

# **OBESITY PREVENTION: GETTING HEALTH PROMOTION EVIDENCE INTO PRACTICE**

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**REPORT**  
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## **GLOSSARY OF ACONOYNS USED IN THIS REPORT**

<b>BMEG:</b>	<b>Black, minority ethnic groups</b>
<b>CBA:</b>	<b>Controlled before-and-after studies</b>
<b>CCT:</b>	<b>Controlled non-randomised trial</b>
<b>GDG:</b>	<b>Guidance Development Group</b>
<b>GEIP:</b>	<b>Getting Evidence into Health Promotion Practice</b>
<b>HDA:</b>	<b>Health Development Agency</b>
<b>ITT:</b>	<b>Intention to treat (analysis)</b>
<b>NICE:</b>	<b>National Institute for Clinical Excellence</b>
<b>RCT:</b>	<b>Randomised control trials.</b>

## CHAPTER ONE: INTRODUCTION

*The National Health Promotion Strategy 2000-2005* (Department of Health and Children, 2000) identified supporting the dissemination of information on evidence based best practice (European Commission, 2000) as a major challenge for health promotion in Ireland. A review of progress in implementing this health promotion strategy (McKenna, Friel and Barry, 2005) recommended the need for more active strategies to identify and disseminate models of best practice for the implementation of effective health promotion programmes that are relevant to the needs of the populations served. The *Making Knowledge Work for Health* policy document (Department of Health and Children, 2001) and the national health strategy, *Quality and Fairness* (Department of Health and Children, 2001) also emphasised the importance of supporting an evidence-based approach both in terms of carrying out research and in the application of findings to improve service delivery.

The European Getting Evidence into Practice (GEIP) project represents a collaboration in the form of an Evidence Consortium between more than 20 national agencies for health promotion in the European Union. The project has developed a European Review Protocol for Health Promotion which focuses on how to select and analyse documents, literature and expertise from research, practice and policies and on how to judge and summarise evidence. Work has also been completed on the development of an inventory of existing assessment protocols and guidelines to increase the quality of planning and implementation of health promotion projects. Building on this work the European Quality Instrument for Health Promotion (EQUIHP) has been developed as a European consensus tool to facilitate the assessment and improvement of quality in health promotion (GEIP, 2005). To date, Ireland has not participated in this European wide project and it is intended that this current proposal will utilise and build on these existing materials.

In the United Kingdom, the **Health Development Agency (HDA)**, now incorporated as part of the **National Institute for Clinical Excellence (NICE)**, has been to the forefront of activities to produce evidence and guidance to inform public health and health promotion practice. The HDA began work in 2000 to maintain an up to date map of the

evidence base for public health and health improvement, and to disseminate advice to practitioners. The work initially involved collating and synthesising evidence from an accumulating number of existing systematic reviews on public health topics. A detailed protocol for searching databases, conducting the critical appraisal of the reviews, and writing the *Evidence Briefings* on a range of topics was constructed (Kelly *et al.* 2002; Swann *et al.* 2002). *Evidence Briefings* are tertiary level research that involves reviews and syntheses of existing systematic reviews and meta analyses. To date, *Evidence Briefings* have been produced on the following topic areas: obesity and overweight; HIV prevention; smoking and public health; drug use prevention among young people; alcohol misuse; accidental injury; prevention of low birth weight; prevention of sexually transmitted infections; teenage pregnancy and parenthood; ante-and post natal home visiting; health impact assessment; youth suicide prevention and physical activity (NICE, 2005).

### **Aim and objectives**

The aim of this pilot project is to develop stage one *Implementation Guidance* for effective health promotion practice in the Irish context in the area of obesity prevention.

The specific project objectives are:

- To review existing *Evidence Briefings* in the area of obesity prevention produced by NICE.
- To identify models of best health promotion practice, in addressing obesity based on these materials
- To review current health promotion practice in obesity prevention in Ireland as identified by the National Taskforce on Obesity
- To benchmark these activities against best evidence.
- Use the EQUIP tool (see methods below) to benchmark three current health promotion initiative (as selected by the Obesity Task Force).
- To identify gaps in current practice
- To make recommendation for getting the research evidence into practice taking into account the realities of current services, resources and organisational constraints.

- To develop a protocol for the development of *Implementation Guidance* materials (stage one) in health promotion in the context of the Irish population health service in consultation with the Obesity Task Force.

The project involved four key actions across two separate phases.

In phase one a comprehensive review of the evidence base including the identification of models of best practice took place alongside collection and collation on current service provision in the Irish context.

In phase two a benchmarking exercise was undertaken to measure current provision against guidelines of best practice. This was undertaken using the EQUIHP tool. Consultations took place with the National HSE Working Group on Obesity throughout the process. A detailed account of activities provided is set out in chapter 4.

### **Overview of report**

Chapter two of the report explores international level strategies and policies that deal specifically with the public health dimensions of obesity prevention. National and international trends in both adult and childhood obesity are set out in chapter three. Chapter four sets out the methods employed in this project. The review of the NICE evidence base and examples of models of best practice are set out in chapter five. An overview of service provision in Ireland in the area of obesity prevention relevant to health promotion is set out in chapter six (note this is not intended to be an exhaustive review). The outcome of the benchmarking process undertaken using the EQUIHP tool is set out in chapter seven. The discussion and recommendations are provided in chapter eight.

## **CHAPTER TWO**

### **Strategies on obesity prevention: the international perspective**

Obesity is a very complex and still incompletely understood disease. The report of a WHO consultation on obesity (WHO,1998) highlighted key issues central to the development of a coherent strategy for the effective prevention and management of obesity on a worldwide basis. Some of the important themes the report identified for development of strategies for obesity prevention are:

- Obesity is largely a preventable disease that is preventable through lifestyle measures.
- Effective management of obesity cannot be separated from prevention.
- Obesity is a population problem and should be tackled as such. Effective prevention and management of obesity will require an integrated approach, involving actions in all sectors of society.
- Obesity is a chronic disease that requires long-term strategies for its effective prevention and management.
- The effective prevention of adult obesity will require the prevention and management of childhood obesity.
- Obesity is a global problem hence prevention and management strategies applicable to all regions of the world should be developed.
- Global epidemic of obesity is a reflection of the massive social, economic and cultural problems currently facing developing and newly industrialized countries, as well as the ethnic minorities and the disadvantaged in developed countries.

Based on the above themes, The WHO Global Strategy on Diet, Physical Activity and Health – May 2004 was developed. For the purpose of this report in addition to the WHO Global Strategy, the regional, national and local strategies were reviewed. The following is the list of strategies appraised;

1. WHO Global Strategy on Diet, Physical Activity and Health – May 2004
2. Green paper “Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases” – December 2005

3. Healthy Weight 2008 Australia's future, The National Action Agenda for Children and Young People and their families (2003)
4. Healthy Weight Strategy 2006-2011 Sydney West Area Health Service
5. Ontario's Action Plan for Healthy Eating and Active Living – June 2006

### **Strategies for addressing obesity and overweight**

It is now realized that obesity management covers a whole range of long-term strategies ranging from prevention through weight maintenance and the management of obesity co-morbidities right through to weight loss. However, strategies which are aimed at the prevention of weight gain and obesity are easier and less expensive to implement and potentially more effective. Prevention of weight gain and promotion of weight maintenance are overlapping activities that are responsible for obesity prevention.

The World Health Report (WHO,2002) describes in detail the key risk factors for non-communicable diseases. In most countries, such factors include high blood pressure, high concentration of cholesterol in the blood, inadequate intake of fruit and vegetables, overweight and obesity, physical inactivity and tobacco use. Five of these risk factors are related to diet and physical activity. Diet and physical activity influence health both together and separately and often interact particularly in relation to obesity. The WHO's Global Strategy on Diet, Physical Activity and Health highlights the important central role of governments working in cooperation with other stakeholders to create an environment that empowers and encourages behaviour changes by individuals, families and communities to make positive life-enhancing decisions on healthy diets and patterns of physical activity (WHO, 2004).

The WHO has identified the unique opportunity to formulate and implement an effective strategy for substantially reducing deaths and diseases worldwide by improving diet and promoting physical activity. In addition to leading a healthier life such interventions would reduce inequalities and enhance development for all populations in all countries (WHO, 2004).

The overall objective of the WHO (2004) Global Strategy on Diet, Physical Activity and Health is to promote and protect health by guiding the development of an enabling

environment of sustainable action at individual, community, national and global levels, that when taken together, will lead to reduced disease and death rates related to unhealthy diet and physical inactivity. These activities support the Millennium Development Goals and are considered to have the potential for public health gains worldwide.

The main objectives of the Global Strategy are:

1. To **reduce the risk factors** for non-communicable diseases that stem from unhealthy diets and physical inactivity by means of essential public health action and health-promoting and disease preventive measures.
2. To **increase the overall awareness and understanding** of the influences of diet and physical activity on health and of the positive impact of preventive interventions.
3. To **encourage the development, strengthening and implementation** of global, regional, national and **community policies and action plans** to improve diets and increase physical activity that are sustainable, comprehensive and actively engage all sectors including civil society, the private sector and the media.
4. To **monitor scientific data and key influences** on diet and physical activity to support research in a broad spectrum of relevant areas, including evaluation of interventions, and to strengthen the human resources needed in this domain to enhance and sustain health.

The strategy sets out key *principles for action* for improving public health through measures that reduce the prevalence of overweight and obesity and are recommended for the development of national and regional strategies and action plans (WHO, 2004). These are set out in the following section and examples from other relevant strategies and action plans are incorporated into the discussion.

#### **(1a) Strategies based on the best available scientific research and evidence**

It is well accepted that obesity is one of the major challenges to public health. However as in many other areas of public health and health care, the evidence on obesity prevention and management is limited. Though there is limited evidence, the Global Strategy recommends that separate searching of the published papers on public health and

clinical care would yield a consistency of approach and would strengthen the recommendations made and the strategies put forward (WHO, 2004).

The National Institute for Health and Clinical Excellence has produced a full guidance on obesity prevention, identification, assessment and management of overweight and obesity in adults and children. This includes a comprehensive review of all published papers by separate review committees. Recommendations based on available evidence have been formulated with different audiences in mind, such as health professionals and those in responsible positions in the health services, local government, education etc.

**(1b) Comprehensive strategies, incorporating both policies and action**

All major causes of non-communicable diseases need to be addressed together, consistent with the principles contained in the Ottawa Charter for Health Promotion and confirmed in subsequent conferences on health promotion, while recognizing the complex interactions between personal choices, social norms and economic and environmental factors (WHO, 2004). This stance is adopted by the European Network on Nutrition and Physical Activity (Commission of the European Communities, 2005) which states that a commitment to pursue health objectives through other community policies needs an approach that cuts across a number of community policies (e.g. agricultural, fishery, education sport, consumer, enterprise, research, social, internal market, environment and audio-visual policies) and to be actively supported by them. At Commission level a number of mechanisms are currently operating in order to ensure that health is taken into consideration in other Community policy areas. Major policy proposals from other Commission services and the Health and Consumer Protection Directorate-General are systematically consulted. The inter-service group on health discusses health-related issues amongst all concerned Commission services and the Commission's impact assessment procedure, which has been established as a tool to improve the quality and coherence of the policy development process and which includes the assessment of health impacts (Commission of the European Communities, 2005). Most countries in the WHO European Region have developed nutrition action plans or public health strategies dealing with obesity risk factors, although only a few deal with physical activity (Commission of

the European Communities, 2005). Country policies recognize the importance of an environmental approach to improving health, the need to act at national, regional, community and individual levels and the need to involve stakeholders in implementing policy.

*Working Together for a Healthy Ontario* (2006), Ontario's action plan for healthy eating and active living incorporates an action plan to influence the development of comprehensive healthy public policy firmly based on the Ottawa Charter for Health Promotion (see Figure 21. below). This action plan is based on the following key activities:

- Build partnerships for change – continue to establish and influence public policies that support healthy eating and active living in key settings, including workplace wellness, school health, active transportation and enabling communities.
- Foster learning and innovation – bring together government, community, international and private sector leaders through a conference to profile achievements and identify opportunities to work collaboratively towards a healthier Ontario.
- Invest in results – monitor programmes to measure and evaluate the impacts of the strategy. Develop policies and programmes based on credible, reliable data to ensure that there is a significant and sustained impact in addressing a wide range of physical activity and nutrition concerns.

**Figure 2.1 Example of Ontario's action plan for healthy eating and active living.**

**Leveraging public policy for a Healthy Ontario**

- The federal government is making it easier for Canadians to quickly evaluate the nutritional contents of food. On December 12 2005, Health Canada regulations made nutrition labelling mandatory on most foods, updated requirements for nutrient content claims and permitted diet-related health claims for foods.
- At the Regina 2005 meeting, federal, provincial and territorial ministers identified sport and recreation infrastructure as a national priority. Parameters are being developed for a long-term programme dedicated to sport and recreation infrastructure based on information shared between jurisdictions.

Source: Ministry of Health Promotion (Ontario) (2006) *Ontario's Action Plan for Healthy Eating and Active Living*

## **(2) A life course perspective**

A life course perspective is essential for the prevention and control of overweight and obesity. This approach starts with maternal health and prenatal nutrition, pregnancy outcomes, exclusive breastfeeding for six months and child and adolescent health; it reaches children at schools, adults at worksites and other settings and the elderly and it encourages healthy diet and regular physical activity from youth into old age (WHO, 2004).

The Australian national action agenda for children and young people and their families 'Healthy Weight 2008', assumes a life course perspective to address the challenges of overweight and obesity by focusing on children and young people and their families (Commonwealth of Australia, 2003). They have developed a four-year time frame that forms the first phase of a long-term approach. Healthy Weight 2008 is seen as a first step towards shaping Australia's future for better health and well-being that will be followed by subsequent phases of action. This has the potential in the longer term to reduce overweight and obesity in the adult population. Broad settings strategies focusing on the life course perspectives addressed by the Australian strategy are:

- Child care (including child care centres, family day care and outside school hours care)
- Schools – primary and secondary (including public and private schools and use of school facilities)
- Primary care services (including general medical practice, community health centres, and other community-based and private sector services)
- Family and community care services (including social work, child protection, juvenile justice, Centrelink, outreach services to vulnerable and disadvantaged groups)
- Maternal and infant health (including hospitals, infant and child health clinics, community health services)

To support the life course perspective the following areas are also included in the Australian strategy:

- Neighbourhoods and community organisations (including state/ territory government, local government, community groups, recreation and sporting bodies, and private organisations)
- Workplaces (including government, private and non government work settings, both formal and informal)
- Food supply (including food producers, manufacturers and retailers eg supermarkets, markets, stores and food services outlets eg restaurants, cafes and take-aways)
- Media and marketing (including television, cinemas, videos, electronic games, print internet and commercial advertising, marketing and promotions)

### **(3) Broader comprehensive and coordinated public health efforts**

Governments need to address simultaneously a number of issues in order to have a broad comprehensive impact on its population. For example when addressing the issue of overweight and obesity, all aspects of nutrition such as under nutrition, micronutrient deficiencies and excess consumption of certain nutrients, food security such as accessibility, availability and affordability of healthy food, food safety, and support for and promotion of six months of exclusive breastfeeding should be addressed in the strategy. Also physical activity issues such as requirements for physical activity in working, home and school life, increasing urbanisation and various aspects of city planning, transportation, safety and access to physical activity during leisure should be covered under the strategy (WHO, 2004).

Though overweight and obesity are significant health problems the solution does not lie predominantly with the health services. Effective prevention needs responses from all parts of society to encourage more active living and healthy eating, starting at the very beginning of life with breast-feeding (Commonwealth of Australia, 2003). The guiding principles of the Australian strategy for obesity prevention overarching the broad comprehensive strategies focusing on prevention are:

- Concentrate on solutions and not problems, with a bias for action on health promotion environments.

- Be long-term and sustainable, recognising that behaviour change is complex, difficult and takes time.
- Engage the whole community – healthy weight is everybody’s business.
- Help those most in need and close the health gap between different population groups as a result of geography, ethnicity and socio-economic status. Promote the positive benefits of healthy eating, active living and healthy weight.
- Reduce stigmatisation and avoid blaming young people, parents or carers.
- Empower and assist all groups to take action according to their own opportunities and responsibilities.

The framework of action presented by the Healthy Weight 2008 demonstrates the collaborative role played by the public sector and the private and non governmental sectors in achieving the national strategies using the settings approach (see Table 2.1 below).

Table 2.1 Framework for action (source: Commonwealth of Australia, 2003)

Action strategies for children and young people (aged 0-18 years)		National strategies					
Settings strategies	Child care	wide education	Support for families and community-	areas	Whole of community demonstration	Evidence and performance monitoring	Coordination and capacity building
	Schools primary and secondary						
	Primary care services						
	Family and community care services						
	Maternal and infant healthy						
	Neighbourhoods and community organisations						
	Workplaces						
	Food supply						
	Media and marketing						

The Sydney West Area Health Service Healthy Weight Strategy 2006-2011 (Sydney West Area Health Service NSW, 2006) has identified key partners in the action area for strategic management and coordination of the overarching strategies for prevention of overweight and obesity in the Sydney West area, in Australia. The centre for Population Health's Healthy Weight Promotion Team is the leader in the area of strategic management and coordination. The key partners in the action area are identified from the governmental and non-governmental sectors for effective implementation of the broad public health prevention programme. The Sydney West Healthy Weight Strategy Steering Committee, Epidemiology unit, Working groups, internal services and departments and external stakeholder organisations form the core group steering the comprehensive action areas.

**(4-7)Activities with positive impact in the different population groups and communities including poorest population groups**

Priority has to be given to preventive activities that have a positive impact on the poorest population groups and communities. Also the prevalence of obesity and overweight may vary greatly between men and women. It is noted that patterns of physical activity and diets differ according to sex, culture and age. Women are the decision makers on food and diet for the families which are in turn influenced by the culture and traditions of the society. National strategies and guidelines should therefore be sensitive to such needs, and such activities will generally require community-based action with strong government intervention and oversight (WHO, 2004).

## **CHAPTER THREE:**

### **Epidemiology of obesity: national and international trends**

#### **Overview**

The rising trend in obesity worldwide is described by the World Health Organisation (WHO) as a 'global epidemic'. In 1995 there were an estimated 200 million obese adults globally. By 2000 the number of obese adults had increased to 300 million globally (WHO, 2003). Crude projections, suggest that by the year 2025, levels of obesity could be as high as 45-50% in the USA, between 30-40% in Australia and England and over 20% in Brazil (Rigby, 2002). In Europe the prevalence of obesity has tripled in the previous two decades. The WHO projects that these rates, if left unchecked, will mean that an estimated 150 million adults (20% of the WHO European Region population) and 15 million children and adolescents (10% of the population) will be classified as obese by 2010.

Current trends indicate that between 30% and 80% of adults are overweight in most countries in the WHO European Region with Ireland showing a rate of 66% for adult men (WHO, 2006).

Alongside worrying trends in adult obesity, children are now also a high risk group for experiencing obesity with projections that about one in 10 children in the WHO European Region will be obese by 2010 (WHO, 2006). In addition to being at increased risk for diseases such as type 2 diabetes, these children are likely to remain obese in adulthood and develop more serious diseases which will impact on life expectancy and quality of life. In the United States since the mid 1970s the percentage of children who are overweight has nearly doubled (7% to 13%) and the percentage of adolescents who are overweight has almost tripled (from 5% to 14%; National Centre for Health Statistics & CDC, 1999).

#### **Prevalence of obesity in Europe**

The prevalence of obesity varies between countries throughout Europe. Current data from individual countries propose that approximately 10-20% of men and 10-25% of females in the European region are obese (International Obesity Task Force & European

Association for the Study of Obesity, 2002). The UK depicted the highest increase in the prevalence of obesity during the last twenty years. In the year 2002, 22% of men and 23.5% of women in UK were obese and almost 66% of men and 50% of women were over weight (IOTF, 2003). Sweden and Netherlands have shown a slight increase in the prevalence of obesity over the period from 1980 – 1998 for both men and women. Germany and Finland which had high prevalence rates of obesity in 1980 (approximately 15%) continue to have a higher prevalence rates (approximately 20%; IOTF, 2003). Rates of obesity in the Baltic Republic are among the highest in the world (Pomerleau et al, 2000).

Childhood obesity has increased steadily in the European region over the past 2-3 decades, although there are complex patterns in the prevalence and trend, which vary with time, age, sex and geographical region. The highest prevalence rates are observed in the southern European countries. A recent survey found that 36% of 9- year olds in Italy were overweight or obese. In Spain 27% of children and adolescents were overweight or obese (IOTF, 2002). The more developed countries surrounding the Mediterranean show prevalence rates for overweight children in the range of 20-40%. Northern European countries tend to have lower prevalence: for example in the UK about 20% of children were overweight or obese in 1998 and in Sweden the prevalence was 18% for children aged 10 years (IOTF, 2002).

### **Prevalence of obesity in Ireland**

Obesity prevalence in Ireland is estimated in 3 main studies using different methodologies. The North/South Ireland Food Consumption survey (1990 [take this date out?](#) & 2001) obtained data by direct measurement of weight and height of a population sample. The national health and life style survey (SLAN surveys conducted in 1998 & 2002) and the health behaviour in school aged children survey (HSBC survey conducted in 2002 and 2006) used self reported weights and heights.

The North/South Ireland Food Consumption survey indicates that 39% of the adult population were overweight and 18% were obese. A higher percentage of men were overweight and obese compared to women (IUNA, 2001). A trend of increasing body weight with aging can be seen in the Irish population similar to the other developing

countries (IUNA, 2001). Clear gender differences are seen in most countries with more women than men being obese; however the prevalence of obesity in men has increased so rapidly in Ireland that it now exceeds the prevalence of obesity in women (McCarthy et al, 2001).

According to the SLAN survey the reported rates of overweight and obesity have increased in both adult men and women. Obesity rates have risen by 3% from 11% in 1998 of men too 14% in 2002 and from 9% of women in 1998 to 12% in 2002. The prevalence of adults who are overweight has also increased significantly from 40% in men in 1998 to 42% in 2002 and from 25% of women in 1998 to 26.5% in 2002. It has to be noted that self-reported measurements are prone to underestimation of weight and overestimation of height but have the advantage that trends over time and across social groups can be undertaken.

### **Food consumption habits in Ireland**

According to the North/South Ireland Food Consumption survey (2001) the 18-64 year old population of Ireland consumed a wide variety of foods and beverages. Meats, breads, potatoes, dairy products and biscuits/cakes provided almost 60% of energy to this population. Overall 24% of food and drink energy was consumed outside the homes and this phenomenon was more common among the young adults (18-35 years). Men had a higher intake of fibre than women did but women consumed more fibre – dense diets than men. More than 3 out of 4 adults did not meet the nutritional goal for dietary fibre intakes.

In 2002, only 34% of respondents reported eating the recommended number of servings compared to 40% in the previous SLAN survey in 1998. Sixty nine percent of the respondents reported consuming the recommended 4+ servings per day of fruit and vegetables compared to 61% four years ago. The foods from the top shelf of the pyramid are those which are high in fat and salt. It is recommended that these foods are used sparingly. Eighty three percent of the respondents reported that they consume at least three servings per day of these foods. Eleven percent of the respondents ate fried foods

four or more times per week and more males than females consumed fried food four or more times per week.

Among the children 14% of the boys and 17% of girls reported that they eat vegetables more than once a day, while 14% of boys and 12% of girls reported never eating vegetables or eating vegetables less than weekly (Centre for Health Promotion Studies, 2003). Increases in vegetable consumption, particularly pronounced for girls, was reported in the HBSC 2006 data set with 20% of girls and 16% of boys reporting vegetable consumption more frequently than daily (Health Promotion Research Centre, 2007). Overall 15% of children reported that they never have breakfast during the week (2003) and this figure has remained largely unchanged at 14% in the 2007.

### **Pattern of engaging in physical activity in Ireland**

The North/South Ireland Food Consumption survey (2001) revealed that the overall physical activity levels in the country are low, particularly in women. Participation rates in recreational and particularly vigorous recreational activities were generally low. It was revealed that walking was the most important recreational activity in 41% of men and 60% of women. Watching TV monopolised a major portion of available leisure time for both men and women of all ages. However, most people perceive that they should be more physically active.

However there has not been a significant change in the overall trend in engaging in physical activity as shown in the SLAN survey, from 1998 to 2002. Overall 51% of respondents (52% in 1998) engaged in some form of regular physical activity most days of the week and/ or moderate exercise three or more days per week and strenuous exercise three or more days of the week.

Participation of children in exercise outside of class time was assessed in the HBSC 2002 and 2006 surveys by inquiring the frequency with which they exercise so much that they get out of breath or sweat. Overall, 48% (53% in 2006) of children reported exercising four or more times per week while 12 % (11% in 2006) exercise less than weekly.

## **CHAPTER FOUR**

### **METHODS**

Multiple methods were utilised for data and information collection for this project to meet the various objectives across phases 1 and 2 of the project.

#### **A) Review of Evidence and Best Practice**

In order to provide an up to date review of the available evidence on best practice in the area of obesity prevention, a number of different evidence sources were used. Specifically, relevant information from the following sources and electronic databases were consulted:

##### *Evidence-Based Resources for Public Health Practice*

- Cochrane Health Promotion and Public Health Field  
[www.vichealth.vic.gov.au/cochrane/welcome/index.htm](http://www.vichealth.vic.gov.au/cochrane/welcome/index.htm)
  
- National Institute for Clinical Excellence
  
- The Effective Public Health Practice Project  
[www.city.hamilton.on.ca/sphs/ephpp/](http://www.city.hamilton.on.ca/sphs/ephpp/)
  
- The EPPI-Centre Database of Promoting Health Effectiveness Reviews (DoPHER)  
<http://eppi.ioe.ac.uk/EPPIWeb/home.aspx?Control=Search&SearchDB=rore&page=hp/>
  
- Evidence-Based Health Promotion: Resources for Planning  
<http://www.dhs.vic.gov.au/phb/ebhp/index.htm>

- Evidence-Based Healthcare  
<http://www.harcourt-international.com/journals/ebhc/>
- Guide to Community Preventive Services  
<http://www.thecommunityguide.org>
- Health Evidence Bulletins Wales  
<http://hebw.uwcm.ac.uk/>
- Healthy People 2010 Information Access Project  
<http://phpartners.org/hp/>
- Best Practice Initiative  
<http://www.osophs.dhhs.gov/ophs/BestPractice/>
- CDC Recommends: The Prevention Guidelines System  
<http://www.phppo.cdc.gov/cdcRiommends/AdvSearchV.asp>

In December 2006 the National Institute for Clinical Excellence published its updated obesity prevention guidelines which drew on the most up to date evidence. This document was then used as the framework for this evidence review. The Evidence Briefing relevant to obesity prevention was reviewed and summarised (see appendix 1).

