge awards each of them a numerical evaluation. The winner is the participant who receives the largest total number of points. It was found that the last few participants in the contest have an advantage since judges tend to increase the points they award over the course of the sequence.

Other experiments have detected that people tend to favour middle positions over endpoints. Indeed, this was observed in a two-person game where one player “hides” a treasure in one of four places laid out in a row and the other player “seeks” it\(^{725}\). Both “hiders” and “seekers” favored middle positions. Similarly, in multiple choice questions in test, both test takers and test makers have the tendency to hide and look for the

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\(^{721}\) B.W. de Bruin (2005).
\(^{722}\) Idem.
\(^{724}\) H. Glejser and B. Heyndels (2001).
correct answer in middle positions\textsuperscript{726}. Finally, it was found that people tend to make a selection from the middle when choosing a product from a grocery shelf, deciding which bathroom stall to use or marking a box in a questionnaire\textsuperscript{727}.

Information

Information has an important role in decision making as recognized in economics, psychology and public health literatures. Learning and awareness have been widely used in behaviour change interventions to bring about long run behavioral change. However, real world information campaigns have had very different outcomes for different people. Better educated individuals with higher income tend to be more affected by informational campaigns. Hence such policy interventions can widen inequalities, an issue we return to in Section 6.

In relation to some of the internal factors discussed above, information per se can have counter-productive results. Having too much information or more choice can be confusing and reduce the feeling of self-efficacy. Because of the amount of recycling option available, some people can be confused and decide not to recycle. One experimental study suggested that using salience through color coded containers increased the recycling rate by 34\%\textsuperscript{728}.

A key set of findings was that the most effective information in promoting residential energy efficiency was simple, salient, personally relevant, and easily comparable rather than technical, detailed, factual, and comprehensive. The perceived trustworthiness and credibility of the information and/or service provider was also important\textsuperscript{729}.

Building on this, there is evidence showing that people tend to trust information given by an expert. It was noticed that health interventions were more effective when delivered by trained facilitator or teachers than by research assistant\textsuperscript{730}. Therefore, when designing an educational programme, the person communicating should be targeted to his audience and preferable be an 'expert' in the field.

Other studies show that demographic and behavioral similarities between the messenger and the audience can improve the effectiveness of the intervention. Moreover, people from a lower socioeconomic group are more sensitive to the characteristics of the messenger\textsuperscript{731}.

The London borough of Brent choose youth officers who were previously in street gangs to talk to young about the risks of becoming involved in gun crime. Personal affiliation and authority figures are important factors in behavioral influence\textsuperscript{732}.

\textsuperscript{726} Y. Attali and M. Bar-Hillel (2003).
\textsuperscript{727} N. Christenfeld (1995).
\textsuperscript{728} S. Duffy and M. Verges (2009) present evidence from a field experiment in which thirty waste receptacles were assigned to a lidspresent and lidsabsent condition, and the number of recyclable items found in recycling and waste bins served as the dependent measure. Results indicated the presence of specialized recycling container lids increased the beverage-recycling rate by 34\%.
\textsuperscript{729} C. Wilson and H. Dowlatabadi, (2007).
\textsuperscript{730} L.T. Webb and P. Sheeran, (2006) review 47 experimental tests of intention-behavior relations that satisfied these criteria. Meta-analysis showed that a medium-to-large change in intention (\(d = 0.66\)) leads to a small-to-medium change in behavior (\(d = 0.36\)).
Support groups among people with existing illness have similarly been found to significantly improve outcomes. The efficacy of self-management for chronic illness has been found to be most effective when combined with a support group. Even ‘virtual’ mutual support seems to help. For example, an e-mail discussion group for back pain was found to lead to significant improvements in pain, disability and distress, as well as a 46% reduction in visits to the doctor. Lay-led interventions often appear to work as well as professionally led support, suggesting the high value of tacit knowledge and emotional sympathy of fellow sufferers.

Three types of individual have been identified as driving social change: mavens, connectors and salesmen. "Mavens" freely share their expertise, "connectors" play the role of transmitting information their interactions and finally "salesmen" persuade the adoption. This suggests it might be useful for policy makers to focus their attention on them since they will promote wider change. The 'Health Buddy' scheme for instance used social networks. Older students received health advice from their teachers and they themselves acted as mentors to younger students by giving them health lessons. Compared with control students, both older and younger buddies participating in this programme showed an increase in health knowledge and behavior which had a positive impact on weight loss.

The use of change agents in disseminating information and experience about technologies is widely employed in agriculture and public health and also helps promote social learning on residential energy efficiency. Providing opportunities for homeowners or utility managers to learn from early adopters’ experience of solar photovoltaics supported diffusion more effectively than detailed technical information. There has also been evidence that word-to-mouth communication may be effective in changing behaviors.

Scarcity
Scarcity refers to how people tend to value things that are likely to run out. In the standard neoclassical economics framework, price is a proxy for scarcity. Higher prices cause greater product use either through a sunkcost or screening effect. The former refers to the use of a product just because an individual has paid for it. The screening effect refers to the fact that higher prices skew the composition of buys towards household with a greater propensity to use the product.

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733 E. Grossel and T Cronan (2000).  
737 S. Stock, C. Miranda, S. Evans, S. Plessis, J. Ridley, S. Yeh, and J.P. Chanoine (2007).  
741 G. Ellison and D. Fudenberg (1995) present a theoretical analysis showing word-to-mouth communication may lead to all players adopting the action that is on average superior. The structure of the communication process determines whether all agents end up making the same choices, with less communication making this conformity more likely.  
742 E. Eyster (2002).  
The debate on whether and how much should be charged for public health provision revolves around this tendency for individual to undervalue gifts. Higher prices can increase use, either by targeting distribution to high-use households (a screening effect), or by stimulating use psychologically through a sunk-cost effect. An experiment in the domain of health product use designed to separate these two effects provided strong support for the screening effect hypothesis rather than the sunk-cost effect. This implies that households have private information about their behaviour (using the product or not) that is reflected in the willingness-to-pay. For policy-makers, this cast doubt on justification for health product pricing based on sunk cost effects, while suggesting a possible role for prices as an allocative tool.

In the remainder of this section we focus attention on internal factors driving addictive behaviors. In the Appendix we provide a more complete overview of theories of addiction from alternative disciplines.

Addiction and Self-Control
Addictive behaviors do not meet the standard rationality definition. Addicts are typically characterized by preference for immediate reward and time inconsistency. Moreover, people do not have a perfect foresight and are not always aware of the future consequences of their addictive behaviour.

Addictive behaviour requires special attention as it affects not only our choices but also our needs and desires. It involves non-conscious impulses as well as conscious urges. The role of habit and emotional attachment to the object of the addiction is crucial in addictive behaviors. Finally, the sense of identity can be altered. Hence, understanding addiction requires an understanding of various motivational elements.

Different activities or objects of desire and individuals have different probability of becoming addictive. There is some evidence indicating the strong impact of environmental factors in determining addiction. Adolescent initiation of substance use, a powerful predictor of adult substance use diagnosis, is influenced primarily by environmental rather than genetic factors. However, there is also evidence indicating the role of genetics in addictive behaviour such as gambling and smoking. Different environmental conditions, like

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744 N. Ashraf, J. Berry and J. M. Shapiro. (2007) develop a methodology for separating these two effects in a field experiment in Zambia using door-to-door marketing of a home water purification solution. They find that higher willingness-to-pay for a product is associated with a greater propensity to use (screening effect). They do not find evidence that paying a higher transaction price are more likely to use the product (sunk-cost effect).
746 C. Han, M.K. McGuire et W. Iacono, (1999) present evidence based on 327 monozygotic and 174 like-sex dizygotic twin pairs born in Minnesota and aged 17-18 years at time of assessment. Biometrical methods were used to estimate the contribution of additive genetic, shared and non-shared environmental factors to adolescent substance use. The heritability for the liabilities to tobacco, alcohol and other drug use was estimated to be 59%, 60% and 33% among males, and 11%, 10% and 11% among females. However, the gender difference was not statistically significant. Estimates of shared environmental effect were substantial and insignificantly higher among females (71%, 68% and 36%, respectively) than among males (18%, 23% and 23%, respectively). The covariation among the three substance use phenotypes could be accounted for by a common underlying substance use factor.
747 A. Blassczynski, Z. Steel and N. McConaghy (1997) examined the potential role of impulsivity using the Eysenck Impulsivity Scale among 115 pathological gamblers. Results indicate that heightened impulsivity is associated with the degree of severity of psychological and behavioural change in pathological gamblers.
opportunity, boredom and stressors, can be conducive to the development of an addiction. Social and cultural norms can play a role. It is common for initiation of one pattern of addictive behaviour to be associated with later development of another one that involves greater costs and more extreme rewarding effects (such as the hypothesized transitions across drug usage, or from petty to serious crime). This is called the gateway phenomenon.

Behavioral economists view addictive behaviors as “the pursuit of immediate gratification in a way that we ourselves do not appreciate in the long run”. The economic model of rational addiction shows that through time inconsistency, addictive behaviors result in negative externalities: current consumption negatively affects future well-being. Negative externalities combined with habit formation form the trap of addiction. As a person consumes more and more of the addictive product, the pleasure diminishes, yet the harmful behaviour continues because it is more and more difficult to stop. Timing of the rewards and costs of the activity, as well as the person’s awareness of future self-control problems are important factors.

Some pharmacological interventions can help addicts to maintain control over the behaviour. Nicotine for smokers, acamprosate for alcoholics or methadone for drug users are examples of such medical interventions. Psychological interventions such as group therapy can also be use. However the effects do not seem to outlast the duration of the treatment. Community-wide measures through prices can be used to reduce the opportunity to engage in risky and addictive behaviors or increase their costs.

Interventions which aim at increasing self-efficacy have been evaluated. These interventions range from computer-generated tailored letters to intensive group-based discussion. However, there has been little evidence to determine whether increases in self-efficacy change behaviour.

Habits
Habits are behaviour sequences that are or have become automatic and thus require little or no cognitive effort. Addictive behaviors, like smoking, are closely related to habits and can be extremely difficult to change. Financial incentives have been used to break old habits. This instrument has been successful in discouraging the use of plastic bags in Ireland. The introduction of small charges for plastic bags was enough of an incentive to make people bring their own grocery bags. Similarly, the congestion charge may have acted as a signal not to use cars in the centre of London. A negative side-effect of a financial reward can be that once an activity is associated with it, individuals are less inclined to participate

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748 V. Batra, A.A. Patkar, W.H. Berrettini, S.P. Weinstein and F.T. Leone (2003) review the literature, showing that heritability estimates for smoking in twin studies have ranged from 46 to 84%, indicating a substantial genetic component to smoking. However, environmental factors have also been found to contribute to the risk of initiation and persistence of smoking.
754 J. Hyde, M. Hankins, A. Deale and T. M. Marteau. (2008) review ten studies targeting tobacco smoking, alcohol and illicit drug use were evaluated. Seven of the ten studies reported positive effects of interventions upon self-efficacy. The two that assessed behaviour change reported a significant effect but behaviour change could not reliably be attributed to self-efficacy.
with the activity in the future without further incentive\textsuperscript{755}. For instance, providing an incentive for people to quit smoking may lead them to be reluctant to quit other harmful activities (like alcohol misuse) without similar rewards.

Habitual behaviors are activated by \textbf{situational cues} like sights, words or sensations. Therefore, detecting and altering these cues, a technique called \underline{priming}, might be helpful in changing the habit. For instance, having visible recycling facilities, a visual cue, can help remind us to recycle\textsuperscript{756}. An experiment revealed that asking people to make a sentence out of words such as fit, lean, active or athletic made them significantly more likely to use the stairs rather than the lifts. Similarly, deliberately placing walking shoes or fitness magazines may prime a healthy lifestyle in people\textsuperscript{757}. The scent of all-purpose cleaner made significantly more people keep a cleaner table\textsuperscript{758}. It is still not well understood whether priming effects are long lasting or what determines why some primes are more effective than others.

While most policies attack existing habits, preventing bad habits to appear in the first place should also be considered. Media and informational campaigns can be useful, as discussed above. The FRANK drug campaign used a 'risk image' campaign to prevent drug use. It presented the image of a drug addict. The campaign was evaluated by comparing how the perception of a drug addict had changed after the campaign.

\textbf{Temptation and Willpower}

Many people are aware of their tendency to overspend or overeat. Hence many individuals choose \underline{commitment devices} to achieve long-term goals. Commitment has been used to fight against drunk driving has been used in certain American states. Those convicted of drunk driving have to install breath-monitoring gadgets in their car, which prevents engines from starting until drivers blow into alcohol detectors. In order to quit smoking, a new product combining commitment and financial tactics has been found. Individuals are offered a saving account in which they deposit funds for six months, after which they take a nicotine test. Only if they pass is the money returned to them. Surprise tests after a year proved

\textsuperscript{755} E.L. Deci, R. Kroestner and R.M. Ryan. (1999) present a meta-analysis of 128 studies examined the effects of extrinsic rewards on intrinsic motivation. As predicted, engagement-contingent, completion-contingent, and performance-contingent rewards significantly undermined free-choice intrinsic motivation (d = –0.40, –0.36, and –0.28, respectively), as did all rewards, all tangible rewards, and all expected rewards. Engagement-contingent and completion-contingent rewards also significantly undermined self-reported interest (d = –0.15, and –0.17), as did all tangible rewards and all expected rewards. Positive feedback enhanced both free-choice behavior (d = 0.33) and self-reported interest (d = 0.31). Tangible rewards tended to be more detrimental for children than college students, and verbal rewards tended to be less enhancing for children than college students.

\textsuperscript{756} T. Jackson (2005).

\textsuperscript{757} J. Wryobeck and Y. Chen (2003) presente experimental data on 48 young adults who completed a "language proficiency task" which would either activate a healthy lifestyle schema in the experimental condition or a neutral schema in the control condition. Participants in the experimental condition were more likely than the control group to use stairs, instead of elevators, to move up one floor to attend another unrelated study.

\textsuperscript{758} R. W. Holland, M. Hendriks, and H. Aarts (2005) present evidence that when participants were unobtrusively exposed to citrus-scented all-purpose cleaner, the mental accessibility of the behavior concept of cleaning was enhanced, as was indicated by faster identification of cleaning-related words in a lexical decision task and higher frequency of listing cleaning-related activities when describing expected behavior during the day. Another study established that the mere exposure to the scent of all-purpose cleaner caused participants to keep their direct environment more clean during an eating task. Awareness checks showed that participants were unaware of this influence.
possible lasting effects. Commitment is also used to help addictive behaviors such as pathological gambling. Gamblers can sign a self-exclusion contract offered by some casinos to limit gaming opportunities. An evaluation of people who had signed contracts in Quebec showed that the urge to gamble was reduced while the perception of control increased significantly for participants.

R. Ladouceur, C. Sylvain, and P. Gosselin (2007) show that individuals who excluded themselves (N = 161 at the initial stage) participated in telephone interviews after signing the self-exclusion agreement and were followed at 6, 12, 18 and 24-months. Results show that 73.1% of the participants were pathological gamblers. During the follow-ups, the urge to gamble was significantly reduced while the perception of control increased significantly for all participants. This highlights the general point that policy interventions with voluntary compliance, might lead some individuals to self-select out of the intervention. This might be especially the case for interventions designed to target addictive behaviors.

4. Points of Intervention as a Community Level

1. What is known about how behaviour can be influenced? What special considerations apply to addictive behaviour?

2. What are the policy implications of recent developments in research on behaviour change?

In this section we review various forms of external factor driving behavior change at a community wide level, as emphasized in the social psychology and sociology literatures. We also provide evidence on these external factors driving individual decision-making.

Norms
Norms provide implicit guidelines on acceptable behaviour. Social norms can be subdivided into 'descriptive norms' and 'injunctive norms'. Descriptive norms are based on the observation of how the majority act, while injunctive norms specify what ought to be done. These types of norm often operate in the same direction, but not always. Speeding on a motorway for instance can be socially acceptable in descriptive norms but not in injunctive norms.

It has been observed that we are strongly influenced by the behaviors of others, particularly by those who are similar to ourselves. If a practice is seen as widespread we tend to conform to it and reproduce it. For instance, the inclination to cheat depends on how common it is around us. In addition, the perception others have of us matters. Peer pressure, for instance, has been largely blamed for smoking among teenagers. There is also evidence showing that we are more likely to gain weight if our friends are more obese.

O.D. Duncan, A.O. Haller and A. Portes (1968).
N.A. Christakis and J.H. Fowler (2007) present evidence from a study in which an interconnected social network of 12,067 people was assessed repeatedly from 1971 to 2003 as part of the Framingham Heart Study. The body-mass index was available for all subjects. Longitudinal statistical models were used to examine whether weight gain in one person was associated with weight gain in his or her friends, siblings, spouse, and
The disrespect of social norms has traditionally been sanctioned by fines or threats of punishment. Personal norms on the other hand reflect a feeling of moral obligation to act. In contrast to social norms, using financial sanctions when dealing with personal norms can lead to counter-productive outcomes. After receiving a punishment, people tend to feel exonerated since they have paid for their misdeed. They accept the punishment and continue with bad behaviour. An experiment in Israel showed that the introduction of small fines for parents who arrived late to collect their children from school resulted in parents arriving even later than before. Parents no longer felt guilty for arriving late since they were now paying for what they considered a service. Similarly to punishment, financial rewards can also be counter-productive. This is illustrated by the comparison between voluntary and paid blood donation. It was noticed that blood donated by volunteers was of a higher quality as they had to incentive to lie about diseases which could affect the admissibility of their blood. Another example can be taken from a Swiss study that shows that the average volunteering time is higher if the work is unpaid. The feeling of guilt can already be a strong internal sanction when we disrespect personal norms.

Media campaigns advertising social norms have changed behaviour in the past. An initial survey showed that individuals underestimated the extent to which other citizens used seatbelts. After the campaign ‘Most of Us Wear Seatbelts’, informing the true proportion of people who used seatbelts, the self-reported seatbelt used increased. Another example is the large-scale programme for energy conservation. This programme sent letters that provided social comparison between a household's energy use and that of its neighbors. This reduced consumption by 2% relative to the baseline. By continuing to send letters over the months, the positive effect reinforced itself. However, for households who were consuming less than the average, their consumption increased. Therefore, policy-makers may actually worsen situation by making a bad behaviour appear like a norm.

Public Commitments
Commitment, especially publicly and in writing, monitored by the participating community can be an important instrument for policy-makers. When someone has promised to do something, they are likely to stick to it without reward or punishment. Staged crime scenes show that individuals who promise to watch over a stranger’s belongings become more than 400% more likely to attempt to prevent a theft than those who are aware that
Memorandum by Professor Imran RasulF F and Myra Mohnen, University College London

something is being stolen but have no such prior commitment to protecting it. Public commitment and visible signals were used by a Canadian policy intervention to change behaviour towards composting. Some websites like Pledgebank.com help people commit to something if other people do it too. Pledges like "I will start recycling if 100 people in my town do the same" use reciprocity to encourage positive behaviour. However, public commitment and the threat of shame are not always a good solution. Indeed, people might resort to even worse behaviour in order to avoid being discovered. For instance, to avoid being caught with banned chemicals, people might pour it down the drain rather than admitting of possessing it.

