



**HEALTHY WEIGHT, HEALTHY LIVES:
A CROSS-GOVERNMENT RESEARCH
AND SURVEILLANCE PLAN
FOR ENGLAND**

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Foreword

Foreword by Professor Sally Davies, Director General for Research and Development, Department of Health

A number of key changes have taken place in the public health research landscape over the last few years; changes characterised by increased collaboration across funding bodies, new partnerships within the academic community, and increased funding opportunities.



When the Office for the Strategic Co-ordination of Health Research (OSCHR) identified obesity as a key theme in discussions on public health, it seemed a perfect opportunity to bring together these new developments in research with a pressing policy issue.

The Department of Health, leading for OSCHR and the Medical Research Council, held two meetings of government Chief Scientific Advisers earlier this year. The Research Councils were also represented. Our discussion focused on how to improve collaboration across government in order to strengthen the evidence base for policy development and evaluation in this complex area. I owe a thanks to the participants for their willingness to discuss and commit.

This document sets out the key themes raised in our discussions. Clearly there is already much relevant research activity which we should harness and use effectively. But this is the beginning, and we must continue to build on our successes.

Professor Sally C Davies
Director General for Research and Development
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Contents

Foreword	1
1. Introduction	3
2. Purpose	4
3. Underlying principles	5
4. Challenges for research, evaluation and surveillance	6
5. Policy context	9
6. Current and planned research activity	11
7. The research and surveillance plan	14
Annex 1: UK wide activity	18
Annex 2: Summary of NICE recommendations on future research	20
Annex 3: Summary of NICE recommendations on monitoring and surveillance	21
Annex 4: Examples of past and current R&D funding by government departments, agencies and Research Councils	22
Annex 5: Key strategic collaborations on health research	33

1. Introduction

This document sets out the government plan for development of additional research and surveillance focused on obesity, overweight, and their determinants in England.¹ The goal is to achieve co-ordinated action across government to deliver an evidence base for national policy-makers.

The policy agenda for tackling obesity stretches across government departments. These include:

Department for Business, Enterprise and Regulatory Reform (BERR)

Department for Children, Schools and Families (DCSF)

Department of Communities and Local Government (CLG)

Department for Culture Media and Sport (DCMS)

Department for Environment, Food and Rural Affairs (Defra)

Department of Health (DH)

Department for Innovation, Universities and Skills (DIUS)

Department for Transport (DfT)

Department for Work and Pensions (DWP)

Food Standards Agency (FSA)

Health and Safety Executive (HSE)

HM Treasury (HMT)

While the initial focus is on action within government, the plan will form the basis for collaboration with funding partners in all sectors. Research councils and other funding bodies and agencies have a role in developing the underpinning science and supporting policy direction and evaluation through research and development.

This document sets out first steps in an ongoing process of developing the evidence base, and builds upon current research and research infrastructure.

¹ Annex 1 sets out activities elsewhere in the UK.

2. Purpose

The 2007 Government Office for Science Foresight *Tackling Obesities*² report highlighted the breadth of the science underpinning weight issues and approaches to tackling them. The 2008 strategy for England *Healthy weight, healthy lives: a cross-government strategy for England*³ demonstrated the cross-government nature of the policy agenda.

This policy agenda and its concern with prevention, amelioration and management of obesity needs to be based on sound evidence. This evidence base cannot be developed by individual departments and agencies in isolation. It demands that departments and agencies work together.

The focus of this plan is on policy-related research, evaluation and surveillance within national government in England. It recognises however, that Research Councils, government agencies and a variety of voluntary organisations all invest in the science relating to obesity and that there is a clear need for cross-boundary, cross-discipline and cross-agency collaboration.

In addition, obesity is a global problem. Although some elements of the solutions to it will be peculiar to England, most are not, and there is much to be gained from international collaboration on both the underpinning science and the identification of effective interventions.

As a first step, Chief Scientific Advisers from across government have held two meetings to determine how to work collaboratively to develop a strategy to drive research, evaluation and surveillance activity. Research Councils have been represented at these meetings. This plan reflects the issues discussed. It also reflects the long-term nature of the venture, and the importance of building upon current research and development infrastructure and investments.