**B) Review of Relevant Strategic Documents (including international guidelines in relation to obesity prevention)**

These included:

- WHO global strategy on diet, physical activity and health (2004)
- WHO global strategy on diet, physical activity and health: A Framework to Monitor and Evaluate Implementation (2006).
- Commission of the European communities: Green paper (2005)

- Healthy weight 2008 Australia's Future
- Healthy Weight Strategy 2006 - 2011 Sydney West Area Health Service
- Ontario's Action Plan For Healthy Eating and Active Living

WHO European Charter on Counteracting Obesity (2006)

### **C) Mapping of Current Practice in Ireland (relevant to obesity prevention)**

Agencies across the Health Service Executive were contacted in relation to obesity prevention programmes that have been carried out and evaluated. Initially this exercise focussed on programmes which had been identified by the Obesity Task Force subcommittee in 2004. Additional programmes which have been implemented since were also identified by relevant personnel. This information was collated and reviewed according to the seven area framework identified from the NICE Evidence Briefing. These seven categories are:

- Interventions to raise awareness
- Interventions for pre-school children and family based interventions
- School based interventions
- Workplace interventions
- Interventions led by health professionals
- Broader community interventions
- Interventions aimed at black, minority ethnic groups, vulnerable groups and vulnerable life stages

It is not intended that the projects detailed in this report represent an exhaustive review of all obesity prevention activities as this was beyond the scope of this pilot project.

### **D) Benchmarking Current Practice Against Best Practice**

This involved the piloting of the European Quality Instrument for Health Promotion (EQUIHP) on three programmes which were selected by the research team in consultation with a group of practitioners which came together to progress this project activity.

## **European Quality Instrument for Health Promotion (EQUIHP)**

The EQUIHP was developed as a European consensus tool to facilitate the assessment and improvement of quality in health promotion. It came about as part of the broader European project on *Getting Evidence into Practice*. The tool consists of a scoring form which contains 13 criteria for effective health promotion interventions as well as 95 indicators related to these criteria.

The criteria are clustered into four types, reflecting the factors which are important for effective health promotion:

- 1) the framework of health promotion principles
- 2) aspects of project development and implementation
- 3) aspects of project management and
- 4) sustainability

Using these criteria EQUIHP can be used across two broad areas:

### *Quality development and assurance*

EQUIHP can be used as an instrument for quality development. Specifically, it can be used as a checklist for writing a project proposal, improving the quality of an intervention or as a tool for self-reflection.

### *Quality assessment*

EQUIHP can also be used as a quality assessment tool by health promotion practitioners.

In this capacity it can be used:

- as a tool for benchmarking, comparing the quality of a given project with ‘best practices’ on a national or international level
- as a tool to define and monitor standards in the field of health promotion
- as a tool to communicate about projects and to add to the evidence base of health promotion by getting evidence out of practice.

For the purposes of this project EQUIHP was used as a benchmarking tool to compare specific programmes against the key areas outlined in the tool.

The background and purpose of using EQUIHP was explained to a working group of practitioners at a meeting held in February 2007 and group were asked to nominate programmes and personnel to undertake the exercise. Criteria for inclusion set out were:

- Programmes are focussed on prevention (physical activity or dietary programmes or combined programmes)
- Non-clinical based programmes
- Programmes have previously been evaluated with a positive outcome.

Following consultations with practitioners the following three programmes were selected.

In each case a practitioner was also available to undertake the exercise.

The Playground Games and Markings project

The Healthy Food to Go (HOT) project

The GP Exercise Referral Programme

## **CHAPTER FIVE:**

### **The evidence on effective interventions**

#### **Introduction**

The National Institute of Health and Clinical Excellence (NICE) published the final version of its full guidance on obesity prevention, ‘Obesity: the prevention, identification, assessment and management of overweight and obesity in adult and children’ in December, 2006. The methods used to generate the recommendations were divided between two project teams within NICE-the clinical and a team dealing with the broader public health issues. However, due to the complementary nature of the work final recommendations were developed jointly.

This report focuses on the following topic areas, selected by the Public Health project team of NICE for the Evidence Briefing, which were deemed to be of most relevance for this study:

- A. Interventions to raise awareness
- B. Interventions for pre-school children and family-based interventions
- C. School-based interventions
  
- D. Workplace interventions
  
- E. Interventions led by health professionals
  
- F. Broader community interventions
  
- G. Interventions aimed at black, minority ethnic groups, vulnerable groups and vulnerable life stages (‘BMEGs’)

This chapter summarises the evidence identified for each of these areas. Key points of programmes identified as models of best practice in each area are also set out. More extensive details on the programmes are provided in Appendix X. A summary of key actions areas/recommendations is presented at the end of the chapter.

## **Summary of existing evidence briefing in the area of obesity prevention produced by NICE**

### **A. Interventions to raise awareness**

#### **Background**

The University of Teesside produced the evidence review pertaining to interventions to raise awareness. The inclusion and exclusion criteria for the review adhered to the standard public health review parameters with priority to systematic reviews and to studies conducted within the UK. Sixty-six papers were assessed by the University of Teesside in detail of which 20 papers met the critical appraisal criteria for inclusion in evidence tables. In line with the review parameters studies considering knowledge, attitudes and awareness were only included if they also had a measure of weight, diet and/or activity. However, findings on knowledge, attitudes and awareness per se were considered in the studies identified. Selected evidence reviews on interventions to raise awareness for obesity prevention are given in appendix I.

#### **Limitations of the review**

The major limitation to this review for the NICE evidence summary was the design of the studies. There were few controlled before-and-after studies (CBAs) and many of these had been evaluated cross-sectionally. Also the data pertaining to weight and behaviour are self-reported, which gives cause for concern regarding bias. A range of large studies have not been included in this review due to a lack of evaluation or evaluation that did not meet the parameters of this review (NICE, 2006).

The evidence review on promotional campaigns, including media interventions as strategies for obesity prevention, can be summarised as follows:

1. Promotional campaigns including media interventions can increase awareness of what constitutes a healthy diet and may subsequently improve dietary intakes.

However there is limited evidence that it can have a beneficial effect on weight management, particularly among individuals of higher social status.

2. Promotional campaigns including media interventions can improve knowledge, attitudes and awareness of physical activity. Levels of awareness are likely to vary according to type of medium used and the scale of the campaign. However it is unclear whether media interventions can influence participation in physical activity. There is some evidence that interventions may be more successful if they target motivated subgroups.
3. Promotional campaigns including media interventions can have an effect on children's food preferences, purchase behaviour and consumption.
4. Books, magazines and television programmes are an important source of information and actively involving media providers may improve the effectiveness of interventions.
5. Parents are important role models for children and young people in terms of behaviours associated with the maintenance of a healthy weight. There is a paucity of evidence on the effectiveness of interventions among lower socioeconomic groups and BMEGs. There is a paucity of evidence in children and young people; the generalisability of evidence in adults to children and young people remains unclear.

**Best Practice (further details on this programme are available in Appendix X).**

**Eight-week mailed healthy-weight intervention**

(O'Loughlin et al, 1998).

There is evidence that both formal and self-directed weight loss efforts are frequently unsuccessful in the long-term and many question the emphasis on weight loss as the primary target of weight related interventions (Carrier et al 1994). There is growing interest in a 'healthy weight' approach to weight-related interventions with an ultimate

goal of stable long-term weight control within healthy weight ranges accompanied by healthy lifestyle habits.

### **Programme implementation**

This programme was based on evidence that a comprehensive public health approach could facilitate the process of healthy weight maintenance by making available a variety of interventions and opportunities for change applicable among diverse socioeconomic groups and designed to reach individuals at varying points in their change process. There is evidence showing that when using the stages of change model, successful weight control involves differential employment of selected change processes at strategically critical times in the course of change.

The healthy weight approach focuses on knowledge of healthy weight ranges, improved self-acceptance and self-esteem, improved self-efficacy and healthier lifestyle habits including increased physical activity and improved eating habits.

This is a low-cost health promotion intervention administered in the general population with little input from health professionals. The advantage of this type of intervention is that they increase accessibility by providing health information to individuals who might find more intensive interventions too great an incremental step in their quest for weight control or might not require intensive intervention to achieve health benefit. Also they would be attractive to individuals in the earlier 'stages of readiness to change' regarding weight control who are more likely to seek experiential than active change processes. Population approaches of this nature are known to achieve larger population health benefits than intensive interventions such as clinical weight loss programmes (O'Loughlin et al. 1988).

The healthy weight approach;

- Seeks to achieve a healthy outlook on weight and weight loss and to reduce ineffective dieting and harmful weight cycling while improving awareness that actual weight may pose health risk.
- Seeks to encourage and support healthy eating styles. Intervention subjects knew how to control their weight – a precursor to effective action. They showed improvements

in eating habits related to both nutrient intake and to eating patterns. High-fat/junk food consumption was lowered. These dietary changes coupled with increases in physical activity set the stage for sustained health benefit.

- Direct telephone solicitation was used to recruit subjects and the intervention was free of charge, which resulted in high recruitment rates.

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## **B. Interventions for pre-school children and family-based interventions (‘early years’)**

### Background

The following is based on an evidence review produced by the University of Teesside. The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. One hundred and six papers were assessed in detail of which 13 papers met the critical appraisal criteria for inclusion in evidence tables. None of the identified papers reported negative impacts/harms. Selected evidence reviews on interventions for pre-school children and family based-interventions (‘early years’) are given in appendix II.

### Limitations of the review

There is a dearth of controlled studies that met the inclusion criteria for this review and no UK studies with weight and height outcome data were identified. Potentially useful corroborative data from national programmes which are implemented locally, such as Sure Start, were not identified.

The evidence review on Interventions for pre-school children as strategies for obesity prevention can be summarised as below:

1. Improvements in the food service to pre-school children can result in reductions in dietary intakes of fat and improved weight outcomes.

2. Interventions which do not identify favourable changes in weight outcomes may identify favourable changes in diet and/or activity outcomes.
3. Interventions that aim to improve dietary intake (such as videos, interactive demonstrations, and changing food provision at nursery school) so long as these interventions are not solely focused on nutrition education alone may be beneficial.
4. The provision of regular meals in a supportive environment free from distractions may improve dietary intakes.
5. Interventions which involve parents in a significant way may be particularly effective and can improve parental engagement in active play with children and a child's dietary intake.
  - Interventions which do not focus on preventing obesity, but aim to bring about modest changes in dietary and physical activity behaviour, are unlikely to demonstrate an impact on body weight. However, there is evidence from cohort studies that people who habitually eat healthy diets and are physically active are more likely to maintain their weight over the long term.
  - There is limited evidence that structured physical activity programmes within nurseries can increase physical activity levels.
  - There is limited evidence that interventions to increase opportunities for children to be active can be incorporated into nurseries and implemented by nursery staff.

**Implementation:**

- a) Interventions should be tailored as appropriate for lower-income groups
- b) 2–5 years is a key time to establish good nutritional habits especially when parents are involved.

c) Interventions require some involvement of parents or carers

The evidence review on Family based interventions ('early years') as strategies for obesity prevention is summarised below:

1. Family-based interventions that target improved weight maintenance in children and adults, focusing on diet and activity, can be effective, at least for the duration of the intervention.
  - No family studies were identified among children under 5 years of age
  - It remains unclear whether the age of the child influences the effectiveness of family-based interventions compared with individual interventions
2. The effectiveness of interventions tends to be positively associated with the number of behaviour change techniques taught to both parents and children
3. Interventions should be tailored as appropriate for lower income groups
4. 2 -5 years is a key time to establish good nutrition habits especially when parents are involved. Intervention requires some involvement of parents or carers.

**Best Practice (further details on this programme are available in Appendix X).**

**Brocodile the Crocodile health promotion programme**

(Dennison et al, 2004)

Television viewing has increased significantly during the past 20 years because of increased availability, increased programme development and marketing. Increased rates of childhood obesity is a side effect of increased television viewing in addition to the other adverse effects such as attenuated social behaviour, poor school performance and high rates of violence. Television viewing hours increase during the preschool years and habits of relatively long or short viewing begin to develop during these early years. The committee on Public Education of the American Academy of Paediatrics cautions parents to limit children's exposure to television and other media to a maximum of 2h/day. For children younger than 2 years they completely discourage television viewing. As many mothers increasingly work outside the home, the percentage of preschool children being

cared for outside the home had also increased. Therefore child care settings offer an emerging opportunity to promote the development of healthy lifestyle behaviours such as limited television viewing.

### **Implementation**

- This intervention to reduce television viewing was well accepted by children, parents and staff and all 7 sessions were successfully implemented at the child care centres.
- The parents were influenced through the children and via take-home educational materials and parent-child activities. This method has been shown to be successful in elementary school aged children. However, additional strategies may be needed to reach the parents of younger children.

## **C. School-based interventions**

### Background

The following is based on an evidence review produced by the University of Teesside. The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. A range of UK government, government agency and non-governmental organisation websites were also searched. Ninety two papers were assessed in detail, of which 40 papers met the critical appraisal criteria for inclusion in evidence tables. Selected evidence reviews on school based interventions are given in appendix III.

### Limitations of the review

It remains questionable whether some of the studies were adequately powered to detect differences between the intervention and control groups. It also remains questionable whether some of the interventions would be sufficient to produce a change weight/BMI, total activity levels or per cent dietary energy and/or fat intake (for example, included interventions promoting 3 × 30-minute physical activity sessions a week and/or one additional piece of fruit each day).

The majority of studies were conducted outside the UK although many are generalisable to the UK setting. There were more data for primary school children than secondary school children. No evidence of effectiveness was identified regarding strategies to engage schools to undertake interventions, nor whether effectiveness varied by ethnicity, religious practices or social group – although some studies did include mixed groups and reported being beneficial for all.

Only one study was included to address the question on the whole-school approach as there is currently a lack of evidence prospectively assessing the use of a whole-school approach in the field of obesity prevention. However, many of the interventions identified could be considered as taking a whole-school approach (particularly ‘multi-component’ interventions addressing the whole of the school environment).

The evidence review on School Based Interventions as strategies for obesity prevention are summarised below:

**School-based multi-component interventions** addressing various aspects of diet and/or activity in the school, including the school environment;

1. Are effective in improving physical activity and dietary behaviour, at least while the intervention is in place.
  - Evidence on effectiveness to prevent obesity is equivocal.
2. There is a body of evidence to suggest that short- and long-term school-based interventions to improve children’s dietary intake may be effective, at least while the intervention is in place. This includes interventions aiming to increase fruit and (and to a lesser extent) vegetable intake, improve school lunches and/or promote water consumption.
  - There is limited evidence from one UK-based study to suggest that interventions to reduce consumption of carbonated drinks containing sugar may have a role in reducing the prevalence of overweight and obesity.
3. UK-based evidence suggests that school children with the lowest fruit and vegetable intakes at baseline may benefit more from the school-based interventions than their peers.

4. There is evidence from multi-component interventions to suggest that both short- and long-term physical activity focused interventions may be effective, at least while the intervention is in place.
  - School-based physical activity interventions (physical activity promotion and reduced television viewing) may help children maintain a healthy weight.

### **Implementation**

- a. There is limited UK evidence to indicate that in terms of engaging schools it is important to enlist the support of key school staff.
- b. There is a body of evidence to suggest that young people's views of barriers and facilitators to healthy eating indicated that effective interventions would (i) make healthy food choices accessible, convenient and cheap in schools, (ii) involve family and peers, and (iii) address personal barriers to healthy eating, such as preferences for fast food in terms of taste, and perceived lack of will-power.
- c. There is a body of evidence to suggest that young people's views on barriers and facilitators suggest that interventions should (i) modify physical education lessons to suit their preferences, (ii) involve family and peers, and make physical activity a social activity, (iii) increase young people's confidence, knowledge and motivation relating to physical activity, and (iv) make physical activities more accessible, affordable and appealing to young people.

**Best Practice (further details on this programme are available in Appendix X).**

**Planet Health**

Gortmaker et al. 1999

The prevalence of obesity among children and youth in the United States has increased rapidly over the past 30 years. Television viewing has been cited as one cause of increasing prevalence of obesity based on longitudinal and cross-sectional studies.

### **Theoretical framework**

The intervention focused on 4 behavioural changes: reducing television viewing to less than 2 hours per day; increasing moderate and vigorous physical activity; decreasing consumption of high-fat foods; and increasing consumption of fruits and vegetables to 5 a day or more.

The concepts of behavioural-choice and social cognitive theories of individual change with a distinctive focus on reducing television viewing were incorporated into the programme. By allowing children choice over alternative activities when television viewing time is reduced their perceived sense of control over physical activity alternatives is increased and this can reinforce physical activity. Participants in Planet Health were encouraged to 'make space' for more activity in their lives by reducing television time.

Social-cognitive theory points to the importance of social and environmental factors that influence both psychosocial and behavioural risk factors for obesity. Planet Health was designed to provide students with cognitive and behavioural skills to enable change in target behaviours, practice using skills to strengthen perceived competence in employing new behaviours effectively and support for behaviours by multiple classroom and PE teachers.

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## **D. Workplace interventions**

### Background

The following is based on an evidence review produced by Cardiff University. The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. Two hundred and ninety two papers were assessed in detail of which 61 papers met the critical appraisal criteria for inclusion in evidence tables. Selected evidence reviews on workplace interventions are given in appendix IV.

### Limitations of the review

RCTs often lacked (or failed to report) a description of the randomisation process, concealment allocation and/or an intention to treat (ITT) analysis. According to the agreed review parameters, RCTs without ITT but 80% or more follow-up were downgraded in quality assessment but not to CCTs. Studies with no ITT and less than 80% follow-up were treated as CCTs. The lack of description of randomisation and/or concealment allocation also led to a downgrading but not automatic rejection.

The evidence review on Workplace Interventions as strategies for obesity prevention is summarised below:

#### a) Worksite behaviour modification programmes;

1. Worksite behaviour modification programmes, that include health screening with counselling/education can result in short-term weight loss. However, weight loss may be regained post intervention.
2. Worksite behaviour modification programmes, such as health screening followed by counselling and, sometimes, environmental changes, can lead to improvements in nutrition and physical activity while the intervention is in place.

b) There is a body of evidence that the provision of healthier food choices can encourage consumption of a healthier diet.

- The effectiveness of healthier food provision in workplaces on weight outcomes remains unclear.
- No studies were identified which considered the provision of water in the workplace, active travel schemes and stair use on weight outcomes.
- No studies were identified which considered the provision of water in the workplace on diet or activity outcomes.

c) Workplace physical activity programmes can have a positive effect on physical activity.

- There is inconclusive evidence for the effectiveness of workplace-based physical activity interventions on weight outcomes.
- Payroll incentive schemes (such as free gym memberships) are either only effective in the short term (during the period of the intervention) or ineffective for weight control.
- Environmental improvements in stairwells, such as decoration, motivational signs and music may increase stair use. Posters alone may be ineffective or effective only while the posters are in place.

### **Implementation**

- a) A body of UK-based case studies suggests that factors most likely to make a canteen-style five-a-day intervention work are: commitment from the top, enthusiastic catering management, a strong occupational health lead, links to other on-site health initiatives, free or subsidised produce and heavy promotion and advertisement at point of purchase.
- b) A body of UK-based case studies suggests that the more successful behaviour modification/education techniques include an interdisciplinary approach with broad representation including health and safety and human resources, and implementers from high grades and strategic positions; initiatives integrated into worksite

objectives; staff involvement, communication and realistic objectives; activities that go beyond the superficial and address root causes.

- c) A UK-based survey of Heartbeat Award schemes, recommended improved promotion and better integration with other health programmes.
- d) There is little evidence on the most effective strategies for attracting workplaces to invest in the health and activity of their staff, with the exception of weak evidence of reduced sick leave as a result of physical activity programmes.

**Seattle 5 a day worksite program (further details on this programme are available in Appendix X).**

**Beresford et al (2001)**

The slogan 'Fruits and Vegetables.... 5 a Day for Better Health' commonly known as '5 a Day' grew out of a program devised by the California Department of Health Services and funded by the National Cancer Institute to promote increasing fruit and vegetable intake. The goal of this programme was to increase the per capita intake by the year 2000 of five fruits and vegetables per day. The unique feature of this 5 a Day programme was the sequencing of the intervention strategies along a timeline suggested by the stages of change model incorporating both work environment and individual level behaviour change.

### **Intervention**

For the Seattle 5 a Day programme the worksites with food serving cafeterias within the greater metropolitan area around Seattle with between 250 and 2000 employees were eligible to participate. The intervention was developed around the stages of change model addressing both the work environment and individual behaviour change. Because of the importance of employee involvement and as a way to increase employee ownership of the project it was ensured each intervention worksite had an employee advisory board (EAB) to guide project activities in the worksite. To standardize the intervention and be faithful to the community organization approach a protocol that specified minimum activities required to occur in each worksite was developed. The protocol defined a general structure for organizing the worksites for implementing the intervention activities

consistent with individual worksite needs and for documenting the process. In the intervention worksites the EAB had representation from all employee groups in the worksite and also usually included the manager of the cafeteria. The EAB was assisted by an intervention specialist, who visited the worksite approximately every 2 weeks. These specialists facilitated the intervention by providing materials assisting in activities and participating in EAB meetings. The EAB tailored the intervention activities to their worksites, implemented activities and recruited other worksite volunteers to participate in the intervention.

Intervention messages followed a sequence suggested by the stages of change model. Activities were schedule so they would occur in phases that allowed the behaviour change to occur gradually. The minimum intervention specified a menu of message choices and channel choices for each transition point. Messages were stage-specific and included 'Are you short changing yourself', 'Do something groundbreaking', and '5 ways to a 5 a Day'. Channels to deliver a message included posters, brochures, table tents, pay check inserts, flyers, newsletters, food demonstrations, message cards, tip sheets and a self-help manual.

During the first transition phase the processes leading from pre contemplation to contemplation call for raising general awareness. A 'teaser campaign alerted employees that something was coming to the worksite'. The second phase followed closely and was oriented to move people from contemplation to preparation. To foster self-evaluation, self-assessment and weighing the pros and cons of change this phase consisted of a comprehensive worksite kick-off event that was designed to provide opportunities for learning about the benefits of eating more fruits and vegetables and for assessing own knowledge and diet. The third phase emphasized skill building for individuals and also encouraged worksite changes in the cafeteria, including point-of purchase display, signs identifying foods as 5 a Day foods and some offered incentives for eating more fruits and vegetables to move people from preparation to action. The final phase emphasized ways to adapt the newly acquired skills to everyday life and recognized the critical importance of social support and environmental changes.

## **E. Interventions led by health professionals ('Community 1')**

### Background

The following is based on an evidence review produced by Cardiff University. The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. Four hundred and ten papers were assessed in detail of which 67 papers met the critical appraisal criteria for inclusion in evidence tables. Selected evidence reviews on interventions led by health professionals are given in appendix V.

### Limitations of the review

RCTs often lacked (or failed to report) a description of the randomisation process, concealment allocation and/or an ITT analysis. RCTs without ITT but 80% or more follow-up were downgraded in quality assessment but not to CCTs. The lack of description of randomisation and/or concealment allocation also led to a downgrading but not automatic rejection. Relevant studies with evidence of efficacy of community-based interventions for children were not found, and so a number of studies containing corroborative evidence about children were not included in the evidence tables.

The evidence review on Interventions led by Health Professionals as strategies for obesity prevention can be summarised as follows:

### **Interventions for obesity prevention:**

1. Sustained health-professional-led interventions in primary care or community settings, focusing on diet and physical activity or general health counselling can support maintenance of a healthy weight.
2. Interventions which provide support and advice on physical activity and diet are more likely to be effective for weight outcomes than interventions which focus on physical activity alone. There is no reliable evidence for diet alone.
3. Interventions which do not identify favourable changes in weight outcomes may identify favourable changes in diet and/or activity outcomes (where recorded).

### **Interventions to increase physical activity:**

1. Behavioural/educational interventions to increase physical activity can be moderately effective, particularly for walking and non-facility-based activities, although increases may not be sustained over time.
  - However, there is only limited evidence which suggests that using an incentive of free access to leisure facilities is likely to increase activity levels but only during the period of the intervention.

### **Dietary interventions:**

1. Moderate- or high-intensity dietary interventions most commonly report clinically significant reductions in fat intake and an increase in fruit and vegetable intake.
2. Briefer interventions, such as brief counselling/dietary advice by GPs or other health professionals, can be effective in improving dietary intake but tend to result in smaller changes than intensive interventions.
3. Interventions with a greater number of components are more likely to be effective.

### **Implementation:**

1. Although the majority of studies included predominantly white, higher social status and reasonably motivated individuals, there is some evidence that interventions can also be effective among lower social groups and effectiveness does not vary by age or gender.
2. Tailoring dietary advice to address potential barriers (taste, cost, availability, views of family members, time) is key to the effectiveness of interventions and may be more important than the setting.
3. Tailoring physical activity advice to address potential barriers (such as lack of time, access to leisure facilities, need for social support and lack of self-belief) is key to the effectiveness of interventions.

### **Health professionals delivering the programme**

1. The type of health professional who provides the advice is not critical as long as they have the appropriate training and experience, are enthusiastic and able to motivate, and are able to provide long-term support.
2. There is some evidence that primary care staff may hold negative views on the ability of patients to change behaviours, and their own ability to encourage change.
3. There is a body of evidence from UK-based qualitative research that time, space, training, costs and concerns about damaging relationships with patients may be barriers to action by health professionals (GPs and pharmacists).
4. There is some evidence from the UK that patients are likely to welcome the provision of advice despite concerns by health professionals about interference or damaging the relationship with patients.
  - But it remains unclear whether interventions are more effective when delivered by multidisciplinary teams.
  - There is some evidence that primary care staff may hold negative views on the ability of patients to change behaviours, and their own ability to encourage change.

**Health promotion interventions led by health professionals (further details on this programme are available in Appendix X).**

Steptoe et al 2003

Consumption of fruit and vegetables is known to help in controlling a healthy weight and increasing this is a central objective of health promotion programmes worldwide. The Department of Health in the UK has established a 'five a day' programme to improve access to increase consumption of fruit and vegetables.

Research on increasing consumption of fruit and vegetables has used individual, worksite and community based approach interventions. Brief intervention techniques are known to be effective and this programme tested the hypothesis that brief behavioural counselling

by nurses in general practice would lead to increased consumption of fruit and vegetables and to associated increases in plasma and urinary biomarkers over a 12 month period.

### **Intervention**

Eighteen – seventy year old patients registered at a primary health care centre in a deprived inner city area were randomly recruited for the intervention. After the baseline assessment, an individual consultation session lasting for 15 minutes was carried out. Written information to support the consultations was given to the participants and they attended a second consultation two weeks later. The target was to increase intake of fruit and vegetables from baseline levels. Behavioural counselling was founded on social learning theory and the stage of change model. Interventions were tailored to the individual with personalised specific advice and setting of short and long term goals. The counselling interventions were carried out by two research nurses.

### **Implications for health promotion**

Brief individual counselling on primary care can elicit sustained increases in consumption of fruit and vegetables corroborated by biomarkers. Both nutrition and behavioural counselling stimulated increases in consumption but the changes were greater with behaviourally oriented methods. These techniques would be feasible in primary care and they could be adapted for group administration.

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## **F. Broader community interventions ('Community 2')**

### Background

The evidence reviews on Broader Community Interventions were produced by Cardiff University. Five hundred and twenty four papers were assessed in detail of which 61 papers (including 10 systematic reviews) met the critical appraisal criteria for inclusion in these evidence tables.