Reciprocity
A person is more likely to act if they have been placed in a position of debt, even if unwillingly. Wine tasting at vineyards works on this principle. The first glass might be given for free but people feel obliged to buy in return. There may be ways in which similar effects can be achieved through ‘social gifts’ such as educational bursaries rather than couching such public expenditure in terms of ‘rights’ to services.

Regulations
The smoking ban in public areas is an example of a successful policy which has changed the social norm. The social acceptance of smoking has been reduced thereby reducing the amount people smoke in private too. Compulsory seatbelt use has also been a successful intervention. Although received with much opposition, this policy is now considered socially acceptable and has permanently altered the social norm.

Persuasion
Some beliefs are shaped by direct observation, but other beliefs are influenced by individuals or groups who themselves have an interest in the outcome. Information about products is delivered through advertising by the sellers, political information comes from candidates interested in winning elections, and financial data are released strategically to shape the perceptions of investors.

Several recent papers by economists use field experiments to estimate the effect of persuasive communication on sales. The results are mixed. Examining the number of catalogs received by mail on sales reveal that increasing the number of catalogs in an 8-month period from 12 to 17 increases the number of purchases during the test period by 5% for customers who had purchased frequently in the past and by 14% for those who had purchased relatively infrequently. The effect on the extensive margin (the share of customers who purchase at least one item) implies a higher persuasion rate for the frequent buyers than for the less frequent buyers. Online advertising experiment concerning

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770 L. Trotter, M. Wakefield and R. Borland (2002) conducted telephone surveys of a random sample of smokers in Australia. Of all adult smokers, 69% attended bars, nightclubs or gaming venues at least monthly. Of these smokers, 70% reported smoking more in these settings (socially cued smokers) and 25% indicated they would be likely to quit if smoking were banned in social venues. Compared to smokers not likely to quit if there were bans, smokers likely to quit were more likely to be socially cued, to be contemplating or preparing to quit, to approve of bans in social venues and to be aged under 30 years. Compared with smokers not socially cued, socially cued smokers were more likely to be under the age of 30 years, more likely to believe that there is a safe level of cigarette consumption, and more likely to have previously made a quit attempt.
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purchases through Yahoo!. Of the subjects in the treatment group, 64% were shown ads. The purchases of the treatment group were 3% greater than the purchases of the control group, but this difference is not statistically significant. Finally, an experiment varied the interest rates offered in direct mail solicitations sent to customers as well as the persuasive features of the mailer, such as the picture displayed or the number of examples loans presented. Some features of the mailers—the picture displayed, for example—do have large effects on loan take-up, whereas others do not—comparisons with competitors, for example.

Another form of persuasion is communications from nonprofits or charities to solicit contributions. List and Lucking-Reiley (2002) send letters to raise funds for the purchase of computers for a center and randomize the amount of seed money (the amount already raised) stated in the different letters. In the low-seed treatment, 3.7% of recipients donate a positive amount, compared with 8.2% in the high-seed treatment. One interpretation is that seed money serves as a signal of charity quality. S. DellaVigna, J.A. List and U. Malmendier (2009) also conduct a door-to-door field experiment and find a sizeable persuasion rate, even for a relatively unknown out-of-state charity. Falk (2007) shows that small gifts can significantly increase donations. Solicitation letters for schools in Bangladesh induced substantially higher giving if they were accompanied by postcards designed by students of the school (20.6% giving) than if they were accompanied by no postcard (12.2% giving).

Contextual Factors
Contextual factors directly affect decisions and can reinforce habits. For example, having a recycling collection point near one’s home, a good public transport system or access to a support group for alcohol abuse are all facilitating conditions. The absence of these conditions can lead to damaging or harmful behaviour. It has been noticed that if a few windows of a factory are broken, the tendency is for vandals to break a few more. Likewise, graffiti or littering can encourage another. The sight of guns can induce violent ideas which can then be a trigger to aggressive behavior. Hence, external conditions appear to be a prerequisite for behaviour change and sufficient resources should be given to remove external barriers preventing behaviour change. The presence or absence of these conditions is only relevant if the individual knows or can perceive them.

5. Policy Design

5. What should be classified as a behaviour change intervention?

6. How should different levels of interventions (individual, organizational, community and national) and different types of intervention (legislative, fiscal, education) interact in order to achieve policy goals more effectively?

773 M. Lewis and D. Reiley (2010).
775 J.A. List and D. Lucking-Reiley (2002).
7. Should behaviour change interventions be used in isolation or in combination with other policy interventions?

Defining Behavior Change Interventions
A behaviour change intervention attempts to shift individual behaviour through changes in the internal and external factors that drive decision making. In relation to some internal factors, these interventions can draw upon our underlying unconscious conditioned responses, or rely on our capacity of reasoning and reflection. They are especially appropriate when individuals make choices that they would change if they had complete information, unlimited cognitive abilities and no lack of willpower, as assumed in the neoclassical economics model.\footnote{C.R. Sunstein and R.H. Thaler (2003).}

Multiple Interventions
Policies should combine different points of intervention since behaviors are affected by numerous internal and external factors. A study of measures (energy tax, investment subsidies, gas use regulation) promoting residential energy efficiency in the Netherlands found that their combined effect on energy use was up to 30% less than the sum of their individual effects.\footnote{P.G.M. Boonekamp (2006).} Drunk driving demonstrates how the combination of stiff penalties, good advertising and shifting social norms can change behavior quite significantly over a few decades.

Policies can be combined to target behavioral change over different time frames. For example, interventions designed to address contextual variables (e.g. price incentives) or personal variables (e.g. information to reinforce favorable attitudes) may aim for short-term change. When behavior is strongly affected by external factors, it will be important to in the longer term to build political support for policy change and social support for norm change. The ultimate goal should be a long term behaviour change. Therefore, interventions should be sustained over time and continually reassessed to effectively change behavior. A one-time intervention has much less chance of being successful. Moreover, if the policy is not rigorously evaluated using credible methods, policy makers have little chance of receiving the feedback that help them to understand which policies are effective and why. We return to this issue in Section 7 where we discuss UK research capacity to design and evaluate policy interventions.

However, by using different points of interventions, policy-makers run the risk of unintended negative side-effects and “policy cacophony”\footnote{T. Lang and G. Rayner (2007).}. Therefore, a policy consistency criterion should be established when assessing a prospective policy to avoid potential clashes in interventions. The collaboration of all levels of governance in formulating a common public policy might avoid such difficulties. However, we are not best placed to judge whether such coordinating systems are in place across tiers of government in the UK.

6. Issues around Behavior Change Interventions

13. When is it appropriate for the state to intervene to influence the behavior of members of the public and how does this differ from when it is appropriate for the commercial or

\footnotesize{\textsuperscript{780} C.R. Sunstein and R.H. Thaler (2003).\textsuperscript{781} P.G.M. Boonekamp (2006)\textsuperscript{782} T. Lang and G. Rayner (2007).}
voluntary sector to intervene? In particular, when should this be done by outright prohibition and when by measures to encourage behavior change? Are some methods of producing behavior change unacceptable? Which and why?

14. Should the public be involved in the design and implementation of behaviour change policy interventions and, if so, how? Should proposed measures for securing behaviour change be subject to public engagement exercises or consultation? Should they be piloted? Do considerations differ in the case of interventions aimed at changing addictive behaviour?

Ethical Issues
An objection to behavioral change type interventions is that, in a liberal society, policymakers should not interfere in individuals’ behaviors. Measures which act outside our conscious control such as priming are likely to be controversial. Therefore, policy-makers need to involve and engage with target audiences from as early a point as possible in the change process. Public debates can help understand and appreciate the behaviour change encouraged and help find an appropriate measure. Without public support, interventions may appear illegitimate and therefore be less effective.

The concept of personal responsibility can also help solve this tension. However, encouraging people to take responsibility without telling them what do is not an easy task. Obesity prevention makes this evident. On the one hand, the government cannot forbid individuals to make unhealthy decision but, on the other hand, these same individuals cannot expect others to pay the cost of their medical care. These issues might be especially problematic in the case of addictive behaviors, where individuals find themselves in a situation in which they are unwilling or unable to take personal responsibility.

Those in favor of behavioral change interventions advocate that state intervention to influence public behaviour is appropriate precisely when individuals make choices that are not in their best interest, choices that they would change if they had complete information, unlimited cognitive abilities, and no lack of willpower, as is assumed in the neoclassical economics model.

Clearly, some forms of behavioral change occur all the time in the context of free markets where firms exploit the internal factors driving decision making. We have referred to such examples in earlier sections. In terms of the voluntary sector, we have also provided examples where charitable fundraising drives for example also seek to exploit internal and external factors to induce individuals to contribute more to good causes.

Equity Issues
For a policy to be acceptable, it should aim to equitable both in its procedure and often in its outcome.

For a measure to be procedurally equitable, it should typically be consistent across people and time, based on ethical code and involve citizen's in the decision making process. If the intervention is perceived as fairly implemented, individuals will more readily accept negative

784 B.S. Frey, M. Benz, and A. Stutzer (2004).
outcomes for themselves. This will in turn help lead to acceptance and cooperation by the public\textsuperscript{785}.

Interventions aimed at a particular group of people may create greater inequity of outcomes. For example it has been estimated that if carbon taxes were universally implemented, poorer groups would be worse off\textsuperscript{786}. Therefore other instruments targeted to these groups should be \textbf{simultaneously} used to compensate these inequities. The ban on public smoking and the provision of education and healthcare to all social groups\textsuperscript{787} are interventions which increased equity.

Policy Evaluation and Public Engagement
It is important to be able to learn from and provide credible evidence to policy makers and the public on behavioral change interventions. This requires interventions to be designed that have in-built methods of evaluation. The \textbf{gold standard} would to be to design and implement policies using \textbf{field experiments} in which slightly different policies are randomly assigned to otherwise similar groups of individuals. Such an approach can identify the causal impact of the policy and potentially the underlying mechanisms behind why it did or did not succeed. The establishment of such a credible evidence base is essential to ensuring the public understand the consequences of behavioral change interventions, and that policy makers learn from interventions. Throughout the earlier sections, we have highlighted a number of such field experiments that have provided credible evidence on drivers of behavioral change.

In some cases, this evidence base from a field experiment might best be implemented through a \textbf{pilot study}. The results of the intervention can then be used to predict what would occur if the policy were to be \textbf{scaled up}. The empirical methods needed to accurately predict what would occur if the policy were to be scaled-up need to be able to take account of two important differences between politic studies and nationwide or larger scale interventions.

The first is that the policy will then be intervening to a far wider audience. His might allow for greater degree of opt-out, or simultaneously change external factors that were not part of any pilot study. Second, the scaling-up method should also account for the fact that different non-governmental providers – such as the private and voluntary sectors - might also be involved in behavioral change interventions at a national level. This is important to recognize as the skills of the voluntary, private and public sectors differ and so similarly designed behavioral change interventions might have very different outcomes depending on who they are delivered by and how.

A key element of being able to justify, explain and promote behavioral change comes through the establishment and presentation of this credible evidence base. In turn, this can help shape norms and some external factors that themselves help promote future behavioral changes.

\textbf{7. Practical Considerations}

\textsuperscript{786} M. Lewis (2007).
\textsuperscript{787} D. Knott, S. Muers and S. Aldridge (2008).
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3. Is there adequate research capability within the United Kingdom to support the current pace of developments in behaviour change policy interventions? Is there sufficient funding for the evaluation of behaviour change interventions?

4. Are there adequate structures and expertise across government and the public services more generally to support the translation of research developments in behaviour change into policy interventions?

10. What mechanisms exist, at national and local government level, to provide advice and support during the design, piloting, implementation and evaluation of behaviour change interventions in order to ensure that they achieve intended policy goals and also cultural changes within government and public services more generally?

11. What mechanisms exist within government to coordinate and implement cross-departmental behaviour change policy interventions?

12. What mechanisms exist within government to cascade learning and best practice on behaviour change policy interventions?

The foundations for effective policy will always lie in a high-quality evidence base. High-quality evidence allows policymakers to choose the most effective policy instruments and also ensures value-for-money for taxpayers. We believe there is research capacity within the UK to provide this evidence base. We provide three examples that the authors are well familiar with. These differ slightly in their organizational design and degree of linkage with government departments.

The ESRC Centre for Economic Learning and Social Evolution (ELSE) based at University College London, is an inter-disciplinary research group bringing together economists and psychologists in recognition of the fact that psychologists and economists are concerned with substantially the same questions about behaviour. Two research themes at ELSE are of direct relevance to behavioral change policy interventions. The first theme relates to individual decision making. Combining the theoretical and empirical resources of economics, cognitive psychology and evolutionary psychology, researchers at ELSE investigate whether recent research on bounded rationality has underestimated the degree to which agents can achieve optimality in decision-making. The second broad research theme is on interactive decision making, in which we investigate how people deal with strategic situations, both by conducting laboratory and field experiments, and by mathematical modelling. We aim to advance our understanding of learning behaviour by eschewing common simplifying assumptions, and to study how people may employ simple "heuristics" in interactive decision problems.

A second example is the Institute of Fiscal Studies (IFS). The IFS has much experience in the evaluation of microeconomic policy and the generation of empirical evidence. The goal of the IFS is to promote effective economic and social policies by understanding better their impact on individuals, families, businesses and the government's finances. Research findings are based on rigorous analysis, detailed empirical evidence and in-depth institutional knowledge. The IFS seeks to communicate them effectively, to a wide range of audiences, thereby maximising their impact on policy both directly and by informing public debate. The IFS is now established as Britain's leading independent microeconomic research institute, and
as authoritative commentators on the public finances, tax and welfare policy, tax law, education, inequality and poverty, pensions, productivity and innovation, consumer behaviour and the evaluation of policies designed to promote development in poorer countries.

A third example is a model based on close collaboration between researchers and government departments. One example is the recently established Centre for Understanding Behavioral Change (CUBEC). This is a collaboration between the Department for Education and academic researchers from economics, psychology and neuroscience at the IFS and University of Bristol (DCSF). At the core of CUBEC’s objectives are to develop new policy ideas based on recent advances in our understanding of human behaviour and decision making as discussed in this review. CUBECs work involves both short term rapid responses to the needs of the DFE, as well as longer term research on drivers of behavioral change in education policy. Of course, established policy advice units within the Cabinet Office also follow a similar model.

All these models allow research findings to be presented to policy makers as well as engaging the public. The Festival of Science is one mechanism through which the public can be engaged in academic research related to behavioral change policy interventions. The ELSE and IFS research groups also have close ties with voluntary sector organizations that might commission research or provide steers on the research agenda.

Irrespective of the precise model followed, policy needs to be based in part on the available evidence, and policies need to be continually and accurately evaluated. Policy evaluations allow policymakers to know the likely effectiveness of policy interventions, to judge whether they represent value for money and whether important lessons can be learned from any difficulties in implementation. The key ingredients to a successful and informative evaluation are the creation of a suitable control group, the availability of high-quality data and a sufficiently large sample size. The ideal way to create a suitable control group is through randomized control trials. They are the standard benchmark for evaluations and trials in other disciplines, e.g. the trial of pharmaceutical products and medical interventions, and produce robust, high-quality evidence.

There are of course good reasons why true randomisation can be difficult in certain contexts. However, there are fairly simple ways to deal with such concerns, e.g. one can randomise within a group of already willing participants or target within tightly defined groups. One can also roll out a policy at different times across the country as was done with the evaluation of the Education Maintenance Allowance. A recurring problem in recent years in the UK has been that policies were often rolled out well before evaluations have been completed, or even first reported. Such early roll-outs can prevent one from knowing the full impact of a policy and from learning all the lessons from implementation.

The quality of an evaluation is only as good as the data available. As such, it is always important to collect data prior to the start of any policy initiative or pilot. This has not always been done in the past, with evaluations sometimes requested after a policy initiative has begun, which invariably lowers the reliability of the evidence produced.

An important innovation over recent years has been the use of administrative data, with the Department for Education and its predecessors at the forefront of the development and
analysis of such datasets. This has helped increase the sample sizes of evaluations and allowed researchers to look in more detail at specific groups over time.

Academics are continually becoming more aware and better at promoting their work through the media and working in collaboration with local and national governments. This should be encouraged and funding offered explicitly for such purposes.

8. Past Interventions

8. Have publicly funded behaviour change interventions been both evidence-based and subject to effective evaluation? How successful have such interventions been?

9. Within government, how are the lessons learnt from the success or lack of success of behaviour change interventions fed back into the design of future interventions? Are lessons learned from industry and voluntary sector behaviour change activities also taken into account?

15. What lessons can be learnt from previous successful or unsuccessful behaviour change interventions in other countries? Which countries provide the most helpful examples of best practice? Are behavioral change interventions generally transferable between different societies?

In this section we review the findings of some well known behavioral change interventions from a number of countries, and relate these to the questions above. These interventions cover a variety of policy spheres such social behavior, community participation, the environment and health.

Some of these interventions have been conducted by policy makers, and others have been instigated by the voluntary sector. Moreover the examples we highlight come from a wide range of countries. With the correct evaluation methods, such as those form randomized field experiments, true causal policy impacts can be measured. As these relate to innate internal and external factors we expect the results from one setting to be insightful for policy design in other countries wherever external factors driving decision making are also similar.

Social Behaviour
Cincinnati Initiative to Reduce Violence
The ‘Cincinnati Initiative to Reduce Violence’ (CIRV) programme draws on social norms and appropriate messengers to change behaviour. Gang members, responsible for much of the street violence, are strongly influenced by their peers. If criminal activities are seen as normal practice inside a gang, this creates incentives to reproduce these acts. This programme turned social norms inside a gang against it. If a gang member committed a crime, the entire gang was targeted for any type of offense. The CIRV programme was combined with compulsory meetings with members of local communities, victims’ relatives and ex-offenders as a condition of their parole. The purpose of these discussions was to expose gang members to wider social norms. Similar programmes have been launched
across the United States. In Chicago, shootings and killings dropped between 41 and 73%. In Cincinnati, gang-related homicides fell by 50% in the first nine months. The figure below provides a basic assessment of the policy effectiveness. Post-intervention total interventions were lower than pre-intervention. However, this research design is unable to establish whether this decline is causally related to the programme, or this reduction might have occurred over time in any case (perhaps due to other policies put into place at the same time in Cincinnati). Had the policy been evaluated using a field experimental design where, say, some neighborhoods had been exposed to the policy initiative and others left as control neighborhoods, it would have been possible to measure the causal impact of the policy on crime. This is a pre-requisite to conducting a full cost-benefit analysis of whether the policy generates a return or whether the same budget could be used in more cost-effective ways to reduce crime.

Notwithstanding these evaluation concerns, there have been lessons learned in the UK from this policy. The strategy was also used in 2008 by Scotland’s Violence Reduction Unit.

Education-Related Parenting Contract and Parenting Order

The 'Education-related Parenting Contract' was adopted by local English authorities in 2004. Parents and either school or local authority get together and agree on ways in which parents can reinforce parental responsibility for school attendance and general behavior.