2 www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/Obesity.asp

3 www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082378

3. Underlying principles

This research and surveillance plan is underpinned by the following themes:

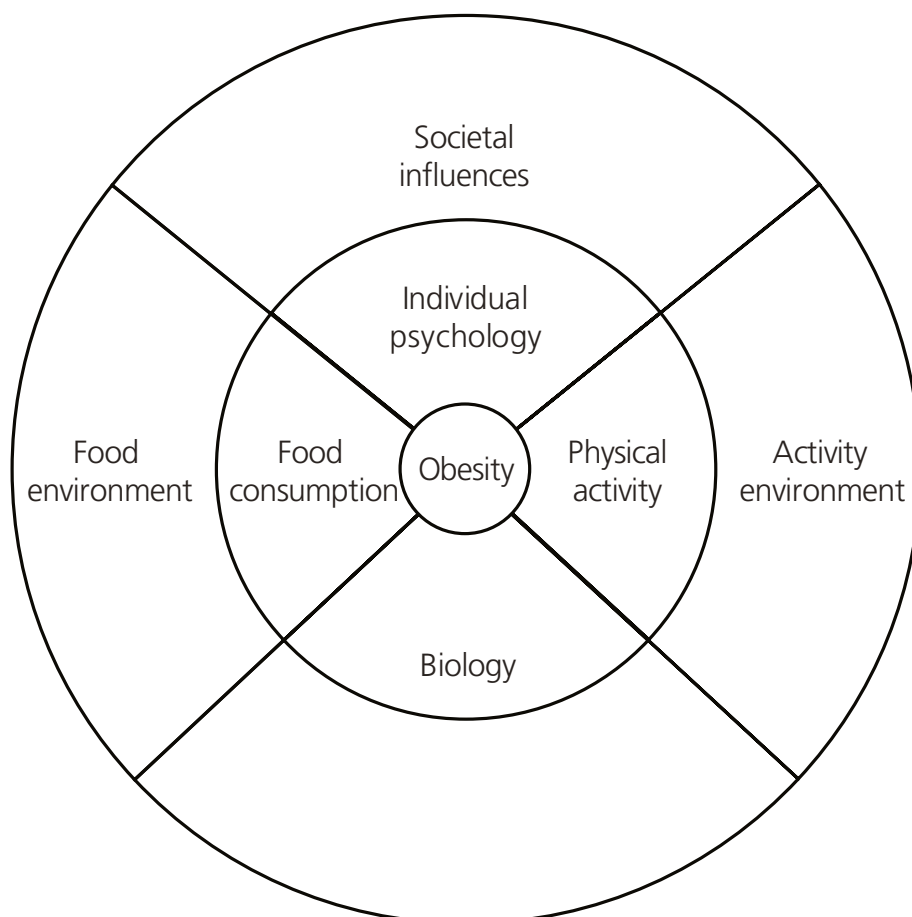
- Obesity is a problem that does not respect existing disciplinary and departmental boundaries; research funders should therefore encourage multidisciplinary and cross-sectoral working.
- To deliver, funders need to ensure a balance between addressing complexity and pragmatic simplicity.
- Short, medium and longer term research and surveillance requirements need to be accommodated.
- Prioritisation of research needs is essential to maximise return on resource and determine order of delivery.
- Matching actions to timescales: for example, although the built environment takes a long time to change, this time lag means that there is a degree of urgency to improve our understanding of what needs doing.
- There is important read across to other policy and research agendas, for example on vascular disease, cancer, diabetes, liver disease, children's health and well-being, food issues and sustainability.
- Weight problems are not distributed equally across the population, and there are important differences in the prevalence and incidence of obesity in different population groups. The recent document *Health inequalities: progress and next steps*⁴ recognises obesity as one of the major lifestyle factors that contribute to inequalities in health.
- Where policies aimed at tackling obesity are evaluated, efforts should be made to assess impact on health inequalities. The diversity of the population should be recognised.
- Public involvement should be appropriately built into programmes of research.
- Continuing communication is essential to identify opportunities to share expertise and collaborate in a timely fashion.

4 Department of Health, *Health inequalities: progress and next steps*, 2008.

4. Challenges for research, evaluation and surveillance

The Foresight *Tackling Obesities* report included the development of a system map of obesity,⁵ demonstrating the complex set of determinants and relationships underpinning the problem: a '*sophisticated biological system perturbed by a complex matrix of societal change*'. A simplified version of the Foresight systems map is shown below in figure 1.