The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. However, specific criteria were developed in order to make this topic manageable in the time available. The following were included:

- City, county and state-wide interventions with potential for local implementation. Although interventions without a control or comparison group are usually excluded within rapid reviews, for two topics in this review, stair climbing and multi-use trails, the only evidence available was from uncontrolled before-and-after studies and therefore these were included.
- Mass media interventions that include an intervention and are not just about raising awareness. A note was made in the evidence tables if individual studies were assessed by McDermott *et al* as meeting the Andreasen benchmarks for a social marketing programme.
- Papers on perception of causation (environmental reasons people give for not exercising, etc.) and all other corroborative evidence relating to the topics of interest.

The Guidance Development Group (GDG) also considered a non-evidence-based, expert review paper prepared by one of the GDG members on the potential impact of the built environment on weight and obesity. Selected evidence reviews on Broader Community interventions are given in appendix VI.

### Limitations of the review

In general there was little evidence from RCTs for relevant interventions and this consisted of uncontrolled studies only for some topics (stair climbing and multi-use

trials). By contrast there were a number of good UK-based corroborative studies although these did not always tie in directly to the intervention evidence.

RCTs often lacked (or failed to report) a description of the randomisation process, concealment allocation and/or an intention to treat (ITT) analysis.

The evidence review on Broader Community Interventions as strategies for obesity prevention is summarised below:

1. There is no evidence on the effectiveness of broader environmental interventions on the maintenance of a healthy weight and prevention of obesity.
2. There is little evidence of benefit from locally implementable multi-component city- and state-wide interventions to prevent cardiovascular disease on weight outcomes.
3. No interventions were identified which addressed both diet and activity.
4. There is little evidence of benefit from locally implementable city- and state-wide interventions to prevent cardiovascular disease in relation to diet and/or physical activity outcomes.

### **Dietary Interventions:**

1. Point of purchase schemes in shops, supermarkets, restaurants and cafes can be effective in improving dietary intakes at least in the short term, particularly if accompanied by supporting education, information and promotion. There is some evidence that longer-term, multi-component interventions may show greater effects.

### **Physical Activity Interventions:**

1. There is a body of evidence that creation of, or enhanced access to space for physical activity (such as walking or cycling routes), combined with supportive information/promotion, is effective in increasing physical activity levels.

- The general promotion of active travel (for example, publicity campaigns) does not appear to be effective in increasing physical activity levels.
- 2. Targeted behavioural change programmes with tailored advice appear to change travel behaviour of motivated groups. Associated actions such as subsidies for commuters may also be effective
  - Targeted behavioural change programmes with tailored advice appear to change travel behaviour of motivated groups. Associated actions such as subsidies for commuters may also be effective.

### **Implementation:**

1. Auditing the needs of all local users can help engage all potential local partners and establish local ownership
2. Interventions may be ineffective unless fundamental issues are addressed, such as individual confidence to change behaviour, cost and availability; pre-existing concerns such as poorer taste of healthier foods and confusion over mixed messages; the perceived 'irrelevance' of healthier eating to young people; and the potential risks (including perception of risk) associated with walking and cycling
3. Addressing safety concerns in relation to walking and cycling may be particularly important for females and children and young people and their parents
4. Interventions which incorporate novel educational and promotional methods, such as videos and computer programmes, may improve dietary intake.
5. Changes to city-wide transport, which make it easier and safer to walk, cycle and use public transport – such as the congestion charging scheme in the City of London and Safer Route to School schemes, have the potential to make active transport more appealing to local users.

**A Community Based Approach to Promoting Walking in Rural Areas  
(further details on this programme are available in Appendix X).**

Brownson et al (2004)

Physical activity promotion is an important public health priority that has received increasing attention in recent years. Despite the health benefits of physical activity more than one quarter of the American population remains completely inactive. To address the burden of inactivity moderate activities such as walking and cycling provide many of the same health benefits as more vigorous physical activities. Among activity types walking is the most common physical activity in the general population and in major subgroups such as overweight individuals, older persons and persons of low income and education levels.

Physical activity intervention programs are frequently organized within ecologic frameworks that are viewed as having the largest potential to improve health on a population basis. These models highlight the importance of addressing problems at multiple levels and stress the interaction and integration of factors within and across levels (interpersonal, organizational, community and public policy). Community attributes have been examined across many studies and showed consistent associations of recreational facility accessibility, opportunities to be active and aesthetic qualities with patterns of physical activity in adults (Humpel, 2002).

#### Recommendations for replication

1. Allow sufficient time for intervention development. Applying frameworks for participatory research is often useful when designing and implementing community based programmes like this. Important mechanisms for successful intervention planning are clear statement and re-statement of project objectives, frequent communication among all partners and clearly delineated roles and responsibilities.
2. Identify multiple benefits of planning and intervention development. Often the benefits of community involvement go beyond addressing risk factors or disease outcomes. Community member empowerment such as involvement of coalition volunteers with local government is a key beneficial outcome.
3. Understand the benefits and challenges of new technologies. The above project used some technologies that took considerable time to develop and introduce to the community. While being optimistic that such innovations will ultimately

enhance the effectiveness of community based intervention the time and expense of pioneering these technologies probably detract from other project activities.

4. Understand needs and build skills among academic and community partners.

Based on small group meetings, focus groups and town hall meetings a variety of skills and needs across communities was found.

5. Measure social and physical environments. More upstream indicators are often useful in assessing intervention success. In physical activity studies this may mean assessing the ease of walking in a particular environment or the level of social capital in a community.

This study did not show a community-wide change of walking rates in rural communities, but it did indicate an increase in the rate of walking-trail use. Since these were relatively modest interventions, it is possible that sustained, higher-dose interventions may lead to measurable community-wide changes. Several important lessons can be taken from this experience that should provide guidance for future projects.

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## **Interventions aimed at black, minority ethnic groups ('BMEGs'), vulnerable groups and vulnerable life stages**

### Background

The following evidence review was produced by the University of Teesside. All studies previously identified for other review areas had also been considered for inclusion if they provided salient information on black and minority ethnic group (BMEGs), vulnerable groups or vulnerable life stages. After de-duplication, 120 papers from previous reviews and additional database searches were assessed in detail of which 35 papers (including two systematic reviews) met the critical appraisal criteria for inclusion in evidence tables.

The inclusion and exclusion criteria for the review adhered to the standard public health review parameters. However, specific criteria were had being developed to make this topic manageable. The following were included:

- BMEGs – minority population groups to consider based on UK census data and the prevalence data of obesity among BMEGs. However, studies that met the inclusion parameters for effectiveness were conducted solely in black American or African American populations. Mean body mass index (BMI) in these populations is higher than in Caucasian populations. Therefore, at odds with the standard review parameters, studies among these population groups were not excluded if the mean baseline BMI was above 30 kg/m<sup>2</sup> but the study was not specifically aimed at weight loss.
- Vulnerable groups – included standard terms used for all previous Health Development Agency work regarding inequality (for example income, socioeconomic status, education) along with children in care; children in special schools; people in institutions. Additional terms were included to identify studies on individuals with learning difficulties, special needs and developmental disorders.
- Vulnerable life stages – based on the findings of the ‘Energy balance’ review which identified that smoking cessation, pregnancy and menopause were life stages associated with weight gain. Search terms were not included for other life stages where the energy balance review had identified more limited evidence (such as marriage, divorce and shift working).

Selected evidence reviews on interventions aimed at black, minority ethnic groups (‘BMEGs’), vulnerable groups and vulnerable life stages are given in appendix VII.

#### Limitations of the review

The evidence was predominantly identified from black/African American studies.

In the included BMEG studies, average baseline BMI was higher compared with average BMI in Caucasian populations. For all groups considered, the studies commonly included predominantly women and the studies in children were of short duration.

The evidence review on interventions aimed at black, minority ethnic groups ('BMEGs'), vulnerable groups and vulnerable life stages as strategies for obesity prevention is summarised below:

### **BMEGs**

1. There is a dearth of evidence on the effectiveness of interventions among BMEGs in the UK. All identified RCTs were undertaken in the USA, the majority among African/black Americans.
3. There is some evidence that ethnicity may be a risk factor for greater weight gain during childhood, pregnancy and smoking cessation.
4. The effectiveness of interventions among African/black American children remains unclear. The majority of identified studies were not adequately powered to identify differences in BMI.
5. There is some evidence that interventions among African/black American women, which promote a low-fat diet and moderate activity, can result in modest decreases in BMI and waist circumference in the short to medium term.
6. There is evidence that school-based intervention are effective in preventing excess weight gain among black American children.
7. There is a body of evidence that culturally specific interventions among black American adults can significantly improve fruit and vegetable intake, reduce percentage energy from total and saturated fat and reduce energy intake up to 2 years.
  - But, The effectiveness of tailored physical activity interventions targeted at BMEGs, compared with a non-targeted intervention programme, remains unclear.
8. Community settings, such as churches, have been shown to be an effective setting for engaging black/African Americans.

9. The generalisability of specific interventions among black American populations to all UK BMEGs may be limited but general learning can be applied to the UK.

### **Vulnerable groups**

1. There is a dearth of evidence on the effectiveness of interventions among individuals with a disability. There is limited short-term evidence to suggest that intervention may prevent excessive weight gain in overweight adults with Down's syndrome.
2. There is some evidence that interventions to prevent excess pregnancy weight gain may be effective among lower-income groups but the impact of baseline weight remains unclear.
3. The effectiveness of interventions among lower-income and other vulnerable groups remains unclear.
4. There is a paucity of evidence on the effectiveness of interventions to manage weight, improve dietary intake and or improve activity levels among vulnerable groups.
5. The impact of interventions during pregnancy to lower income groups in relation to long-term diet and activity levels remains unclear.

### **Vulnerable life stages**

1. There is a body of evidence that exercise (walking, other aerobic training, resistance training, strength training with weights machines or combinations) can improve body composition and result in a small loss of body weight and fat in postmenopausal women. This effect seemed to be optimal when combined with a weight-reducing diet.
  - On balance, smoking cessation interventions incorporating weight management may increase continuous abstinence rates but the long-term impact on weight, and the impact on diet and physical activity levels, remains unclear.

- There is limited evidence that a weight management programme addressing diet and activity during the menopause can prevent excess weight gain in women during the menopause.

## **Body and Soul**

**A Dietary Intervention Conducted Through African-American Churches (further details on this programme are available in Appendix X).**

**Resnicow et al, 2004**

This programme was implemented focusing on modifying fruit and vegetable intake among African-Americans through African-American churches in the Southern United States. The intervention Body and Soul was constructed from two independently developed interventions that were shown to be efficacious in separate randomised studies. In creating the aggregate intervention, the project team was guided by two overarching parameters: (1) evidence that the intervention component was ‘essential’, that is at least in part, it accounted for the positive intervention effects observed in the parent trials; and (2) the intervention component had the potential to be widely disseminated and adopted.

### **Intervention overview**

**Churchwide nutrition activities.** Churchwide activities were considered an essential program element. Churches agreed to implement several ‘core’ churchwide activities, which included a ‘kick-off’ event, forming a project coordination committee, conducting at least three churchwide nutrition events plus one additional event involving the pastor and making at least one policy change.

**Self-help materials.** All individuals enrolling in the project received a cookbook as well as several educational pamphlets.

**Motivational interviewing.** Counselling was considered an essential element of the Body and Soul intervention. Motivational interviewing helps individuals to work through their ambivalence about behaviour change, solve their own barriers and explore potential untapped sources of motivation. Counsellors established a safe non-confrontational and supportive climate where clients could feel comfortable expressing both the positive and negative aspects of their current behaviour as well as the pros and cons for change. The motivational interviewing was delivered by lay church members trained by project staff.

### **Implementation**

This project demonstrated that a research-based intervention can be adapted and implemented under real world conditions using volunteer staff and lay counsellors and under these conditions positive effects on behaviour change can be achieved. Community settings such as churches are shown to be an effective setting for engaging minority communities such as the Black Americans in the community.

### **Summary of evidence guidance**

The NICE provide a summary of this overall evidence in their quick reference guide (NICE, 2006, <http://guidance.nice.org.uk/page.aspx?o=CG43QuickRefGuide1>). A summary of key recommendations is set out here.

### **Local authorities**

All relevant workplace policies should support the local obesity strategy.

Work with the local community to identify environmental barriers to eating healthily and being physically active.

Ensure building designs encourage the use of stairs and walkways.

Encourage local shops and caterers to promote healthy food and drink choices.

### **Early years settings**

Minimise sedentary activities during play time.

Provide regular opportunities for enjoyable active play and structured physical activity sessions.

Implement government level guidance on food procurement and healthy catering.

Involve parents and carers.

### **Schools**

Ensure school policies and the school's environment encourage physical activity and a healthy diet.

Teaching, support and catering staff should have training on how to implement healthy school policies.

Establish links with health professionals.

### **Self-help, commercial and community settings**

Primary care organisations and local authorities should recommend to patients, or consider endorsing, self-help, commercial and community weight management programmes only if they follow best practice:

- helping people decide on a realistic healthy target weight
- focusing on long-term lifestyle changes
- addressing both diet and activity, and offering a variety of approaches
- using a balanced, healthy-eating approach
- offering practical, safe advice about being more active
- including some behaviour-change techniques
- recommending and/or providing ongoing support

### **Workplace**

Provide opportunities for staff to be physically active through:

- working practices and policies, such as active travel policies for staff and visitors
- a supportive physical environment, such as improvements to stairwells and providing showers and secure cycle parking
- recreational opportunities, such as supporting out-of-hours social activities, lunchtime walks and use of local leisure facilities

### **Health professionals**

Offer tailored advice based on individual preferences and needs.

Involve parents and carers in actions aimed at children and young adults.

Discuss weight, diet and activity at times when weight gain is more likely.

Focus interventions on activities that fit easily into everyday life.

Use multicomponent interventions.

Support and promote healthy eating and physical activity through retail and catering schemes, schemes and facilities to encourage physical activity, and behavioural change programmes.

Support implementation of workplace programmes on obesity.

In community programmes, address local concerns, including the availability of services, cost and safety.

## CHAPTER SIX:

### Overview of obesity prevention programmes in Ireland

The following chapter sets out an overview of health promotion interventions in Ireland that include a focus on obesity prevention. Programmes are presented within the seven category framework outlined by NICE and set out in the previous chapter. It should be noted that this overview does not represent an exhaustive account of all obesity prevention programmes happening in the Irish context. Programmes are discussed in terms of the evidence produced by NICE and outlined in the previous chapter. A complete list of programmes examined is provided in appendix VIII .

#### **A: Interventions to raise awareness**

##### *Evidence of effectiveness of promotional campaigns re diet and physical activity*

A number of national level campaigns designed to raise awareness and promote positive behaviours in relation to dietary intake and physical activity have taken place in Ireland under the auspices of the Health Promotion Unit (HPU) within the Department of Health and Children.

In order to increase the percentage of the population who consume the recommended daily servings of food and maintain a healthy weight the Health Promotion Unit ran a National Healthy Eating Campaign from 1992 to 2003 which introduced the [\*food pyramid\*](#) as a national guide to healthy eating.

The following topics have been covered in National Healthy Eating Campaigns:

- Eat a Wide Variety of Foods - using the Food Pyramid as a guide (1993)
- Be a Healthy Weight (1994)
- Eat more Bread, Cereals and Potatoes (1995)
- Eat more Fruit & Vegetable (1996)
- Eat more Fibre Rich Foods (1997)
- Go For Low Fat Healthy Eating - Ten Easy Steps for Reducing Fat (1998)

- Go For Low Fat - Be A Healthy Weight (1999)
- Help Your Heart - Go For Low Fat Healthy Eating (2000)
- Ready Steady Go - For Low Fat Healthy Eating (2001)
- More Fruit & Veg. Everyday - The Healthy Eating Way (2002)
- Fast Fruit – The Tasty Way to Snack (2003)

The HPU report that the campaign has been successful in creating and increasing public attention on healthy eating with 60% awareness of key healthy eating messages. The campaign introduced the food pyramid which is now acknowledged and accepted as the national guide to healthy eating, and has enhanced public awareness on healthy eating guidelines on fruit and vegetables, fibre, low fat and being a healthy weight.

In order to increase participation in regular, moderate physical activity the national all island '*get a life, get active*' campaign was launched in 2001. This physical activity campaign aimed to raise awareness of the need to increase levels of physical activity among the population for increased health enhancement. This was followed by the '*Let it Go - just for 30 minutes*' campaign in 2003 which focused on the message that even minor increases in the level of activity can lead to positive health benefits. This campaign encouraged people to be physically active for 30 minutes most days of the week. The '*get a life, get active*' campaign was formally launched in Dublin on May 23rd 2001 and in 2002 a particular emphasis on walking was incorporated into the programme.

The campaign in the Republic of Ireland ran over eighteen months from May 2001 to October 2002 and altogether involved over eighteen weeks of national and regional advertising on television and radio and included:

- Publication and distribution of 1.2 million '[\*A handy guide to physical activity for a healthier heart\*](#)' 20 page handbooks of which 600,000 were delivered to households in areas with increased cardiovascular risk profile.
- Publication and distribution of over 300,000 'get a life get active' leaflets on an all island basis.

- Publication and distribution of 500,000 '[A handy guide to walking for a healthier heart](#)'.

The seven regional health boards in the Republic and the three area boards in the ERHA developed a programme of activities to support the campaign, focusing in particular on schools, older people and the workplace. These activities were delivered through a network of health board physical activity co-ordinators.

A number of organizations also supported the campaign including the [Irish Heart Foundation](#), [Age and Opportunity](#), [the Irish Sports Council](#), [Department of Sport Science and Health](#), Dublin City University, and the [Diabetes Federation of Ireland](#).

The second national physical activity campaign, '*Let it Go - just for 30 minutes*' was launched in July 2003 and was specifically aimed at the 50 per cent of the population that does not engage in any form of regular physical activity.

The Campaign involved two phases. The first featured a series of TV and poster advertisements depicting every day events, such as watching TV or playing computer games. The strapline 'Let it Go, Just for 30 Minutes,' is aimed at impressing upon the Irish population the need for regular activity – at least 30 minutes for adults - most days of the week. The second phase, launched in October 2003, centred on the launch of a number of national and local initiatives, aimed at encouraging consumers to get active and demonstrating, through practical measures, the benefits that can be obtained from all levels of activity. In addition, activities focused on the distribution of materials such as leaflets and posters, media promotions, retail promotions and discounts, media announcements and events in which people can participate.

In 2004 a national public awareness campaign, *Every Step Counts - Small Changes Make The Difference*, was launched to help tackle the issues of overweight and obesity in Ireland. The aim of the campaign was to generate greater levels of awareness for this major health issue and to demonstrate, through practical means, ways to avoid becoming overweight and obese. The campaign integrated two key lifestyle issues: healthy eating and the need for regular physical activity. Topics covered included: Portion size matters,

children need to be active for at least 1 hour most days of the week, and adults should be active for at least 30 minutes most days of the week. Leaflets and posters were published as part of this campaign.

A further campaign was launched in November of 2005 entitled *Take 5 Steps... to a Healthier You*. A high profile programme of activity was carried out nationwide, including the distribution of leaflets and posters; materials for schools, workplaces and health professionals; national promotions; competitions and many other localised events, which were organised by the Community Nutrition and Dietetic Service and the Physical Activity Co-ordinators in the Health Promotion Departments of the Health Service Executive.

These campaigns have similar components to the UK national 'Fighting Fat, Fighting Fit' (FFFF) campaign which aimed to stimulate behaviour change (see appendix 1). It's main message was that weight problems are best tackled with small but permanent changes to diet and exercise rather than short-term dieting to achieve rapid weight loss. The FFFF campaign was promoted over seven weeks of campaigning during peak and day-time programming on the national television and radio stations. It was supported by official website, Ceefax, a book, a video and telephone lines that provided further information to the general public.

It is worth noting that unlike the Irish campaigns which have been predominantly aimed at the whole population, the FFFF campaign was aimed to target specifically groups with higher prevalence of obesity.

*Evidence of impact of food promotion on children's food preferences, purchase behaviour and consumption*

The research evidence indicates that food promotion has the potential to influence children in a positive way and this is an area where clear policy is needed in the Irish context. In Ireland the National Heart Alliance has taken a lead in this area and has published a position paper on *Marketing of Unhealthy Foods to Children* (NHA, 2005).

In relation to the media this paper notes that the Children's Advertising Code of the Broadcasting Commission of Ireland (BCI) continues to expose children to the marketing of foods high in fat, sugar and salt, does not take into account the cumulative effect of advertising on children and does not limit the number of food advertisements per segment or per day. It also notes that the BCI code covers only terrestrial advertising and therefore recommends a comprehensive set of protective measures across all media.

The updated National Nutrition Policy, developed by the Department of Health and Children is due for publication in the near future and is expected to provide consistent guidelines in this area.

*Parents are important role models for children and young people in terms of behaviours associated with maintenance of a healthy weight*

There appears to be a relatively small number of family based interventions delivered through the HSE that focus on the role of parents and the home environment. The publication of a report by the Western Health Board on the home as a setting for health promotion (WHB, 2003) highlights the importance of this often overlooked setting for health promotion. Clearly this is an area where further work in relation to obesity prevention is warranted, particularly in the early childhood years.

*Books, magazines and television programmes are an important source of information and actively involving media providers may improve the effectiveness of interventions*

Work in this area can be cross-referenced with work under the national awareness campaigns and food promotion to children areas.

### **B: Interventions for pre-school children and family based interventions ('early years')**

Work in this area can be cross-referenced with family based interventions above.

*Improvements in the food service to pre-school children can result in reductions in dietary intakes of fat and improved weight outcomes*

Although Ireland does not deliver a standardized model of pre-school care, food provision in pre-school is guided by the *Food and Nutrition Guidelines for Pre-School Services* (Department of Health and Children, 2004). However providers of childcare who are not registered with the local health agency are not required to implement these guidelines. Further work is warranted to ensure that all providers are educated regarding good nutritional practices for young children.

*Family-based interventions that target improved weight maintenance in children and adults, focusing on diet and activity, can be effective, at least for the duration of the intervention*

*Interventions which involve parents in a significant way may be particularly effective and can improve parental engagement in active play with children and a child's dietary intake*

Although Ireland does not have a standardised pre-school system there are a number of pre-school interventions being delivered through the HSE in different areas which focus on nutrition and/or physical activity. Examples of these programmes include ‘ Good Habits Early’, ‘Action Kids Leitrim’ and ‘Buntus START’. However it is likely that additional programmes are being delivered in pre-schools through private contracting out such as the ‘Stretch-and-grow’ programme .

The evidence base highlights the importance of delivering programmes that combine the elements of physical activity and nutrition, rather than focusing on one or the other. A greater emphasis on this combined approach is warranted in the Irish context.

In relation to implementation the evidence base highlights the need to tailor interventions as appropriate for lower income groups and that the 2-5 year age period is a key time to establish good nutritional habits especially when parents are involved.

## **C: School based interventions**

As identified in the Review of the National health Promotion Strategy (2004) there are high levels of activity in relation to the implementation of health promotion interventions in the school setting and many of these focus on nutrition and physical activity.

*The evidence on the effectiveness of multi-component school-based interventions to prevent obesity (addressing the promotion of physical activity, modification of dietary intake and reduction of sedentary behaviours) is equivocal. Some identified interventions demonstrated a reduction in mean BMI and the prevalence of obesity while the intervention was in place, but this finding was not universal. UK-based evidence in particular is lacking*

The programmes being implemented in Ireland predominantly tend to focus on *either* physical activity *or* nutrition. Based on the NICE evidence findings there is a need to develop more multi-component school based interventions. The majority of activities reported here are being delivered in the primary school setting.

*There is a body of evidence to suggest that short-and-long-term school-based interventions to improve children's dietary intake may be effective, at least when the intervention is in place.*

*There is evidence from multi-component interventions to suggest that both short- and long-term physical activity focused interventions may be effective, at least while the intervention is in place*

There are a number of on-going initiatives to develop and implement healthy food policies in the school setting, the majority of which are happening at primary school level. Although the evidence base in relation to the school setting does not specifically address the needs of disadvantaged children in the school setting, their needs are relevant in the school context and also as a vulnerable group. In the Irish context, one initiative identified in the mid-west area is a programme to fund and provide healthy school meals at no cost to participants.

## **D:Workplace interventions**

*Worksite behaviour modification programmes, that include health screening with counselling/education can result in short-term weight loss. Weight loss may be regained post intervention*

*Worksite behaviour modification programmes, such as health screening followed by counselling and, sometimes, environmental changes, can lead to improvements in nutrition and physical activity while the intervention is in place.*

*There is a body of evidence that the provision of healthier food choices can encourage consumption of a healthier diet.*

*Workplace physical activity programmes can have a positive effect on physical activity*

The evidence points to the short term benefits of worksite behaviour modification (BM) programmes. In Ireland some programmes are delivered that involve brief intervention techniques and one to one consultation but many others are focused on the provision of healthier food choices and physical activity programmes. The majority of programmes reported here are being delivered within the healthcare (HSE) sector.

The NICE evidence base suggests that payroll incentive schemes (such as free gym memberships) are either only effective in the short term (during the period of the intervention) or ineffective for weight control. However payroll deduction facilities for gym memberships for staff are offered in a number of organisations in the Irish context.

A body of UK-based case studies suggests that factors most likely to make a canteen-style five-a-day intervention work are: commitment from the top, enthusiastic catering management, a strong occupational health lead, links to other on-site health initiatives, free or subsidised produce and heavy promotion and advertisement at point of purchase. The healthy eating component of the Happy Heart at Work programme works closely with management and catering staff to successfully implement the programme.

### **E: Interventions led by health professionals**

With the exception of the GP Referral programme all of the programmes reported refer to training by health professionals to other health professionals and doesn't relate to health professional led training in the community per se.

The majority of these programmes include components on both nutrition and physical activity. In terms of implementation the evidence highlights the need to tailor dietary advice to address potential barriers (taste, cost, availability, views of family members, time) as being key to effectiveness of interventions.

### **F: Broader community interventions**

*There is a body of evidence that creation of, or enhanced access to space for physical activity (such as walking or cycling routes), combined with supportive information/promotion, is effective in increasing physical activity levels.*

*The general promotion of active travel (for example, publicity campaigns) does not appear to be effective in increasing physical activity levels*

The Sli na Slainte walking routes intervention is an example of a physical activity programme which develops and promotes access to walkways in various regions which are available to all. Other programmes in this area are focused on nutrition and/or physical activity.

### **G: Interventions aimed at vulnerable groups and vulnerable life stages**

In terms of vulnerable groups there are a small number of programmes in place for low income groups and Travellers, as well as some for asylum seekers. No programmes were identified for other vulnerable groups such as persons with physical, mental or intellectual disabilities nor for persons at vulnerable life stages (in relation to obesity) such as post-menopausal women.