At first, there is no sanction if attendance does not improve. However, school or local authority can apply for a 'Parenting Order' (a civil order) if behaviour does not improve within a certain period of time. Courts can then take non-compliance with the Contract into account when considering whether to grant an Order and contemplate prosecution. An evaluation in 2008 showed the majority of schools saw attendances improve as a result of using these voluntary agreements. As shown in the figure below, schools, local authorities

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and parents were generally positive about the role of Parental Contracts in reducing non-attendance and improving behaviour.\(^{789}\)

### Anti-social Behaviour Orders (ASBOs) and Acceptable Behaviour Contracts (ABCs)

Anti-social Behaviour Orders (ASBOs) were introduced by the Crime and Disorder Act 1998. ASBOs enabled the police, local authorities, social landlords and the transport police to obtain an order to prohibit a person aged 10 or above from engaging in behaviors specified by the order. Violation of the order can result in criminal prosecutions and a custodial sentence of up to five years. Hence ASBOs make explicit that a behaviour is not socially acceptable, and impose a clear condition or punishment for those who breach the order. A review of the use of ASBOs concluded that they could reduce anti-social behaviour in individuals given the order and in the wider group, and increased public confidence in the partner agencies.\(^{790}\)

Acceptable Behaviour Contracts (ABCs) are another policy intervention aiming to shift external factors such as individual written commitments and social norms in driving behavioral change. In this policy, written agreements between a young person, the local housing office or Registered Social Landlord and the local police in which the person agrees not to carry out a series of identifiable anti-social behaviors. The key differences are that ABCs do not require either party to sign the agreement and they are not legally binding. However, the breach of a contract could trigger the start of eviction proceedings or proceedings to issue an ASBO. Data for the 95 children placed on ABCs between 1999 to 2001 in Islington found that for the first six months of the contract, significantly fewer of came to attention for anti-social behaviour than in the previous six months (43% compared

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\(^{789}\) L. Evans, L. Hall and S. Wreford (2008).

\(^{790}\) S. Campbell (2002).
with 63% prior to contract). The overall number of antisocial acts committed more than halved (from 164 to 80)\textsuperscript{791}.

Community Participation
Postal Voting
The British Election Survey found that if a person believes that his or her peers think that voting is a waste of time, that person is less likely to vote. Authorities initially thought that postal votes would act as a facilitating condition to promote voting. However, when optional postal voting was introduced in Switzerland, the number of voter did not increase. Interestingly, voter turnout actually decreased in smaller communities. A possible explanation is that the social norm of being seen voting was lost.

Voter Choice and Turnout
A randomized field experiment\textsuperscript{792} with 30,000 voters in the USA was conducted to see how voter turnout might be increased. The effectiveness of leaflets, telephone campaigns and face-to-face reminders of a forthcoming election, all using a non-party political message highlighting the importance of voting, were compared. Leaflets were found to have a modest effect (increase turnout by around 2.5%), telephone calls were found to have a slight negative effect and the face-to-face contact was found to have a highly significant effect (increasing turnout by around 10 to 15%). This meant that despite its relatively high cost, face-to-face contact was ultimately highly cost-effective relative to other means of boosting turnout. The evaluation design by this study is credible, using randomized intervention on a large sample.

Environment
‘Bin it to win it’ and ‘Stalking Litter’
In response to the growing issue of littering, London Borough of Southwark designed two campaigns. ‘Bin it to win it’ was a lottery where contestant simply had to throw their litter into litter bins to enter the contest. ‘Stalking Litter’ was a campaign where actors wearing giant litter costumes would create scenes in the street to attract attention and engage with public, as shown in the figure below. Both approaches were designed to raise awareness to the make problem by using salience. It appears that citizen satisfaction on the street cleanliness increased\textsuperscript{793}.

\textsuperscript{792} A.S. Gerber and D.P Green (2000).
\textsuperscript{793} Southwark programme, http://www.southwark.gov.uk/info/10111/environmental_campaigns/569/bin_it_to_win_it
Deposit Scheme for Recycling and Reverse Vending Machines
Deposit schemes are used to encourage people to return empty packaging, and there is evidence they can reduce littering\textsuperscript{794}. The principle of the scheme is that consumers pay an additional fee, like a deposit, to the retailer when purchasing a bottle or packaging. The deposit is refunded, either in cash or voucher, when the consumer returns the empty packaging. The current deposit for IrnBru is 30p, and 70\% of bottles are returned for cleaning and reuse\textsuperscript{795}.

Reverse Vending Machines are devices that accept empty containers and can return money to the user. An additional voucher has been offered as an incentive for people to recycle using these machines. These financial incentives exploit the \textit{loss aversion} of consumers. Evaluation based on the experience of other countries using these schemes showed that they increase return rates and that they may also help the reduction in littering. However, DEFRA believed that there are other ways to achieve similar results at less cost\textsuperscript{796}.

Ecoteams
The EcoTeams programme is designed to help households make improvements in respect of their waste, water use, transport, energy consumption and shopping behaviors. Global Action Plan has been running the EcoTeams programme in various UK communities since 2002. Over a four to six month period, households monitor the environmental impact of their everyday lives. There are monthly meetings with other participants (6-8 households) during which they compare their domestic environmental impact, discuss how to reduce it and encourage each other to improve their environmental performance. \textbf{Group meetings}, in which like minded households meet, were either led by a trained facilitator or by the participants themselves. It was found that group meetings without trained facilitator were successful and sometimes worked better than with a facilitator. This could reveal the

\textsuperscript{794} D. McKenzie-Mohr, W. Smith and W.A. Smith (1999).
\textsuperscript{796} Department for Environment, Food and Rural Affairs (2008), Review of Packaging Deposits Systems for the UK.
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importance of feeling engaged and group learning. Through altering social norms and information dissemination in social networks, the project achieved on average 27% reduction in residual waste, 22% increase in recycling, 28% reduction in electricity usage and 20% reduction in gas usage. The more detailed figures are given in the table below.

The key concern for this type of evaluation is that it is based on individuals that choose to opt-in or self-select into such ecoteams. These might be the most motivated individuals to begin with. Hence such evaluations can overstate the potential benefits of these programs were they to be scaled up and offered to less enthusiastic households.

Global Action Plan UK – Eco Teams Data

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<thead>
<tr>
<th>Change</th>
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<tbody>
<tr>
<td>Municipal Solid Waste</td>
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<tr>
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<tr>
<td>Min</td>
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Beddington Zero Energy Development

The Beddington Zero Energy Development is a sustainable community in the UK designed to facilitate pro-environmental behaviour. The project transformed a former sewerage work site into an environmentally friendly, energy efficient environment. The project initiated by BioRegional and BDa ZEDfactory, and developed by the Peabody Trust, was completed in 2002. It solves problems such as heating and water usage, offers green transport plan and uses natural, renewable or recycled building materials.

Compared to local average, it achieved 81% reduction in energy use for heating, 45% reduction in electricity use and 58% reduction in water use. Compared to national average, there has been 64% reduction in car mileage. Finally 60% waste is recycled and 86% of residents buy organic food.

Health

STD and AIDS

Thailand has managed to dramatically transform sexual behaviors to reduce the transmission of AIDS and other sexually transmitted diseases. This was achieved by a sustained, multilevel attempt to change social norms concerning condom use. The campaign combined consultation with national information campaigns, active engagement of at-risk groups, severe penalties for brothels not following safe practices, and practices that empowered prostitutes to be able to insist on condom use. But perhaps the most important aspect of the programme was how the parallel application of all these elements created a

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797 Idem.
799 http://www.bioregional.com/what-we-do/our-work/bedzed/ BioRegional, a charity that works to develop practical local sustainability projects led the development of the project and the Peabody Trust brought a long-term commitment to innovation in construction, quality accommodation and strong communities;
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sense that habits were changing and fostered the emergence of new social norms. This is a good example of the type of coordinated policy interventions helping to reinforce the effect of each individual policy.

‘Get Braids Not Aids’
‘Get Braids Not Aids’ is a campaign launched by DFID in Zimbabwe. The scheme trains hairdressers in low-income areas in informing their clients of the benefits of female condoms, how they are used and how to introduce them into a relationship. The information is thus being provided by a familiar person, and through agents that lie at the heart of community social networks. In 2005, the campaign had a network of 1,000 hairdressers in 500 salons, which sold over half of total sales of female condoms in Zimbabwe.

A study found that amongst 400 hair salons clients who had seen a female condom demonstration by a hairdresser were 2.5 times more likely to use the product than those who had not.

Self-management of Diabetes
The Bucharest-Dusseldorf study looks at the impact of behavior change programme in health care. This programme was evaluated using a randomized field experiment methodology. A control group was given conventional diabetes cares while the treatment group participated in an intensive programme of monitoring and self-management technique. The treatment group was found to have significant lower rates of medical crises and hospitalizations. The figure below gives an indication of the magnitude of the causal impact of the policy on three health related outcomes.

9. Case Study: Tackling Obesity

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800 G. Hart, MRC Social & Public Health Sciences Unit.
16. Examine:
   a. the latest developments in the evidence-base in relation to changing eating and physical activity behaviour;
   b. who are the most effective agents for the delivery of behaviour interventions to tackle obesity;
   c. how current behaviour change interventions tackle obesity and what use is made of available scientific evidence;
   d. whether such interventions are appropriately designed and evaluated;
   e. what lessons have been learnt and applied as a result of the evaluation process.

Much attention has focused on obesity, its health risks and its burden to society. Prevalence of obesity has risen rapidly in Britain from less than 10% in the 1980s to over 20% today\(^{803}\). Symmetric paternalistic interventions attempt to shift behavior in self-interested directions of "unhealthy" individuals without harming "healthy" individuals\(^{804}\). Numerous papers attempt to identify the contributing factors of obesity in order to find potential points of interventions. Interventions have in turn been evaluated through controlled experiments. We focus on a few studies here. In the Appendix tables we provide a more comprehensive survey of the available evidence on behavioral change – using a variety of research design – related to obesity.

**Sedentary Habits**

There are many experimental studies which support theories regarding the contributions of sedentary behaviour to weight status. Television watching has been the main focus for many studies as it is associated with overweight\(^{805}\) through decreased physical activity\(^{806}\) and unhealthy dietary behavior.

Anti-obesity measures need to address television watching, a major sedentary behavior as well as one that exposes viewers to countless high calorie advertisements. It has been estimated that a ban on these advertisements in the United States would reduce the number of overweight children ages 3-11 in a fixed population by 10% and would reduce the number of overweight adolescents ages 12-18 by 12%\(^{807}\).

Reducing television viewing and computer use can play an important role in preventing obesity. During a two year experiment, seventy children aged 4 to 7 years whose BMI was at or above the 75th BMI percentile for age and sex were randomized to an intervention to reduce their television viewing and computer use by 50% versus a monitoring control

\(^{803}\) Health Survey for England 2001 (22%); Central Health Monitoring Unit, Department of Health 1986-7 (9.5%).


\(^{806}\) R. Lowry, H. Wechsler, D.A. Galuska, J.E. Fulton, and L. Kann. (2002) analyzed data from the 1999 national Youth Risk Behavior Survey, a representative sample of 15349 US high school students. TV viewing on an average school day exceeded 2 hours/day among 43% of students; it was greater among Black (74%) and Hispanic (52%) than White (34%) students. Overall, 11% of students were overweight, 31% of students were sedentary (i.e., did not participate in moderate or vigorous physical activity at recommended levels), and 76% ate less than five servings/day of fruits and vegetables. Watching TV more than 2 hours/day was associated with being overweight, being sedentary, and eating insufficient fruits and vegetables among White females, and with being overweight among Hispanic females.

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group that did not reduce television viewing or computer use. Children randomized to the intervention group showed greater reductions in targeted sedentary behavior, BMI, and energy intake compared with the monitoring control group\textsuperscript{808}. However, some argue that television advertising, rather than viewing per se, is associated with obesity\textsuperscript{809}. 

Until now, most weight loss programmes offered rewards for those who succeeded in losing weight. Unfortunately, this financial method has not reached long term maintenance of weight loss\textsuperscript{810}. An alternative approach could use our \textit{loss aversion} as an incentive for weight loss. One study asked some participants to deposit money into an account, which was returned to them if they met weight loss goals. After seven months, this group showed significant weight loss compared to the control group\textsuperscript{811}.

Commitment strategies have significantly increase success of programmes designed to increase physical exercise. For example, B.R. Williams, J. Bezner, S.B. Chesbro, and R. Leavitt (2005) report findings from their study on 43 postmenopausal African American women who were randomly assigned to an experimental or control group. Those in the experimental group signed a behavioral contract. A pedometer, daily log, 7-day physical activity recall, and qualitative analysis were used during a 7-week program. The contract group adhered more to the brisk walking goal ($P = .006$). A behavioral contract is effective in increasing exercise adherence in postmenopausal African American women.

Eating Habits

The dietary patterns of children from families in which television viewing is a normal part of meal routines may include fewer fruits and vegetables and more pizzas, snack foods, and sodas than the dietary patterns of children from families in which television viewing and eating are separate activities\textsuperscript{812}. Fast food consumption and breakfast skipping increased during the transition to adulthood, and both dietary behaviors are associated with increased weight gain from adolescence to adulthood. These behaviors may be appropriate targets for intervention during this important transition\textsuperscript{813}.

\textsuperscript{810} Paul-Ebhohimhen and A. Avenell (2008).
\textsuperscript{811} K.G. Volpp, L.K. John, A.B. Troxel, L. Norton, J. Fassbender, and G. Loewenstein. (2008) conduct a randomized study on fifty-seven healthy participants aged 30-70 years with a body mass index of 30-40, well above the national average. Participants were randomized to 3 weight loss plans: monthly weigh-ins, a lottery incentive program, or a deposit contract that allowed for participant matching, with a weight loss goal of 1 lb (0.45 kg) a week for 16 weeks. The incentive groups lost significantly more weight than the control group (mean, 3.9 lb). Compared with the control group, the lottery group lost a mean of 13.1 lb and the deposit contract group lost a mean of 14.0 lb. Although the net weight loss between enrollment in the study and at the end of 7 months was larger in the incentive groups (9.2 lb) than in the control group (4.4 lb), these differences were not statistically significant. However, incentive participants weighed significantly less at 7 months than at the study start whereas controls did not.
\textsuperscript{812} K.A. Coon, J. Goldberg, B.L. Rogers, and K.L. Tucker. (2001) find that children from families with high television use derived, on average, 6% more of their total daily energy intake from meats; 5% more from pizza, salty snacks, and soda; and nearly 5% less of their energy intake from fruits, vegetables, and juices than did children from families with low television use. Of course, in this non experimental framework, there is no causal link established to television use. For example there might be some common factor that determines household's television usage and the diet composition.
\textsuperscript{813} H.M. Niemeier, H.A. Raynor, E.E. Lloyd-Richardson, M.L. Rogers, and R.R. Wing (2006). report findings based on 9919 adolescents participating in Waves II (age range 11–21 years) and III (age range 18–27 years) of
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The rise in obesity rate over the past 30 years has been paralleled by the increases in portion sizes and the prevalence of eating away from home. Many studies have shown that portion size has a direct impact on obesity. American health authorities have recognized the impact of portions on obesity and are calling for portion size reductions. However, fast-food portions in the United States are still larger than in Europe. Comparison between customers who purchase standard portion and those who purchase the larger size increase their energy intake of the entire meal by 25%.

Healthy default schemes appear to give the right “nudge” without restricting the freedom of choice of customers. Setting a healthy default meal with the option of changing for a less healthy meal has been evaluated. In the school setting, it has shown some success. The Eat Smart intervention was conducted in 56 intervention schools over a 2-year period. Five consecutive days of school menu, recipe, and vendor product information were collected from intervention and control schools to assess the nutrient content of school menus as offered. There was a significantly greater mean reduction in the percentage of calories from total fat and saturated fat in intervention compared with control schools from baseline to follow-up. Average total calories decreased significantly; however, the mean total calories (683 kcal) for intervention schools remained above one-third of the Recommended Dietary Allowances for this age group.

Fast food and soft drinks have been blamed for much of the rise in obesity. Consequently, adjusting their relative price and availability has been considered. Many countries already apply sales tax to particular items but not others with health concern in mind. In France for instance, sweets, chocolates, margarine and vegetable fat attract VAT of 20.6% whilst other foods attract VAT of only 5.5%. Evidences on introducing higher prices have mix results on people’s consumption behaviour. Some researchers have shown that taxes on soft drinks have little impact on population weight and taxes on food-away-from-home could actually increase body weight. A more positive result can be found in an experiment on the prices of items sold in vending machines. Prices of the low-fat goods were reduced by 50% for three weeks and sales were recorded before and after this trial. Whilst total snack sales did not change, the percentage of total sales that were low-fat

815 L.R. Young and M. Nestle (2002).
817 N. Diliberti, P.L. Bordi, M.T. Conklin, L.S. Roe, and B.J. Rolls. (2004) report findings based on 180 adult customers that were monitored. Portion size had a significant effect on intake of the entrée (p < 0.0001). Compared with customers who purchased the standard portion, those who purchased the larger portion increased their energy intake of the entrée by 43% (719 kJ; 172 kcal) and of the entire meal by 25% (664 kJ; 159 kcal). There was no difference between the two groups of customers in ratings of the appropriateness of the portion size or of the amount that was eaten in relation to their usual meal.
goods rose from 25.7% to 45.8%, but afterwards, the percentage fell back again to 22.8%, suggesting that it was the price that was the key factor.\footnote{822}

Assistance and support can help those trying to lose weight easier. Adding e-mail counseling to a basic Internet weight loss intervention program proved to significantly improve weight loss in adults at risk of diabetes.\footnote{823}

Social Environment

Social origin, rather than adult life socio-economic position, may play an important role in the development of obesity.\footnote{824} Many researches concur that physical attributes of the home environment and parental behaviour are associated with physical activity and dietary behaviour.\footnote{825} Parents’ education could help prevent obesity developing at an early age. A parent led intervention involving daily tasting of a vegetable holds promise for improving children’s acceptance of vegetable.

Although social network shape our behaviour (for tobacco and alcohol consumption\footnote{826}), researches have shown that it has practically no impact on our probability to be overweight.\footnote{827}

Environment on a larger scale seems to impact our obesity rate. Inverse associations were observed between obesity and variables such as economic (real domestic product), food, urbanization, transport (passenger car, gasoline price, motorways) and policy (governance)\footnote{828}. Technological changes such as new food technology and processed food can produce obesity.\footnote{829} Variables such as the per capita number of fast food restaurant, the per capita number of full-service restaurants, the price of a meal in each type of restaurant, the price of food consumed at home, the price of cigarettes, clean indoor air laws, hours of work per week and hourly wage rates have all shown the expected effects on obesity rates.\footnote{830}

Contextual Factors

\footnote{823} D.F. Tate, E.H. Jackvony and R.R. Wing, (2003) conducted a single-center one-year randomized controlled trial on 92 overweight adults whose mean age was 48.3 years and body mass index, 33.1. Participants were randomized to a basic Internet (n = 46) or to an Internet plus behavioral e-counseling program (n = 46). Both groups received one face-to-face counseling session. Intent-to-treat analyses showed the behavioral e-counseling group lost more mean weight at 12 months than the basic Internet group, and had greater decreases in percentage of initial body weight, body mass index, and waist circumference.
\footnote{825} N.J. Spurrier, A.A. Magarey, R. Golley, F. Curnow, and M.G. Sawyer, (2008) conduct a study in which information via direct observation and interviews were taken from 280 preschool children. Parental physical activity, size of backyard and amount of outdoor play equipment were associated with more outdoor play. Fewer rules about television viewing and presence of a Playstation were associated with more indoor sedentary time. Lower fruit and vegetable intake was associated with reminding child to ‘eat up’ and offering food rewards to eat main meal. The availability of food groups in the home was associated with children’s intake of these foods.
\footnote{826} J. Fletcher and S.L. Ross (2010).
\footnote{828} T.K Boehmer M. Rabin and R.C. Brownson (2007).
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The location and the provision of local supermarkets play an important role in dietary intakes\textsuperscript{831}. Therefore, measures such as \textbf{financial incentives} or \textbf{regulation on access} can be taken to modify these factors. Favoring healthy food through discounted price in supermarkets has had significant and sustained effects on food purchase\textsuperscript{832}. Reducing access to soft drinks in schools has also been unsuccessful in reducing consumption\textsuperscript{833}. Policies restricting access to fast food near school on the other hand show promising results on obesity among children\textsuperscript{834}.