Figure 1: Systems map of obesity



Source: Foresight systems map, 2007

The complexity of the system illustrates the breadth of knowledge required fully to understand obesity ranging from the results of biological studies into individual genes, cells, systems and bodies; through to multidisciplinary studies of the effectiveness of obesity prevention initiatives at individual and population levels.

5 www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/KeyInfo/Index.asp See link to *Building the System Map*.

The development of the evidence base to support policy in this area must consequently take account of the fact that:

- the determinants of obesity and the interrelationships between them are complex
- there is a need to develop further the links between policy and science
- the broad scope of policy decisions demand an integrated approach to developing the evidence base, and
- there is a need for more inter-disciplinary research. Existing research on obesity often appears to have been carried out on single issues, exploring individual mechanisms or relationships between variables. Relatively little is known about the interactions between determinants in this complex integrated system.

Broad priority areas for research to influence future policy include studies focused on prevention, evaluating the long-term impact of interventions, including assessing cost effectiveness, research targeting large population groups (including the feasibility of scaling up existing smaller intense interventions), and evaluation of 'natural experiments'. Within this framework:

- particular areas needing strengthening include: understanding of value systems and social/cultural factors which drive human behaviour; the impact of the built environment on diet/activity behaviours; the impact of economic drivers on human behaviour; and, at the fundamental level, the integration of basic biological mechanisms at the whole-body level
- more research is needed into effective interventions for the prevention of obesity, to assess how drivers of obesity of interventions play out for different groups in the population, and how effective interventions can be developed for prevention and treatment of different groups to reduce the inequalities in health associated with obesity
- research is needed to understand how obesity clusters with other lifestyle factors that affect health and inequalities in health and to understand how this affects the effectiveness and cost-effectiveness of intervention strategies.

The National Institute of Health and Clinical Excellence (NICE) guidance to the NHS on obesity⁶ emphasised the need for a focus on prevention. The guidance highlighted their finding of '*fundamental flaws in the methodology of identified studies [that] have hindered the ability to identify effective public health and clinical interventions.*'

NICE identified four main research questions that need to be addressed to improve the guidance:

- What are the most effective interventions to prevent or manage obesity in children and adults in the UK?
- How does the effectiveness of interventions to prevent or manage obesity vary by population group, setting and source of delivery?
- What is the cost effectiveness of interventions to prevent or manage obesity in children and adults in the UK?
- What elements make an intervention effective and sustainable, and what training do staff need?

The NICE recommendations on future research topics and methodology are summarised in Annex 2; and associated recommendations on monitoring and surveillance at Annex 3.

5. Policy context

The Government's ambition is to be the first country *to reverse the rising tide of obesity and overweight in the population by ensuring that all individuals are able to maintain a healthy weight. Our initial focus is on children: by 2020 we will have reduced the proportion of overweight and obese children to 2000 levels.* This new ambition was announced in October 2007 and forms part of the Government's new Public Service Agreement (PSA) on child health and well-being.⁷

The Foresight *Tackling Obesities* report concluded that government could best focus its actions in five main policy areas:

- to promote children's health
- to promote healthy food choices
- to build physical activity into our lives
- to support health at work and provide incentives more widely to promote health
- to provide effective treatment and support when people become overweight or obese.

The report also advocated the importance of working across government and creating synergies with other policy agendas to promote common goals.

Almost two-thirds of adults and a third of children are either overweight or obese, and work by the Government Office for Science's Foresight programme suggests that, without clear action, these figures will rise to almost nine in ten adults and two-thirds of children by 2050. This matters because of the severe impact excess weight can have on an individual's health and well-being – both are associated with an increased risk of diabetes, cancer, and heart and liver disease among others – and the risks get worse the more overweight people become.⁸

At the core of the problem is an imbalance between 'energy in' – what is consumed through eating – and 'energy out' – what is used by the body, including energy used through physical activity. While individual responsibility for decisions about energy

7 PSA 12: *Improve the health and well-being of children and young people* (www.hm-treasury.gov.uk).

8 For example, there are an estimated 2.44 million people with diabetes in England. (Figures taken from the PBS Diabetes Prevalence Model Phase 3). This is predicted to grow to more than 2.5 million by 2010 – 9% of which will be due to an increase in obesity. Analysis from the Foresight report suggests that the impact of obesity and overweight on the incidence of disease would be the greatest for type 2 diabetes, where there could be an increase of >70% by 2050. The risk of developing type 2 diabetes is about 20 times greater for people who are very obese (BMI over 35), compared to individuals with a BMI of between 18 and 25.

consumption and expenditure is important, recent work by Foresight and others shows that a multitude of factors can affect these decisions. Genetic, psychological, cultural and behavioural factors all have important roles to play and these can be difficult to influence.