## Summary of key issues

- An increased emphasis on family based interventions, particularly in the early childhood years is needed. This should include a focus on the role of the parents and the home environment.
- Sound nutritional practices should be available to all children attending day care, crèche and pre-school facilities.
- A combined approach, focussing on nutrition and physical activity, is needed in the pre-school setting, rather than focussing predominantly on one approach over the other.
- The 2-5 year age period is a key time to establish good nutritional habits especially when parents are involved.
- School based interventions should be multi-component in focus (i.e. incorporating nutritional and physical components).
- Workplace interventions should focus on the provision of physical activity programmes and the provision of healthier food choices.
- Health professional led interventions need to tailor dietary advice to address potential barriers in order to be most effective.
- An increase in interventions that target vulnerable groups and vulnerable life stages I required in the Irish context.

## **Chapter Seven:**

### **Implementation of the European Quality Instrument for Health Promotion (EQUIHP)**

One of the aims of this project was to use EQUIHP as a benchmarking tool for selected programmes and also to pilot test the tool for the first time in the Irish context.

The EQUIHP User Guide outlines different types of projects which EQUIHP can be used for including research projects, development projects, implementation projects (defined by project objectives) or education projects, community projects, diagnostic or problem identification projects and evaluative projects (defined by project target group, methodology and focus) (GEP, NIGZ, VIG, 2005). The projects (i.e. Playground Games and Markings, Healthy Food to Go and GP Referral Project) explored in this part of the study were classified as implementation and community projects. It is important to note that the user guide points out that while all four clusters and 13 criteria are relevant to all project types in a general way, certain criteria have more relevance over others.

In this pilot all criteria were explored while recognising that some were more relevant than others. For example, in the case of implementation projects cluster 1 (Framework of Health Promotion Principles), cluster 3 (Project Management) and criterion e of cluster 2 (implementation strategy) were deemed most relevant.

Based on meetings and discussions with the working group three programmes were selected and persons (programme coordinators) were nominated to complete the EQUIHP survey tool. The section criteria included:

- Programmes are focussed on prevention (physical activity or dietary programmes or combined programmes)
- Non-clinical based programmes
- Programmes have previously been evaluated with a positive outcome.

Ideally the individual completing the EQUIHP tool should have an in-depth knowledge of the programme, from programme planning and development through to implementation and evaluation of the programme. In the case of the three programmes discussed below, this was possible for one programme only (the HOT programme). In one instance the survey tool was completed in a face to face context and by telephone for the remaining two programmes. Completion of the tool took between 40 minutes and 1 hour 20 minutes.

Coordinators were asked to read through the tool and to collect any relevant documentation prior to the survey completion date. The findings reported here are separated into two categories-(1) Methodological issues in relation to using the EQUHIP tool and (2) more specific issues relevant to each of the participating programmes. The specific findings by programme are presented at the end of this chapter.

#### (1)Using the EQUIHP tool

The tool was introduced to practitioners at a working group meeting in February 2007. None of the group had any previous experience in using the tool.

Having read through the EQUIHP tool practitioners reported that it appeared to provide a useful framework for the planning phase of health promotion programmes. For the purpose of this project EQUHIP was used in the context of programmes which were already implemented.

The entire tool was utilised (as recommended in the user guide) although the relevance of many sectors to particular programmes were unclear. It was pointed out that the tool was quite general and repetitive and needed to be more specific for programmes.

Practitioners suggested that a column on 'not relevant' or 'not appropriate' would be useful.

The EQUIHP tool was also seen as useful for identifying possible gaps in the project. For example none of the programmes have any formal or explicit communication plan in place (section e of the project management cluster) although it was reported that it would be useful to have this in place for some projects.

Practitioners also reported that some of the language utilised was overly complex and difficult to understand in parts.

Coordinators have not necessarily been involved with the programme from the beginning and therefore didn't have access to an original project plan. The user guide recommends that EQUIHP is used alongside the project plan. It was also pointed out that extensive project plans do not necessarily exist for programmes which is a further challenge to completing EQUIHP.

Variance in achievement levels reported may also reflect different methods of and approaches to working in health promotion. For example while some practitioners may see the usefulness of having a project plan in place others may favour a approach where the programme is allowed to evolve and develop allowing for flexibility. Obviously the type of programme involved will impact here also.

Users did report the tool to be very comprehensive and that no pertinent information was excluded.

### **Overview of each programme**

The three programmes which undertook EQUIHP have all been successfully piloted and evaluated. The following section provides background information on each of the programmes.

### **The Playground Games and Marking Programme**

The Playground Games and Markings project is a programme designed to increase school based physical activity levels amongst children in the HSE Dublin Mid Leinster Region, an intervention strongly recommended by the National Children's Office (2004), the Department of Health and Children (2000) and the National Physical Activity Steering Group (1997). The various strategies recommend that each health board should:

- Develop a partnership approach in funding and developing play opportunities (Objectives 45 – 48 National Children’s Office 2004)
- Promote the importance of play in schools (Objectives 30 –33 National Children’s Office 2004)

- Extend initiatives promoting healthy lifestyles in children (Quality and Fairness 2001. Goal 1, Better Health for Everyone. Objective 2: Action 8).
- Pilot the Playground Games and Markings project in primary schools throughout the Board's area (MHB Service Plan 2004)
- Support effective programmes at school and community level (National Physical Activity Steering Group 1997).

The main objectives of the project are to:

- Promote the Playground Games and Markings project to schools within the HSE Midland Area
- Provide training and information to teachers about the benefits of physical activity, and how to select and place the various playground markings
- Provide information on various marking companies, and the provision of a games resource pack to use in conjunction with the markings
- Evaluate the Project in terms of increasing activity levels amongst primary school children in the HSE Midland Area and influencing behavioural change.

### **Key Features of the programme**

#### *Ecological Model of Behavioural Change*

The project adopted a structural ecological model of behavioural change (Spence and Lee 2003). The ecological approach is founded on the premise that individuals adapt or vary their behaviours or characteristics in response to available, changing resources in the environment. In other words, by changing the environmental structure behavioural change is allowed to occur. For instance, despite individual demographic characteristics (e.g. age, gender, social class) playing in a well equipped and colourful playground is likely to increase individual physical activity levels (Midland Health Board, 2005).

### *The primary school setting*

The school environment provides an ideal setting for health promotion initiatives as it is deemed to be one of the most effective and efficient ways to reach large portions of the population, including young people, school personnel, families and community members (Carter and Swinburn 2004, WHO Report 1998).

Within the school setting, playgrounds, in particular, have the potential to provide children with an important source of physical activity and recreational opportunities. With approximately 445,000 children registered within the Irish primary school system (Dept. of Education and Science 2005) the zoning and changing of the school playground can have positive implications for many individuals. Furthermore, if the playground is well equipped and colourful the environment may also influence psychological factors that will increase favourable attitudes to physical activity that may generalise to other environments where play may also be an option (Spence and Lee 2003).

Findings from the evaluation of the programme support the ecological hypothesis that environmental variables (e.g. playground markings & green spaces) and physical activity are strongly linked. The project components were implemented as planned, and feedback from teachers and children in relation to the overall project and training was generally positive. Although 85% of respondents took part in the two-day playground-training workshop organised by the HSE Midland Area Health Promotion Unit, it was recommended that more thought and advice needs to be given by school personnel when selecting and laying out the markings. There was an increase in 'walking' activity levels, which is conducive to playground games and markings. This may have been more significant had green areas not been available to the children during the post-intervention observation. The preferred use of the green areas, however, is a significant finding in itself and highlights the importance of green areas within the school grounds. Although based on the perceptions of staff as opposed to data measuring skill improvement, the number and variation of games played on the playground has increased since laying down the markings, with improvements noted in various skills (e.g. motor behaviour, creativity, problem solving and social skills). Observations clearly indicate that the

playground areas are under utilised before and after school, and that teachers do not tend to become involved in or organise activities during the break-times. Based upon observations the zoning of school playgrounds and provision of equipment would appear to be of considerable importance as is the role of a supervisor and adult. In 41% (n=16) of cases, it was felt that the children did require assistance in terms of how to use the markings.

One of the key recommendations arising from the evaluation report was to explore future funding and the costs associated with contracting the work out to a contractor. As a result a new programme is now underway where marking templates have been developed which school personnel can place themselves. These stencils have been distributed to 58 schools.

### **Healthy Options to Go (HOT)**

The Healthy Options To-go (HOT) project sets out to address the issue of healthy food choices on the go, through collaboration between the food industry and health professionals. The HOT project was a six-month research project, set in a small midlands town in Ireland. Five food premises and one school took part in the project.

The aims of the project were to

- work with fast food retailers to facilitate the provision of healthy food choices to customers.
- make healthy choices more visible to the customer.
- market the HOT project within the local and wider community and in so doing increase consumer awareness of the project.

Specific objectives were to

- select and recruit premises in conjunction with the local Environmental Health Service.
- develop healthy food criteria for shops and supermarkets selling foods to-go.
- increase the number of healthy choices available to customers.
- plan and run a media campaign to promote the HOT project.
- design and produce promotional materials.

- monitor and audit the premises involved to determine compliance with pre-agreed criteria.
- consult all stakeholders involved in the project.

### **Key features of the programme**

Premises were selected in conjunction with the local Environmental Health Service and each premises was visited by a community dietician and a detailed audit of existing take-away food options was carried out. Existing options were compared to national healthy eating guidelines. Then following discussions with individual retailers healthy option criteria were devised.

In store signage, posters in the locality, in store promotions newspapers, and radio and were used to promote the HOT project. The services of a graphic designer to design a logo, and a professional printer to produce most of the promotional materials were employed. Others were produced by the coordinating dietitian in consultation with the businesses involved. Materials produced included stickers, food labels, menu boards, signs, menus, leaflets and posters.

Businesses were visited informally throughout the HOT promotional period (two months) by the coordinating dietitian. They also received a formal independent audit by a senior community dietician. Every effort was made to consult with restaurant and supermarket owners, catering managers and staff, suppliers and food companies, customers, local community groups and the school, community development officers of the Health Promotion Unit and members of the Environmental Health Service throughout the different stages of the HOT project.

Findings from the evaluation (Midland Health Board, 2004) indicated that the majority of consumers reported that the labeling of healthy options in take-away food premises it would encourage them to choose them. Students surveyed between the ages of 12 and 18 were eating a high percentage of high fat and high sugar foods. The majority of students (63%) wanted healthy options to be labeled on the school menu. Younger students and

girls were more in favor of this labeling. As a result of a new school menu with more healthy options and a labeling scheme in combination with workshops for students, school order data showed a significant drop in sales of several unhealthy items i.e. snackbox (fried chicken and chips) sales fell by 50% in unit sales per week. There was a small increase in new healthy option items introduced to the school menu e.g. healthy option breakfast roll, pizza bread, chicken and vegetable wrap. Retailers reported an increase in sales of healthy items and the attraction of new customers. Several suggestions were made for the expansion of HOT on a national basis. Eighty two percent of customers surveyed were aware that the HOT project was taking place in the town. In-store signage was deemed the most effective way of raising customer awareness. Radio and newspapers were also shown to be very effective means of promotion. Forty four percent of customers reported choosing a healthy option on the day of survey. Greater than 96% of customers are in favor of awards for premises that promote both healthy options and have high standards of food safety and hygiene. Members of the minority community group surveyed displayed an interest in healthy eating. There were also some misconceptions about healthy foods being more expensive than normal foods. The catering managers felt that their workplace had benefited from being involved in the project. Difficulties reported by them were the sourcing of ingredients and the upkeep of criteria during very busy times. All reported a positive reaction from customers.

The findings of the HOT project suggest that it is possible to successfully establish a partnership between public and private sectors to promote healthy eating habits among the population.

It is crucial for the success of this project on a larger scale that wholesalers and food companies are approached to become involved in this initiative. The retailers surveyed indicated that it is the larger suppliers who ultimately decide what ingredients are available to them. They also have the ability to offer incentives and special promotions to smaller retailers on different healthy food items. The incentives for suppliers to become involved are: firstly it gives them a chance to promote their products, and secondly

consumer demand for healthy 'food to go' items is rapidly growing and increased sales for the smaller outlets generates bigger profits for them.

It is vital at the recruitment stage when engaging the interest of food retailers, that the benefits of participation in the project are put forward (such as promotion of their business, the attraction of new customers, and increased sales).

Both environmental health issues and healthy food criteria should be addressed together in any similar project in the future. An overwhelming majority of customers surveyed during this project were interested in both issues.

Any future project like HOT should be linked to an award scheme. The retailers surveyed were in favor of linking the project to an award scheme. Customers also reported that if premises held such an award it would encourage them to buy food there. Through marketing strategies the HOT name could be given an elite status and it is possible that businesses would pay to become enrolled in the project. This might be a method of self financing resources such as trained dietetic personnel to ensure that premises were properly monitored or advertising costs.

The report recommended that the issue of healthy eating policies in schools needs to be addressed with policies at both local and national levels. Adequate resources in terms of health promotion staff and community dieticians is required to give adequate support to schools in terms of adopting these policies. This is especially relevant in view of the rising levels of child obesity in Ireland (HBSC, 2003).

The HOT project is now being implemented in eight supermarket locations.

## **GP exercise referral programme**

The Mid Western Health Board (MWHB) and the Southern Health Board (SHB) have piloted schemes for referral by General Practitioners of patients with low risk conditions to specially designated exercise professionals.

### **The Key elements of the programme:**

The main structure of the programmes of the two Boards was very similar though there were minor differences in implementation and evaluation of the programmes. The main components of the programme were:

- It was a partnership approach between the GPs, Leisure Centres and the Health Boards. The GPs referred low risk patients from their practice to the identified Leisure Centres in the area for a tailor made exercise programme running for a period of 12 weeks.
- Healthy sedentary men and women in pre-contemplation, contemplation and preparation stages participated in the programme. In the MWHB there were 26 participants aged between 30-50 years and in the SHB there were 120 participants aged between 18 -84 years.
- The programme ran for a period of 12 weeks in both centres; however in the MWHB there were four assessments at four time points (baseline, 3 months, 6 months and 9 months) and in the SHB there were two assessments at 12 weeks and 16 weeks.
- Both home and Leisure Centre based programmes were provided. Community centres and private Leisure Centre were used for the programmes. The Leisure Centres provided reduced rate incentives for a period of 12 weeks.
- Interventions in both Health Boards were tailor made for individual needs however, there were differences in implementation in both programmes. In the MWHB intervention was based on participants' stage for physical activity adoption and physical activity preferences. Physical activity recommendations were based on individual preferences with optional home and facility based alternatives.

- In the SHB programmes were tailored according to ability of the participants and involved a combination of individual and group activities. They were free to contact the coordinator at any time and the coordinator also contacted the participants on a regular basis. Clients were encouraged to build physical activity into their daily lives and attend group talks on healthy eating and physical activity during their 12 week programme. It is noteworthy that it is only in the Programme of the SHB healthy eating was addressed, where as the MWHB programme was solely a physical activity programme.
- Components of the programme evaluated in both programmes were different. In the MWHB the activity levels and the mental health benefits for the participants by being more active are evaluated using the Scottish Physical Activity Questionnaire. In the SHB had a qualitative as well as a quantitative component for the evaluation. The qualitative component addressed the partnership approach between the GPs, leisure centres and the health boards, the changes in attitudes and perceptions of physical activity of the participants, the participants' perception of their own mental, physical, general health and vitality and attitude and perceptions of the participants and the GPs towards the programme. The quantitative component measured the activity levels at different stages of the programme, the changes in alcohol consumption and smoking, changes in systolic and diastolic blood pressure and the change in weight and BMI.

## **Evaluation findings**

### **MWHB**

- Baseline assessment carried out within one month illustrated a shift in the stage profile. Thus there was strong indication of stage movement as a result of the GP consultation and subsequent referral to the intervention programme.
- Total physical activity increased across the assessment points with the greatest change observed from baseline to three months. The observed change in the physical activity was primarily due to the change in the leisure time activity.
- All efforts were made to attract the most sedentary section of the population with opportunistic recruitment within the GP surgeries.

- The intervention was carried out for nine months which is considerable strength given that 10-12 week programmes dominate the literature which merely demonstrate efficacy (i.e. level of adoption) not effectiveness (i.e. adherence).
- There was a positive stage of change movement between the referral and the baseline assessment, which indicate the ability of the GPs within a brief intervention to positively affect the health of their patients.
- Process of change, self efficacy and decisional balance scores showed expected strengths which indicate that despite relapse in stage movement, the intervention succeeded in enhancing the tools necessary to bring about change in an individuals attitude to physical activity.

A key finding in this research is the difficulty in getting referrals from the GPs. Main factor that were impeding the process were time constraint and limited training. Motivational level of the GP to promote physical activity is also a consideration.

## **SHB**

- The partnership approach between the GPs, leisure centres and the health boards worked very well. It is considered central to the success of any future development of the programme.
- Changes in attitudes and perceptions of physical activity – 87.2% reported having benefited from the programme and out of those perceived benefits, 65% reported feeling fitter, 35% reported improvements in the mental condition, 23% reported being more health conscious. In addition 95% claimed that they would continue to exercise as shown in the programme.
- Participants felt that a follow up programme, increase in their self motivation, a leisure centre near by and a crèche facility would help them maintain their healthy life cycle.
- GPs reported noticing an appreciable change in their patients' overall well-being after participating in the programme. All GPs pledged to increase the participation of their patients in the programme.

- Activity levels showed statistically significant changes at 12 and 16 weeks.
- Mean alcohol consumption was reduced after the programme.
- Both systolic and diastolic blood pressure readings were lower in a statistically significant manner.
- BMI readings were lower in a statistically significant manner

## (2) Overall EQUIHP findings by programme

Detailed scoring for each of the EQUIHP criteria are detailed in appendix IX. This section presents an overview of these findings by criteria.

### **1 Framework of health promotion principles**

Many of these principles have been fully or partially incorporated into each of the three programmes. Two of the programmes reported a score of partial for the incorporation of evidence based principles where it was felt that an exhaustive review of the evidence base had not been undertaken. Some of the principles (such as ‘creating ownership among stakeholders’; ‘pay attention to empowerment’) were viewed as less relevant to one of the programmes.

### **2 Project development and Implementation**

#### *a) Analysis*

There was large variance both between programmes and within programmes on the number of criteria met here. For example, the level of consultation with stakeholders varied across the three programmes with only one programme reporting a positive response here.

#### *b) Aims and objectives*

The majority of criteria here have been either partially or fully incorporated across the three programmes.

#### *c) Target group*

The majority of criteria here have been partially met or not incorporated across the three programmes. It is important to note that many of the not incorporated scores are in relation to criteria that were deemed not relevant by the practitioner.

*d) Intervention*

The majority of criteria here have been either fully or partially incorporated across the three programmes.

*e) Implementation strategy*

All of the criteria here have been fully incorporated for two of the programmes. The majority of criteria have not been incorporated or have been partially incorporated for the third programme.

*f) Evaluation*

None of the evaluation criteria have been incorporated for one programme. It was reported that while the pilot programme had undergone extensive evaluation there were no plans in place at the present time to undertake any work evaluation work.

**3 Project management**

*a) Leadership*

The majority of these criteria have been fully incorporated with one score of partially incorporated reported.

*b) Planning and documentation*

One programme reported that none of these criteria were applicable. In this instance it was reported that the approach used is quite flexible dealing with issues as they evolve rather than adhering to a project plan. For the other two programmes the majority of criteria were either fully or partially incorporated.

*c) Capacity and resources*

While many of these criteria have been either fully or partially incorporated across the three programmes, further work is needed in the areas of identifying possibilities for local networking and planning for the expansion of local capacities.

*d) Participation and commitment*

The majority of criteria here have been met across the three programmes.

*e) Communication*

Only one programme reported having formulated a communication plan with a partial plan reported by another programme. Despite the lack of a formal plans in place various levels of communication activities were reported.

#### **4 Sustainability**

With the exception of one programme most of these criteria have not been met by the remaining two programmes.

## **CHAPTER EIGHT:**

### **Discussion and recommendations**

The widespread prevalence of overweight and obesity is a concern on a world wide scale. A key aim of this project was to review the existing evidence base in relation to obesity prevention. The evidence reviewed, published by NICE in 2006 represents the most up to date evidence available in this area. It is reviewed alongside examples of work that are currently being carried out in Ireland.

The second part of this project focussed on benchmarking current service provision (for three discrete health promotion programmes) against best practice guidelines as set out in the EQUIHP tool. This involved piloting EQUIHP for the first time in Ireland.

#### Existing evidence and ongoing work in Ireland

This section will discuss areas where further work is warranted in light of the existing evidence. The seven categories of work outlined by NICE provides the framework for this discussion.

- **Interventions to raise awareness.**

Overall there is a body of evidence which supports this area of action. Such interventions can increase awareness of what constitutes a healthy diet and can improve knowledge, attitudes and awareness of physical activity. Campaigns in the area of promotion of healthy eating habits have been implemented in Ireland over the past fifteen years with physical activity campaigns coming on board in the early 2000's. Basic information on campaign outcomes support the idea that these have been effective, however comprehensive evaluation information was not made available for this project. This may be partly due to a transition period in the establishment of new HSE structures and the devolution of executive powers from the former Health Promotion Unit (HPU).

The evidence briefing also highlights the important impact that such interventions can have on children's food preferences, purchase behaviours and consumption. This needs to be harnessed to ensure a positive rather than a negative impact. It is envisioned that the upcoming publication of updated National Nutrition Policy will provide consistent guidelines in this area.

A key finding in the evidence is that parents are very important role models for children and young people in terms of the behaviours associated with the maintenance of healthy weight. However, there appears to be a relatively small number of family based interventions delivered through the HSE that focus on the role of parents and/or the home environment. This is an area where more work is needed.

- **Interventions for pre-school children and family based interventions (the 'early years')**

There is a body of evidence that improvements in the food service to pre-school children can result in reductions in dietary intakes of fat and subsequently in improved weight outcomes. Use of this evidence is quite limited in the Irish context where there is no provision of a universal pre-school service. However guidelines on food and nutrition for pre-school services have been developed by the Department of Health and Children and these are available in formal settings (Department of Health and Children, 2004). The evidence clearly supports the fact that the 2-5 year age period is a key time to establish good nutritional habits.

Further evidence highlights the importance of family based interventions and interventions which involve parents in a significant way. Again this is an area where much more work is needed in the Irish context particularly since all children are not been reached through a pre-school service. Such involvement of parents can also improve parental engagement in active play with children and a child's dietary intake, according to the evidence base. The National Play Strategy, *Ready, Steady, Play* (2004) highlights the health benefits of play and sets out a policy that is both child centred and family-oriented. Family based interventions aimed at obesity prevention should build on the strategies set out in this policy document.

- **School-based interventions**

The NICE report (2006) points out that there is a lack of evidence prospectively assessing the use of a whole school approach in the field of obesity prevention. However, many of the interventions that have been identified could be considered as a taking a whole-school approach, particularly ‘multi-component’ interventions which address the whole of the school environment. A review of Ireland’s National Health Promotion Strategy (2004) has shown that there are high levels of health promotion interventions happening in the school setting and that many of these interventions are focussed on either nutrition and physical activity. Findings from the evidence base point to the need to move away from intervention which, in the main, focus on one aspect or another, and to instead implement interventions that are multi-component in nature and move closer to the model of the whole school approach.

The development and implementation of healthy food policies which is mainly happening in the primary school setting needs to be expanded to incorporate more post-primary settings.

- **Workplace Interventions**

The evidence supports the provision of healthier food choices to encourage consumption of a healthier diet and the provision of workplace physical activity programmes. A body of UK-based case studies suggests that factors most likely to make a canteen-style five-a-day intervention work are: commitment from the top, enthusiastic catering management, a strong occupational health lead, links to other on-site health initiatives, free or subsidised produce and heavy promotion and advertisement at point of purchase (Beresford et al. 2001). Ireland’s *Happy Heart at Work* (The Irish Heart Foundation) programme is a good example of such a programme.

There is also a body of evidence to suggest that the more successful behaviour modification/education techniques include an interdisciplinary approach with broad representation including health and safety and human resources, and implementers from high grades and strategic positions; initiatives integrated into worksite objectives; staff involvement, communication and realistic.

In the Irish context the majority of programmes identified for this project are focused on the provision of healthier foods and physical activity promotion and are being delivered within the healthcare sector. In addition to larger organizations it is important that small and medium sized enterprises (SMEs) are assisted in developing the capacity to invest in and implement such programmes. A comprehensive assessment of workplace initiatives that are happening outside of the health sector is also warranted.

- **Interventions led by health professionals**

The evidence base supports the fact that sustained health-professional-led interventions in primary care or community settings which focus on diet and physical activity or general health counseling can support maintenance of a healthy weight (Sinkin-Silverman, 2003 cited in NICE (2006)). Again the issue of combining support and advice on both physical activity and diet is emphasised rather than focusing on one aspect in isolation.

Tailoring dietary advice to address potential barriers such as taste, cost, availability, views of family members, time is key to the effectiveness of interventions and may be more important than the setting. There is a body of evidence from UK-based qualitative research that time, space, training, costs and concerns about damaging relationships with patients may be barriers to action by health professionals (GPs and pharmacists).

Tailoring physical activity advice to address potential barriers (such as lack of time, access to leisure facilities, need for social support and lack of self-belief) is key to the effectiveness of interventions.

The type of health professional who provides the advice is not critical as long as they have the appropriate training and experience, are enthusiastic and able to motivate, and are able to provide long-term support. A number of health led interventions were identified for this project many of which did focus on both the diet and physical activities components such as Brief Intervention training (others are listed in appendix VIII).

However, with the exception of the GP Exercise Referral Programme these programmes refer to training by health professionals to other health professionals (e.g. Training for health professionals in primary care on weight management) and not to health professional led training in the community per se. There is a need to expand current

provision in this area and to explore the range of community based health professionals who could lead such interventions.

- **Broader community interventions**

There is a body of evidence that the creation of, or enhanced access to space for physical activity, combined with supportive information/promotion, is effective in increasing physical activity levels. In terms of implementation the evidence highlights the need to address fundamental issues, such as individual confidence to change behaviour, cost and availability; pre-existing concerns such as poor taste of healthier foods and confusion over mixed messages; the perceived 'irrelevance' of healthier eating to young people; and the potential risks (including perception of risk) associated with walking and cycling. This latter point is of particular relevance in the Irish context where there is a dearth of cycling lanes available and a lack of safe walkways in rural areas.

The Sli na Slainte Walking Routes is a good example of a physical activity programme which develops and promotes access to walkways in various regions which are available to all. Other community based interventions include various peer led food and nutrition programmes.

- **Interventions aimed at vulnerable groups and vulnerable life stages.**

A major limitation of the evidence published by NICE in this area is that it is predominantly based on evidence from Black/African American studies.

In the Irish context it is clear that further work is needed to address the needs of vulnerable groups and those in vulnerable life stages. Currently there are a small number of programmes which work with Travellers and asylum seekers. No programmes were identified for other vulnerable groups such as persons with physical, mental or intellectual disabilities nor for persons at vulnerable life stages (in relation to obesity) such as post-menopausal women.