Information and Education
Knowledge is inversely related to the probability that an individual is obese. Schooling’s effects on relative weight and the probability of being obese are explained by differences in knowledge. The result also may imply that the most effective method of health education is to highlight the disease element of poor dietary habits and health\textsuperscript{835}. Moreover, education is an important determinant in the decision to use preventive care. Increasing education alone could have fast food near school on the other hand show promising results on obesity among children\textsuperscript{834}.

\textbf{Advertisement} of poor nutritional food has been shown to be a determining factor in the link between television and overweight. Adolescents are primary targets of advertising for fast food restaurants, snack foods, and sugar-sweetened beverages, which may influence their food choices\textsuperscript{838}. This is evidence that television viewing through advertisements may have long-term effects on eating choices and contribute to poor eating habits in young adulthood\textsuperscript{839}. Soft drink advertising is related to increased consumption of soft drinks among elementary school children\textsuperscript{840}.

\textbf{Educational programs} have been tested in different environments. At a school-level, there have been positive results on the consumption of fruits, vegetable and juices\textsuperscript{841}, fat intake\textsuperscript{842} and overall diet\textsuperscript{843}. Unfortunately, despite initial success in behavior change, there are ambiguous results on the long term behavioral changes in school-based interventions\textsuperscript{844}. Worksite educational interventions have had mixed results. Some have shown little effects in changing behaviors\textsuperscript{845} while others have been successful in delivering the message\textsuperscript{846} or effectively changing diet\textsuperscript{847}. Finally, mass media health education in

\textsuperscript{832} C. Ni Mhurchu, T. Blakely, Y. Jiang, H.C. Eyles, and A. Rodgers (2010).
\textsuperscript{833} S.N.E. Visit (2008).
\textsuperscript{834} J. Currie, S. DellaVigna, E. Moretti, and V. Pathania (2009).
\textsuperscript{836} J.M. Fletcher and D.E. Frisvold (2009).
\textsuperscript{837} K. Kan and W.D. Tsai (2004).
\textsuperscript{840} T. Andreyeva and I. Rashad Kelly (2010).
\textsuperscript{844} N. Rodriguez-Planas (2010).
communities has been undertaken and has been effective in targeted groups. Even though some results have been modest, taken together these trials have demonstrated the feasibility of activating schools, work‐sites and entire communities in pursuit of healthier citizens. Children should be the priority population for interventions.

October 2010

Summary

- Human behaviour is extremely complex and is influenced by multiple genetic, social and environmental factors. These determinants operate at various levels in different individual, group and societal contexts.

- The Research Councils' objectives are to understand the mechanisms and drivers of behaviour which affect many aspects of our daily lives including savings and pensions, environmental behaviours, work, social interactions, schools and education, and health and disease.

- The Research Councils support research which generates and evaluates new knowledge in understanding behaviour, providing insights into the development of effective interventions and providing evidence to inform policy.

- Research shows that as social beings, we are very strongly influenced by our environment. This highlights the problem of attempting to control human behaviour solely at the level of the individual. We therefore need to adopt a holistic approach to policy and interventions, which takes account the social, economic and environmental context, as well as the individual.

- Changing behaviour is difficult, as we see from many failed attempts. However, there have been successes, and we need to learn from these.

- Successful approaches for one outcome (such as smoking) may not work for other outcomes (such as improving diet).

- Addictive behaviour, and the prevention and treatment of addiction, remains an especially challenging problem. The ESRC and MRC are building upon significant Research Council contributions to international research effort through cross-council initiatives. Other cross-agency initiatives such as the National Preventive Research Initiative (NPRI) have made important contributions to preventing illness and addressing addictive behaviours.

- Due to the complexity of the area, and at times the imperfect evidence available, knowledge exchange about behaviour to inform the development of future policy and interventions will require closer dialogue between researchers, policy makers and practitioners. It will be important to work together to identify areas of research priority and focus which are most likely to accelerate research outcomes into effective interventions and practice.

- Interventions in this area may have effects at multiple levels, including some knock-on or 'rebound' effects which may neither intended nor desirable. It is important to assess a range of socioeconomic and health impacts resulting from changes in policy and practice, in particular to ensure that they do not further increase health and socioeconomic inequalities.
• Adequate consideration must be given to the evaluation of interventions. It is vital that robust evaluation processes are built into interventions at the outset.
• Ethical issues around behaviour change are considerable, and ethics should always be explicitly considered in respect of any intervention.
• Obesity is a complex physiological and socio-economic issue requiring an interdisciplinary approach to study mechanisms, its relationship to health and lifestyle factors and metabolic disease, and the development of preventive strategies.

Introduction

1. Research Councils UK is a strategic partnership set up to champion research supported by the seven UK Research Councils. RCUK was established in 2002 to enable the Councils to work together more effectively to enhance the overall impact and effectiveness of their research, training and innovation activities, contributing to the delivery of the Government’s objectives for science and innovation. Further details are available at www.rcuk.ac.uk

2. This evidence is submitted by RCUK on behalf of the Research Councils listed below and represents their independent views. It does not include, or necessarily reflect the views of the Science and Research Group in the Department for Business, Innovation and Skills (BIS). The submission is made on behalf of the following Councils:

Biotechnology and Biological Sciences Research Council (BBSRC)
Economic and Social Research Council (ESRC)
Engineering and Physical Sciences Research Council (EPSRC)
Medical Research Council (MRC)

The following Research Council funded Research Centres and individuals have contributed directly to this response (in alphabetical order): ESRC Centre for the Analysis of Risk and Regulation (CARR)\(^{850}\), London School of Economics and Political Science; Dr Deborah Christie, University College London Hospitals NHS Foundation Trust; Dr Michael Donnelly, Centre of Excellence for Public Health Research (Northern Ireland)\(^{851}\); EROS Research Group (Emotion Regulation of Self and Others)\(^{852}\), based at the Universities of Sheffield, Oxford, Manchester, Reading and Wolverhampton; Dr Nick Eyre, Environmental Change Institute, University of Oxford (Co-Director of the UK Energy Research Centre)\(^{853}\); Professor Simon Garrod, Department of Psychology, University of Glasgow; Professor Nigel Harvey, University College London; Professor Peter John, Institute for Political and Economic Governance, University of Manchester; MRC Population Health Sciences Research Network\(^{854}\); MRC Population Health Science Group\(^{855}\); Professor Elizabeth Shove,
3. RCUK welcomes this Call for Evidence. Since behaviour is influenced by both an individual’s genes and the influences of the social and physical environment, interdisciplinary research within and across the remits of all the participating Research Councils is crucial to its in-depth understanding. Unsurprisingly, given the complexity of the topic, its study necessitates a range of methodological approaches, including (but not limited to) observational research in the real world context, experimental studies carried out in laboratory settings to investigate specific aspects of behaviour, natural experiments which, for example, measure the effects of introducing an intervention in one location (e.g. improved access to facilities for physical activity) with a control area where no such intervention is introduced, empirical studies of hypothesised interventions and the use of neuro-imaging techniques to identify which areas of the brain are involved in different facets of behaviour. These approaches are complementary and inter-related.

4. The Research Councils have a long-standing interest in behavioural change, and our objectives relate to understanding mechanisms across a wide range of activities and behaviours which influence many aspects of our daily lives, including savings and pensions, workplace behaviours, environmental behaviours, anti-social behaviour, schools and education and health behaviours. Increasingly, behavioural change research is interdisciplinary across the biological, social, medical, engineering and environmental sciences.

5. Research Council interests include understanding the mechanisms that regulate behaviour change, the development and early evaluation of interventions and their impact and cost-effectiveness, and the impact of policy changes. Both ESRC and MRC, have identified research priorities relating to behaviour and interventions. “Understanding Individual Behaviour” is a strategic priority area of research for ESRC. Social science enables a focus on understanding behaviour and decision making in the context of the family, neighbourhood and social relations more generally. The MRC Strategic Plan 2009-2014 has identified “Lifestyles affecting health” as a research priority, specifically the development of more effective strategies which have a greater focus on community, macro-level and multi-level interventions, which take account of social factors that play an important roles in behaviour and lifestyles.

6. The Research Councils, individually and jointly, support a broad range of research relating to understanding and influencing human behaviour. Research is funded through support to universities, medical schools and research organisations and within Research Council Institutes. ESRC, MRC and BBSRC support research and training in human behavioural sciences within their own remits, and work seamlessly across those remits. Other Research Councils have other focused priorities, such as EPSRC who fund cross-disciplinary research and training in sustainability, which involves understanding and influencing environmental behaviour. EPSRC also fund work in computer science and robotics which is resulting in important new insights into human behaviour, and they are encouraging a trend towards user-centred design to engage users in the development of technologies.

856 http://www.nottingham.ac.uk/ukctcs/index.aspx
857 http://www.esrcsocietytoday.ac.uk/esrcinfocentre/strategicplan
7. Working collectively, or in partnership with other funders outside of the Research Councils, allows the Research Councils to address interdisciplinary questions, for example through cross council programmes. The RCUK Digital Economy (DE) Programme led by EPSRC provides support in this area focusing on realising the transformational impacts of ICT on business, government and society. The transformational ability of new ICTs could have major implications in the area of behaviour change. However, we would caution that technology does not alter behaviour in an uncomplicated way. Technologies and behaviours are co-constitutive; in the same way that human behaviour can be transformed by technology, so technologies are themselves liable to transformation, sometimes in unpredictable ways, by the behaviour of their users. This co-evolution of behaviour and technology should be borne in mind when considering behaviour change interventions for the 21st century.

8. The RCUK Lifelong Health and Wellbeing programme led by the MRC supports multi-disciplinary research addressing factors across the life course to promote healthy ageing and wellbeing in later life. Two of the four objectives of the programme aim to identify and develop effective interventions, and inform policy and practice including the development of services and technologies to support independent living. The Research Councils, in partnership with the UK Health Departments have recently invited applications for phase 2 of the programme which supports the development of novel interventions to promote healthy ageing, independence and wellbeing in later life, including interventions taking a preventative approach across the life course.

9. The National Prevention Research Initiative (NPRI) is another example of the effectiveness of joint working and collaboration of funders in this area. It is one of a small number of complementary programmes established to support interventions and evaluations in population health sciences research. NPRI\textsuperscript{859} is a UK-wide initiative made up of Government Departments, Research Councils and major medical charities who are working together\textsuperscript{860} to increase high quality research into chronic disease prevention by influencing health behaviours, focusing on conditions such as certain cancers, heart disease, diabetes, obesity, stroke and dementia. Since 2004, NPRI partners have committed over £23m to 55 new research projects through the first three phases of the initiative. A further call for proposals has been launched under a fourth phase to support translational research, relevant to, or directly impacting upon policy and/or practice. Up to £10m will be committed to support cross-disciplinary research which develops, tests or evaluates interventions that can potentially have a major impact on population health, using the full range of evaluation methods, including experimental and quasi-experimental (or observational) designs and natural experiments.

\textsuperscript{859} http://www.mrc.ac.uk/Ourresearch/Researchinitiatives/NPRI/index.htm
10. ESRC administers the UK Clinical Research Collaborations’ Public Health Centres of Excellence.861 a £20m investment from a consortium of Research Councils, Health Departments and Charities over 5 years from 2008. Based at Newcastle, Cardiff, Belfast, Cambridge and Nottingham, the centres aim to produce excellent research that has potential for impact upon the health of the nation, including a focus on improving health behaviours. These aims will be achieved through support for building academic capacity, increasing infrastructure and promoting multi-disciplinary working in public health research. The 5 UK Public Health Centres of Excellence862 bring together leading researchers with practitioners, policy makers and members of the public to tackle complex public health issues.

11. Further examples of effective partnerships include the EPSRC and the Technology Strategy Board (TSB) funded the ‘User-Centred Design for Energy Efficient Buildings’ initiative, and the NERC-led UK Energy Research Centre, which is working to affect behavioural change at community level, improve energy security and equity, and achieve reductions in green house gas emissions. The Centre is funded by the joint RCUK Energy Programme. Details on Research Council programmes and research are available at www.esrc.ac.uk; www.mrc.ac.uk; www.epsrc.ac.uk; www.bbsrc.ac.uk; www.nerc.ac.uk; www.rcuk.ac.uk/energy; www.rcukdigitaleconomy.org.uk.

12. Ethical issues around behaviour change are considerable, and ethics should always be explicitly considered in respect of any intervention, and indeed any research on human behaviour. The ESRC Framework for Research Ethics863 and the MRC Ethics and Research Guidance864 outline the primary considerations and the MRC’s guidance on the design and evaluation of complex interventions865 provides further guidance on addressing ethical issues. Other funders have comparable mechanisms; for example, BBSRC uses a combination of its Institutes’ processes, its committees and the Bioscience for Society Strategy Panel. Most UK academics involved in research on human behaviour are affiliated to a professional body, and are bound by their Codes of Ethics and Conduct866. Given the ethical sensitivity of behaviour change research, public engagement is important.

What is known about how behaviour can be influenced? What special considerations apply to addictive behaviour?

13. Behaviour is the product of choices within constraints, and can be changed by action on the choices, or on the constraints, or both. It can be influenced in a number of ways. Evidence indicates that positive messages about benefits are more effective at influencing behaviour than negative messages. Explicit influences involve providing information about the costs of not changing behaviour versus the benefits of changing it (e.g. ‘if you drink too much you may become addicted’, as opposed to ‘if you stop drinking so much you will find it

861 Funding partners are: the British Heart Foundation; Cancer Research UK; ESRC; Health and Social Care Research and Development, Public Health Agency, Northern Ireland; MRC; National Institute for Health Research, Wales Office of Research and Development for Health and Social Care, Welsh Assembly Government; Wellcome Trust.
863 http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/opportunities/research_ethics_framework/index.aspx
864 http://www.mrc.ac.uk/Ourresearch/Ethicsresearchguidance/index.htm
865 http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC004871
866 E.g.; http://www.bps.org.uk/the-society/code-of-conduct/code-of-conduct_home.cfm
easier to attract a partner’). Evidence indicates that positive messages about benefits are more effective at influencing behaviour than negative messages. Information aimed at changing behaviour can be provided in two ways. Firstly, by direct communication aimed at the target audience; this can be either explicit (e.g. through the content of a communication) or implicit (e.g. designing communication to promote implicit influences such as using an effective role model to convey the content). Secondly, it can be indirect, aiming the communication not at the target of behavioural change, but at those who can influence the target. This might involve targeting parents in relation to childhood eating behaviour, or peer networks in relation to adolescent drinking behaviour.

14. Implicit influences relate to findings of research in Social Cognition\textsuperscript{867} that much of human behaviour is governed by automatic mechanisms subject to priming, though as yet we do not know enough about the underlying cognitive-neural mechanisms responsible. For example, after encountering words associated with ageing, participants started to walk more slowly; and after encountering words associated with intelligence, participants performed better on intelligence tests. There are indications that implicit influences are particularly important in the context of social groups with individual behaviours strongly influenced by social norms and stereotypes. Professor Simon Garrod and his colleagues at the University of Glasgow are currently investigating social interactions from cognitive-neurosciences perspective\textsuperscript{868}, in a project jointly funded by ESRC and MRC. A key strand of this research is investigating interactive alignment, a process by which interacting agents come to behave (and by extension, think) in the same way as a result of their social interactions\textsuperscript{869}.

15. Inheritance plays a major role in behaviour, as shown by selection and strain studies for animal behaviour and by twin and adoption studies for human behaviour. However, unlike simple Mendelian characteristics, genetic variance for behavioural disorders rarely accounts for more than half of the phenotypic variance, and multiple genes with small effects appear to be involved rather than one or two major genes. The environment and social factors clearly have a major effect on the development of behaviour and we need to know more about how genes and environmental/social factors interact. A future research challenge will be to quantify the environment and social factors in a way that facilitate genetic and social studies to proceed hand in hand to inform policy and interventions.

16. UK researchers have made seminal contributions to work on factors affecting the development of behaviour. For example, the Social and Genetic Developmental Psychiatry Centre (SGDP) at the Institute of Psychiatry at King’s College, London, has made important contributions to the literature on the:

- heritability of IQ and school achievement,
- the discovery that brain development in violent, persistent adolescent criminal offenders lags behind normal brain development,
- that boys who had suffered maltreatment, were much more likely to become violent as adults when they had low activity of a specific enzyme, and

\textsuperscript{868} http://www.socialinteraction.gla.ac.uk/index.php/strand2
that father absence from the family predicted more conduct disorder in children, but if the father had antisocial personality, his presence was associated with greatly elevated conduct disorder in his children - this highlights the need for research evidence informing social welfare policy as well as health policy.

17. Human behaviour can be considered at the individual, micro (e.g. within a small group of individuals), meso (e.g. within a specific neighbourhood or locality) and macro (e.g. across the UK, or globally) levels. It is likely that different but complementary strategies would be needed in order to influence behaviours at these different levels, if behaviour change at, for example, organisational level is of interest as well as at the level of the individual.

18. Rational choice theory, (i.e. that behaviour is based on the ‘rational’ decision making of individuals weighing up all available information and carrying out a form of cost: benefit analysis), which is widely used as an assumption of human behaviour in microeconomic models and analysis, has also been influential in respect of policy interventions. This is illustrated in efforts to influence food choice by listing ingredients and recommended levels on the packaging. However, this approach has limitations; research across the social sciences and beyond demonstrates that behaviour is the consequence of a complex interplay of inherited genetic endowments, gene expression, brain chemistry and connectivity, and social and economic incentives, and is in reality only rarely ‘rational’. Only a fraction of our decisions are made by calculation of costs and benefits, because our brains have only a limited capacity to work in this way. Our emotions, and the ways in which choices are framed play a significant role. In the food labelling example, behavioural changes are shown not to follow rational lines, but reflect more complex interplays of a wide range of factors. If we start to think about our own everyday activities and how they are accomplished, we soon find ourselves looking beyond our own individual capacity to decide and choose between options, and find that they are grounded in complex, socially situated and interweaving routines, or ‘practices’.