The Foresight report showed that the changing pattern of our lives, which affects both food consumption and physical activity, makes it increasingly hard for people to maintain a healthy weight. From the nature of the food that we eat, to the built environment, to the way our children lead their lives, modern life is making it harder for all of us to fulfill our goal of staying healthy and well.

6. Current and planned research activity

This plan has been developed at a time when there is widening debate on the co-ordination of research relating to health, and on developing the research and development (R&D) infrastructure for public health.

Many government departments, agencies and research funders already invest in areas of significance for this field. Figure 2 maps key areas of government department and agency R&D interests against the themes identified in the Foresight *Tackling Obesity* report; Figure 3 represents Research Councils' interests.

Figure 2: Foresight systems map and government department interests

Theme	Government departments and agencies
Food Production	Defra – working with industry on healthier foods FSA – reformulation and work with industry
Food consumption	Defra – purchasing behaviour; Family Food Survey DH – food choices FSA – consumption behaviours, dietary surveys
Social psychology	Defra – understanding sustainable consumption of food DH – food choices; physical activity behaviours and opportunities DCSF – nutrition and activity in schools DCMS (with Sport England) – sports participation; cultural attitudes to food and physical activity FSA – food choice; overcoming barriers to making healthier choices
Individual psychology	DH – food choices; physical activity behaviours and opportunities DCMS (with Sport England) – sports participation DCSF – influence of education FSA – food choice; overcoming barriers to making healthier choices

Individual physical activity	Defra – interaction and use of the environment DH – physical activity behaviours and opportunities DCMS (with Sport England) – sports participation DfT – promoting walking and cycling DCSF – role of sport and leisure activity
Physical activity environment	Defra – interaction with and use of environment DCMS (with Sport England) – sports participation DCLG – local planning to support walking and cycling DfT – supportive environment for walking and cycling DCSF – active travel to school DWP – active travel to work
Physiology	DH – treatment and weight management FSA – understanding the physiological and psychological influences upon consumers' food choices

Figure 3: Outline of Research Council interests in relation to the themes shown in the Foresight systems map

Theme	Research Councils
Food production	Biotechnology and Biological Sciences Research Council (BBSRC) – crops and livestock (including physiology, genetics and disease), food composition and chemistry Economic and Social Research Council (ESRC) – food packaging, marketing and distribution
Food consumption	Medical Research Council (MRC) – human nutrition research, neuro-endocrine control of appetite, disease aetiology, intake measurement and biomarkers, nutritional epidemiology BBSRC – human nutrition research Arts and Humanities Research Council (AHRC) – the role of culture, fashion, beliefs etc in shaping behaviours in relation to body image, food, exercise. The potential for art, media and design-based interventions to tackle obesity ESRC – shopping habits, consumption patterns, where and with whom people eat, family structure, understanding the structural patterns

Social psychology	<p>ESRC – the role of peer pressure, psychological basis of behaviour, parental perceptions of safety of play/walking to school</p> <p>MRC – social and public health sciences (socioeconomic and ethnic inequalities), access to food</p>
Individual psychology	<p>MRC – neuroscience, psychology</p> <p>BBSRC – food choice, neuroscience, brain and behaviour</p> <p>ESRC – branding, motivations, resilience patterns that protect against negative outcomes, perceptions of food/activity, social neuroscience</p>
Individual physical activity	<p>BBSRC – muscle and bone physiology, effects of exercise (but mainly in relation to ageing and energy balance)</p> <p>AHRC – the potential for art, media and design-based interventions to tackle obesity</p> <p>Engineering and Physical Sciences Research Council (EPSRC) – mobility aids to promote physical activity for those with limited mobility</p> <p>ESRC – effects of gender/ethnicity/age on physical activity levels</p> <p>MRC – individual physical activity determinants, development of more accurate measures of physical activity</p>
Physical activity environment	<p>EPSRC – transport systems, building design, promotion of walking and cycling through environmental intervention</p> <p>ESRC – planning, lifestyle factors, effects of gender/ethnicity/age on physical activity levels</p> <p>MRC – determinants of activity</p>
Physiology	<p>BBSRC – fundamental physiology of animals (including man)</p> <p>MRC – human disease-related and normal physiology, molecular and cellular studies relevant to obesity, biomarkers, role of human genetics in determining susceptibility to obesogenic environments, energy balance and regulation, personalised nutrition, maternal and infant nutrition, optimal nutrition in disease and extremes of life.</p>