### Cross-cutting issues

Overall there are a number of issues in relation to the evidence base which are relevant across all areas:

#### **The importance of evaluating health promotion interventions**

The Review of the National Health Promotion Strategy (2004) highlights the importance of evaluating the quality and effectiveness of health promotion activities in terms of both process and outcomes in order to identify programmes that are cost-effective, feasible and sustainable in local settings (McKenna, Barry and Friel, 2004). While it was evident that evaluations have been carried out for a majority of health promotion activities, it was not possible to access all of these for the purpose of this report. There is a need to standardise the level of evaluation being carried out to ensure that uniform information is available across programmes. There is also a clear need to improve the accessibility of evaluation findings. Such reports should ideally be available to all practitioners via the internet so that judgements on the usefulness of various programmes can be made. The establishment of a centralised reporting system which could incorporate a directory of Irish context health promotion resources would be very useful.

#### **Need for multi-component interventions**

The evidence base strongly supports the use of multi-component (i.e. nutrition and physical activity components combined) programmes to address obesity prevention. While this is already happening in many areas, there are a number of programmes which only focus on one or the other component. Incorporating both of these components together can maximise effectiveness.

#### **Geographical distribution**

The Health Service Executive has replaced a more complex structure of ten regional Health Boards. It is now the single body responsible for ensuring access to cost effective and consistently high quality health and personal social services (HSE, 2007). The delivery of health promotion activities relevant to obesity prevention (as well as health promotion activities in general) does not involve a national roll out of effective

programmes. Rather, different programmes are delivered in different areas which means that the most effective programmes may not be readily available to all individuals.

In light of the restructuring process it is recommended that a greater effort is made to standardise the delivery of effective health promotion programmes to all areas. There is a need for a much greater emphasis on the provision of guidelines on best practice at a national level combined with evaluation of implementation at the local level.

#### Overall conclusion and recommendations regarding EQUIHP implementation

The EQUIHP tool was utilised to benchmark current practice against guidelines of best practice. The tool sets out indicators which comply with best practice in health promotion programme planning, implementation and evaluation. These are:

- Framework of health promotion principles
- Project development and implementation guidelines
  - including evaluation criteria
- Project Management and
- Sustainability

From this pilot programme the usefulness of EQUIHP as a benchmarking tool is unclear. This is due to the fact that criteria are used in different ways by different practitioners. Some guidelines are considered more important than others depending on the programme. From this perspective it is difficult to compare the results obtained across the three programmes.

Further work in this area could focus on undertaking the EQUIHP exercise alongside similar programmes deemed to be a model of best practice and comparing the findings against the 'paired' programmes.

Greater clarity is needed on what criteria are best applied to different types of programmes. Looking at all criteria in a general way did not seem to be very useful. Practitioners also felt that certain criteria were irrelevant to their particular programme.

Researchers should undertake training in use of EQUIHP. There appears to be variance in the meaning ascribed by practitioners to certain indicators. It would be useful to undertake a country specific validation exercise to ensure that language used is culturally appropriate. It is also worth noting that methods of working, as described in EQUIHP, may not be explicit in the Irish context.

There is huge variance in how programmes are planned and implemented in the Irish context. Alongside this is variance in the level of evaluation that is conducted. Further work is needed to ensure that standardised evaluations are carried out. It is recommended that coordination of these activities could be centralised through the new HSE structure.

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## Appendix I

### A. Evidence of best health promotion practices for obesity prevention - Interventions to Raise Awareness

Interventions with weight out comes, dietary out comes and/or activity out comes were considered for review. Some of the interventions that distinguish best practices for implementations are also included.

#### **Diet outcomes**

1. There is a body of evidence that promotional campaigns including media interventions can increase awareness of what constitutes a healthy diet and may subsequently improve dietary intakes;

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
O'Loughlin et al. 1998 RCT (1+)	Adults were randomly selected from households which were randomly selected from residential telephone subscriber lists for the main survey; additional survey households also randomly selected but individual who answered the phone was asked to identify one adult member who might want to participate in the trial. All participants then 'randomly allocated' to intervention or control group.	This RCT investigated the impact of a low intensity, healthy weight intervention in low-income adult volunteers from inner city St Henri, Canada. Pamphlets (18 four-page, two-colour, glossy and pre-punched, two or three per week) were distributed to the participants' homes for an 8-week period. The pamphlets focussed on increasing awareness of healthy weight ranges, increasing self-acceptance and satisfaction with weight, and improving eating habits, while not putting much emphasis on dieting and weight loss. Pamphlets designed to be highly accessible to persons of low literacy and based on Canadian recommendations 1988 for healthy weight, pamphlets were piloted.	The intervention had no effect on body mass index (BMI).  Awareness: Intervention participants remembered receiving 13.1 ( $\pm$ 4) of 18 pamphlets, 89.6% had read one or more and 90.4% found the information useful.  The frequency of consumption of junk food/high-fat food remained stable in control and decreased in the intervention group ( $p = 0.019$ ). Intervention participants reported more improvements in their eating habits than control ( $p = 0.021$ ).
Wardle et al. 2001; Miles et al. 2001 Before and after study design with	Total sample $n = 1894$ Men $n = 938$ Women $n = 956$ ;	The study's primary objective was to evaluate the BBC's national 'Fighting Fat, Fighting Fit' (FFFF) campaign. The campaign aimed to stimulate behaviour change and was based on behaviour change theories such as Social Learning Theory and the Health Belief Model. Main message of campaign was that weight	Fruit and vegetable intake increased by 0.8 (1.3) portions per day, $p > 0.001$ .  Percentage eating recommended five portions per day increased by 13%

<p>one cross-sectional survey</p>		<p>problems are best tackled with small but permanent changes to diet and exercise rather than short-term dieting to achieve rapid weight loss.</p> <p>The FFFF was promoted over 7 weeks of campaigning during peak and day-time programming across BBC one and two, BBC radio two and local BBC radio programmes and was additionally supported by the BBC FFFF official website, Ceefax, a book, a video, the <i>Radio Times</i> and telephone lines that provided further information to the general public. People could write or telephone for an information pack for £2 including self-help guide and three registration cards to return over 5 months to chart progress, also money-off vouchers for FFFF book and exercise video up to total of £3, other incentives/prizes such as years free supply of fruit and vegetables.</p> <p>The FFFF campaign aimed to target specifically groups with higher prevalence of obesity (those in socio-economic groups 3M and 4). The crossover between those most likely to be obese and BBCs typical audience was considered to be those in social classes 3NM and 3M aged between 21–45 years (skilled non-manual and manual groups).</p> <p>The generic campaign trail was broadcast on TV and radio late in December 1998 and in early January 1999. Principal TV programmes (with different target audiences) were ‘Weight of the Nation’, ‘Fat Free’, ‘Fat Files’ (Horizon trilogy), and ‘Body Spies’. BBC radio had 3-day launch with celebrities, TV chef, health minister and phone-in. FFFF campaign mentioned in 60 magazines, 9 national newspapers and 120 regional newspapers and articles in national press during 7 weeks about 28 times.</p>	<p>(23%), <math>p &gt; 0.001</math>.</p> <p>Number of participants eating fried food less than once per week increased by 16% (28%), <math>p &gt; 0.001</math>.</p> <p>Proportion consuming whole milk decreased from 10 to 7% (9 to 4%), <math>p &gt; 0.001</math>.</p> <p>Cutting visible fat off meat increased, <math>p &gt; 0.001</math>.</p>
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2. There is a body of evidence that food promotion can have an effect on children’s food preferences, purchase behaviour and consumption. The majority of food promotion focuses on foods high in fat, sugar and salt and therefore tends to have a negative effect. However, food promotion has the potential to influence children in a positive way.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Hastings et al. 2003 Systematic review (Report as cited in NICE, 2006)	Studies used for this particular research question covered an age range of 3–16 years and all but one of the studies was conducted with North American samples in the 1970s and 1980s.	<b>Does food promotion influence children’s nutritional knowledge?</b> The food promoted in the adverts of the experimental studies were adverts for cereals and soft drinks (Ross et al. 1980, 1981), branded sugar snacks and breakfast cereals (Goldberg et al. 1978a, 1978b), sugared foods (Goldberg et al. 1978a, 1978b; Galst 1980) measured whether the effect of a pro-nutritional television programme’ was modified by being shown alongside advertisements.	The eight studies provide modest evidence of an <b>effect on children’s nutritional knowledge</b> . Four studies found that exposure to food promotion had a <b>significant impact</b> on or was associated with differences in nutritional knowledge.
	Participants were all North American and ranged in age from 2 to 18 years. The majority of the studies were conducted in the 1980s.	<b>Does food promotion influence children’s food preference?</b> The food promotion stimuli in the experimental studies were all advertisements for various products (branded sugared snacks, breakfast cereals, non-specific ‘sugared foods’, salty snacks, sweets, soft drinks, ice cream and ‘pronutrition foods’.	Of the four higher scoring studies, three found that promotion had <b>significant effects on children’s product and brand preferences</b> . Three of these studies (Goldberg et al. 1978a, 1978b; Stoneman & Brody, 1981; Kaufman & Sandman 1983) found that children were more likely to choose high fat, salt or sugar foods than alternative ‘healthy’ products after viewing food advertisements.
	The participants in the studies were 475 9–12-year-old English speaking and French speaking children in Montreal (Goldberg 1990), 36 3–5-year-old children in Georgia and their mothers	<b>Does food promotion influence children’s food purchasing and purchase related behaviour?</b>	All seven studies reviewed found that exposure to food promotion <b>had an influence on, or was significantly associated with the specific purchase related behaviour measured</b> in each study. The findings were reported according to the type of behaviour measured in each study. Sales: Sales of low-fat snacks increased significantly and

	<p>(Stoneman &amp; Brody 1982), 775 4th–7th grade children in Michigan (Atkin 1975b), 66 mothers of children aged 3–8 years in Californian public ‘preschools’ and elementary schools (Taras et al. 1989), 41 3–11-year-old children (mean age range 4–7 years) in New York and their mothers (Galst &amp; White 1976), 100 children aged 3–13 years in Michigan (Reeves &amp; Atkin 1979) and vending machine users in 12 secondary schools and 12 workplaces in Minnesota (French et al. 2001</p>		<p>proportionately with increasing price reductions and promotional labels and signage also had a small, independent effect on low fat-snack sales. Promotion (labelling and signage) was significantly and independently associated with increased low-fat snack sales (<math>p &gt; 0.04</math>).</p> <p>Observed purchase influence behaviour: A study by Galst &amp; White (1976) who focused on children’s supermarket behaviour after being exposed to food advertising found the more effort a child exerted to keep the overall videotape playing and the more effort they exerted to watch advertisements the more ‘purchase influence attempts’ they made per minute in the supermarket.</p> <p>Household purchase: A study by Goldberg (1990) which examined the degree to which children are affected by television advertising found that children who had the highest level of US TV viewing reported more household purchase of children’s cereals (mean 2.67) than children with a low level of US TV viewing (mean 1.62).</p>
	<p>Participants in all the 11 studies were all North American and the age range was 2–11 years.</p>	<p><b>Does food promotion influence children’s food consumption behaviour?</b></p> <p>Eleven studies investigated the effects of exposure to food promotion on children’s food consumption behaviour (defined as encompassing three types of behaviour: one -off consumption, short-term consumption and self-reported regular patterns of consumption behaviour).</p>	<p>Two experimental studies (Gorn &amp; Goldberg 1980b, 1982) found that exposure to food promotion <b>had an effect on children’s consumption</b>. It reduced likelihood of selecting fruit or orange juice, compare with a sweet for a daily snack.</p>
	<p>The age range of the participants was 2–20 years.</p>	<p><b>Does food promotion influence children’s diet and health-related variables?</b></p> <p>Six cross-sectional studies were used to investigate the research question, four of which investigated the relationship between television</p>	<p>There were small but significant (<math>p &gt; 0.05</math>) associations between TV viewing and diet, television and obesity and television viewing and cholesterol.</p>

		and children's diet.	
	School children.	<b>If food promotion is shown to have an effect on children's food knowledge preferences and behaviour what is the extent of this influence relative to other factors?</b>	Seven cross-sectional studies and one experimental study (French 2001). There is evidence from studies of various methodological quality that food promotion or TV viewing significantly influences children's food behaviour and diet independently of other factors known to influence children's food behaviour and diet.

### Physical activity outcomes

3. Promotional campaigns including media interventions can improve knowledge, attitudes and awareness of physical activity.

Levels of awareness are likely to vary according to type of medium used and the scale of the campaign.

First Author	Study population	Intervention	Results
Cavill & Bauman 2004 Systematic review, eight studies were before and after studies, seven were controlled CBAs, most studies used repeat cross-sectional surveys to assess effects, eight used a cohort and four combined both cross-sectional and cohort.	Inclusion criteria: 1) Campaign had to have at least one media element with mass reach. 2) Campaign needed to use the media in a purposive and organised manner to influence awareness/knowledge/saliency/attitudes, beliefs/self-efficacy/intention/behaviour. 3) Campaign had to employ at least a pre-post design using population samples to measure changes brought about as a result of the campaign. 4) There has to be clear PA mass media component to the intervention.	Review of 15 mass media campaigns with an explicit focus on PA to explore impact.	Campaigns achieved high recall with a median 70% (range 38% to 97%) of target group aware of the campaign. Important to note that baseline awareness can be as high as 15–20% if no campaign or message exists. Increases in knowledge or attitudes to PA were found among half the campaigns that reported this measure (6 of the 15 studies). Impact on behavioural intention is equivocal. Campaigns increase awareness of the issue of PA but may not have a population level effect on behaviour.
Huhman et al. 2005 Before and after study (not controlled)	Geographical area: USA  All participants were aged between 9 – 13 years	The intervention aim was to determine the effects of a mass media campaign on PA levels among multi-ethnic children aged 9 to 13 years of age from the USA.	The overall campaign produced high levels of awareness. The overall awareness (all three categories that had recall) achieved by the VERB campaign was 74% among

	<p>of age.</p> <p>Participants were of either Black, Hispanic/Latino, Asian or Native American.</p>	<p>Primary aim was to achieve high levels of awareness among the target audience.</p> <p>The VERB campaign combined paid advertisements with school and community promotions and internet activities to encourage children 9–13 years to be physically active every day.</p> <p>Launched in 2002 by CDC, VERB used child-focused commercial marketing methods to advertise being physically active as cool, fun and a chance to have good time with friends. Paid advertising ran nationally from June 2002 to June 2003 targeting youths 9–13 years.</p>	<p>the nation’s 9- to 13-year-old youths. Ninety percent of children who were aware of VERB also demonstrated understanding of the messages.</p> <p>A significant positive relationship was detected between the level of awareness of VERB and weekly median sessions of free-time PA among the total population of 9- to 13-year-old youths (<math>p &lt; 0.05</math>), meaning that, as VERB awareness increased, levels of PA increased. Within subgroups, this relationship between increasing levels of awareness and more free-time sessions of PA was also observed at the <math>p &gt; 0.05</math> level for 9- to 10-year-old children</p>
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### Implementation

- Parents are important role models for children and young people in terms of behaviours associated with maintenance of a healthy weight.

First Author	Study population	Intervention	Results
<p>McCullough 2004 Questionnaire as part of a case study.</p>	<p>171 primary school children and 124 parents in one primary school in Manchester UK compares with school in Korea (10–11 years old).</p>	<p>To compare awareness towards nutrition education between primary schools in UK and Korea and nutritional knowledge.</p>	<p>Children identified parents as main source of nutritional information. Children perceived health/nutrition as most important factor in choosing food followed by taste and parental influence (however their preferences suggested taste is most important). British parents said taste was most important factor for choosing food then health/nutrition, appearance and price. Least important factor was TV and friends. British parents said main source of information on nutrition was from doctor/health professional. 32% British parents said extra £10 per week available for food would be spent on fruit.</p>

5. Books, magazines and television programmes are an important source of information and actively involving media providers may improve the effectiveness of interventions.

First Author	Study population	Intervention	Results
<p>Family Food Survey 2003</p> <p>Prepared by the www.raisingkids.co.uk (Dr P Spungin).</p> <p>(Report)</p>	<p>The survey was open to parents with children under the age of 18 years living in the UK.</p>	<p>A large-scale survey was undertaken on the 'raisingkids.co.uk' website to investigate the influence of food advertising alongside numerous other factors, including knowledge of nutrition and parenting values.</p> <p>The survey and paper covered three main topics:</p> <ul style="list-style-type: none"> <li>• food knowledge;</li> <li>• food purchasing;</li> </ul> <p>attitudes to advertising to children.</p> <p>UK premier web site on parenting. Market leaders in different products are advertised here.</p>	<p>When asked about the main source of information about their children's diet and nutrition, 43% said that their main source was from books and magazines and 15% relied on family and friends. Out of 1521 parents, only 13 (0.9%) said their main source of information was the Food Standards Agency.</p> <p>63% stated that advertising was the biggest influence if a child asks for a new product. Other influences included 'linked to a TV programme' and 'on the box promotion' receiving 37% and 36% respectively. The peer group is also a significant influence, with 50% of mothers saying 'They've seen it at school or friends have said it's good'.</p>

## Appendix II

### **B. Evidence of best health promotion practices for obesity prevention - Interventions for pre school children and family based interventions ('early years')**

#### **Weight out comes**

1. Improvements in the food service to pre-school children can result in reductions in dietary intakes of fat and improved weight outcomes.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Worsley 2004 as cited in NICE (2006) (Report) Systematic review – five studies: four of which were RCT s and one CCT 1+ STRIP  Lagstrom 1997; Niinikoski 1997; Rask-Nissila 2000; Talvia 2004  RCT 1+	Babies from well-infant clinics, Turku (Finland), randomised at 7 months of age.  Clinics visited regularly by over 98% of Finnish families so sample probably represented range of socio-economic classes (but no details reported).	<b>Families received individualised counselling</b> at 1–3 month intervals from child aged 7 months to 2 years then twice per year to age 7 years, <b>letters sent home to children between visit to increase interest in food and nutrition.</b>  When child aged <b>7 years separate counselling</b> sessions given <b>to child</b> and parents.  Counselling based on <b>constructivist theory of learning.</b>	Children’s intake of fat (saturated and polyunsaturated) and cholesterol were significantly improved/lowered with intervention compared with control ( $p < 0.01$ ).

2. Family-based interventions that target improved weight maintenance in children and adults, focusing on diet and activity, can be effective, at least for the duration of the intervention.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Hopper 1996  RCT (cluster, by class) 1+	Study 1: 132 school children, mean age 11.6 (SD 0.7) years plus a participating	Study 1: School-and-home and school-only groups received nutrition education two × half-hour in school sessions per week for 6 weeks; emphasising different meals and targets for behaviour change, focus on reducing saturated fat and heart-healthy foods.	Study 1: The school-and-home group scored significantly higher than the control group on post-intervention nutrition knowledge and sit-and-reach flexibility. There was no significant difference between the school-only and control

	<p>parent for 42 of the 45 children in the school-and-home treatment condition.</p> <p>Study 2: ninety-seven school children, mean age 8.9 (SD 1.18) years, plus a participating parent of each child in the treatment condition.</p>	<p>Three × 40 min in-school sessions per week for 6-weeks instruction in physical fitness particularly aerobic exercise.</p> <p>In addition the school-and-home group received weekly homework packs and received points for completing nutrition and exercise activities.</p> <p>Control group received no additional instruction in nutrition and exercise from school curriculum.</p> <p>Length of intervention was 6 weeks.</p> <p>Study 2: School-and-home and school-only groups received nutrition education two × half-hour in school sessions per week for 10 weeks; emphasising different meals and targets for behaviour change, focus on reducing saturated fat and heart-healthy foods.</p> <p>In addition the school-and-home group received weekly homework packs and received points for completing nutrition and exercise activities.</p> <p>Four × 30 min in-school sessions per week for 10 weeks instruction in physical fitness particularly aerobic exercise.</p> <p>Control group received no additional instruction in nutrition and exercise from school curriculum.</p> <p>Length of intervention was 10 weeks</p>	<p>groups. Both treatment groups scored significantly higher than the control group on exercise knowledge and both obtained a smaller proportion of their energy from fat.</p> <p>There were no significant between-group differences in any other measures of dietary intake (grams of protein, carbohydrates or fat, and % energy from protein or carbohydrates) or other performance measures (number of sit-ups in a minute, time to run one mile).</p> <p>Study 2: The treatment group scored higher than the control group on post-intervention measures of fitness/nutrition knowledge, and consumption of servings of fruit and vegetables.</p> <p>There were no significant between-group differences in any other post-intervention scores, i.e. any other measures of dietary intake and time to run a mile.</p> <p>Within the treatment group, a measure of the degree of family involvement significantly correlated with reduction in intake of fat and cholesterol but no other change scores.</p>
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3. The effectiveness of interventions tends to be positively associated with the number of behaviour change techniques taught to both parents and children.

First Author	Study population	Intervention	Results
McLean 2003	Age range 6–13 years (seven studies) and 12–16 years (one	Only RCTs published in English language, with at least 1-year follow-up and incorporating and family-based	One three-armed family-based RCT achieved a significant effect at 10-year follow-up. At 10-year follow-up the

<p>Systematic review 1 ++</p> <p>Sixteen studies included, seven in school-age children and one in adolescents</p>	<p>study) at baseline; 70% female</p> <p>All children/adolescents overweight by at least 20% IBW at baseline (seven studies) and at least 15% IBW (one study).</p>	<p>component were included. All eight interventions included PA plus diet.</p> <p>One study compared an active intervention to a waiting list control only (Israel 1985) and seven compared active interventions.</p> <p>The study in adolescents (Brownell 1983) and one other study (Kirschenbaum 1984) assessed behaviour change therapy given to child alone compared with behaviour change therapy provided to both parent and child together.</p> <p>Six studies assessed different amounts and types of behaviour change therapy taught to both parent and child.</p> <p>Duration of intervention ranged from 9 weeks (Kirschenbaum 1984, Israel 1985) to 2 years (Flodmark 1993) and follow-up from 1 year to 10 years (Epstein 1990).</p> <p>Majority studies included face-to-face sessions.</p> <p>Four studies included monetary deposits.</p>	<p>proportion overweight in the parent/child target group was 11.7% lower than in the child target group and 20.6% lower than in the non-specific target group.</p> <p>One family-based intervention showed that mastery and contingency reinforcement of mastery significantly improved weight loss in obese children up to 1 year but these effects were not maintained at 2 years (Epstein 1994).</p> <p>Authors conclude that greater weight loss for parents and children tended to be associated with: the use of a greater range of behaviour change techniques; parent training in behaviour change techniques; and targeting parent and child together.</p> <p>In the study of adolescents (Brownell 1983), focusing the intervention on the mother and child separately was more effective than treating them together and treating the child alone (adolescents lost significantly more weight when treated alone).</p>
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**Diet and activity outcomes**

4. Interventions which do not identify favourable changes in weight outcomes may identify favourable changes in diet and/or activity outcomes (where recorded). The reasons for this are unclear.

First Author	Study population	Intervention	Results
HEALTHY START (USA)	Nine Head Start preschools in upstate New York that served minority children (2 to	Modification of preschool food service to reduce saturated fat content 30% or less total energy from fat and 10% or less total	Results showed change in total cholesterol from baseline to follow-up by intervention ( $p < 0.05$ ).

<p>2004</p> <p>Bollella 1999</p> <p>CCT (quasi-randomised cluster trial)</p> <p>2++</p> <p>(Head Start website)</p>	<p>5 years old) from families with annual incomes below national poverty line (less than US\$15,000 for family of four).</p>	<p>saturated fatty acid intake.</p> <p>Group A: Food service and supplementary nutrition education (skills based, lessons on healthy eating) – in school and family based.</p> <p>Group B: Food service only (education component focused on safety and accident prevention) – in school and family based.</p> <p>Group C: Control (no food modification and education component focused on safety and accident prevention) – in school and family based – this group was not randomised.</p> <p>Parent meetings on health themes held 2–3 times year for all groups.</p> <p>Three-year intervention, baseline measures in fall 1995 and measures planned semi-annually. Only reports outcomes at follow-up between 4.8 to 6.6 months post-baseline. Study ongoing.</p>	<p>A nutrition quiz was also administered. Adjusted overall means were higher in A than B (0.606 vs. 0.589) but difference on complete test was not significant.</p>
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5. There is evidence for small but important beneficial effects of interventions that aim to improve dietary intake (such as videos, interactive demonstrations, and changing food provision at nursery school) so long as these interventions are not solely focused on nutrition education alone.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
<p>Dennison 2004</p> <p>Cluster RCT</p> <p>1+</p>	<p>Sixteen preschool and day care centres in rural upstate New York enrolling children between 3 and 5 years of age.</p>	<p>Intervention group: Seven educational sessions (over 10 weeks) that included a party to celebrate not watching TV for a week Information sent home for parents, children encouraged to read rather than watch</p>	<p>Sixteen centres entered and completed TV intervention element, 3 of 93 children in intervention group lost to follow-up and 10 of 83 in control group.</p> <p>Difference in mean changes:</p>

	<p>Intervention group <math>n = 93</math>, mean age 3.9 years, 47% male, 93% white.</p> <p>Control group <math>n = 83</math>, mean age 4.0 years, 53% male, 100% white.</p> <p>The parents were well educated with half having a college degree or higher.</p>	<p>TV.</p> <p>Control group: Safety and injury prevention programme.</p> <p>This was part of larger 'Brocodile the Crocodile' health promotion programme, which lasted for 39 weeks (no published papers identified on further search).</p>	<p>Mean change in intervention group – mean change in control group (95% CI):  BMI (<math>\text{kg}/\text{m}^2</math>) per year: <math>-0.36</math> (<math>-1.22, 0.50</math>), <math>p = 0.38</math>  Standardised BMI/year: <math>-0.19</math> (<math>-0.83, 0.46</math>), <math>p = 0.54</math>  Triceps skinfold thickness (<math>\text{mm}/\text{year}</math>): <math>-0.41</math> (<math>-3.52, 2.70</math>), <math>p = 0.78</math>  Weight (<math>\text{kg}</math>): <math>-0.73</math> (<math>-1.84, 0.39</math>), <math>p = 0.18</math></p> <p>Although intervention produced significant reduction in TV viewing it did not significantly alter anthropometric measurements.</p>
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6. Interventions which involve parents in a significant way may be particularly effective and can improve parental engagement in active play with children and a child's dietary intake.

First Author	Study population	Intervention	Results
<p>McGarvey 2004 (Special supplemental nutrition programme for WIC)</p> <p>CBA 2+</p>	<p>Two WIC (Women, Infants and Children) clinics in Northern Virginia, USA.</p> <p>Low-income mothers of 2–4-year-old children.</p>	<p>Intervention (modified educational content of sessions) vs. normal educational classes provided by the WIC.</p> <p>Intervention group participants attended educational sessions once every 2 months and had an individual session with a WIC nutritionist every 6 months.</p> <p>Follow-up 1 year.</p>	<p>Pre-test and post-test differences by site were significant for 'frequency of engaging in active play with child' (<math>p &lt; 0.01</math>) and frequency of offering the child water' (<math>p &lt; 0.01</math>).</p>

7. Interventions should be tailored as appropriate for lower-income groups.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Dennison 2004  Cluster RCT 1+	Same as above	Same as above	Studies with more racially, ethnically and socioeconomically diverse populations are needed to ascertain the generalisability of this intervention.