19. Knowledge on how behaviour can be influenced is increasing, and as we demonstrate below, there is evidence that insights are applicable across a range of behaviours, such as pro-environmental behaviour, gambling, internet use and financial behaviour, as well as some health behaviours. The emerging discipline of Behavioural Economics has had considerable influence on recent debates. Thaler and Sunstein (2008) summarise a large body of research on behaviour change interventions carried out by behavioural economists and cognitive psychologists, and provide a framework within which to interpret all this work. Specifically, they discuss how people’s choices can be influenced by making changes to the context within which those choices are made. They refer to changing this context to ensure that people are more likely to make a desired choice as altering the ‘choice architecture’. Thus, a change in choice architecture is an intervention intended to produce behaviour change. Thaler and Sunstein term such interventions as ‘nudges’. The importance of this

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work is reflected in a number of substantial reports produced by the Cabinet Office, the Government Social Research Unit and the Cabinet Office and Institute for Government, listed in the call for evidence for this Inquiry.

20. There are a number of examples of effective behaviour change interventions which have had a measure of success, such as some anti-smoking initiatives, and campaigns to prevent drink driving, encourage seatbelt wearing, and to place babies on their backs to sleep. However, other behaviours, such as unhealthy eating leading to obesity, excess alcohol consumption, and carbon-intensive energy use, have so far proved more resistant to change. Some examples of the types of strategies which have been shown to be effective in respect of behaviour change across a range of domains are reviewed below.

21. Undesirable behaviours are often encouraged by social factors, as when people ‘follow the herd’, or conform to traditional or evolving habits and practices. For example, obesity is very common in particular social groups: it appears that, if people’s friends become fat, they too are at increased risk of gaining weight, almost as though it were contagious. ‘Herd’ behaviours have also been investigated in respect of financial markets, by researchers at the ESRC Centre for Economic Learning and Social Evolution (ELSE). This work argues that herd behaviour can have adverse consequences for markets, as it causes important informational inefficiencies. However, these social factors can be turned to advantage: for people whose behaviour is less desirable than the norm, sometimes merely informing them about what other people are doing can help to improve their behaviour. Thus Linkenbach (2003) and Linkenbach and Perkins (2003) were able to help Montana students who were heavy drinkers and smokers by advertisements that proclaimed ‘Most (81%) of Montana college students have four or fewer alcoholic drinks per week’ and ‘Most (70%) of Montana teens are tobacco free’. Schulz et al (2007) showed that information about social norms could also reduce above-average energy use.

22. Reducing the financial or non-financial costs of a desired behaviour and increasing those of an undesired one can also yield benefits. As is now well known, the use of defaults is a powerful way of manipulating people’s choices. Agreeing with the default is the line of least resistance. Thus, in the USA, defaults have been shown to be very effective in

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876 http://else.econ.ucl.ac.uk/papers/uploaded/381.pdf
increasing the money that people save for their pensions\textsuperscript{880} and more controversially, in increasing organ donations for transplantation.\textsuperscript{881}

23. Explicit financial incentives can also be effective as long as the incentive scheme is well designed. For example, MIT’s Poverty Action Lab developed a scheme in which participants who were quitting smoking put the amount of money they would usually spend on cigarettes into a bank account at the end of every week. At the end of a six-month period, they were given a urine test to determine whether they had smoked recently. If they passed the test, they got their money back; if they failed, the money was given to charity. Initial results indicate that this approach is more effective than other anti-smoking strategies, such as nicotine patches.\textsuperscript{882} Price discounts have also been shown to be more effective in changing purchasing behaviour than intensive tailored nutrition education.\textsuperscript{883} The effect was very modest, but a useful example of how upstream interventions may be more effective than those based on education. In another context, there has been much discussion about the use of financial incentives for weight loss. However, questions have been raised as to whether such strategies are effective in changing the intrinsic motivators which are necessary to sustain improved long-term behaviour. The NPRI has funded a number of interventions using financial incentives. For example, the use of supermarket coupons to influence food purchasing behaviour by low income consumers was shown to be effective for the duration of the intervention, but not sustained subsequently.\textsuperscript{884} A separate ongoing study modelling the taxation of energy-dense/nutrient-poor foods suggests that a blanket fiscal policy is too blunt an instrument to improve diet across the population. Indeed the study indicates there may be a trade-off between public health and economic welfare from imposing a ‘fat tax’ on society, and that policies which specifically target people consuming energy-dense/nutrient-poor diets may be more appropriate.\textsuperscript{885}

24. Visual and auditory warning signals are also often effective. For example, auditory warnings reduce people’s failure to use car seat belts. These warning signals can be construed as a basic type of advice. Interestingly, however, the provision of more complex advice, such as that aimed at helping people to avoid undesirable financial behaviours, or nutritional labelling on food packaging, appears to be less effective, though evaluation is challenging. Differences may arise because simple warning signals are intrusive and carry a very simple message, whereas more complex advice has to be actively engaged with and integrated with existing belief structures.

25. Social science research has provided compelling evidence that factors such as attitudes, norms, confidence in one’s ability to act (self-efficacy) and intentions have a


\textsuperscript{882} \url{http://www.povertyactionlab.com/projects/project.php?id=65}


\textsuperscript{884} Sparks, L, Eadie, D, Findlay, A, MacKintosh, AM. and Stead, M. An initial assessment of the impact of a food retailer intervention to encourage healthy eating in low-income consumers. \textit{ACRA/AMS Triennial Conference}, New Orleans, 30 September – 1 October 2009.

\textsuperscript{885} \url{http://www.mrc.ac.uk/Ourresearch/ResearchInitiatives/NPRI/Dietphysicalactivity/index.htm#P80_11724}
meaningful causal impact on people’s behavior.\textsuperscript{886} One important development during the past ten years has been to show that although there is often a ‘gap’ between intentions (people’s decisions about how to act) and their behaviour. This gap can be closed by forming specific plans called implementation intentions.\textsuperscript{887} This type of intervention has proved relatively easy to deliver, and effective and adaptable to intervening in a variety of behaviours, including exercising, medication compliance, and pro-environmental behaviours.\textsuperscript{888}

26. However, caveats exist in respect of behaviour change interventions. People’s responses to interventions downstream have been explored, to try to understand the longer term effects. This work has revealed interesting insights into how policy or practical interventions appear, in some cases, to have the opposite to intended effects on behavioural change. For example, improvements in energy efficiency are shown to encourage greater use of the services (for example heat or mobility) which energy helps to provide. Behavioural responses such as these have come to be known as the energy efficiency “rebound effect”. While the impact of these effects vary in scale, in some cases they have been shown to be sufficiently large to lead to an overall increase in energy consumption - an outcome that has been termed ‘backfire’\textsuperscript{889}. Rebound effects are very difficult to quantify, particularly in relation to behaviours which, unlike energy consumption, are difficult to measure. In addition, the effects operate through complex and varied mechanisms, and a lack of clarity about these means that the reliable evidence base to underpin policy interventions based on models of the effects is as yet incomplete.

Addictive Behaviour

27. Addiction remains a sizeable challenge for the UK. To give one example, in England around 200,000 people seek help for dependency upon illegal drugs every year. Most of these are addicted to heroin and/or crack cocaine. They will have been using their drugs of dependency for eight years on average before they seek treatment. Addictive behaviour is typically characterised by excessive consumption of some sort, often followed later by regret that this has taken place, and recognition that this behaviour is likely to be damaging in the long term. People know that they have a problem with self-control: when not in a ‘hot’ state (under temptation), they will even pay for treatment to reduce their craving for the object of their addiction. An insight from behavioural economists suggests that we can think of people as having two selves: an immediate ‘doer’ that finds it hard to resist temptation, and a longer term ‘planner’ that endeavours to keep the ‘doer’ under control. Providing people with self-control strategies can support the ‘planner’ in this task. For example, some casinos have schemes whereby compulsive gamblers can put themselves on a list of people who are

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banned from the premises.\textsuperscript{890} Similarly, cooling-off schemes, including regulatory measures such as the Consumer Credit Act, can enable impulsive shoppers to withdraw from large purchases for some period after they are made.

28. The role of biomedical research in addictive behaviours has been extensively and thoroughly reviewed by both the Academy of Medical Sciences\textsuperscript{891} and by the Government’s Foresight team.\textsuperscript{892} Conclusions were that advances in genetics, neuroscience, pharmacology and psychology have already provided far-reaching insights into how drugs of abuse can ‘highjack’ certain brain processes, such as those mediating reward, leading to dependency and addiction in some people.

29. There is now evidence that most addictive drugs may act on a common brain system that also operates in food addiction (as opposed to ‘behavioural obesity’) and gambling. The UK has made a sizeable contribution to this body of knowledge, and the field is now ripe for translation into policy and treatment, which is a focus of recent ESRC and MRC activity. The Research Councils have concluded that more work is needed on understanding the harm and causes of addictions, and MRC, together with ESRC have established an addiction initiative (see paragraph 34 below).

30. UK research centres have contributed enormously to helping people who have substance use problems. Initially people are generally stabilized on maintenance pharmacotherapy such as methadone to reduce illicit use, encourage engagement with services and reduce criminal behaviour. Recently a UK study\textsuperscript{893} discovered that almost half of those discharged in one year subsequently demonstrated sustained recovery from addiction. Alongside this, or where there is no equivalent pharmacotherapeutic approach, psychosocial approaches such as those based on social learning or motivational theory are offered. Such motivational enhancement, cognitive-behavioural skills training and relapse prevention techniques have helped individuals recognize, avoid and cope with urges to abuse illegal or legal drugs.

31. Nevertheless, the ‘treatment’ of addiction remains a challenge, as only a limited number of addicts remain completely drug free for the rest of their lives. Continued investment in brain science holds the promise of informing significant practical and therapeutic outcomes for treating mental illness and addiction. For instance, treatment approaches have traditionally focused on modulating ‘reward pathways and reactivity’, but advances in neuroscience suggest targeting impulsivity or memory might be more beneficial. Research is needed to inform the formulation of better prevention strategies, and to better understand and identify physiological and socio-economic factors that put particular individuals and population groups at risk of both mental illness and drug misuse.

32. Although most interventions derived from theories of behaviour change have been developed and tested in relation to non-addictive behaviours, these theories can still inform the development of interventions for addictive ones. The constituent actions that are required to perform an addictive behaviour (e.g., asking a friend for a cigarette, holding it,

\textsuperscript{890} ESRC have funded a substantial body of research into problem gambling in partnership with the Responsibility in Gambling Trust (RIGT).

\textsuperscript{891} http://www.acmedsci.ac.uk/p99puid126.html

\textsuperscript{892} http://www.bis.gov.uk/foresight/our-work/projects/published-projects/brain-science

\textsuperscript{893} http://www.nta.nhs.uk/new-hope-for-drug-addicts.aspx
lighting it, inhaling) are voluntary behaviours that can be controlled. Similarly, a recent study on ‘addictive’ drugs such as heroin suggests that some users may be able to control their addiction, though many are seriously harmed. For a review of how theories of behaviour change can be used to inform interventions for addictive behaviours, see Webb, Sniehotta, and Michie (in press).

**What are the policy implications of recent developments in research on behaviour change?**

33. Research on behaviour change indicates that policy interventions may be effective in many domains, including (but not limited to) those related to food, alcohol, finance, energy and transport. However, effective policy-making must be based on research evidence from across the entire spectrum, all policies should take account of the evidence base, and policy-makers should use advice and evidence from a wide range of sources. The MRC is currently undertaking a three year study to review theory-based approaches to health behaviour change in order to identify the key elements of successful approaches, and to suggest how to incorporate them in the development of future interventions. Another MRC-funded study, which began in May 2010, aims to develop a scientific method for describing behaviour change interventions by defining the specific techniques used (e.g. goal setting or use of rewards). The establishment of clear and reliable definitions for each technique will inform the standardised reporting of interventions and support effective synthesis of research findings in systematic reviews. This more systematic approach to developing and describing behaviour change interventions would assist both policy-makers and researchers by fostering the development of a more reliable evidence base.

34. In the area of addiction, MRC and ESRC are supporting policy relevant studies through the MRC/ESRC Addiction Research Strategy. This initiative is funding work both on evaluation of government-level macro interventions and on more individual-level interventions (e.g. drugs for addiction informed by the latest developments in neuroscience). The MRC-led strategy for addiction and substance misuse research funds cross-discipline research addressing the biological, medical, social and economic aspects of addiction and substance misuse, and it aims to strengthen the translation of research into public health benefit to reduce the harm caused by illicit drugs, alcohol and gambling. The total spend on research under this strategy so far is just under £6.3m (2009 – 2011) and importantly, the investment has been partly driven by stakeholder needs. For example, one project will combine and compare treatment records and criminal (Home Office) records to better estimate how many people are involved in serious drug use, and how many of these get involved in crime, what proportion die, and how helpful treatment has been in reducing death and crime. Another study will support policy research into drinking behaviours and inform policy interventions such as minimum pricing of alcohol. The aim for this research

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897 http://www.populationhealthsciences.org/themes.html

898 http://www.mrc.ac.uk/ResearchPortfolio/Grant/Record.htm?GrantRef=G0901474&Caseld=15859

899 (http://www.mrc.ac.uk/Ourresearch/ResearchInitiatives/Addictionresearch/index.htm)
programme is to develop a step-change in capabilities for robust scientific appraisal of new and existing alcohol policy interventions. Two further studies are looking at drug targets and one includes a major experimental medicine platform to look at the roles of impulsivity and stress in loss of abstinence.

35. Applying understanding of human behaviour has also been identified as a critical factor in other areas besides health, such as the energy efficiency research portfolio supported by the RCUK Energy Programme. The EPSRC funded ‘Sustainable Urban Environments’ programme involves engineers, social scientists and policy makers in identifying how policy implications around sustainability might impact on an individual’s lifestyle, and when suggested changes may fail to be accepted. Projects funded by the RCUK Energy and Digital Economy Programmes under the £9M TEDDI (Transforming Energy Demand through Digital Innovation) initiative aim to use digital technologies to reduce energy demand at several levels of interaction between society and the energy system in particular:

- Presentation of information to influence individual and community decision making;
- Use of digital technologies to understand and influence individual and collective behaviour;
- Energy implications of working practices.

36. Changes in choice architecture that serve as effective interventions for behaviour change can be straightforward, simple to implement, and save money for the public purse. For example, see the pension contributions example in paragraph 22. However, for some behaviours, such as peace processes involving the cessation of terrorist violence, change is clearly much more problematic.

37. For many of the most successful instances where behaviour change has been brought about, such as the switch from leaded to unleaded petrol, concerted, multi-level interventions, combining elements such as information campaigns, withdrawal of the harmful product, an element of choice (lead-substitute petrol was still available), technological innovation, regulation which made compulsory the necessary changes to engine design to new cars, pricing strategies, and emotional appeal in respect of the danger to vulnerable children of high lead levels. Complex, multi-level interventions involving combinations of different approaches have generally proved more effective than smaller ones which focus upon one aspect of the problem. A range of approaches and policy instruments such as theoretically-integrated and informed interventions, traditional regulatory approaches, fiscal policies, "nudge" policies, the provision of clear information and education campaigns is therefore recommended. In other contexts, the main policy implications from the tobacco control experience is that success depends on a consistent approach which includes individual motivation and support, but is driven by ‘top-down’ population measures.

38. It is important to understand why different social groups indulge in undesirable behaviours. Recent ESRC funded research on young people’s drinking behaviour demonstrates that drinking to intoxication is central to social life, and accepted as normal behaviour among certain groups of young people. High levels of uncertainty and instability over jobs, education, family life, and a focus on the individual as central to one’s success or failure put particular pressure on the young. The friendship groups that are the core of the culture of intoxication are therefore very significant in a social and psychological sense, forming an important locus and sense of 'belonging'. Therefore any interventions would need
to recognise the significance of both drinking to the group identities of these young people, and the friendship group to their drinking practices. The research did not specifically address the impact of the price and availability of alcohol, but the potential impact of cheap deals, especially spirits, on young people's drinking practices, cannot be discounted. The researchers suggest that, without a parallel focus on the activities of the retail trade, the drinks industry, marketing of alcohol and the wider context of the culture of intoxication, behaviour change interventions alone are unlikely to be effective. A separate NPRI-funded study set out to shed light on the complex relationship between drinking and marketing, and specifically on whether advertising encourages consumption in teenagers. The study had an impact at a European level through the alcohol platform of the European Commission’s Directorate General for Health and Consumer Affairs (DG Sanco), in Scotland through the Holyrood alcohol team and Alcohol Focus, and also made critical contributions to UK policy reports from the British Medical Association and from the House of Commons Health Committee. There has been a large quantity of research showing that price and availability can affect consumption at the population level, and studies have shown gender differences in responses to alcohol pricing. MRC and ESRC have recently funded an interdisciplinary Addiction Research Cluster to develop capacity for research in alcohol policy effectiveness.

39. Improving understanding about the relationships between statutory and non-statutory agencies, the environment, the socio-technical infrastructure, individuals, families, communities and their social capital, is key to the design of effective policy approaches to wide scale behaviour change. Policies need to be informed by evidence in the areas of biomedicine, social science, technology development and environmental science. Perhaps the most significant implication is the need to transcend traditional boundaries between relevant parties at various levels and contexts, including government departments and academic disciplines.

40. Allcott and Mullainathan (2010) suggest the following three key policy implications for government. Although their research was in the of energy policy, they appear more broadly applicable:

- Provide funding for potentially high-impact behavioural programmes.
- Encourage private sector firms to generate and utilise behavioural innovations that 'nudge' consumers to make better choices.
- Provide independent information, such as vehicle emission data.

Is there adequate research capability within the United Kingdom to support the current pace of developments in behaviour change policy interventions? Is there sufficient funding for the evaluation of behaviour change interventions?

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901 Under the influence: The damaging effect of alcohol marketing on young people. BMA (September 2009)
41. There is emergent research expertise in the social sciences on contextual effects on behaviour in the UK. However, in recognition of the need to establish collaborations in this important area, ESRC, MRC and BBSRC co-funded 7 Exploratory Networks in Understanding Individual Behaviour, under the Directorship of Professor Nigel Harvey of UCL. These short, capacity building awards, which have recently finished, have been successful in developing capability and research partnerships in this area, and this line of research could usefully feed into the development and testing of behaviour change interventions. However, given the constraints on public funding for research, making use of this new capacity will require careful prioritisation across the Research Councils and other potential funders of research. There are important issues about (a) directing funding across the disciplines and researchers who are best placed to undertake this research, and (b) the level of funding. Psychologists, sociologists, and economists develop theories that underpin effective behaviour change interventions, and it is vital to ensure that this work is linked to expertise from the biological, medical, engineering, physical and environmental sciences.

42. The Research Councils have a long-standing interest in health inequalities, ranging from understanding causality and the impact of policy change, to the development and early evaluation of interventions aimed at reducing health differentials. ESRC and the MRC, in collaboration with other key stakeholders such as the National Institute for Health Research (NIHR) also support the development of new methodologies that will strengthen our ability to understand and address inequalities in health, including the impact and cost-effectiveness of interventions across marked social gradients.

43. Studies supported by NPRI, as shown elsewhere in this submission, explore a range of approaches to promoting positive health behaviour, to encourage people to avoid these habits and to follow a healthy lifestyle. Many are taking place in local settings, in schools, neighbourhoods, homes, the workplace and GP surgeries, and with members of the community helping to develop and test new interventions. Some projects use the internet to influence health behaviour, develop partnerships with local food shops, train members of the community to be health advisors, or use marketing communication skills to promote healthier living.

44. An example of a behaviour change intervention that has been developed using a formal framework is the Southampton Initiative for Health, which aims to improve the diets and physical activity levels of women of childbearing age from disadvantaged backgrounds. It was developed by researchers at the MRC Lifecourse Epidemiology Unit at the University of Southampton, the local primary care trust and Southampton City Council. The intervention was developed in response to strong evidence of inequalities in the diets and physical activity levels of women living in Southampton. The Southampton Women’s Survey (SWS) demonstrated that women who are disadvantaged by low levels of

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905 E.g., at the University of Warwick (e.g., Nick Chater, Neil Stewart), UCL (Nigel Harvey), and City University (Stian Reimers). Other research on behavioural economics is being carried out at London School of Economics and Political Science (e.g. Paul Dolan), Leeds University Business School (e.g. Barbara Summers, Darren Duxbury), Bolton (e.g. Rob Ranyard) and Durham University Business School (e.g., Daniel Read).


908 http://www.mrc.soton.ac.uk/index.asp?page=4
educational attainment have diets of poorer quality, and are less likely to take part in strenuous exercise than more advantaged women. Further research identified some of the underlying psychological factors that may contribute to these trends. Disadvantaged women had lower levels of self efficacy and felt less in control of their lives than other women. They believed less in the benefits of healthy eating and gave food a lower priority relative to other needs. They also had less social support for healthy eating. The research suggested that four aspects of intervention design were important in increasing the effectiveness of interventions: the use of an educational component, provision of continued support after the intervention, family involvement, and social support from peers or lay health workers.

45. Research on behaviour change interventions is often complex, multi-staged and often medium to long-term, often requiring large samples to reliably measure relatively small effects. The cost can therefore be significant. Some costs associated with the intervention are attributable specifically to the research and can be supported by the Research Councils and via dedicated initiatives such as the NPRI. Other costs, mainly those associated with implementation and evaluation, are non-research related, and the source of those funds is not always clear. Costs of evaluation may fall across partners and funding streams. Where the implementation and evaluation is to take place in an NHS setting, the non-research costs should be covered by the ARCO agreement. However, it should be noted that competing demands on NHS budgets may threaten this source.

46. Where the implementation or evaluation is outside of the NHS (such as in schools, the community or the entire population) the origin of funds is less obvious. Some research sources, such as the NPRI, will cover implementation and evaluation costs but others, such as the NIHR Public Health Research (PHR) programme do not, which may limit opportunities for the implementation of interventions outside NHS settings. The NIHR PHR programme supports research in non-NHS settings throughout the UK in both communicable and non-communicable disease, and across a wide range of health behaviours. The programme is multi-disciplinary and wide-ranging, and the main focus of the programme’s evaluation of public health interventions will be on gauging the effectiveness and cost-effectiveness of interventions.

47. Incentives within the UK for wider participation in inter- and cross-disciplinary research on behaviour change policy intervention development have been expanded by RCUK (for example as part of the RCUK Energy, Digital Economy and Lifelong Health and Wellbeing Programmes’ activities), but could be taken further. Funding is required to undertake research on various aspects including design and development, implementation and policy translation as well as on evaluation methodologies to gauge costs and outcomes. There is also a need to devote resources to capacity building in terms of training a cadre of researchers who would be capable of ‘travelling’ across disciplinary boundaries and translating research into policy-level interventions.

48. Evaluation is a key challenge. The failure to thoroughly evaluate policies and programmes designed to address health inequalities was identified by a recent Health Select Committee report on health inequalities as the key weakness of policies in this area. Adequate consideration must be given to the evaluation of interventions, particularly

complex health interventions, where there is uncertainty about their effectiveness or value for money. Many behaviour change interventions (particularly at population level) are extremely difficult to assess in formal trials, and so may need to be assessed during a pilot phase before full implementation. Skills and resources to support evaluation must be considered at an early stage and the MRC has developed guidance to support this activity. The guidance stresses the need for thorough piloting and development of interventions prior to large scale evaluation, rigorous evaluation of effectiveness and cost-effectiveness, transparent reporting of evaluation findings to aid replication, and comprehensive synthesis of evidence. It also encourages researchers, policy makers and practitioners to work together to ensure that novel interventions are implemented in ways that allow for a rigorous evaluation. There is a need to develop fora for such exchanges to occur more readily and suitable metrics need to be developed to reward scientists who invest time and energy in this area. The RE-AIM framework similarly emphasizes the importance of considering aspects of an intervention such as its reach and sustainability, as well as its effectiveness. Some behaviour change interventions can be evaluated using randomized controlled trials, and there are many successful examples across a wide range of settings and behaviours. Others, such as national legislative or fiscal changes, are difficult or impossible to evaluate using randomized experimental methods. The MRC Population Health Sciences Research Network is developing guidance on the use of natural experiments to evaluate population health interventions which will be published in early 2011.

Are there adequate structures and expertise across government and the public services more generally to support the translation of research developments in behaviour change into policy interventions?

49. Research evidence about behaviour may be complex, and as the science is often very new, can be compounded by issues such as incompleteness and conflicting findings. It is therefore essential that researchers work closely with policy makers and practitioners to ensure that the most robust knowledge available about behaviour (and its limitations) is used to address needs and develop future policy and interventions. Structures and approaches to narrow the gap between suppliers and users of research should be explored, to both focus research priorities and accelerate evidence into effective interventions. Examples such as the MRC/ESRC Addiction Strategy, NPRI programme and the UKCRC Public Health Research Centres of Excellence are in effective pooling their expertise with practitioners and policy makers to support translation of research into policy and practice. The development and

evaluation of interventions, including the use of non-experimental methods where appropriate should be prioritised. The question of funding for associated costs should be addressed to ensure that funding for evaluation is available in time to coincide with the implementation of an intervention.

50. Agencies and funders could explore further ways of enabling closer dialogue and exchange of skills, particularly at local level. In addition, there is a need to increase incentives for academic researchers to generate forms of knowledge of most value to decision makers.

**What should be classified as a behaviour change intervention?**

51. Any measure that changes, or is intended to change behaviour, habits or practices; any policy or activity designed to modify overt actions could be classified as a behaviour change intervention. Behaviour change interventions should be defined sufficiently widely to include interventions designed either to change individuals’ beliefs, attitudes, preferences, habits, practices etc., or to change the environment within which they make their choices. The classification should include broad population-level upstream activities including legislation, fiscal policy and national-level activities such as Change 4 Life and the Sure Start programme as well as individual level interventions. Which mixture of levels and types of intervention is appropriate will vary according to the goals of policy and the nature of the behaviour in question. However, there is evidence that action is required at all of these levels if behaviour change is to be maximised. Further research on the different levels and types of intervention and how they interact is a priority.

52. The impact of behaviour change campaigns on health inequalities strengthens this view. Campaigns which rely solely upon people understanding and responding to health information may improve population health overall, but at the expense of widening health inequalities. This is because better-educated or wealthier people are often more likely to both understand the messages and have the wherewithal to respond to them. For example, the ‘back-to-sleep’ campaign noted above was very effective at reducing sudden infant death syndrome, but socio-economic inequalities in death rates from SIDS widened markedly as sleeping position became less important as a risk factor, and parental smoking and sleeping with a parent on a sofa rather than a bed became more important. To improve health without widening health inequalities, individual-level interventions should be combined with measures to ensure that people have adequate opportunities to respond. For example, campaigns to promote physical activity should combine encouragement with the provision of accessible and affordable facilities, or an attractive and safe environment in which to take exercise.

**How should different levels of intervention (individual, organisational, community and national) and different types of intervention (legislative, fiscal, educative) interact in order to achieve policy goals more effectively?**

53. Insufficient research has so far been undertaken that simultaneously addresses different levels of intervention. Research on different levels and types of intervention and how they interact should therefore be prioritised. An example of this approach is the NHS Health Scotland’s MESAS study, which is using a portfolio of studies to evaluate the Scottish Government’s alcohol strategy. It includes work on the impact of measures to control price
and availability, as well as on the provision of brief interventions to people who already drink harmfully.  

54. Interventions should be designed to complement each other to provide as comprehensive coverage as possible of all aspects and motivations to change. The evidence points to the necessity for different types of intervention to work together. The way this happens, or should happen, is dependent upon context.

55. The method and manner of this type of interaction is dependent upon an integrated way of communicating and working between government departments, policy makers, academic researchers, service providers and practitioners and the members of the target population (or their advocates). There may be merit in establishing strategies to guide a given policy and associated interventions via a genuine cross-departmental, cross-sectoral and collaborative working experience from initial formulation and assessment of problems or needs to the design, development and implementation of a given intervention.

Should behaviour change interventions be used in isolation or in combination with other policy interventions?

56. In one sense, all policy interventions rely at least implicitly on behaviour change. For example, making an activity illegal implicitly relies upon some people changing their behaviour by ceasing participation in the activity. However, this strategy on its own is probably unlikely to result in the complete cessation of the activity in question. As there are multiple determinants of behaviour, which operate at various levels, there is a need for complex, integrated interventions that take account of individual and group behaviour in particular contexts – a sort of ‘population in context’ approach to behaviour change. Behaviour change interventions should be used in combination with other policy interventions where possible, taking account of the many influences on people’s behaviour. For example, the Southampton Initiative for Health, described above has made use of the provision of Sure Start at national level, and has used the healthy eating and physical activity messages of Change 4 Life and the Food Standards Agency.

Have publicly funded behaviour change interventions been both evidence-based and subject to effective evaluation? How successful have such interventions been?

57. Comparatively few behaviour change interventions have been, or could be, evaluated through conventional randomised controlled trials. However, a more rigorous approach to evaluations in this area is necessary, and may require new methodologies. One of the most important factors on effectiveness is the extent to which the intervention is based on behavioural theory. The implication is that behavioural scientists may hold the key to informing more effective interventions in the future.

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915 For information on the programme, see [http://www.healthscotland.com/scotlands-health/evaluation/planning/MESAS.aspx](http://www.healthscotland.com/scotlands-health/evaluation/planning/MESAS.aspx)


58. Evaluation is complex, and as we note above, often difficult to put into practice. It seems self-evident, for example that cigarette companies advertise their products to increase sales, and makes little sense to argue (as has happened in the past) that any other motive explains their spending on this activity. However, evidence that banning advertising impacts on smoking behaviour is extremely difficult to collect, particularly without the cooperation of the companies doing the advertising. In some cases it may therefore be appropriate to introduce measures without concrete proof of effectiveness. In other cases, measures such as the smoking cessation services have been thoroughly monitored and their success, in treating nearly 5 million smokers and generating nearly 700,000 sustained (>1 year abstinent) quitters is well established. The UK Centre for Tobacco Control Studies (UKTCS), one of the Public Health Centres of Excellence (see paragraph 10) is carrying out research into smoking cessation, exploring the best and most effective ways of providing Stop Smoking services and assisting people to quit. They also research determinants and prevention of incident smoking; smoking in pregnancy and harm reduction.\(^{918}\)

59. The NPRI is funding a number of studies which evaluate interventions intended to improve public health. For example, one study which is due to report soon evaluated the effect of the UK 2007 OfCom restrictions on television food advertising to children. A second study, still ongoing, evaluates the impact of English tobacco control policy on smoking cessation activities. These projects, and others, may provide evidence of whether these publicly funded interventions achieved what was intended.

60. The House of Commons Select Committee Inquiry into health inequalities (2009) highlighted the difficulties in evaluation, and commented on the use of evidence in public health policy-making. The Committee noted that ‘The most damning criticisms of Government policies we have heard in this inquiry have not been of the policies themselves, but rather of the Government’s approach to designing and introducing new policies which makes meaningful evaluation impossible.’\(^{919}\)

Within government, how are the lessons learnt from the success or lack of success of behaviour change interventions fed back into the design of future interventions? Are lessons learned from industry and voluntary sector behaviour change activities also taken into account?

61. The marketing and advertising sectors have a great deal of expertise in influencing behaviour. For example, a recent book written by a former FDA commissioner documents how the food industry has succeeded in changing eating cultures over the last 30 or 40 years.\(^{920}\) Economic modelling suggests restrictions on advertising unhealthy food to children may be a particularly cost effective intervention because of low cost and wide-scale population reach.\(^{921}\)

\(^{918}\) http://www.nottingham.ac.uk/ukctcs/index.aspx

\(^{919}\) http://www.publications.parliament.uk/pa/cm200809/cmselect/cmhealth/286/28602.htm


62. Social marketing is the systematic application of marketing, along with other concepts and techniques, to achieve specific behavioral goals for a social good. This approach to behaviour change, particularly in relation to motivating more sustainable behaviours, is a particular focus of the ESRC Centre for Business Relationships, Accountability, Sustainability and Society (BRASS). Substantive insights generated from their work are included in a separate BRASS submission into this consultation process.

63. The voluntary sector has a key role to play. There is a growing appetite to learn lessons regarding behaviour change activities (such as parenting interventions), and promote change for the better, especially among disadvantaged groups. However, the capacity for the sector to implement relevant lessons would benefit from further strengthening. There may be a need to take a targeted approach with appropriate funding to facilitate the uptake and translation of lessons learned, for example through the ESRC Placement Fellowships scheme.

**What mechanisms exist, at national and local government level, to provide advice and support during the design, piloting, implementation and evaluation of behaviour change interventions in order to ensure that they achieve intended policy goals and also cultural changes within government and public services more generally?**

64. A much closer partnership between policy makers and academia is warranted. The five UK Centres of Excellence for Public Health are good examples of growing partnerships between the different sectors, and could provide a model for transcending boundaries, creating partnerships and initiating processes of designing, developing, piloting, implementing and evaluating policy-orientated behavioural interventions. Approaches to implementation should also be considered as these can vary significantly from the formal approaches taken by Primary Care Trusts, such as HENRY (an early years parenting intervention) and MEND (a childhood weight-loss intervention), to more ad hoc approaches in education and Social Services.

**What mechanisms exist within government to coordinate and implement cross-departmental behaviour change policy interventions?**

65. No comment.

**What mechanisms exist within government to cascade learning and best practice on behaviour change policy interventions?**

66. Government agencies, such as NICE (and its equivalent in other areas) are potential providers of relevant learning material and best practice exemplars. For instance NICE reviews and recent guidance on obesity reflect the best evidence available to inform research studies, interventions and policy.

922 [http://www.brass.cf.ac.uk](http://www.brass.cf.ac.uk)

923 Three in England, one in Wales, one in Northern Ireland and their counterpart in Scotland (the Scottish Centre for Public Health Research and Policy)

924 [http://www.henry.org.uk](http://www.henry.org.uk)

925 [http://www.mendprogramme.org/mendservices/mendprogramme](http://www.mendprogramme.org/mendservices/mendprogramme)

926 National Institute for Health and Clinical Excellence
When is it appropriate for the state to intervene to influence the behaviour of members of the public and how does this differ from when it is appropriate for the commercial or voluntary sector to intervene? In particular, when should this be done by outright prohibition and when by measures to encourage behaviour change? Are some methods of producing behaviour change unacceptable? Which and why?

67. This question was considered by the Nuffield Council on Bioethics in its 2007 report, *Public Health: ethical issues*. The report proposed a stewardship model of public health. According to this model, the state should not coerce people to lead healthy lives, but should do more than simply provide information about the benefits or harms associated with health-related behaviours. The report argues that intervention can be justified in order to protect vulnerable groups, help people to overcome addictive behaviours, reduce the risks that individuals impose on one another, or to provide an environment conducive to leading a healthy life. The report introduced the idea of an ‘intervention ladder’ to highlight the balance that needs to be struck between benefit and intrusiveness: more intrusive interventions require stronger evidence of benefit to be acceptable. Prohibition, for example of speeding in built-up areas or smoking in enclosed places can be acceptable when there is clear evidence that it can prevent harm or protect vulnerable people. This highlights the need for rigorous evaluation, noting where the evidence is weak or inconclusive. In the current, partial state of evidence about effective behaviour change, piloting of new interventions, coupled with a rigorous approach to evaluation, is essential to ensure that they are well-designed, cost effective and do not have harmful unanticipated consequences, such as widening health inequalities.

68. Behavioural economists refer to their approach as one of liberal paternalism. They see it as liberal because they ultimately allow people freedom in their choices, and paternalistic because they try to influence people’s choices in a way that will make them better off, as judged by the choosers themselves. Nevertheless, there have been debates about the ethics of use of defaults in organ donation (e.g., within the House of Lords). Thaler and Sunstein (2008) suggest that use of a default presumes consent. While, opponents of their approach argue that this is unethical, and that, e.g. organ donation in particular requires explicit consent, others have debated whether defaults do, in fact, presume consent.

69. It may be appropriate for the state to intervene to prevent dangerous behaviour, but the extent of that intervention depends on who undertakes the behaviour, and whether others are harmed. Where there are significant implications for the safety of vulnerable groups, or a danger of factors such as secondary exposure, or for poverty and deprivation, there may be a strong argument for powerful intervention. It may be appropriate in some instances to intervene when public funds are required to remedy and address the consequences of harmful behaviour. Ethical considerations, wide consultation and the appropriate timescale for intervention should be identified by a careful review of evidence regarding its effectiveness, and positive and negative impacts on the consequences of behaviour.

Should the public be involved in the design and implementation of behaviour change policy interventions and, if so, how? Should proposed measures for

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securing behaviour change be subject to public engagement exercises or consultation? Should they be piloted? Do considerations differ in the case of interventions aimed at changing addictive behaviour?

70. In principle, the involvement of the public in the design and implementation of behaviour change interventions is likely to lead to better uptake and adherence, and may also be desirable for ethical reasons. However, recent reviews have found a lack of evidence on the impact of public involvement in research.\footnote{Stanley K (2010) Exploring impact. Involving the public in NHS, public health and social care research. INVOLVE, Eastleigh. (www.invo.org.uk/pdfs/Involve_Editing_Impactfinal28.10.09.pdf); Brett J et al. (2010) The PRICOM study. A systematic review of the conceptualisation, measurement, impact and outcomes of patients and public involvement in health and social care research. UKCRC (www.ukcrc.org/systematic-review-on-ppi-in-clinical-research/).} Research involving health service users provides good examples of models and methods of working (e.g. the community participatory approach) that may be transferrable to other sectors, and further testing is needed to identify effective approaches. There are also specific planning frameworks such as Intervention Mapping that indicate how the public might be involved at various stages in the process, such as community needs assessment, intervention design and planning. The public should be consulted about the proposed behaviour change measures, and as noted above there should be a ‘try-and-test’ phase before deciding the nature and degree to which they should be implemented.

71. Although transparency and public accountability are important features of behaviour change research and interventions, it is also necessary to take into consideration the evidence from behavioural science that people have defensive biases which often cause them to downplay the true risks of their behaviour. Prejudice and stigmatisation are important considerations in the case of interventions aimed at changing addictive behaviour.

What lessons can be learnt from previous successful or unsuccessful behaviour change interventions in other countries? Which countries provide the most helpful examples of best practice? Are behavioural change interventions generally transferable between different societies?