8. 2-5 years is a key time to establish good nutritional habits especially when parents are involved.

<b>First Author</b>	<b>Results</b>
Worsley 2004 as cited in NICE (2006) (Report) Systematic review – five studies: four of which were RCT s and one CCT 1+ STRIP	Two out of the five studies published were effective. The authors conclude that the few studies highlight the lack of evaluation in this area, but do suggest that intervention may be worthwhile. Although there is little evidence this age is a key time to establish good nutritional habits especially when involved with parents.

9. Interventions require some involvement of parents or carers- virtually all include RCTs involved parents.

### **Appendix III**

#### **C. Evidence of best health promotion practices for obesity prevention – School Based Interventions**

##### **Diet and activity outcomes**

1. There is a body of evidence that school-based multi-component interventions addressing various aspects of diet and/or activity in the school, including the school environment are effective in improving physical activity and dietary behaviour, at least while the intervention is in place.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Caballero 2003 RCT  Cluster, by school 'Pathways study'	Setting: Forty-one elementary schools in seven American Indian communities in Arizona, New Mexico, South Dakota, USA.	Aim: To evaluate a school-based multi-component intervention to reduce percentage body fat in American Indian children. Intervention components; <ul style="list-style-type: none"> <li>• Classroom curriculum</li> <li>• Food service</li> <li>• Physical education</li> <li>• Family</li> </ul>	24-hour recall: Total daily energy intake significantly lower in intervention compared with control (1892 kcal [7.92 MJ]/day vs. 2157 kcal [9.02 MJ]/day) and % energy from total fat was significantly lower in intervention vs. control (31.1 vs. 33.56%).  Actual school-lunch observation confirmed lower fat intake in intervention group but no difference in energy intake between the two groups.  At year 2 intervention lunches had significantly less fat and sodium and more fibre but 24-hour recall showed significant differences in intake between groups for sodium only.  Authors suggest children compensate in energy intake and PA outside school.

2. There is a body of evidence to suggest that short- and long-term school-based interventions to improve children's dietary intake may be effective, at least while the intervention is in place. This includes interventions aiming to increase fruit and (and to a lesser extent) vegetable intake, improve school lunches and/or promote water consumption.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Perry 2004 RCT  Cluster by school	Setting: Twenty-six elementary schools, from one large school district in the Twin Cities metropolitan area of Minnesota.	Aim: To determine if a cafeteria-based intervention would increase the fruit and vegetable consumption of elementary school children.  Intervention activities included: Increasing the availability, attractiveness and encouragement of fruit and vegetables.  Special events were held, such as sampling sessions and challenge weeks.  Food service staff delivered the intervention.	The number of fruits and vegetables on the snack cart was associated with increased fruit and vegetable consumption from baseline to follow-up (although there were no intervention vs. control differences).  Significant impact on children's total fruit and vegetable intake (when potatoes were excluded). The impact however, comes from increases in fruit consumption (0.17 vs. 0.14 servings, respectively), as there were no significant differences between conditions for juices and vegetables.  Lunch observations: Verbal encouragement by food service staff in the lunch line was significantly associated with consumption of fruits and vegetables (no potatoes, no juice), fruits and vegetables (no potatoes), fruit (no juice), and increased consumption in fruits and vegetables (no potatoes, no juice) from baseline to follow-up.
Cabello 2003	As above	As above	As above

3. UK based evidence suggest that school children with the lowest fruit and vegetable intakes at baseline may benefit more from the school based interventions than their peers.

First Author	Study population	Intervention	Results
Woolfe 2005 Review 2+	Overview of five school-based dietary interventions funded by the Food Standards Agency.  Primary and secondary schools throughout UK.	To evaluate feasibility and effectiveness of dietary change interventions in UK school-based settings. Short-term to 14 months	Overview of five school-based dietary interventions funded by the Food Standards Agency.  All five studies focused on different approaches and topics but all have potential to be incorporated into the type of health promoting school approach, which systematic reviews (Lister–Sharp) have indicated is the most effective way of changing behaviour.

4. There is evidence from multi-component interventions to suggest that both short- and long-term physical activity focused interventions may be effective, at least while the intervention is in place (six multi-component studies supportive).

First Author	Study population	Intervention	Results
Simon et al. 2004 RCT	Children in first-level of middle-school (initially aged 11–12 years) in eight schools in Eastern France were recruited, and were randomised to Intervention (I) or Control (C). 954 adolescents were recruited to the study (92% of eligible); 475 in I schools, 479	Aim: To evaluate the impact of a PA intervention in adolescents.  Intervention: The intervention was directed at changing knowledge and attitudes and at providing social support and environmental conditions that encourage PA of adolescents inside and outside school.  It is classified here as a school based intervention, it is not strictly school-based but requires numerous partnerships intervening at different levels (school boards, teachers and medical staff, club educators, families, territorial and community agencies in charge of recreational areas and transportation infrastructure, etc).  A mean of 10–12 different weekly activities was provided on I sites. About 50%	The proportion of intervention adolescents not engaged in organised PA was reduced by 50% after 6 months, whereas it was unchanged among control students.  Participation in leisure-organised PA significantly increased among intervention girls (OR 3.38, 95% CI 1.42, 8.05) and boys (OR 1.73, 95% CI 1.12, 2.66), compared with the control group.  In addition, high sedentary behaviour (defined as >3 hours/day TV viewing and computer/video games) was reduced in

	in C schools.	of adolescents participated in at least one weekly activity. The authors reported that implementation increased progressively throughout the school year, thanks to regular individual contacts and more formal meetings (at least one every 2 weeks).	intervention girls (OR 0.54, 95% CI 0.38, 0.77) and boys (OR 0.52, 95% CI 0.35, 0.76) compared with control group.
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### Implementation

5. There is a body of evidence to suggest that young people’s views of barriers and facilitators to healthy eating indicated that effective interventions would (i) make healthy food choices accessible, convenient and cheap in schools, (ii) involve family and peers, and (iii) address personal barriers to healthy eating, such as preferences for fast food in terms of taste, and perceived lack of will-power.

First Author	Intervention	Results
Shepherd et al (2001)  Young people and healthy eating. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. Systematic review	Various. <i>n</i> = 7 intervention studies.  The aim was to evaluate the effectiveness of interventions to improve the diets of young people (aged 11–16 years), and to assess the barriers and facilitators to having a healthy diet.	Intervention was well received in most cases, although a recurring theme was that schools lacked the time and resources for such projects. One study noted that young women tended to enjoy the intervention more than young men, and that peer leaders were particularly well received. One intervention met with resistance from teachers and waning enthusiasm from students and parents. In this case, more training for the teachers may have provided more motivation, enthusiasm and skill. Young people’s views of barriers and facilitators to healthy eating indicated that effective interventions would: 1) make healthy food choices accessible, convenient and cheap in schools; 2) involve family and peers; 3) address personal barriers to healthy eating, such as preferences for fast food in terms of taste, and perceived lack of will-power.

6. There is a body of evidence to suggest that young people’s views on barriers and facilitators suggest that interventions should (i) modify physical education lessons to suit their preferences, (ii) involve family and peers, and make physical activity a social activity, (iii) increase young people’s confidence, knowledge and motivation relating to physical activity, and (iv) make physical activities more accessible, affordable and appealing to young people.

<b>First Author</b>	<b>Intervention</b>	<b>Results</b>
Brunton (2003) Children and physical activity: a systematic review of barriers and facilitators. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. Systematic review	The aim was to evaluate the effectiveness of interventions to increase PA/reduce inactivity in children aged 4–10 years, and to assess the barriers and facilitators to their participation in PA.	Interventions should address the barriers and facilitators to participation in PA identified by children, by: <ol style="list-style-type: none"> <li>1) providing activities that are enjoyable, in a social atmosphere, giving children some choice, and making children aware of how sedentary activities such as TV watching are;</li> <li>2) involving parents in interventions;</li> <li>3) improving children’s access to PA opportunities.</li> </ol>

## Appendix IV

### D. Evidence of best health promotion practices for obesity prevention – Workplace Interventions

#### Weight Outcomes

1. Worksite behaviour modification programmes, that include health screening with counselling/education can result in short-term weight loss. Weight loss may be regained post intervention.

First Author	Study population	Intervention	Results
Proper 2003 Cluster RCT	Three municipal services in Enschede, Netherlands.	<b>Aim:</b> To investigate effectiveness of an individual counselling intervention at the workplace. Seven individual counselling sessions over 9 months to promote PA and nutrition changes plus written information vs. written information only (control).	52% recruitment rate. 66% attended six or seven consultations.  Significant reduction in % body fat (-0.79% [95% CI -1.43, -0.16]; $p = 0.015$ ).

#### Diet and activity outcomes

2. Worksite behaviour modification programmes, such as health screening followed by counselling and, sometimes, environmental changes, can lead to improvements in nutrition and physical activity while the intervention is in place.

First Author	Study population	Intervention	Results
Sorensen 1996 Cluster RCT	Worksites in manufacturing, communications, public service and utilities, USA  Blue collar 51% Managerial 22% Clerical 22.4 Multiple 4.5%*  Two groups with 54 sites each (28,000 employees).	<b>Aim:</b> To evaluate the effectiveness of the Working Well intervention on Cancer risk factors. Multi-level interventions at individual, community and organisational levels including activities, posters and brochures, self assessment and self-help materials, campaigns and contests, direct education and environmental changes.	Adjusted difference between intervention and control of % energy from fat consumption -0.35 (SE 0.16)% ( $p < 0.05$ ).  Adjusted % increase in fruit and vegetable intake 5.6 (SE 1.3)% – consistently higher in intervention and negligible in control ( $p < 0.001$ ).  It appeared that longer, interactive intervention efforts (contests and classes) resulted in more positive outcomes than one-time activities (such as the kick-offs) or more passive efforts (use of printed materials).**

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3. There is a body of evidence that the provision of healthier food choices can encourage consumption of a healthier diet.

First Author	Study population	Intervention	Results
Beresford 2001 Cluster RCT	Seattle, OR, USA. Twenty-eight worksites with cafeterias.  Mean age 41.8 years. 58% female.  32% college graduates and a further 23% with postgraduate education.  >86% white.	<b>Aim:</b> To evaluate the effect of the Seattle 5 a Day worksite programme to increase fruit and vegetable consumption. In each intervention worksite an employee advisory board implemented changes in the cafeteria and targeted individual behaviour (posters, brochures, paycheck inserts, etc.) informed by the stages of change theoretical model.	Results from the food frequency questionnaire suggested a fruit and vegetable increase of 0.5 servings per day in the intervention vs. 0.2 in the control worksites, an intervention effect of 0.3 ( $p < 0.05$ ). Other measures of fruit and vegetable consumption, including unobtrusive indicators, supported the effectiveness of the intervention.

4. Workplace physical activity programmes can have a positive effect on physical activity.

First Author	Study population	Intervention	Results
Proper 2003 Systematic review	Twenty-six randomised or non-randomised studies including 15 RCTs and 11 non-RCTs in all.	<b>Aim of review:</b> To review the effectiveness of worksite PA programmes on PA, physical fitness and health.  The first high quality RCT, the Working Healthy project (Emmons 1999), evaluated the effect of the programme at both the midpoint (1.25 years) and the endpoint (2.5 years).  The other high quality RCT (Pritchard 1997)	The overall conclusion from five RCTs (two of high quality) and three non-randomised controlled trials was that there was strong evidence for a positive effect of PA programs on PA.  It was found that participants had significantly increased their self reported participation in regular exercise by 10.4% (interim) and 11.9% (end) vs. 2.4% and 1.7% for the reference condition.  Showed a greater increase of energy expenditure in the intervention group compared with the reference and diet group after 12 months(+14.6 vs. 6.5%).

## Implementation

5. A body of UK-based case studies suggests that factors most likely to make a canteen-style five-a-day intervention work are: commitment from the top, enthusiastic catering management, a strong occupational health lead, links to other on-site health initiatives, free or subsidised produce and heavy promotion and advertisement at point of purchase.

First Author	Study population	Intervention	Results
Healthlinks 2003 as cited in NICE 2006 Case studies	Twelve worksites in Merseyside, UK.  Factories $n = 4$ Hospital trusts $n = 2$ Local government $n = 3$ Pharmaceutical $n = 2$ Supermarket $n = 1$	Review of worksites implementing the Take Five initiatives to increase fruit and vegetable intakes in canteens.	The factors most likely to make a canteen style five-a-day intervention work are: <ul style="list-style-type: none"> <li>• Commitment from the top;</li> <li>• Enthusiastic catering manager;</li> <li>• Strong occupational health lead;</li> <li>• Linked to some other health initiative on site (e.g. Health Focus Group);</li> <li>• Free or subsidised produce;</li> </ul> Heavily advertised and promoted at point of sale.

6. A body of UK-based case studies suggests that the more successful behaviour modification/education techniques include an interdisciplinary approach with broad representation including health and safety and human resources, and implementers from high grades and strategic positions; initiatives integrated into worksite objectives; staff involvement, communication and realistic objectives; activities that go beyond the superficial and address root causes.
7. A UK-based survey of Heartbeat Award schemes, recommended improved promotion and better integration with other health programmes.

First Author	Study population	Intervention	Results
The Research Partnership 2000	Mailed questionnaire to Heart Beat Award (HBA) scheme managers	Aim: To assess the status of the HBA scheme as it	Of local authority consultees who had stopped using the scheme, the primary reasons were lack of resources, lack of

<p>Cross-sectional survey Holdsworth 2004</p>	<p>(n = 81), local and health professionals who may or may not be involved in HBA or similar schemes (135), HBA caterers (210), non-HBA caterers (75), local government professionals involved with Best Value (71), Local Agenda 21 (140) or Environmental Health Action Plans, LEHAP (99) in England. No socio-economic details.</p>	<p>completes its tenth year, to assess its value as a public health tool and to consider its future development.</p> <p>Questionnaire survey carried out by consultants (The Research Partnership) on behalf of the Health Education Authority.</p> <p>Heart Beat Award Scheme (HBA) is a national nutrition labelling scheme that operates through out UK. Customer is provided information reminders and reinforcement to guide them towards healthier choices. It aims to provide a supportive environment rather than forcing solely on individual responsibility.</p> <p>HBA was awarded to catering establishments fulfilling certain criteria.</p>	<p>interest and/or a perceived need for a more locally tailored scheme. The main barriers for those who had not started a scheme were lack of resources and perceived low priority or interest.</p> <p>The main benefits for the local population were thought by organisations/caterers running the scheme to be the increased availability of healthy food choices (97%/89%) and a raising of awareness of health issues (71%/80%). HBA managers saw insufficient national publicity as the main challenge faced by those running schemes, followed by the difficulty in recruiting caterers to apply and insufficient funding. HBA caterers felt that insufficient customer awareness was the main challenge (mentioned by 85% and 43% gave this the top ranking).</p> <p>The authors concluded that ‘essential’ recommendations were improved promotion and research into potential improvements (integration with other health programmes, multi-agency working, enhanced support and guidance to caterers), while ‘desirable’ recommendations were greater flexibility (perhaps via a graded scheme) and improved regional co-ordination.</p>
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## Appendix V

### E. Evidence of best health promotion practices for obesity prevention - Interventions led by Health Professionals

#### Weight outcomes

1. Sustained health-professional-led interventions in **primary care or community settings**, focusing on diet and physical activity or general health counselling can support maintenance of a healthy weight (Body of evidence generally supportive).

First Author	Study population	Intervention	Results
Simkin-Silverman 2003 RCT Individual	US study, Pennsylvania.  535 healthy premenopausal volunteer women aged 44–50 (mean age 47, SD 1.9) years with average BMI 20–34 kg/m <sup>2</sup> (approx. half with normal weight at baseline).	<p><b>Aim:</b> To examine whether a behavioural intervention aimed at lifestyle changes in diet and PA can prevent the rise in weight and low-density-lipoprotein (LDL)-cholesterol often observed during menopause.</p> <p>Intensive intervention to lower dietary fat and encourage PA and modest weight loss via group meetings and personalised plans.</p> <p>Assessment only control group.</p> <p><b>Delivered by:</b> Behavioural psychologists and nutritionists.</p>	<p>Attendance was consistently excellent, averaging 90%, with 95% (509/535) attending the 54-month assessment.</p> <p>80% of intervention participants compared with 45% of controls were at or under baseline weight at 18 months, and 55% compared with 26% at 4.5 years (<math>p &lt; 0.001</math>), suggesting that weight gain during peri- to postmenopause can be prevented with a long-term lifestyle dietary and PA intervention.</p> <p>The mean weight change in the intervention group was 0.1 kg below baseline compared with an average gain of 2.4 kg in the control group.</p> <p><b>Delivered by:</b> Behavioural psychologists and nutritionists.</p>

#### Diet and activity outcomes

2. Interventions which do not identify favourable changes in weight outcomes may identify favourable changes in diet and/or activity outcomes (where recorded).

First Author	Study population	Intervention	Results
Dzator 2004 RCT	<p>Couples in Perth, Australia recruited by press and media publicity.</p> <p>Average age 29.4 (SD 8.2) years. No further details other than (in discussion) 'Higher socioeconomic status, based on occupational classification, was over-represented'.</p>	<p><b>Aim:</b> To compare the effects of a diet and PA programme in couples.</p> <p>Couples were randomised to a: (1) programme delivered mainly by mail; (2) a combination of mail and interactive group sessions, or (3) control group.</p> <p>Power calculation: <math>p = 0.05</math> with a power of 80% as a minimum.</p> <p><b>Delivered by:</b> Health promotion professionals, including an exercise physiologist, a clinical nurse and a dietitian/nutritionist</p>	<p>Diets, Physical fitness and blood cholesterol improved up to 12 months after beginning the 4-month programme, mainly in the interactive group.</p> <p>There were no significant differences for BMI at either four or twelve months in or between any of the groups (<math>p = 0.210</math> at 4 months and <math>p = 0.121</math> at 12 months).</p>

3. Behavioural/educational interventions to increase physical activity can be moderately effective, particularly for walking and non-facility-based activities, although increases may not be sustained over time.

First Author	Study population	Intervention	Results
Harland 1999 RCT	<p>Patients from one general practice situated socioeconomically disadvantaged area in Newcastle aged 40 -60 years</p>	<p><b>Aim:</b> To evaluate the effectiveness of combinations of three methods to promote PA versus a control intervention. Brief (one interview) or intensive (six interviews over 12 weeks) motivational interviewing with or without financial incentive (30 vouchers entitling free access to leisure facilities) and a no intervention control group.</p> <p>Group 1 <math>n = 105</math> – Brief intervention Group 2 <math>n = 106</math> – Brief intervention and vouchers Group 3 <math>n = 104</math> – Intensive intervention Group 4 <math>n = 102</math> Intensive intervention and vouchers</p> <p><b>Delivered by:</b> Interviews by trained health visitor.</p>	<p>More participants in the combined intervention groups reported increased PA scores at 12 weeks than controls (38 vs. 16%, difference 22 [95% CI 13, 32]%, <math>p &lt; 0.001</math>, with a 55% increase observed in those offered six interviews plus vouchers. Vigorous activity increased in 29% of intervention participants and 11% of controls (difference 18 [95% CI 10, 26]%, <math>p &lt; 0.001</math>) but differences between the four intervention groups were not significant. Short-term increases in activity were not sustained regardless of intensity of intervention.</p>

4. Moderate- or high-intensity dietary interventions most commonly report clinically significant reductions in fat intake and an increase in fruit and vegetable intake.

First Author	Study population	Intervention	Results
Havas 2003 RCT	2066 women (1055 intervention and 1011 control) served by the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) in Maryland. The majority of participants were black (>50%), <30 years, high school graduates, single, unemployed and with incomes <\$15,000.	<p><b>Aim:</b> To decrease the percent of energy derived from fat and to increase fruit, vegetable and fibre intake among low-income women served by the WIC programme.</p> <p>Cluster crossover RCT. Intervention participants had a multidimensional intervention, guided by formative research, which included five interactive nutrition sessions, individualised written materials and phone calls. Controls received usual WIC care.</p> <p>Delivered by; Peer educators, Higher Education Researchers</p>	Mean differences (intervention-control) in change from baseline were for percent energy from fat $-1.62 \pm 0.33\%$ ( $p < 0.0001$ ), for consumption of fruit and vegetables $0.40 \pm 0.11$ servings ( $p = 0.0003$ ), and for fibre intake $1.01 \pm 0.31$ g ( $p = 0.001$ ). The changes remained significant at 1-year follow-up for the first two outcomes.

5. Briefer interventions, such as brief counselling/dietary advice by GPs or other health professionals, can be effective in improving dietary intake but tend to result in smaller changes than intensive interventions.

First Author	Study population	Intervention	Results
Stephoe 2003 UK Study RCT Individual	Patients from a primary care centre in a deprived, ethnically mixed, inner city area, UK, aged 18–70 years	<p><b>Aim:</b> To measure the effect of brief behavioural counselling in general practice on consumption of fruit and vegetables in adults from a low income population.</p> <p>Two × 15 min counselling (2 weeks apart) on: 1) nutrition counselling (education and information); or 2) behavioural counselling (tailored advice).</p> <p><b>Delivered by:</b> Research nurses.</p>	<p>At 12 months, 81% follow-up in behavioural counselling group, and 80% follow-up in nutrition counselling group.</p> <p>Consumption of fruit and vegetables increased from baseline to 12 months by 1.5 and 0.9 portions per day in behavioural and nutrition groups (mean between group difference 0.6 [95% CI 0.1, 1.1] portions, <math>p = 0.021</math>).</p> <p>The proportion of participants eating five or more portions a day increased by 42% with behavioural counselling and 27% with nutritional counselling in the two groups (mean between group difference 15 [95% CI 3, 28]%, <math>p = 0.019</math>).</p>

			<p>There were significant between-group differences suggesting that one counselling intervention was more effective than the other.</p> <p>Differences were maintained when analysis restricted to 177 participants with incomes <math>\leq</math>£400 per week.</p>
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6. Interventions with a greater number of components are more likely to be effective.

First Author	Study population	Intervention	Results
Pignone 2003 Systematic review	Literature search 1966 – December 2001. Twenty-one RCTs were included, of which 21 study arms looked at patients not selected/identified by risk factors and 13 looked at patients with identified risk factors.	<b>Aim:</b> To determine the effectiveness of counselling to promote a healthy diet among patients in primary care settings.	<p>Moderate- or high-intensity counselling interventions in primary care settings including use of interactive health communication tools (e.g. telephone messages, computer generated mailings), can reduce consumption of saturated fat and increase intake of fruit and vegetables.</p> <p>Brief counselling of unselected patients by primary care providers appears to produce small changes in dietary behaviour, but its effect on health outcomes is unclear.</p> <p>The authors could find no clear relationship between the risk status of patients and the effect size achieved. Studies using a greater number of components (e.g. dietary assessment, family involvement, social support, counselling, targeted advice, goal setting) had larger effect sizes. Six studies with three or more components produced medium (<math>n = 2</math> studies) to large (<math>n = 4</math> studies) effects (see Pignone for definitions).</p> <p>Effect of reducing saturated fat consumption: Six studies achieved large effect (<math>&gt;3\%</math> point reduction), five achieved a medium effect (1.3–3% point reduction) and six achieved a small effect (<math>&lt;1.3\%</math> point reduction).</p> <p>For the nine studies reporting change in % energy from saturated fat, net reductions ranged from 0.9–5.3% points.</p> <p>From ten studies for increasing fruit and vegetables consumption, three demonstrated small or no increases (<math>&lt;0.3</math> servings/day), five showed medium increases (0.3–0.8 servings/day), and two showed large increases (1.4–3.2 servings/day) (range 0–3.4 servings/day increase).</p>

7. Although the majority of studies included predominantly white, higher social status and reasonably motivated individuals, there is some evidence that interventions can also be effective among lower social groups and effectiveness does not vary by age or gender.

First Author	Study population	Intervention	Results
Havas 2003	As above	As above	As above

### Implementation

8. Tailoring dietary advice to address potential barriers (taste, cost, availability, views of family members, time) is key to the effectiveness of interventions and may be more important than the setting.

First Author	Study population	Intervention	Results
John 2004 Qualitative study (from RCT)	Purposive sample* (of patients not selected as contemplating change) from participants in an RCT examining effectiveness of a nurse-led intervention to increase fruit and vegetables intake. Thame, Oxfordshire, UK.	<p><b>Aim:</b> To examine the barriers to fruit and vegetables consumption after a 6-month trial.</p> <p>Participants asked at initial intervention interview to anticipate barriers and discussed barriers at 6-month follow-up. Semi structured interviews carried out at respondents' homes by independent researcher to explore barrier issues in greater depth.</p> <p><b>Delivered by:</b> Intervention by nurses.</p>	<p>Barriers anticipated and experienced:</p> <ul style="list-style-type: none"> <li>• Women reported children and male partners as obstructive to attempts to increase fruit and vegetables consumption. Men reported that partners were supportive.</li> <li>• Additional time needed to prepare food.</li> <li>• Perceived expense of fruit and vegetables.</li> </ul> <p>Barriers discovered during intervention:</p> <ul style="list-style-type: none"> <li>• Problems of getting fruit and vegetables while travelling.</li> <li>• Problems when routine is disrupted at weekends.</li> <li>•</li> </ul> <p>37 of 40 people reported at least one barrier, but 29 of 40 still reported increasing their fruit and vegetable consumption.</p>

9. The type of health professional who provides the advice is not critical as long as they have the appropriate training and experience, are enthusiastic and able to motivate, and are able to provide long-term support.

First Author	Study population	Intervention	Results
Fuller et al, 2003 Qualitative study	GPs $n = 15$ (eight female, seven male) and 30 patients (15 married couples in social class 3, 4 or 5 with young children) from general practices in the Lothian area of Scotland, UK.	<b>Aim:</b> To investigate the view of GPs and their patients about healthy eating and the provision of healthy eating advice in general practice.  <b>Delivered by:</b> N/a.	GPs and couples saw the general practice setting as a place for treatment of illness and disease.  Interviews with couples revealed that health was only one factor that appeared to influence day-to-day decisions about food choice, and that they felt expert messages were contradictory. They felt 'bombarded' by healthy eating information, particularly from the media.  Key practical question arising from this study is that GPs should not necessarily be the 'main agent' of change for the general population.

10. There is some evidence that primary care staff may hold negative views on the ability of patients to change behaviours, and their own ability to encourage change.

First Author	Study population	Intervention	Results
Fuller 2003 Qualitative Study 3+	GPs $n = 15$ (eight female, seven male) and 30 patients (15 married couples in social class 3, 4 or 5 with young children) from general practices in the Lothian area of Scotland, UK.	<b>Aim:</b> To investigate the view of GPs and their patients about healthy eating and the provision of healthy eating advice in general practice.  <b>Delivered by:</b> N/a.	The GPs tended to feel for example that some preventive dietary advice was often ineffective that patients were not interested in this area, and that it could also potentially damage their relationship because the patients would feel the GPs were interfering.

11. There is a body of evidence from UK-based qualitative research that time, space, training, costs and concerns about damaging relationships with patients may be barriers to action by health professionals (GPs and pharmacists).

First Author	Study population	Intervention	Results
Fuller 2003 Qualitative Study 3+	Same as above	Same as above	Same as above

12. There is some evidence from the UK that patients are likely to welcome the provision of advice despite concerns by health professionals about interference or damaging the relationship with patients.

First Author	Study population	Intervention	Results
Duaso 2002 Cross-sectional survey	Patients from a general practice in north-east of England.	<p><b>Aim:</b> To examine patients' recall and perceptions of lifestyle counselling received from practice nurses, and whether patient needs were met. Structured postal questionnaire with letter from GP and stamped self-addressed envelope included.</p> <p><b>Delivered by:</b> Lifestyle counselling by nurses.</p>	<p>Those with unhealthy behaviour profiles seem to have received more advice.</p> <p>There appears to be a discrepancy between patients' expectations of lifestyle advice from the practice nurses and the receipt of such advice. Significantly more respondents would have liked to have received advice on diet, weight reduction and exercise than actually received it (<math>p &lt; 0.001</math>).</p> <p>On average, patients found the advice received from the practice nurses very/fairly helpful, but significant difference between male and female perceptions: most women found the advice very/fairly helpful while male patients more dubious (<math>p &lt; 0.05</math>).</p>

13. Tailoring physical activity advice to address potential barriers (such as lack of time, access to leisure facilities, need for social support and lack of self-belief) is key to the effectiveness of interventions.

## Appendix VI

### F. Evidence of best health promotion practices for obesity prevention – Broad Community Interventions

#### Diet and activity outcomes

1. Point of purchase schemes in shops, supermarkets, restaurants and cafes can be effective in improving dietary intakes at least in the short term, particularly if accompanied by supporting education, information and promotion. There is some evidence that longer-term, multi-component interventions may show greater effects.

First Author	Study population	Intervention	Results
Kristal 1997 RCT Cluster	Eight supermarkets in Iowa, USA.  No demographic differences between stores.	Aim: To evaluate whether a supermarket point-of-purchase intervention could increase shoppers' consumption of fruit and vegetables.  Four stores were randomised to an educational intervention (flyers, signs, recipes, coupons, food demos, store staff dressed as vegetables) and four to control.  Delivered by: Probably a combination of higher education research and supermarket employees. No power calculation.	Compared with change in control shoppers, the percentage of intervention store shoppers in the action or maintenance stage of dietary change increased by 8.4% but this was non significant ( $p < 0.07$ ), and there was no corresponding increase in fruit and vegetable consumption.

2. There is a body of evidence that creation of, or enhanced access to space for physical activity (such as walking or cycling routes),  
combined with supportive information/promotion, is effective in increasing physical activity levels.

First Author	Study population	Intervention	Results
Brownson 2004 CBA	Six rural intervention communities in Missouri and six comparison	Aim: To determine whether a multi-level ecologic intervention is effective in increasing PA at the community level and to examine intervention	Two subgroups showed trends to a positive net change in rates of 7-day total walking in the intervention communities; people with high

	<p>communities in Arkansas/Tennessee with similar socio-demographic characteristics</p>	<p>effectiveness for various high-risk groups (e.g. persons of lower income).</p> <p>The intervention was developed with community input and included tailored newsletters based on information provided by participants, walking clubs, fun and awareness days, walk-a-thons, etc.</p> <p>Telephone survey using random-digit dialling to households with working phones.</p> <p>Delivered by: Intervention by an academic team working with community coalitions and local governments. Questionnaire administered by trained interviewers. No power calculation</p>	<p>school degrees or less and people living in households of lower annual incomes (<math>\leq</math>US\$20,000).</p>
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3. Targeted behavioural change programmes with tailored advice appear to change travel behaviour of motivated groups.

Associated

actions such as subsidies for commuters may also be effective.

First Author	Study population	Intervention	Results
<p>Ogilvie 2004 Systematic review</p>	<p>Literature search from earliest date to December 2002. Twenty-two controlled or uncontrolled prospective and controlled retrospective studies included (three RCTs, seven controlled non-randomised trial [CCTs], 11 uncontrolled and one controlled prospective study).</p>	<p>To assess what interventions are effective in promoting a population shift from using cars towards walking and cycling and to assess the health effects of such interventions</p>	<p>Targeted behavioural change programmes can change the behaviour of motivated subgroups, resulting (in the largest study) in an increase of around 5% of all trips undertaken by walking and cycling. Single studies of commuter subsidies and a new railway station also showed positive effects. The balance of best available evidence about publicity campaigns, engineering measures (such as 20 mph zones or bypasses [England], extending existing cycle route networks [The Netherlands, Germany], new cycle routes [England], downtown auto-restricted zone [Boston, MA, USA]) and other interventions suggests that they have not been effective.</p>

			The targeted behavioural change programmes (six studies of four interventions) offered an intervention to a motivated subgroup only or information and advice tailored to peoples' particular requirements, or both (e.g. leaflets, time tables, maps, trial free bus or bike passes, personal travel diaries).
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## Implementation

4. Auditing the needs of all local users can help engage all potential local partners and establish local ownership.

First Author	Study population	Intervention	Results
Sustrans 2004 As cited in NICE 2006 Selective case studies	Various locations in England. No socio-demographic details.	A Sustrans action plan for increasing walking and cycling based on good practice guidance in three areas from 50 case studies in England.  Delivered by: Case studies selected by Sustrans.	The action plan provides evidence through the descriptions of 50 case studies for successful outcomes as a result of: 1) Improving the walking and cycling environment (e.g. introducing safety and security measures such as traffic calming, charging for cars, pedestrian crossings, CCTV, cycle lanes, lighting, cleaner streets). 2) Providing better facilities for walking and cycling (e.g. cycle stores, seats, drinking fountains, traffic free routes). 3) Influencing travel behaviour (e.g. educational/promotional schemes, led walks/cycle rides, guides, walking/cycling incentive schemes, cycle proficiency training).

5. Interventions may be ineffective unless fundamental issues are addressed, such as individual confidence to change behaviour, cost and availability; pre-existing concerns such as poorer taste of healthier foods and confusion over mixed messages; the perceived 'irrelevance' of healthier eating to young people; and the potential risks (including perception of risk) associated with walking and cycling.

First Author	Study population	Intervention	Results
Whelan 2002 Qualitative	Residents in the Seacroft area of Leeds, a 'food desert' prior to a major	Aim: To explore individual food shopping behaviour, consumption patterns and	Younger women, especially those with low incomes, were more concerned about cost rather than the quality of the food bought. This often led to foods being bought exclusively in budget stores, which may

improvement in food retail accessibility.  Thirty-three women and two men aged 18–40 years. Area mainly deprived housing estates with a ‘smattering’ of private housing.	attitudes towards a healthy diet.  Five focus groups (between five and ten members) sampled opportunistically.  Delivered by: Higher education researchers. No power calculation	have imposed important constraints on what was available to purchase. When asked ‘What influenced the foods they bought’, older women tended to be less worried about the cost of food and more enthusiastic regarding buying foods that would be perceived as healthier. For the elderly, the main issues related to physical access constraints.
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6. Addressing safety concerns in relation to walking and cycling may be particularly important for females and children and young people and their parents.

First Author	Study population	Intervention	Results
Foster 2004a Cross-sectional survey	Survey of 4265 nationally representative English adults aged 16–74 years.	To examine the relation between adults’ perceptions of the social and physical environment and their self-reported walking behaviour.  Delivered by: Department of Health 3-year health promotion campaign. Trained interviewers from a social marketing company interviewed participants at home.	In women, perceived safety of walking during the day (OR 0.53, 95% CI 0.31, 0.88) and no shop within walking distance (OR 0.72, 95% CI 0.52, 0.99) were associated with any reported walking occasions. Perceptions of the environment were not related to women walking $\geq 150$ min/week. In men, having a park within walking distance was associated with walking $\geq 150$ min/week (OR 2.22, 95% CI 1.18, 4.35). No other significant associations were found.

7. Interventions which incorporate novel educational and promotional methods, such as videos and computer programmes, may improve dietary intake.

First Author	Study population	Intervention	Results
Anderson 2001 RCT individual	USA supermarkets, probably Virginia but not stated.	Aim: To explore the extent to which treatment	The treatment group was more likely than the control group to attain goals (i.e. personalised nutritional goals set during the intervention)

	<p>Participants were 96% female, 92% White, mean income of US\$35,000 and mean education of 14.8 ± 2.1 years.</p> <p>Participants (self-selected) were recruited in five supermarkets during face-to-face contact followed by a mail-back of enrolment materials. An expression of interest was acknowledged when a shopper returned at least some part of the enrolment packet.</p>	<p>effects were mediated by social cognitive variables using measures of self-efficacy (for buying, preparing, eating and serving lower fat and higher fibre foods and more fruits and vegetables) and outcome expectations shown to explain nutrition behaviour among food shoppers).*</p> <p>Based on a self-administered, computer-based intervention on nutrition behaviour in supermarket food shoppers.</p> <p>Individuals randomised to tailored information and regulation strategies delivered in 15 brief weekly segments, or control.</p>	<p>for reducing fat intake at the end of the intervention (<math>p &lt; 0.001</math>) and at 6-month follow-up (<math>p &lt; 0.05</math>). There was a trend towards goal attainment for increasing fibre and fruit and vegetables intake post-intervention (<math>p &lt; 0.1</math>) but this was not significant.</p>
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8. Changes to city-wide transport, which make it easier and safer to walk, cycle and use public transport – such as the congestion charging scheme in the City of London and Safer Route to School schemes, have the potential to make active transport more appealing to local users.

## **Appendix VII**

### **G. Evidence of best health promotion practices for obesity prevention - Interventions aimed at black, minority ethnic groups, vulnerable groups and vulnerable life stages ('BMEGs')**

#### **Weight outcomes**

#### **BMEGs**

6. There is some evidence that interventions among African/black American women, which promote a low-fat diet and moderate activity, can result in modest decreases in BMI and waist circumference in the short to medium term.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
<p>Hall et al. 2003</p> <p>Women's health trial: feasibility study in minority populations</p> <p>RCT</p> <p>1++</p> <p><b>Aim:</b> To examine the effect of a low-fat diet on anthropometric and biochemical variables in postmenopausal women of diverse ethnic backgrounds.</p>	<p>Postmenopausal women 50–79 years, consuming diet with at least 36% total energy derived from fat. Women were 165% above ideal body weight, special minority focussed recruitment. Women taking medications to lower blood lipids or insulin were excluded. Atlanta, Alabama and Miami, USA, multi-site</p>	<p><b>Intervention:</b> Reduce total fat intake to 20% or less of total energy, also reduce saturated fatty acids and cholesterol, increase fruits, vegetables and wholegrain, no emphasis on reduced energy intake, weight loss or exercise; groups of 8–15 led by research nutritionist, weekly sessions for initial 6 weeks, then monthly for 9 months, then quarterly.</p> <p><b>Control:</b> Control group received pamphlet on general dietary guidelines.</p> <p><b>Follow-up:</b> Minimum 6 months and maximum 18 months. The duration of follow-up varied because the end of the study was the same for all participants, regardless of the date when they joined the study.</p>	<p>In older White, Black and Hispanic women, a long-term low-fat dietary intervention in the absence of any particular focus on reducing energy intake was accompanied by modest but generally statistically significant</p>

7. There is evidence that school-based intervention are effective in preventing excess weight gain among black American children.

First Author	Study population	Intervention	Results
<p>Stolley 1997</p> <p>Cluster RCT 1+</p> <p><b>Aim:</b> To examine the effectiveness of a culturally specific obesity prevention programme for preadolescent girls and their mothers. Mothers were included in the study for numerous reasons: 1) they are the primary people who shop and cook for their families; 2) girls would more likely to attend regularly if their mothers also attended; 3) girls are more likely to make and maintain positive eating behaviour changes if they received support and role modelling from their mothers; 4) mothers are more likely to support changes in their daughters behaviours if they played a role in the change.</p>	<p>African American girls (7–12 years old) and their mothers living in Chicago’s inner city and attending a local Cabrini-Green tutoring programme (to address educational needs of children living at the poverty level).</p> <p>Chicago, USA</p>	<p><b>Intervention:</b> Culturally specific low fat, low-energy diet and increased PA (including meal planning, tasting, music and dance, one session low-impact aerobics delivered by qualified staff from the tutoring programme). Two forms of incentives were offered; in return for participating in each of the health screenings, mothers received US\$25.00 and daughters received US\$10.00. As well as this each mother-daughter pair received US\$5.00 gift certificate for a local grocery store chain at the end of each week’s session.</p>	<p><b>Weight:</b> Weight of women remained unchanged from baseline in both intervention and control group. No data on weight change in daughters reported.</p> <p><b>Diet:</b> Significant reductions in intervention mother’s daily saturated fat intake (–2.1 oz [59 g], <math>p &lt; 0.05</math>) and % energy from fat (–7.9%, <math>p &lt; 0.001</math>) compared with controls.</p> <p>For daughters, authors found a significant effect of group on saturated fat, dietary cholesterol intake and percentage daily fat. Percentage of energy as fat in the treatment group diet was 39.1 at baseline and 35.2 at post-test (<math>p &lt; 0.05</math>). To assess changes in eating behaviour during over the course of the intervention <math>2 \times 2</math> (Group <math>\times</math> Time) repeated measures multivariate analysis of variance (MANOVA). For daughters there was a Group <math>\times</math> Time interaction for percentage of energy from fat, i.e. daughters reduced their percentage of energy from fat over the 12 weeks.</p> <p><b>Authors’ conclusions:</b> Intervention mothers exhibited significant decrease in intake of saturated fat and dietary fat.</p> <p>Results of the study were stronger for treatment mothers than for treatment daughters. Daughters in the treatment group reported only minor changes in their percentage of energy from fat as post treatment.</p> <p>Mothers appeared to be more concerned about their health and</p>

			weight status than the daughters, the majority of whom were normal weight.
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8. There is some evidence that ethnicity may be a risk factor for greater weight gain during childhood, pregnancy and smoking cessation.

**Vulnerable life stages**

9. There is a body of evidence that exercise (walking, other aerobic training, resistance training, strength training with weights machines or combinations) can improve body composition and result in a small loss of body weight and fat in postmenopausal women. This effect seemed to be optimal when combined with a weight-reducing diet.

First Author	Study population	Intervention	Results
Simkin-Silverman et al. 2003  RCT 1++  <b>Aim:</b> To test whether an intensive behavioural lifestyle intervention	Women aged 44–50 years who by self-report were premenopausal and not taking HRT, BMI 20–34 kg/m <sup>2</sup> , fasting total cholesterol 140–260 mg/dl, fasting LDL-cholesterol 80–160 mg/dl, fasting glucose levels >140 mg/dl, diastolic blood	<b>Intervention:</b> <b>Phase 1:</b> Cognitive-behavioural approach to weight control with strong emphasis on increasing PA and cholesterol lowering. Weeks 1–20 included 15 group meetings (20 women per group), given homework assignments and handouts, given weight loss goal in order to prevent any weight gain above baseline by end of the trial (BMI [kg/m <sup>2</sup> ] ≤24 asked to lose 2.3 kg, BMI 25–26 asked to lose 4.5 kg, BMI 27–34 asked to lose 6.8 kg). For first month followed daily diet of 1300 kcal (5.44 MJ), 25% energy from fat, 7% energy from saturated fat, 100 mg cholesterol, then could modify to suit their taste preferences; sessions on recipe modification, food labelling, social support, assertiveness training, restaurant eating; calcium supplement plus vitamin D (1200 mg/day) recommended, asked to increase PA expenditure to 1000–1500 kcal [4.19–6.28 MJ]/week (e.g. brisk walking 10–15 miles [16–24 km]) combining moderate aerobic activity with lifestyle activity, women monitored intake and activity and received feedback.  <b>Phase 2:</b>	In healthy women, weight gain and increased waist circumference during the peri- to postmenopausal period can be prevented with a long-term lifestyle dietary and PA intervention.

<p>aimed at dietary and PA behaviour could prevent:</p> <p>1) menopausal-related increases in LDL-cholesterol: and 2) weight gain</p> <p>NB. This is the only one RCT that met the criteria for inclusion.</p>	<p>pressure &gt;95 mmHg</p> <p><b>Setting:</b> Health Studies Clinic, University of Pittsburgh, USA.</p>	<p>Months 6–54, group meetings: months 6, 7, 8, 10, 12 and 14 provided women with additional behavioural skills, support and motivation, and offered 6-week refresher programmes (cooking demonstrations, low-fat taste panels, group walks, dance classes, exercise classes, mail and telephone follow-up continued, incentives and group competitions also, energy intake gradually increased as women met their weight goal, received individual small group consultation if experienced weight gain (two to three times per year), cholesterol rise (three to six individual consultations and cholesterol monitoring, emphasising soy protein, fruit and vegetable and fibre to lower cholesterol) or exercise relapse.</p> <p>The research team from the University of Pittsburgh and nurses from the Health Studies Clinic provided the intervention.</p> <p><b>Control:</b> Assessment only control group.</p> <p><b>Follow-up:</b> 54 months (follow-up assessment done at 6, 18, 30, 42 and 54 months).</p>
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## Diet and activity outcomes

### BMEGs

10. There is a body of evidence that culturally specific interventions among black American adults can significantly improve fruit and vegetable intake, reduce percentage energy from total and saturated fat and reduce energy intake up to 2 years.

First Author	Study population	Intervention	Results
Stolley 1997	As above	As above	As above

## Generalisability

### BMEGs

- The generalisability of specific interventions among black American populations to all UK BMEGs may be limited but general learning can be applied to the UK (Expert opinion of Guidance Development Group).

### Implementation

- Community settings, such as churches, have been shown to be an effective setting for engaging black/African Americans.

First Author	Study population	Intervention	Results
Yanek et al. 2001  Project Joy  RCT 1+  <b>Aim:</b> To test nutrition and PA interventions in the church environment to reduce cardiovascular risk in urban communities where most African American women are regular	<b>Eligibility criteria:</b> African American women aged $\geq 40$ years regularly attending Inner city churches in Baltimore with known level of high interest and participation in local activities, 80% African American congregation, average Sunday attendance at least 150 individuals, no currently active programme in weight control, exercise or smoking cessation for women aged $\geq 40$ years, churches stratified by denominations.  Pregnancy, myocardial or stroke, renal dialysis or undergoing treatment for cancer were exclusions.	<b>SI intervention:</b> Behavioural model based on standard group methods with weekly sessions including weigh-in and group discussion then 30–45 min nutrition education module that included taste test or cooking demonstration (standardised for initial 20 weeks and taught by study staff who were female African American health educators), 30 min moderate intensity aerobic activity (could include brisk walking, water aerobics, Tae Bo and varied between churches), goals behaviours included 30 min or more exercise 5 to 7 days per week, five servings fruits and vegetables every day, 25 g fibre/day, fat consumption $\leq 40$ g/day, 1200–1800 kcal [5.02–7.53 MJ] per day, sodium intake $\leq 2400$ mg/day, smoking cessation.  <b>SP intervention:</b> Same as above supplemented with spiritual and church cultural component which included group prayers and health messages enriched with scripture and PA conducted with gospel music or praise or worship dance.  <b>SH intervention:</b> Control group of non spiritual, self-help interventions, received all Project Joy educational materials plus American Heart Association	Intervention participants achieved clinically important improvements in cardiovascular disease risk profiles after 1 year that did not occur in the self-help groups; church-based interventions can significantly benefit cardiovascular health of African American women

churchgoers.	<b>Setting:</b> Baltimore, MD, USA.	<p>guidelines and no further help except a hotline number for consultation from professional Project Joy health educators.</p> <p><b>All groups:</b> Separate retreats held for each church following baseline assessment to kick-start the programme.</p> <p><b>Follow-up:</b> <b>1 year.</b></p>	
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8. Additional barriers for BMEGs and vulnerable groups include cost, child care, cultural codes of conduct, language, racism and religious discrimination.

<b>First Author</b>	<b>Study population</b>	<b>Intervention</b>	<b>Results</b>
Bush 1998 Review as cited in NICE 2006	South Asians, African Caribbeans, White Irish in UK.	To evaluate opportunities for and barriers against good nutritional health in minority ethnic groups	Studies in Manchester and Birmingham showed that African Caribbeans purchased more expensive imported Caribbean foods and because of lower incomes they spent a larger proportion on food.

## **Appendix X**

### **Best Practice**

#### **Eight-week mailed healthy-weight intervention**

(O’Loughlin et al, 1998).

There is evidence that both formal and self-directed weight loss efforts are frequently unsuccessful in the long-term and many question the emphasis on weight loss as the primary target of weight related interventions (Carrier et al 1994). There is growing interest in a ‘healthy weight’ approach to weight-related interventions with an ultimate goal of stable long-term weight control within healthy weight ranges accompanied by healthy lifestyle habits.

#### **Programme content**

This mailed healthy-weight intervention was conducted as part of a multifactorial community based heart health promotion programme in a low income, low education neighbourhood in west-central Montreal. The intervention was based on existing approaches to healthy weight using Canadian recommendations for healthy weight ranges (Health and Welfare Canada 1988). It was designed to be highly accessible to persons of low literacy with few sources of social or clinical support.

The intervention comprised 18 four (7.5 x 9 inches) page, two-colour pamphlets printed on glossy lightweight cardboard and hole-punched for safekeeping. Each cover page presented a summary of the learning objectives of the pamphlet with a humorous illustration. Dense text was kept to a minimum and technical jargon was avoided.

Consistent with stages of change research showing that people in the pre-action stages prefer an experiential rather than an educational or behavioural approach, the last page included two or three questions encouraging personal reflection and self-analysis.

Pamphlets were delivered at no cost to participants, two or three pamphlets per week over 8 weeks.

#### **Evaluation**

The intervention was tested among volunteers recruited in a population-based sample of randomly selected households in a low-income urban neighbourhood. Households for this survey were randomly selected from residential telephone subscriber lists and an

algorithm was used to randomly select one adult age 18-65 years in each household for interview. Respondents were asked at the end of the interview if they would like to participate in the healthy weight trial. Follow-up data on the psychosocial and behavioural outcomes of interest were collected 2 weeks after the last mailing also in telephone data was collected from intervention subjects in the follow-up interviews on the extent to which the pamphlets were received, read and liked.

There were no significant differences between intervention and control subjects prior to intervention. All intervention subjects recalled receiving the pamphlets, 89.6% had read one or more pamphlets. Satisfaction with the pamphlets was very high 90.4% of intervention subjects reported that the information in the pamphlets was useful, 97.3% had confidence in the information presented and 72.6% reported that they had learned something new about weight control. After exposure to the pamphlets intervention subjects were 3.7 times more likely than controls to report that they knew how to control their weight. Intervention subjects reported more improvements in their eating habits than control subjects. Frequency of consumption of high-fat /junk food remained stable in the control but decreased in the intervention group. The frequency of physical activity increased significantly more (2.7 times more) among intervention subjects.

### **Programme implementation**

This programme was based on evidence that a comprehensive public health approach could facilitate the process of healthy weight maintenance by making available a variety of interventions and opportunities for change applicable among diverse socioeconomic groups and designed to reach individuals at varying points in their change process. There is evidence showing that when using the stages of change model the successful weight control involves differential employment of selected change processes at strategically critical times in the course of change.

The healthy weight approach focuses on knowledge of healthy weight ranges, improved self-acceptance and self-esteem, improved self-efficacy and healthier lifestyle habits including increased physical activity and improved eating habits.

This is a low-cost health promotion intervention administered in the general population with little input from health professionals. The advantage of this type of intervention is that they increase accessibility by providing health information to individuals who might find more intensive interventions too great an incremental step in their quest for weight control or might not require intensive intervention to achieve health benefit. Also they would be attractive to individuals in the earlier ‘stages of readiness to change’ regarding weight control who are more likely to seek experiential than active change processes. Population approaches of this nature are known to achieve larger population health benefits than intensive interventions such as clinical weight loss programmes (O’Loughlin et al. 1988).

The healthy weight approach;

- Seeks to achieve a healthy outlook on weight and weight loss and to reduce ineffective dieting and harmful weight cycling while improving awareness that actual weight may pose health risk.
- Seeks to encourage and support healthy eating styles. Intervention subjects knew how to control their weight – a precursor to effective action. They showed improvements in eating habits related to both nutrient intake and to eating patterns. High-fat/junk food consumption was lowered. These dietary changes coupled with increases in physical activity set the stage for sustained health benefit.
- Direct telephone solicitation was used to recruit subjects and the intervention was free of charge, which resulted in high recruitment rates.

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**Best Practice (further details on this programme are available in Appendix X).**

**Brocodile the Crocodile health promotion programme**

(Dennison et al, 2004)

Television viewing has increased significantly during the past 20 years because of increased availability, increased programme development and marketing. Increased rates of childhood obesity is a side effect of increased television viewing in addition to the other adverse effects such as attenuated social behaviour, poor school performance and

high rates of violence. Television viewing hours increase during the preschool years and habits of relatively long or short viewing begin to develop during these early years. The committee on Public Education of the American Academy of Paediatrics had cautioned parents to limit children's exposure to television and other media to a maximum of 2h/d. For children younger than 2 years they completely discourage television viewing. As most of the mothers increasingly work outside the home, the percentage of preschool children being cared for outside the home had also increased. Therefore child care settings offer an emerging opportunity to promote the development of healthy lifestyle behaviours such as limited television viewing.

### **Programme components**

Preschool and day care centres located within a 45 mile radius of Cooperstown New York that enrolled children aged 3 through 5 years participated in the Brocodile the Crocodile health promotion programme. Twenty centres were identified and directors of 19 centres agreed to participate.

Programme staff visited each day care or preschool centre in the intervention group once a week to provide a 1- hour session for a total of 39 weeks. Half of each session was spent in musical activities; 10 minutes eating a snack; and 20 minutes participation in an interactive educational session. The Brocodile the Crocodile health promotion curriculum consisted of 32 sessions (10 in the spring of the first school year and 22 during the second school year) devoted to healthy eating and 7 sessions designed to reduce children's television viewing (provided during the second school year). The parent gave written, informed consent for their children to participate in the programme once it was explained to them. They were free to withdraw their children from the programme at any time.

### **Evaluation**

The impact of the programme on children's television viewing and growth variables was evaluated by a randomised control trial. Randomization used the day care centre or the preschool as the unit of analysis. Before the television reduction intervention the children in the intervention and the control groups viewed a similar number of hours per day of television/video on weekdays, Saturdays and Sunday but after the intervention they

diverged. Significant differences were seen in the changes between the intervention and control groups for television/video viewing on weekdays and on Sunday. Changes in Saturday viewing were less but in the same direction. The change in the children's television /video viewing did not differ by child sex, paternal or maternal educational attainment, or the number of hours per week the child attended day care or preschool. Changes in the children's growth measures during the entire study period revealed no significant differences between the 2 groups. There were also no significant changes or differences between the intervention and control groups in the frequency that children snacked while watching television or the number of days the family ate dinner together or watched television during dinner.