72. A great deal of research on behavioral economics has been carried out in the US, and ESRC, in collaboration with the NIA and NAS, are currently in the process of organising an international workshop to explore new approaches in this area. One suggestion is that we need to investigate the effectiveness of behaviour change interventions in relation to cross-country and cultural differences. It is likely that the principles of behaviour change techniques are generally transferable between different societies and cultures on the basis of our common humanity. However, more comparative research is needed to identify any exceptions or limits to this. Even where there is consistency at the level of principle, there is a need to translate the principles in a way that takes account of issues such as social and cultural relationships and environmental and economic processes. More work is needed on the process and practicalities of tailoring interventions to particular populations and contexts. Although there have been some attempts to work towards integrating the various theories and identifying ‘common core theoretical constructs’ or general principles and techniques, further attention needs to be given to the need to incorporate social, cultural, physiological and environmental factors in theory integration and related intervention development and implementation.
The Committee would particularly welcome submissions on behaviour change interventions, whether in the public sector, the private sector or by voluntary organisations, designed to tackle obesity, in the United Kingdom or internationally, in order to examine:

73. In 2008/09, MRC committed over £14 million to research directly relevant to obesity including mechanistic, epidemiological and proof of concept research. The MRC’s activities in obesity research are centred on the causes of obesity and the processes by which it causes disease. Research into the prevention of obesity and related diseases is an area of growing interest, in which activity has increased over the last five years as new translational opportunities have arisen. The Research Councils have also made substantial additional contributions to the NPRI.

74. The MRC Epidemiology Unit, MRC/CSO Social and Public Health Sciences Unit and the MRC Centre for Obesity and Related Metabolic Diseases are capitalising on the methodological strengths and available datasets to tackle key research questions in the field. Collectively, the research covered is broad and spans fundamental experimental research, clinical studies in patients, right through to the study of social and environmental influences on health, and includes assessments of the effectiveness and impacts of different individual and population level approaches to behaviour change and disease prevention. These multidisciplinary and complementary approaches will inform a continuum of knowledge to inform understanding of the mechanisms responsible for obesity and related metabolic diseases, as well as facilitating the development of interventions to prevent and treat them.

75. Food preferences are established early in life in comparison with other appetites, and eating behaviour may be controlled by more complicated physiological / psychological / social mechanisms than other behaviours. Obesity should therefore be considered a complex physiological and socioeconomic issue, spanning many disciplines and requiring research investment from a variety of funders. The MRC’s objectives for obesity research are to produce an understanding of the mechanisms of obesity and of its links to disease, and to use these insights to develop effective interventions to prevent and treat these conditions, whereas those of the ESRC are in the social and economic factors involved. Other councils fund different aspects of the obesity issue; BBSRC supports research and training in diet and health, food choice and energy balance.

76. The MRC priorities for obesity research, issued in July 2010\(^{929}\) were developed in partnership with the research community, and are based on disease burden, unmet need, timeliness, value for money/added value, impact on disease and tractability/feasibility. They aim to address relevant areas of the Government’s national obesity research strategy, while acknowledging the importance of research into the wider socioeconomic drivers. The MRC’s research plans recognise that obesity cannot be managed in the same way as single risk factor changes, and that there are lessons to be learned from examples of multifaceted research strategies that have been successful in improving health outcomes in other complex disease areas, such as cardiovascular disease.

\(^{929}\) \url{http://www.mrc.ac.uk/Ourresearch/Priorities/Obesityresearch/index.htm}
77. Over the last three years a number of reports have contributed significantly to the evidence base. We would draw the committee’s particular attention to two recent Special Issues on behavioural treatment of obesity,\(^{930}\): the Government Foresight Report, *Tackling obesity: future choices*\(^{931}\) which supported the foundations of the *Healthy Weight, Healthy Lives* strategy, a review and guidelines by NICE\(^{932}\), and papers by various academic researchers in the field such as Wardle (2007)\(^{933}\) and Musingarimi (2008) who conducted a review and comparative analysis of policies targeted at obesity in the four UK countries\(^{934}\). A Northern Ireland Assembly Inquiry Research Paper (2009) identified the extent of overweight and obesity levels in NI and the associated policy response from the DHSSPS\(^{935}\). The paper also highlighted the key causes and risk factors associated with obesity and provided a comparative overview of a number of interventions and treatments in the UK and internationally.

78. NPRI and NIHR both support programmes which will increase research evidence on the effectiveness of interventions. Research supported by NIHR, such as the Convenience Stores project, which puts fruit and vegetables into local shops in deprived areas, and the Healthy Towns project also seek to embed more evaluation into policy interventions.

a. the latest developments in the evidence-base in relation to changing eating and physical activity behaviour;

79. Different approaches to promoting physical activity have been reviewed by the Public Health Programme of NICE. Researchers supported by ESRC and MRC have contributed to these reviews both in terms of providing the studies that are part of the primary evidence base, and also the process of reviewing. An initial NICE review of four commonly used methods for promoting physical activity (PH2) suggested that brief advice was probably effective but that exercise referral schemes were largely of unknown effectiveness. They suggested that exercise referral schemes to promote physical activity should be encouraged only when they were part of a properly designed and controlled research study to determine effectiveness. The NICE review suggested that pedometers were a promising approach and a subsequent systematic review\(^{936}\) suggested that the use of a pedometer was associated with significant increases in physical activity and decreases in body mass index and blood pressure. Whether these changes were sustained over the long term was uncertain. As in all areas of behaviour change, interventions are generally more effective if based on a theoretical foundation.

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\(^{930}\) *Behaviour Research and Therapy* (Volume 48, Issue 8, August 2010); *Annals of Behavioural Medicine* (Volume 38, Supplement 1, December, 2009)


\(^{932}\) [http://www.nice.org.uk/guidance/CG43](http://www.nice.org.uk/guidance/CG43)


80. Systematic reviews of interventions for the treatment of childhood obesity\(^\text{937}\) have found few high quality trials, and these mainly involved small numbers of primary school aged children, carried out in academic tertiary care centres with highly specialised staff, and involving white, middle class, motivated families. The applicability and generalisability of these studies is therefore limited, and the reviews conclude that ‘there is an urgent need for quality trials of adequate power to be carried out in samples that are representative of the population at large, where process evaluation has been addressed and appropriate lifestyle tools applied’. The authors reviewed 64 randomised controlled trials (RCTs), with 5230 participants in total. The trials focused on lifestyle interventions, diet changes and behaviourally orientated treatment programs. Three types of drug interventions (metformin, orlistat and sibutramine) were reviewed. Since publication, sibutramine has been withdrawn due to safety concerns. Design, outcomes and quality varied significantly across the 64 studies. Meta-analyses indicated a small reduction in overweight at 6 and 12 months follow up in:
   i) lifestyle interventions involving children; and
   ii) lifestyle interventions in adolescents with or without the addition of orlistat or sibutramine. A range of adverse effects was noted in drug RCTs.

81. In a review of interventions in Children and Young People (PH17) there was evidence among adolescents of the effectiveness of multi-component interventions and interventions that included both school and family or community involvement.\(^\text{938}\) However, it was noted that a lack of high quality evaluations hampered conclusions concerning effectiveness, especially among children. NICE have also reviewed workplace interventions (PH13) suggesting that there is evidence from studies in the public sector that workplace walking interventions using pedometers that focus on facilitated goal setting, diaries and self-monitoring and walking routes can produce positive results. Multi-component interventions that combine the provision of signs to encourage stair use with modifications to make stairwells more attractive can increase the frequency of stair use.

82. At the environmental level (PH8) there was relatively little definitive evidence of how changes to the environment impacted on physical activity, particularly when activity is assessed objectively rather than by self-report. This issue of appropriate measurement of physical activity is common to all studies in this area. Evidence about the impact of environmental change on activity would come from natural experiment studies and from longitudinal cohort study approaches, study designs which are now being actively promoted in this area. The development of methods for natural experiments is of particular importance to ensure that policy makers, researchers and funders are aware of appropriate methodologies. The MRC Population Health Sciences Research Network is leading the development of such guidance. In the physical activity field, natural experiments such as the evaluation of major transport infrastructure investments are underway, led by the UKCRC Centre of Public Health Research Excellence Centre for Diet and Activity Research (CEDAR). Observational approaches have suggested that there is a reasonably consistent association between physical activity levels and the accessibility of physical activity and other facilities, the density of residential areas, land use mix and urban ‘walkability’ scores. There


\(^{938}\) E M F van Sluijs, A M McMinn, S J Griffin. Effectiveness of interventions to promote physical activity in children and adolescents: systematic review of controlled trials BMJ 2007; 335 : 703
are also reasonably consistent links between physical activity levels and the perceived safety of an area and the availability of footpaths or equipment for exercising. There are less clear links between physical activity levels and the aesthetic features of the environment, topographic factors and perceived levels of crime.

**b. who are the most effective agents for the delivery of behaviour interventions to tackle obesity;**

83. The most effective delivery agent for behavioural interventions will depend upon whom the intervention is aimed at. In respect of overweight children, there are indications that interventions should be aimed at both the children and their parents. The best outcome data come from Family-Based Behavioural Treatment (FBBT; sometimes called the Traffic Light Diet because of the dietary component of the programme). The results of this programme, published in a series of studies by Epstein and colleagues, have shown impressive results. FBBT is delivered in group sessions to 8 to 12-year-old, mildly to moderately overweight children and their parents. It consists of dietary and exercise advice and behaviour therapy to help implement these changes. Ten-year follow-up of 158 children who participated in 4 randomised controlled trials indicated that, on average, 30% of children reached non-obese status, with a further 34% reducing their percentage overweight substantially. Improvements in blood pressure and cholesterol were also been reported, with no sign of disadvantage to linear growth or of disturbed eating attitudes.

84. FBBT is widely cited as the most effective treatment for childhood obesity in both international and British reviews, but the generalisability of this treatment approach to a UK population has yet to be established. Epstein’s research was carried out in a relatively select study population (in a university clinic in the US) and has not been tested extensively in other settings. The participants were predominantly white, and of higher socioeconomic status. It is unclear whether children from different backgrounds and settings would fare as well. There are indications that families who are at greatest social disadvantage are at most risk of being obese, and therefore determining the applicability of this treatment model in such populations is essential.

85. While Epstein’s programme of research on FBBT has been exemplary, some earlier research on the topic do not meet contemporary standards for inclusion in systematic reviews, and thus do not achieve their full potential to influence decision-making about treatment services.

86. A recent study conducted by MRC Human Nutrition Research found that commercial weight loss programmes such as Weight Watchers were more effective agents of behaviour change (reflected in weight loss) than health professionals. Findings showed that people referred to such programmes do better than those on standard NHS weight management programmes, and that the weight loss observed compared favourably with other reported community interventions. A second study to examine weight loss in routine...
referrals to Weightwatchers by health professionals found that a third of all referrals led to
>5% weight loss. In the context of other research literature, the elements associated with
success are likely to be peer support, regular weighing, goal setting and accountability which
form part of the ‘package’ of interventions provided by Weight Watchers. The studies
followed the publication of NICE guidance on obesity (2006)942 which highlighted gaps in
research and suggested partnerships between primary care organisations and commercial
weight loss programmes could be beneficial. Both research studies were specifically designed
to examine this issue and measure real-life weight loss. Although they were funded by
Weight Watchers, the research was independent and conducted on the agreement that the
scientific results would be presented and published without interference from Weight
Watchers, whatever the outcome.

87. For obesity prevention the evidence that community based, participatory
interventions can drive change is growing. Studies in New Zealand and Australia indicate that
factors associated with success include local champions, community collaboration and
partnerships, good planning and co-ordination and sustained effort for several years943. This
has had some success,944 especially for younger children, though less in adolescents.
However, success has been limited in parallel studies in Fiji, where socio-cultural issues may
mitigate against success for weight reduction.

88. Population-level interventions, which recognise the impact of the food environment
on eating habits and food choices, are increasingly being deployed. The salt reduction
campaign, primarily focused on reformulation of food and accompanied by consumer
awareness raising, has led to measurable decrease in salt intake. Steps are now underway to
replicate this in relation to saturated fat, but as yet it is too early to see the results of this
work.

c. how current behaviour change interventions tackle obesity and what use is
made of available scientific evidence;

89. There is a great need for effective interventions to prevent or treat obesity to build
on current research which seeks to identify behaviours that might be targeted. To be of use
in a public health context interventions must be feasible and cost-effective on a large scale as
well as in a controlled (and resource-intensive) experimental setting. It can also be
challenging in general to conduct appropriate research for behavioural, psychological and
environmental interventions. Explanatory trials and proof of concept studies represent an
important gap in research. Across all these areas, a balance between studies on prevention
and on treatment will be required to produce a balanced approach to obesity and related
metabolic diseases. The identification of critical points in the life course for intervention will
be important, as will the investigation of differences in effectiveness of interventions between
different groups (e.g. age or cultural groups). Research priorities in this area include:

942 http://guidance.nice.org.uk/CG43
943 Bell AC, Simmons A, Sanigorski AM, Kremer PJ, Swinburn BA. Preventing childhood obesity: the sentinel site
childhood: results from Romp & Chomp, an Australian community-wide intervention program’. American Journal
of Clinical Nutrition 91(4), pp.831-840; Sanigorski, A.M., Bell, A.C., Kremer, P.J., Cuttler, R., Swinburn,
• Identification of (testable) opportunities for intervention from basic and small scale detailed research (e.g. psychological/behavioural interventions) and translation into proof of concept trials in natural settings.

• Evaluation of natural experiments and opportunistic policy experiments – particularly when the primary focus is not obesity-related (e.g. transport policy).

• Explanatory and proof of concept trials of population-based interventions, with a focus on how these can be used to influence policy development (and with an awareness of current policy, such as around incentives) and linked to biological mechanisms.

• Investigation of synergy and conflicts between different intervention strategies.

90. One example of the few intervention studies that have been carried out is the Healthy Eating Lifestyle Programme (HELP), a treatment programme designed by researchers at University College London Hospital NHS Foundation Trust. The programme uses best evidence on effective strategies for adolescent obesity. A developmentally appropriate curriculum supports self management of weight in partnership with parents. The programme content is based on six key factors identified in effective obesity management programmes focusing on; a) eating behaviours and eating attitudes b) increases in daily activity levels c) decreases in sedentary activity d) nutrition and healthy eating e) emotional and behavioural difficulties.

91. Systemic approaches offer encouraging results where engagement and motivation are critical issues in effective delivery of health related behaviour change. A theory of change model is used to promote behavioural change. Motivational interviewing is a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence.

92. Motivational interviewing is based upon the transtheoretical Model of Change which suggests that people go through the motivational stages of pre-contemplation, contemplation, determination, action then maintenance in changing a problem. The therapist matches any intervention to the client’s motivational stage, which reduces the resistance that may occur if a client believes they do not have a problem (pre-contemplation) or acknowledges concern but is not ready to start changing their behaviours (contemplation). Once change begins, the theory suggests that people start to re-discover skills and resources, which in turn help to maintain the changes made and move the client through subsequent stages. However, no studies have been published of the effects of motivational work on weight management in young people, and it remains unclear whether it is sufficient to produce lasting change, or is best used as an engagement promoter combined with other interventions.

93. In HELP, solution-focused techniques are used to identify strengths, abilities and resources and build on identified successful weight management strategies. Solution-focused therapy (SFT) is a parallel psychological technique that has significant promise with young people who are reluctant to engage with more traditional psychological approaches. SFT views the patient as the expert and aims to focus on “what works” e.g. identifying “what helped” during periods when their ‘problem’ was under control. SFT aims to be non-pathologising and normalizing. The approach is widely accepted as effective in promoting
engagement, motivation and behaviour change and researchers have found it to have significant benefits in direct clinical work with overweight young people.

94. Video transcribed focus groups with young people and their families demonstrate high levels of satisfaction with the programme as well as increases in confidence, self esteem and school attendance. Clinical data show improvements in weight and/or body composition. The feasibility of delivering HELP to a diverse population, in a busy clinical service has been demonstrated.

d. whether such interventions are appropriately designed and evaluated; and

95. HELP is supported by a written manual with descriptions of aims and objectives for each session, worksheets, activities and delivery format. Graduate mental health workers will receive training in the delivery and programme content and will offer group sessions to families randomised to the intervention. Regular clinical supervision will be provided to ensure integrity and accuracy of delivery. Input from families has been used to refine the content and delivery of the programme. HELP consists of 12 weekly sessions. Each module has worksheets and homework for the young person and parents. The programme is currently being evaluated in a DH-funded randomised control trial in a primary care context. It is the only trial currently being evaluated for adolescents with obesity in the UK.

e. what lessons have been learnt and applied as a result of the evaluation process.

96. The review of evidence that was conducted to inform the development of the Southampton Initiative for Health (SIH) suggested that peers may be effective agents in the delivery of behaviour change interventions provided. As described above the SIH capitalises on the strong relationship between Sure Start Children’s Centre workers, who are often women from the local communities that they serve, to support and empower disadvantaged women to change their health behaviour. The intervention has been feasible because of the strong collaborative relationships built up over time between researchers at the MRC and University with the PCT and City Council. The MRC Lifecourse Epidemiology Unit is conducting a non-randomised controlled trial of the intervention, whose findings will demonstrate whether this type of intervention is an effective route to improving health behaviour.

October 2010
1. **Introduction**

1.1 Research Councils UK is a strategic partnership set up to champion research supported by the seven UK Research Councils. RCUK was established in 2002 to enable the Councils to work together more effectively to enhance the overall impact and effectiveness of their research, training and innovation activities, contributing to the delivery of the Government’s objectives for science and innovation. Further details are available at [www.rcuk.ac.uk](http://www.rcuk.ac.uk)

1.2 This evidence is submitted by RCUK on behalf of the Research Councils listed below and represents their independent views. It does not include, or necessarily reflect the views of the Knowledge and Innovation Group in the Department for Business, Innovation and Skills (BIS). The submission is made on behalf of the following Councils:

   - Economic and Social Research Council (ESRC)
   - Engineering and Physical Sciences Research Council (EPSRC)
   - Medical Research Council (MRC)

1.3 The Research Councils, individually and jointly, support a broad range of research relating to understanding and influencing human behaviour. Research is funded through support to universities and research organisations and within Research Council Institutes. RCUK welcomes this second case study Call for Evidence regarding behaviour change. We would refer their Lordships to RCUK’s previous submission which provides considerable generic evidence on the contribution of research to the understanding of behaviour change, including transport behaviours specifically (Annex 1 provides the relevant sections). In the context of the previous submission this contribution focuses on our strategic interests and activities in relation to this transport agenda, rather than return to the research evidence itself. In that context we would note that RCUK does not undertake research itself, although some individual councils do through their institutes, nor do the administrations recommend behaviour change interventions in their own right. We do however take an interest in and, from time to time, take steps to inform stakeholders about the findings of research which we have funded and to demonstrate what effective interventions might look like or how they might work.