### **Implementation**

- This intervention to reduce television viewing was well accepted by children, parents and staff and all 7 sessions were successfully implemented at the child care centres.
- The parents were influenced through the children and via take-home educational materials and parent-child activities. This method has been shown to be successful in elementary school aged children additional strategies may be needed to reach the parents of younger children.
- The relatively high rate of incomplete follow-up between the 2 school years reflects the transient nature of the preschool population.

The prevalence of obesity among children and youth in the United States has increased rapidly over the past 30 years. Television viewing has been cited as one cause of increasing prevalence of obesity based on longitudinal and cross-sectional studies.

### **Theoretical framework**

The intervention focused on 4 behavioural changes: reducing television viewing to less than 2 hours per day; increasing moderate and vigorous physical activity; decreasing consumption of high-fat foods; and increasing consumption of fruits and vegetables to 5 a day or more.

The concepts of behavioural-choice and social cognitive theories of individual change with a distinctive focus on reducing television viewing were incorporated into the programme. By allowing children choice over alternative activities when television viewing time is reduced their perceived sense of control over physical activity alternatives is increased and this can reinforce physical activity. Participants in Planet Health were encouraged to 'make space' for more activity in their lives by reducing television time.

Social-cognitive theory points to the importance of social and environmental factors that influence both psychosocial and behavioural risk factors for obesity. Planet Health was designed to provide students with cognitive and behavioural skills to enable change in target behaviours, practice using skills to strengthen perceived competence in employing new behaviours effectively and support for behaviours by multiple classroom and PE teachers.

### **Intervention Components**

Planet Health intervention occurred in 5 schools located in 4 communities in the Boston, Massachusetts, metropolitan area. Informed consent procedures were followed for all students.

Each school received the Planet Health programme of teacher training workshops. All teachers received training from project staff either in workshops or with the field coordinator. In classroom lessons each theme was addressed in 1 lesson per subject

(language, art, math, science and social studies). An additional lesson developed a 2-week campaign to reduce television viewing in households.

Units were developed with extensive teacher input via lesson evaluations and focus groups using a variety of innovative, student-centered teaching methods to engage students including demonstrations debates, case studies, group projects, games and student presentations.

Physical education materials focused on activity and inactivity themes and included student self-assessments of activity and inactivity levels and goal setting and evaluations for reducing inactivity, replacing inactive time with moderate and vigorous physical activities of their choosing.

## **Evaluation**

Eighty-seven percent of the classroom teachers and 100% of the PE teachers completed first year training sessions. Schools varied in the ease with which Planet Health materials were implemented. Schools experienced with interdisciplinary curricula found it easier to implement the materials.

The prevalence of obesity among girls in the intervention schools was reduced compared with controls, controlling for baseline obesity. There was greater remission of obesity among intervention girls vs control girls. The intervention reduced television hours among both girls and boys and increased fruit and vegetable consumption and resulted in a smaller increment in total energy intake among girls. Reductions in television viewing predicted obesity change and mediated the intervention effect. Among girls each hour of reduction in television viewing predicted reduced obesity prevalence.

The behavioural data validate the potentially important role of television viewing time in changing obesity as suggested by both epidemiologic research (Dietz & Gortmaker, 1985) and experimental results based on behavioural-choice theory (Epstein et al, 1995). These results indicate that a focus on reducing television viewing time can be a useful addition to intervention efforts.

## **Seattle 5 a day worksite program**

**Beresford et al (2001)**

The slogan 'Fruits and Vegetables.... 5 a Day for Better Health' commonly known as '5 a Day' grew out of a program devised by the California Department of Health Services and funded by the National Cancer Institute to promote increasing fruit and vegetable intake. The goal of this programme was to increase the per capita intake by the year 2000 of five fruits and vegetables per day. The unique feature of this 5 a Day programme was the sequencing of the intervention strategies along a timeline suggested by the stages of change model incorporating both work environment and individual level behaviour change.

### **Intervention**

For the Seattle 5 a Day programme the worksites with food serving cafeterias within the greater metropolitan area around Seattle with between 250 and 2000 employees were eligible to participate. The intervention was developed around the stages of change model addressing both the work environment and individual behaviour change. Because of the importance of employee involvement and as a way to increase employee ownership of the project it was ensured each intervention worksite had an employee advisory board (EAB) to guide project activities in the worksite. To standardize the intervention and be faithful to the community organization approach a protocol that specified minimum activities required to occur in each worksite was developed. The protocol defined a general structure for organizing the worksites for implementing the intervention activities consistent with individual worksite needs and for documenting the process. In the intervention worksites the EAB had representation from all employee groups in the worksite and also usually included the manager of the cafeteria. The EAB was assisted by an intervention specialist, who visited the worksite approximately every 2 weeks. These specialists facilitated the intervention by providing materials assisting in activities and participating in EAB meetings. The EAB tailored the intervention activities to their worksites, implemented activities and recruited other worksite volunteers to participate in the intervention.

Intervention messages followed a sequence suggested by the stages of change model. Activities were schedule so they would occur in phases that allowed the behaviour change to occur gradually. The minimum intervention specified a menu of message choices and channel choices for each transition point. Messages were stage-specific and included 'Are you short changing yourself', 'Do something groundbreaking', and '5 ways to a 5 a Day'. Channels to deliver a message included posters, brochures, table tents, pay check inserts, flyers, newsletters, food demonstrations, message cards, tip sheets and a self-help manual.

During the first transition phase the processes leading from pre contemplation to contemplation call for raising general awareness. A 'teaser campaign alerted employees that something was coming to the worksite'. The second phase followed closely and was oriented to move people from contemplation to preparation. To foster self-evaluation, self-assessment and weighing the pros and cons of change this phase consisted of a comprehensive worksite kick-off event that was designed to provide opportunities for learning about the benefits of eating more fruits and vegetables and for assessing own knowledge and diet. The third phase emphasized skill building for individuals and also encouraged worksite changes in the cafeteria, including point-of purchase display, signs identifying foods as 5 a Day foods and some offered incentives for eating more fruits and vegetables to move people from preparation to action. The final phase emphasized ways to adapt the newly acquired skills to everyday life and recognized the critical importance of social support and environmental changes.

## **Evaluation**

A randomised control trial was used to evaluate the Seattle 5 a Day worksite programme. Twenty eight worksites with cafeterias were recruited and randomised 14 to the intervention group and 14 to the control. The intervention as stated above addressed both changes in the work environment and individual level behaviour change. In each worksite employee advisory board with study interventionist assistance implemented the programme. By surveying cross-sectional samples of 125 employees per worksite the worksite mean fruit and vegetable consumption at 2-year follow up with that at baseline

was compared. Unobtrusive site level indicators including plate observation and cafeteria checklist were also used.

The difference at 2 years was 0.5 for the intervention worksites and 0.2 for the control worksites with an intervention effect of 0.3 daily serving ( $p < 0.05$ ). Other measures of fruit and vegetable consumption including unobtrusive indicators supported the effectiveness of the intervention.

This simple 5 a Day intervention is feasible and acceptable for use in worksites with cafeterias. There was a significant differential increase in fruit and vegetable consumption in the intervention worksites. This kind of worksite intervention can achieve important health benefits on a population basis because of its potential to reach large numbers of people.

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### **Health promotion interventions led by health professionals**

Steptoe et al 2003

Consumption of fruit and vegetables is known to help in controlling a healthy weight and increasing this is a central objective of health promotion programmes worldwide. The Department of Health in the UK has established a 'five a day' programme to improve access to increase consumption of fruit and vegetables.

Research on increasing consumption of fruit and vegetables has used individual, worksite and community based approach interventions. Brief intervention techniques are known to be effective and this programme tested the hypothesis that brief behavioural counselling by nurses in general practice would lead to increased consumption of fruit and vegetables and to associated increases in plasma and urinary biomarkers over a 12 month period.

#### **Intervention**

Eighteen – seventy year old patients registered at a primary health care centre in a deprived inner city area were randomly recruited for the intervention. After the baseline assessment, an individual consultation session lasting for 15 minutes was carried out.

Written information to support the consultations was given to the participants and they

attended a second consultation two weeks later. The target was to increase intake of fruit and vegetables from baseline levels. Behavioural counselling was founded on social learning theory and the stage of change model. Interventions were tailored to the individual with personalised specific advice and setting of short and long term goals. The counselling interventions were carried out by two research nurses.

## **Evaluation**

A randomised parallel group trial compared brief nutrition counselling with behavioural dietary counselling. Recruitment assessment and interventions were carried out by the same research nurses in the primary health care setting. The nutrition counselling group received education about the importance of increasing consumption of fruit and vegetables emphasising beneficial nutritional constituents and the way these act biologically to maintain health. The nurses emphasised the five a day message. Sessions were audiotaped to monitor the quality of interventions and to ensure that the two types of counselling remained distinct.

The measure of consumption was a two item frequency questionnaire adapted from previous research and the dietary instrument for nutrition education a weighted food frequency questionnaire that accounts for most fat and fibre in the typical UK diet. Biomarkers of fruit and vegetable intake were assessed to determine whether counselling interventions had effects not only on reported consumption but also on potential biological mediators of health effects. Both the behavioural counselling and the nutrition counselling groups completed the 12 month follow up.

Brief counselling carried out by nurses on primary care can result in marked increases in reported fruit and vegetable consumption in ethnically mixed sample. The average increase in the group assigned to behavioural counselling was similar to the increase seen on a six month study in more affluent participants. This indicates that the nutrition counselling programme was not an inactive control procedure but itself had substantive effects. General advice about the benefits to health of eating fruit and vegetables may lead to favourable changes if it is provided in an individualised supportive fashion. Consumption of fruit and vegetables increased from baseline to 12 months by 1.5 and 0.9 portions per day in the behavioural nutrition groups. The proportions of participants

eating five or more portions a day increased by 42% and 27% in the two groups. Plasma  $\beta$  carotene and  $\alpha$  tocopherol concentration increased in both groups but the rise on  $\beta$  carotene was greater in the behavioural group.

### **Implications for health promotion**

Brief individual counselling on primary care can elicit sustained increases in consumption of fruit and vegetables corroborated by biomarkers. Both nutrition and behavioural counselling stimulated increases in consumption but the changes were greater with behaviourally oriented methods. Our techniques would be feasible in primary care and they could be adapted for group administration.

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### **A Community Based Approach to Promoting Walking in Rural Areas**

Brownson et al (2004)

Physical activity promotion is an important public health priority that has received increasing attention in recent years. Despite the health benefits of physical activity more than one quarter of the American population remains completely inactive. To address the burden of inactivity moderate activities such as walking and cycling provide many of the same health benefits as more vigorous physical activities. Among activity types walking is the most common physical activity in the general population and in major subgroups such as overweight individuals, older persons and persons of low income and education levels.

Physical activity intervention programs are frequently organized within ecologic frameworks that are viewed as having the largest potential to improve health on a population basis. These models highlight the importance of addressing problems at multiple levels and stress the interaction and integration of factors within and across levels (interpersonal, organizational, community and public policy). Community attributes have been examined across many studies and showed consistent associations of

recreational facility accessibility, opportunities to be active and aesthetic qualities with patterns of physical activity in adults (Humpel, 2002).

### **Intervention**

This intervention is part of the Heart Health Project in the Missouri 'Bootheel' region. A variety of interventions were conducted in the high risk communities in southeastern Missouri counties – including enacting policies for smoke-free churches and schools sponsoring taste fairs that highlight healthy cooking, organising community 'fun walks', procuring exercise equipment for various community sites and using schools and churches for physical activity programs. All these interventions were developed using principles of community based health promotion. As most other community based programmes they used ecologic frameworks that attended to individual, interpersonal, community (including social and economic factors), organizational and governmental factors; giving those affected by programmes a chance to participate in and influence programme development, implementation and evaluation and are tailored to meet the needs of individuals and communities.

An academic team was created to work with community coalitions to develop interventions for enhancing physical activity. The team decided to focus on walking and recognized that these rural areas often lack places to walk. Hence the team worked with the coalitions and local governments to develop walking trails in these communities. To develop individual informational materials and to identify the best mechanisms for developing social and community support for physical activity several approaches were used to gather input from community members. First a set of five focus groups was conducted with area residents. Monthly or bimonthly meetings were held with volunteer chair people of the heart health coalitions who provided input on topics related to the interventions. Community and academic partners recognized the need to understand the unique characteristics of each community in terms of history is relationship with governmental institutions and business and other community dynamic that is the protective social factors that influence a community's ability to create change. To gather this information community meetings were held.

### Intervention activities

Input from community participants was used to develop tailored newsletters. The primary objective of the tailored newsletters was to provide positive reinforcement to those who walked regularly and motivational information and supportive resources for those for those who did not walk regularly. Participants received by mail eight different one page feedback letters.

Based on the community inputs walking clubs were formed to build social support for physical activity. The clubs were free of charge and they often provided participation incentives (e.g. water bottles, t-shirts) and were organized around activities such as walk-a-thons.

Two special risk factor surveys were conducted to evaluate the project's progress. Surveys were based on the methods of the Behavioural Risk Factor Surveillance System (BRFSS) Centers for Disease Control and Prevention (CDC) developed in 1981 (Gentry et al, 1985).

### Evaluation

Among persons who used trails at baseline (16.9% of the total population), 32.1% reported increases on physical activity since they began using the trail. From community wide samples two subgroups indicated a positive net change in rates of 7-day total walking; people with high school degrees or less and people living in households with annual incomes of < \$ 20,000. However no studied group showed a statistically significant net intervention effect.

### Recommendations for replication

6. Allow sufficient time for intervention development. Applying frameworks for participatory research is often useful when designing and implementing community based programmes like this. Important mechanisms for successful intervention planning are clear statement and re-statement of project objectives,

frequent communication among all partners and clearly delineated roles and responsibilities.

7. Identify multiple benefits of planning and intervention development. Often the benefits of community involvement go beyond addressing risk factors or disease outcomes. Community member empowerment such as involvement of coalition volunteers with local government is a key beneficial outcome.
8. Understand the benefits and challenges of new technologies. The above project used some technologies that took considerable time to develop and introduce to the community. While being optimistic that such innovations will ultimately enhance the effectiveness of community based intervention the time and expense of pioneering these technologies probably detract from other project activities.
9. Understand needs and build skills among academic and community partners. Based on small group meetings, focus groups and town hall meetings a variety of skills and needs across communities was found.
10. Measure social and physical environments. More upstream indicators are often useful in assessing intervention success. In physical activity studies this may mean assessing the ease of walking in a particular environment or the level of social capital in a community.

This study did not show a community-wide change of walking rates in rural communities, but it did indicate an increase in the rate of walking-trail use. Since these were relatively modest interventions, it is possible that sustained, higher-dose interventions may lead to measurable community-wide changes. Several important lessons can be taken from this experience that should provide guidance for future projects.



## **Body and Soul**

### **A Dietary Intervention Conducted Through African-American Churches**

**Resnicow et al, 2004**

This programme was implemented focusing on modifying fruit and vegetable intake among African-Americans through African-American churches in the Southern United States. The intervention Body and Soul was constructed from two independently developed interventions that were shown to be efficacious in separate randomised studies. In creating the aggregate intervention, the project team was guided by two overarching parameters: (1) evidence that the intervention component was ‘essential’, that is at least in part, it accounted for the positive intervention effects observed in the parent trials; and (2) the intervention component had the potential to be widely disseminated and adopted.

#### **Intervention overview**

**Churchwide nutrition activities.** Churchwide activities were considered an essential program element. Churches agreed to implement several ‘core’ churchwide activities, which included a ‘kick-off’ event, forming a project coordination committee, conducting at least three churchwide nutrition events plus one additional event involving the pastor and making at least one policy change. The churches were provided by the staff with an implementation manual describing potential events and activities. The suggested activities included a ‘Body and Soul Sunday’, serving fruit and vegetable after services or church programmes, sponsoring food demonstrations or taste tests, organizing tours of food markets, inviting guest speakers, and having pastor sermons related to health. Suggested policy changes included establishing guidelines for the types of foods served at church functions, changing snacks served at youth camps and creating a food pantry.

The churches were also encouraged to promote the project through announcements at gatherings and church bulletin inserts. A volunteer liaison was identified at each church and this person received training in programme implementation from the staff. Liaisons were given an implementation manual developed for this project and the staffs were available for ongoing technical assistance.

**Self-help materials.** All individuals enrolling in the project received a cookbook as well as several educational pamphlets. The cook book contained recipes submitted by church members. Qualifying recipes were required to contain at least one quarter serving of fruit or vegetable per serving and to be low in fat. The cookbook also contained information about the health benefits of fruit and vegetables, tips for shopping and storing fruit and vegetables and cooking techniques.

In addition each church received a single copy of 'Forgotten Miracles' an 18-minute video developed targeting fruit and vegetable intake using both spiritual and secular motivational messages. Churches were asked to organize public screenings of the video and to make their copy available to members for checkout.

**Motivational interviewing.** Counselling was considered an essential element of the Body and Soul intervention. Motivational interviewing helps individuals to work through their ambivalence about behaviour change, solve their own barriers and explore potential untapped sources of motivation. Counsellors established a safe non-confrontational and supportive climate where clients could feel comfortable expressing both the positive and negative aspects of their current behaviour as well as the pros and cons for change. The motivational interviewing was delivered by lay church members trained by project staff.

### **Evaluation**

More than three quarters of the participants reported being very satisfied with the cookbook and educational materials and reported being very satisfied with their volunteer advisors. At post-test, participants in the intervention group reported significantly greater consumption of fruit and vegetable than those in the comparison group. The intervention group showed small but significantly greater changes in the desirable direction for percentage of calories from fat, intrinsic and extrinsic motivation to eat fruit and vegetable, self-efficacy to eat fruit and vegetable and social support to eat more fruit and vegetable.

## **Implementation**

This project demonstrated that a research-based intervention can be adapted and implemented under real world conditions using volunteer staff and lay counsellors and under these conditions positive effects on behaviour change can be achieved. Community settings such as churches are shown to be an effective setting for engaging minority communities such as the Black Americans in the community.

**I FRAMEWORK OF HEALTH PROMOTION PRINCIPLES**

The project embraces the principles of health promotion, including a positive and comprehensive approach to health, attention for the broad determinants of health, participation, empowerment, equity and equality.

The following indicators will help you to assess these principles:

1. Does the project address the determinants of health in terms of the skills and capabilities of people and/or the social and environmental conditions which impact on health?
2. Is the project embedded within a comprehensive approach to promoting health, as elaborated in a (local, regional, national or institutional) policy plan?
3. Does the project work according to evidence-based principles?
4. Does the project pay attention to empowerment?
5. Does the project pay attention to health inequalities and equity?
6. Does the project aim to create ownership among the stakeholders?

**yes partly no**

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**II PROJECT DEVELOPMENT & IMPLEMENTATION**

**a) Analysis**

The project is based on a systematic analysis of the health problem and its determinants and of the context in which it will be implemented.

The following indicators will help you to assess the quality of this analysis:

1. Is there evidence of the health problem and its impact on quality of life?
  - Have empirical data been collected regarding the nature, size and distribution of the problem?
  - Has a system review been performed to collect evidence with regard to the problem, or is a review explicitly envisaged in the project plan?
  - Has information concerning the problem been collected through consultation of the target group, community or other stakeholders?
2. Is there evidence of the behavioural and contextual factors which impact on the health problem?
  - Has use been made of theoretical models explaining the links between the health problems, risk behaviour and/or environmental factors?
  - Has the importance of each determinant been examined for the target group?
3. Is there evidence of the context in which the project will be implemented?
  - Is it clear in which context the project will be implemented?
  - Have other programmes been examined which impact on the behaviour or context?
  - Have social, cultural and policy factors been examined which influence the success of the project?

**yes partly no**

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**b) Aims & objectives**

The aims and objectives of the project are clearly defined.

The following indicators will help you to assess the adequacy of the aims and objectives specification:

1. Is there a written specification of the project aims and objectives?
2. Is there a distinction between short-term (immediate), medium-term (intermediate) and long-term (ultimate) objectives?
3. Is the formulation of the objectives SMART?
  - S: specific (do they specify the target group and the factors that need to change?)
  - M: measurable (are they written in a measurable format, e.g.: magnitude of effects, numbers to be reached?)
  - A: acceptable for the target group?
  - R: realistic (are they feasible given the available time, money, staffing?)
  - T: time-framed (do they state the time frame within which the objectives must be reached?)
4. Are the objectives matched to the analysis of the problem and determinants?

**yes partly no**

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### c) Target group

The group of people the project intends to influence is clearly defined.

The following indicators will help you to assess the adequacy of the strategy and method specification:

1. Have the relevant demographic features of the target group been identified?
2. Have the priority needs, wishes and social norms of the target group been identified?
3. Has the target group been segmented with regard to motivational phase and possibilities for change?
4. Has the size of the target group been established (number of subjects)?
5. Is it clear how the target group will be reached?

yes partly no

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### d) Intervention

The strategies and methods for an effective intervention are clearly outlined.

The following indicators will help you to assess the adequacy of the strategy and method specification:

1. Has a specification been made of mechanisms that will bring about the intended changes?
2. Is the intervention sufficiently comprehensive (does it use a combination of strategies to achieve the objectives)?
3. Has the effectiveness of the intervention methods been proven?
4. Has the intervention been designed in consultation with the partners?
5. Has the intervention been designed in consultation with the stakeholders?
6. Has the intervention been designed in consultation with the target group?
7. Are the intervention methods suitable for the target group?
8. Is the content of the intervention compatible with:
  - the culture, knowledge, views, customs and roles of the target group?
  - the context of the intervention?
9. Has the intervention been effective in achieving the intended outcomes with a similar population?
10. Does the intervention provide a complementary value or enhance the effect of existing interventions?
11. Has the feasibility of the intervention for the given target population been pre-tested, or is a pre-test explicitly envisaged in the project plan?

yes partly no

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### e) Implementation strategy

There is a clear description of the way the intervention will be carried out.

The following indicators will help to assess the adequacy of the description of the implementation strategy:

1. Has a particular mode of implementation been chosen?
2. Has this choice been translated into an implementation plan?
3. Will the partners, target group and/or other stakeholders be involved in the project delivery?
4. Is it clear for those who will be involved in the implementation which elements of the intervention are crucial and must be retained without adaptation?
5. Is it clear how the implementation will be monitored?
6. Will the project be documented in a manner which allows for a transfer of experience and know-how to other projects?

yes partly no

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### f) Evaluation

The effects (effect evaluation) and quality (process evaluation) of the intervention will be assessed.

The following indicators will help to assess the adequacy of the evaluation of the intervention:

1. Is there an evaluation plan?
2. Does the evaluation plan clearly outline:
  - the purpose of the evaluation?
  - the evaluation questions?
  - the design, method and timing of the evaluation?
  - the tasks, roles and responsibilities for the evaluation (including data collection, analysis and reporting)?
2. Do the evaluation questions match the objectives, context and expectations of the target group and stakeholders?

yes partly no

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3. Will a process evaluation be conducted paying attention to:

- the question whether the activities are implemented according to plan?
- the opinion of users regarding activities and materials?
- obstacles and difficulties encountered during the implementation process?
- suggestions for improvement?

**yes partly no**

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4. Will an effect evaluation be conducted paying attention to:

- the collection of baseline data?
- the choice of effect criteria and indicators?
- measurement of the short-term, intermediate and long-term objectives?
- exclusion of alternative explanations of possible effects?
- causal attribution of the effect to the intervention?
- evaluation of the cost effectiveness of the project?

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5. Are the evaluation design and methods of data collection appropriate for the evaluation questions, budget and reporting timetable?

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6. Will the information deriving from the evaluation be disseminated and fed back to all stakeholders and to the target group?

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### III PROJECT MANAGEMENT

#### a) Leadership

A person has been designated who is ultimately responsible for and capable of managing the project.

The following indicators will help you to assess the leadership of the project:

1. Has a clear division of responsibilities and tasks been made between project manager and other decision makers?
2. Is the project manager qualified for the tasks or does (s)he have the possibility to acquire the necessary skills?
3. Does the project manager have sufficient authority to achieve the project objectives?
4. Is the project manager able to use the available resources in a flexible manner?

**yes partly no**

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#### b) Planning & documentation

The working plan and organisation of the project are firmly established.

The following indicators will help you to assess the adequacy of the planning and documentation of the project:

1. Is the project plan logically structured and clearly written?
2. Does the project plan specify the important decision-making moments?
3. Are the methods of the activities clearly described in a working plan?
4. Are the organisational aspects of the intervention clearly outlined and documented?
5. Is there a realistic timeframe for the project?

**yes partly no**

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#### c) Capacity and resources

Are the expertise and resources available that are necessary to implement the project successfully?

The following indicators will help you to assess the adequacy of the capacity and resources for the project:

1. Have the competences of the project staff been clearly established and specified?
  - Is there a profile of the competences and expertise required for each project phase?
  - Are the qualifications and capabilities of staff members matched to the needs of the project?
  - Have the possibilities been specified to enhance skills through supervision, intervention and/or training?
2. Have the financial resources for the project been clearly identified and specified?
  - Is there a budget plan for the project?
  - Have the funding sources been identified?
  - Is the budget realistic?

**yes partly no**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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3. Have the material requirements for the project been clearly identified and specified (e.g. administrative needs: telephones, fax machines, computers, internet)?
4. Have the nonmaterial requirements for the project been clearly identified and specified?
  - Has an assessment been made of the available skills and capacities of the target group?
  - Have the possibilities for local networking been identified?
  - Is it clear how local capacities will be mobilised, enhanced and expanded?

yes partly no

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### d) Participation & commitment

The ways in which various parties will be involved and committed to the project is clearly outlined.

The following indicators will help you to determine the level of participation and commitment:

yes partly no

1. Has the way in which collaboration and synergy (networking) will be obtained been clearly specified?
2. Have the internal and external partners been identified who are required for adequate support and commitment at each stage of the project?
3. Will working methods be used that take into account the different perspectives and contributions of different partners?
4. Is the participation foreseen in the organisation of the project (e.g., steering/advisory committee)?
  - Have the potential opponents and obstacles of the project been identified?
  - Will participation of internal and external partners be formalised via agreements?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### e) Communication

The way in which all the participants (target group and stakeholders) will be informed about the project is clearly established.

The following indicators will help you to assess the adequacy of the communication:

yes partly no

1. Has a communication plan been made?
2. Is the communication plan suitable for the content of the communication?
3. Is the communication style of the plan adapted to the target group?
4. Have/has the channel(s) of communication been identified in the communication plan?
5. Is the information clear, transparent and rightly timed for the community, the target group and the stakeholders?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### IV SUSTAINABILITY

The continuation of the project is ensured.

The following indicators will help you to assess the continuation of the project:

yes partly no

1. Has an assessment been made of the sustainability of the project?
2. Have the aims, objectives and results of the project been reviewed in view of continuation?
3. Are the benefits of the project for the participants and the community clearly specified?
4. Have one or more organisations been identified that will continue the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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A user manual is provided to facilitate the use of EQUIHP  
[www.nigz.nl/gettingevidence](http://www.nigz.nl/gettingevidence)

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