1.4 The Research Councils have a long-standing interest in transport research having funded significant investments in a number of centres, including, for ten years, the internationally renowned Transport Studies Unit at University College London. Details of major investments funded by RCUK in the area are provided at Annex 2. Increasingly, this work has sought to suggest how the transport system and transport policy might evolve jointly, to the benefit of both transport users and the environment in the context of environmental change. In the interests of helping ensure their Lordships receive a full range of research informed submissions the Research Councils have recommended to the researchers whom they fund to carry out work in this area that they respond to their Lordships in their own right. We would note to their Lordships that the RCUK portfolio of research on this agenda is expected to decline in the future following the decision to withdraw support from the UK Transport Research Centre by the Department for...
Transport, as a consequence of the current fiscal pressures facing the Government. ESRC is currently considering whether to support some ongoing work packages from the Centre.

1.5 The Universities' Transport Study Group (UTSG) represents universities and institutions of higher education in the UK and Ireland involved in transport teaching and research. Amongst other activities it acts as a focus for liaison between researchers, users and sponsors of transport research through e.g. its annual conference. The Research Councils use this forum as a conduit to inform stakeholders and learn about new developments in the field.

2. **Affecting and changing individual's travel choices, changing behaviour (questions a, b, d and e)**

2.1 The ESRC in collaboration with the Technology Strategy Board and the Department for Transport recently hosted a series of public policy seminars focussed on generating better understandings of, and informing policy debate about, transport choice and behaviour and the effects of recent developments on those choices (ESRC 2006). These events provided an opportunity for leading researchers in the social science transport field to explain some of the complexities of human transport decision-making and to discuss their findings with representatives from Government, industry, think tanks and the Third Sector. This research informed debate addressed a number of the questions raised in this enquiry.

2.2 There is an assumption that people will make 'best' travel choices if they have access to the right kind of information (i.e. that they will make a rational choice). However, this is known not to consistently be the case. Studies have shown that an individual's response to travel information is not always rational, but is bound up with many factors including their personality, habits, family structure and social networks. Rational choice theory has however been widely used as an assumption of human behaviour in models and analysis, and has historically been influential in respect of policy interventions. However, as noted in RCUK's earlier submission to this enquiry, this approach has limitations. Research across the social sciences and beyond demonstrates that behaviour is the consequence of a complex interplay of inherited genetic endowments, gene expression, brain chemistry and connectivity, and social and economic incentives, and is in reality only rarely 'rational'. Only a fraction of our decisions are made by calculation of costs and benefits, and this reflects the embedded nature and powerful effects of habits and practices. If, for example, we start to think about how our own everyday travel choices are made and how they are accomplished, we soon find ourselves recognising that we do not routinely critically reconsider travel options for regular or common travel. We simply adopt entrenched behaviours built on the experience of habit in favour of looking beyond our own individual experience and presumed preference to decide and choose between options.

2.3 If we were to explore these complexities we would quickly find that they are grounded in complex, socially situated and interweaving routines, or 'practices' (Medd and Shove 2005) rather than rational, informed decisions that appeal to rationality. It is therefore unlikely that behaviours can be changed solely by interventions that appeal to rationality alone, such as those based upon, financial or environmental costs or even apparent safety or convenience.
2.4 Key insights reported at the ESRC’s public policy seminars are:

Most travel is local and familiar – 68 per cent of trips are less than five miles and 84 per cent are less than ten miles. (National Travel Survey 2006)

“Intelligence is a marriage between technology and human behaviour”. R&D has so far mostly focused on technology but it is increasingly recognised that attention to human behaviour is equally important if the marriage is to work. (Lyons 2008).

Travel and travel choices are framed by the social practices of daily life; they are enabled, but are not determined by technology.

The effect of all kinds of travel information, from in-car navigation to overhead signs and travel websites are less powerful than the engineers and designers assume.

Making the ‘best’ travel decision requires more effort than most people are prepared to make.

Travel information may have less impact on behaviour than other IT-based initiatives such as smart regulation and control, the availability of alternatives to travel and differential pricing.

2.5 The form in which travel information is presented is likely to be crucial in determining the choices that people make, for example, messages which include a description of the effect of a travel problem such as an accident on a motorway, preferably in terms of time or distance are more likely to lead to a change in intended behaviour. Travel information systems should therefore be perceived as enablers of behaviour change as opposed to being misinterpreted as the creators of behaviour change.

2.6 Ways are needed to encourage people to review their travel choices through a range of targeted interventions at key life stages/events when people are expected to be more inclined to reappraise their behaviour.

2.7 Information alone will not make people use public transport. Research shows that if people are motivated to use public transport the need for information will follow.

2.8 In summary, if a better understanding of future travel choices are to be realised and these insights used to affect behaviour change it is essential that recognition is given to the complexity of the challenge and that ‘whole systems’ solutions are developed and their effectiveness evaluated. Such complex interventions should bring together the full range of agents from individuals who make travel choices through transport and infrastructure providers, policy makers and regulators.

3. Policy interventions (questions c, g, h and i)

3.1 The research suggests that the most effective policy initiatives would encourage people to reflect upon and reappraise their behaviour, as opposed to attempting to directly change their behaviour. However, effective policy-making must be based on research
evidence from across the entire spectrum, all policies should take account of the evidence base, and policy-makers should use advice and evidence from a wide range of sources. To this end RCUK has taken steps to facilitate engagement and knowledge engagement between researchers and policy makers through, for example, the public policy seminars reported here and the placing of researchers in Government Departments. These and other dialogues have suggested that policymakers can influence travel behaviour by drawing together a range of interventions or measures into a combined strategic intervention to affect change. An example of a package of interventions which research indicates might be successful has been proposed by Professor Bosnell (ESRC 2006). The package includes:

- the use of regulation and enforcement – e.g. via speed limits, vehicle design standards etc.;
- the provision of new or improved infrastructure – thus giving more choice, if it provides services that people want;
- fiscal measures including taxation and differential pricing – e.g. for different modes, routes or times of travel;
- providing general information or advice – this can change people’s awareness and attitudes and perhaps the social norms; and,
- providing specific information – e.g. in response to specific questions about infrastructure or services.

3.2 Policy interventions therefore need to be complex and multi-level involving combinations of different approaches rather than focus upon one aspect of the problem. For example, during the switch from leaded to unleaded petrol, concerted, multi-level interventions, combining elements such as information campaigns, withdrawal of the harmful product an element of choice (lead-substitute petrol was still available), technological innovation, industry engagement, regulation which made compulsory the necessary changes to engine design to new cars, pricing strategies, and emotional appeal in respect of the danger to vulnerable children of high lead levels were successfully combined.

3.3 A range of approaches and policy instruments such as theoretically-integrated and informed interventions, traditional regulatory approaches, fiscal policies, "nudge" policies, the provision of clear information and education campaigns is therefore recommended.

3.4 Transport behaviour remains an important social issue, requiring research across a multitude of disciplines, through RCUK programmes such as the Energy and Digital Economy programmes, as well as through the core programme of individual councils.

4 References
(Lyons 2006) G.Lyons in ESRC Seminar Series ‘Mapping the public policy landscape – The impact of teleworking and teleconferencing on transport policy’
ESRC Seminar Series Mapping the public policy landscape
Human behaviors to moving people more intelligently;
ESRC/Department for Transport public policy seminar on road pricing; and,
The impact of teleworking and teleconferencing on transport policy

21 January 2011
Memorandum by Rights to Warmth (BC 74)

1. Rights to Warmth (RtW) is an initiative formed in 2006 to address the issue of why interventions aimed at improving the energy efficiency of the homes of the ‘fuel poor’ do not have the take-up that would be expected.

2. A few words of background and explanation might be in order to explain why this topic is relevant to their Lordships’ Committee and the present enquiry.

3. The story starts with the level of excess winter deaths – in England and Wales, this is typically in the range 25,000 – 30,000, but can be much higher if the weather is atypically cold – in the winter of 2008/10, there were 36,700 excess winter deaths. This is higher than levels in other Northern European countries, suggesting that it is preventable. Excess winter deaths have been much researched and it has been demonstrated that socioeconomic class is not a strong explanation. What has not been extensively researched is the impact of winter on the health service, although the Department of Health’s own assessment is that there are eight hospital admissions for every excess winter death.

4. A whole industry has grown up around the issue of ‘fuel poverty’ – a household is said to be in fuel poverty if it should spend 10% or more of its income on keeping its home at an acceptable temperature. There are a series of measures available to those in fuel poverty – the main scheme is Warm Front, which provides grants to home owners to improve the energy efficiency of their properties. But also, energy suppliers are under an obligation to reduce the carbon emissions of homes by providing energy efficiency measures, either free or at a reduced price. It is important to note that these agencies are driven by targets to do with a reduction in carbon emissions, and not health – although it is recognised that those with low incomes are likely to take the savings by increased comfort.

5. Rights to Warmth has been involved in a number of initiatives, mostly in County Durham. As well as experience on the ground, we carried out some research to find out about attitudes and behaviour towards keeping warm. We found that:

- 24% of older people said they had felt cold most or all of the previous winter
- 51% said that they managed their energy usage as a way of managing their household budget
- They would not be comfortable taking advice from energy companies or their local authority about keeping warm
- They would be comfortable about taking such advice from their GP, and from charities such as CAB and Age UK.

6. We also found evidence that many people had long-term health conditions that could be adversely affected by the cold, and most agreed that their symptoms were worse when the weather was cold, they did not understand the long term impact that being cold have have for health.

7. This suggests reasons why the current schemes, whilst focused on fuel poverty, are not as successful as they should be:

I. They are focused on the specific issue of energy poverty rather than the more general one of people not keeping themselves properly warm for a variety of reasons
II. They are delivered by organisations that people are not comfortable taking advice from

III. The NHS, and in particular, GPs, of whom people are likely to take some notice, are not sufficiently engaged (this despite the fact that the issue costs the NHS a significant amount of money each year)

IV. They do not address people’s actual motivation and so headline the chance to save money rather than the issue that resonates more strongly - that they can maintain their independence through maintaining their health

V. They are monitored by the number of energy saving measures that are put in place, and not by the extent to which the measures actually get people to keep warmer by using their heating more effectively

VI. There is no engagement by the health service.

8. We think that there are a number of lessons from this experience which can be used more generally:

I. Any programme or campaign must start from people’s motivations, attitudes and reasons for these and not from the starting point of the public service

II. All the public services affected by the issue must be involved, contribute to the design of the programme, and have buy-in for what it is trying to achieve

III. Monitoring the outcome of the programme, and not the outputs, is important.

8 October 2010
Memorandum by the Royal Academy of Engineering (BC 146)

Memorandum by the Royal Academy of Engineering (BC 146)

Introduction

The Royal Academy of Engineering welcomes the House of Lords Science and Technology Select Committee’s investigation into the use of behaviour change interventions to achieve policy goals, with a case study on Travel-mode choice interventions to reduce car use in towns and cities.

This consultation sought views on plans to encourage people to travel more sustainably, particularly in relation to the previous government’s Low Carbon Transport Strategy published in 2009. While we are unable to comment on all parts of the inquiry, the Academy has made general points on carbon reduction and modal shift in transport, with an emphasis on electric vehicles.

Consultation questions

Question A: What are the most influential drivers of behaviour affecting an individual’s choice of mode of travel?

Car use in towns and cities depends on traffic generated within the town and also traffic coming from outside the urban area. Much of the peak hour congestion is in the latter category. For many journeys, there is no real choice: one person living five minutes walk from Carshalton Beeches station and commuting to an office in Victoria Street and another person living in Betws-y-Coed and commuting to an industrial estate on the outskirts of Wrexham may have very different sets of options. The former could easily commute the 20km by rail (and probably chose to live at that address to make it possible); the latter has no choice but to commute the 75km by road.

Other than from city-centre to city-centre, it often takes longer and is more complicated to use public transport. Consider a trip from the new BBC site at Salford Quays to an address in Telford: more than three hours by public transport with at least five changes, each of which could fail, or less than two hours by road.

Similar problems exist for many trips within an urban area. London is unique in that it has a centrally-planned bus system and an extensive metro and rail network. For many other cities there is much less choice. Someone travelling from Solihull to Harborne (both in the Birmingham conurbation) could take a bus into the city centre and then a bus out again or drive round the A4040 in less than half the time.

Price is important. With first class “anytime” rail travel from Wilmslow to London costing more than an airfare it is unsurprising if people travel by plane.

Question B: What is the role of infrastructure in encouraging and facilitating changes in travel-mode choice?

Multi-mode transport hubs with easy connections between rail and bus services (as in Sweden) and good feeder services to main line stations (as in France) both contribute to a greater use of public transport.
For intra-urban travel, a well-planned and pervasive network, as exists in many continental cities, is important. In many UK cities, bus deregulation has led to a concentration on high-density radial routes, making any trip other than into the city centre uncompetitive with a car.

**Question C:** What are the latest developments in the evidence-base in relation to changing travel-mode choice and the implications of those developments for policy?
We are not aware of any recent fundamental changes. The topics discussed in answer to question (a) have applied for many years. There is anecdotal evidence that congestion, whether of the road network or of public transport, affects modal choice but we are not aware of any hard research that demonstrates the extent of this.

**Question D:** What are the most appropriate type and level of interventions to change travel-mode choice?
Road traffic can be divided between journeys that are fairly straightforward to transfer to rail or bus and those that are difficult or impracticable. The former category includes travel for business and pleasure between reasonably large centres of population by people who are largely unencumbered. The latter category includes trips between places that are far from an inter-city station and those involving people who, either by choice or because of their job, need to travel with bulky equipment or other luggage. In the second category can be included families with children, people going on activity holidays with climbing or windsurfing equipment, musicians with cellos or drum kits, business representatives with samples or tradesmen with an estate car full of power tools. We do not have statistics on the relative sizes of these groups but the latter form a very significant sector of the travelling public.

It seems likely that rail is already the dominant mode on many routes served by frequent inter-city services. Few people travelling from central Birmingham to central London (and having the financial resources to make a choice) would consider any other means of transport. Improving the service, for example by building a new high speed line, is unlikely to result in a significant modal shift.

The most appropriate interventions to achieve modal shift from road to rail for people coming into a city would address those issues raised in answer to questions (a) and (b) – extend the geographical penetration of a high-quality rail network, better multi-modal connectivity, simpler passenger interface, better feeder services and lower prices.

For trips within a city, establishing (or re-establishing) an integrated network, as opposed to a number of self-contained routes, is obviously important.

It is evident on many urban corridors that giving free bus passes to those over 60 has caused a major shift from private cars to public transport, particularly in those urban areas outside London where fares charged by monopoly operators are otherwise higher than the marginal cost of motoring.

**Question E:** Who are the most effective agents for the delivery of behaviour interventions to change travel-mode choice?
No comment.

**Question F:** How do current behaviour change interventions seek to change travel-mode choice and what use is made of available scientific evidence?
Question G: Are current policy interventions addressing both psychological and environmental barriers to change?

It is not obvious that there are consistent policy interventions designed to encourage modal shift. Some, such as forcing an increase in rail ticket prices, appear to have the opposite effect.

Question H: Are policy interventions appropriately designed and evaluated?

The ultimate objectives of policy are sometimes not clear – reducing car use may be a means to minimise accidents, reduce local noise and pollution, reduce social exclusion, provide a more congenial street environment or reduce global warming. Simply discouraging car use per se is not a self-evident public good. For example, if the objective is to reduce CO2 emissions, some interventions such as discouraging the provision of off-street parking, may, in the long term be counter-productive as they will discourage ownership of electric vehicles. The cheapest and easiest way of charging an electric vehicle is to put an outside socket from the domestic electricity supply and charge it in the driveway. Parking at the kerbside will be expensive and complicated (i.e. finding a vacant charging point and methods of payment).

There is evidence that provision of bus services that have low ridership levels can produce more CO2 than the cars they might replace. Research a few years ago\(^\text{945}\) discovered that the average bus ridership in two major cities was seven passengers. At this level, it is not obvious that modal shift is necessarily desirable from the perspective of emissions, although it might be justifiable on the grounds of social inclusion.

Modal choice is heavily dependent on policies that are not generally considered to be in the “transport” sphere. For example, the encouragement of specialist, free or faith schools or the centralisation of medical facilities and promotion of choice are policies that are likely to increase travel flows that can only be met by private car.

Question I: What lessons have been learnt and applied as a result of the evaluation of policy?

No comment.

Question J: What lessons can be learned from interventions employed in other countries?

Countries with a high proportion of low-carbon transport, such as Japan or France, are generally those with a well-integrated public transport system.

25 January 2011

\(^{945}\) Professor R. Kemp, RSSB Research Project T618 Traction Energy Metrics, 2007.
Memorandum by Professor Mary Rudolf, Leeds General Infirmary (BC 37)

Evidence submitted on an individual basis.

Tackling Obesity through the Healthy Child Programme: A Framework for Action

Document available on the National Obesity Observatory website: 
http://www.noo.org.uk/Mary_Rudolf

This is a brief submission to draw your attention to a piece of work I carried out for the Department of Health Cross Government Obesity Unit while I was a visiting research fellow at the USA Centers for Disease Control and Prevention in Atlanta, Georgia. I enclose a hard copy of the document although it is also available on the National Obesity Observatory website. The document relates to section 16 of your call for evidence – Tackling obesity.

The document aims to provide an evidence-based framework for action for health practitioners working with parents to encourage healthy family lifestyle change and prevent obesity. It was developed for use within the Healthy Child Programme, the national child health promotion programme delivered to all babies born in in the UK.

The Framework covers five areas:
- Parenting
- Eating and feeding behaviour
- Nutrition
- Play, inactivity and sleep
- Enhancing practitioners’ effectiveness

There are nineteen strategic themes, with each section underpinned by background scientific evidence, interventions that provide supporting evidence, key considerations, potential actions, selected resources and references.

The document addresses the issues you have highlighted in relation to tackling obesity as follows:

a. the latest developments in the evidence-base in relation to changing eating and physical activity behaviour

The document provides a review of the research evidence relating to young children (0-5 years) in terms of interventions conducted in academic settings as well in more pragmatic community settings. Examples of interventions highlighted by the CDC as being promising (but without RCT evidence) are also included

b. who are the most effective agents for the delivery of behaviour interventions to tackle obesity

The document reviews some of the evidence relating to professional skills and self efficacy when working with families of young children around lifestyle change for those at risk of obesity as well as those already obese. While parents are clearly the most effective agents for young children, the focus in the document is on how
practitioners’ skills can be enhanced so that they are better able to recognise obesity, help parents and model healthy lifestyles themselves

c. how current behaviour change interventions tackle obesity and what use is made of available scientific evidence

There is increasing recognition that training in motivational enhancement is required. Motivational Interviewing (Schwartz et al) and the Family Partnership Model (HENRY and the EMPOWER trial in the UK) seem to be the only behaviour change approaches under investigation in preschool children.

d. whether such interventions are appropriately designed and evaluated

The evidence base for effectiveness in terms of randomised controlled trials is very limited for baby and preschool interventions.

e. what lessons have been learnt and applied as a result of the evaluation process

The document has been considered helpful by the DH Expert advisory group for the Healthy Child Programme. It forms the core of the HENRY programme, a training organisation developed through grants from the DH and DCSF (HENRY is also submitting evidence for this call).

The document may be of use in your investigation into the use of behaviour change interventions to achieve policy goals because of its development for use in the Healthy Child Programme. Further hard copies of this document are available by request from the author

October 2010