Annex 4 gives examples of current and planned investments across department, agencies and Research Councils. Annex 5 outlines key strategic collaborations on health research.

7. The research and surveillance plan

Surveillance

The new National Obesity Observatory (announced as part of the *Healthy weight, healthy lives*) is part of the wider public health observatory family. The Observatory is not a research funding body but will have an important role in supporting research into obesity and its determinants. It works alongside the existing surveillance, research and development infrastructure and has been commissioned to:

- provide an authoritative source of data and evidence on obesity, overweight and their determinants
- co-ordinate surveillance on obesity and overweight (this will include identifying sources of data on both obesity and its wider determinants which will inform decisions on the choice of suitable interim indicators and highlight gaps in the existing surveillance data)
- analyse surveillance and indicator data and report on progress against the new ambition at a national and regional level where possible
- provide guidance on assessing and evaluating pilot programmes and demonstration sites in England
- gather information on international best practice and develop links to the International Obesity Task Force, World Health Organization, and other supranational bodies including the new EU nutrition and physical activity strategy.

As part of the above, and in collaboration with government departments, the Obesity Observatory will undertake an audit of data sources including non-health service sources. Discussion of how to build on existing surveys and data collections will be encouraged.

Research and evaluation

The science agenda is a broad one. It is important to recognise the focus and strengths of the various funders and how they complement one another. It is also important to establish priorities to take forward in the short, medium and longer term.

This plan is a first step in building upon and developing a complex infrastructure. We are not starting with an empty portfolio as Annexes 4 and 5 demonstrate. Implementation of this plan will take into account current and planned research.

We will build on current government and Research Council R&D infrastructure. In particular there will be a key role for the public health R&D infrastructure that has been strengthened in the last three years. We will:

- work closely with the UK Clinical Research Collaboration (UKCRC) Public Health Research Centres of Excellence on nutrition and physical activity
- work through other funder collaborations, for example, the National Prevention Research Initiative
- build upon the new National Institute for Health Research (NIHR) Public Health Research Programme.

In addition, to promote discussion of wider science issues and to stimulate debate on future R&D needs, a conference is planned for late 2009.

Identifying priorities

In developing the evidence base it is important to consider:

- **existing** investments
- **priorities** for future investment
- **phasing** of R&D investments
- **lead** funding agencies.

Recognising that this is a long-term endeavour, the initial focus will be on the key policy objectives:

- to promote children's healthy growth and healthy weight
- to promote healthy food choices
- to build physical activity into our lives
- to support health at work and provide incentives to promote health more widely
- to provide personalised advice and support
- to reduce inequalities in the risk and experience of obesity, thereby helping to reduce inequalities in health.

Identifying priority areas for R&D investment will be identified in part through early development of the new NIHR Public Health Research Programme. The planned conference will be an opportunity to assess priorities within the wider science agenda.

Obesity HIA

Health impact assessment (HIA) adds additional impetus to work collaboratively on the evidence base. HIA has been government policy since *Saving lives: our healthier nation* (1999)⁹ and was integrated into Regulatory Impact Assessment when the *Choosing health*¹⁰ White Paper was published in 2004. Health Impact Assessment is one of the specific impact tests included in the revised mandatory impact assessment process. Human health is part of Strategic Environmental Assessment (SEA) (Directive 2002/42/EC) which is carried out for plans and programmes that affect the built and natural environment, for example transport, housing and infrastructure. The Department of Health has published draft guidance on health in SEA.

The Department of Health is also following up the recommendations made by the Council for Science and Technology in their report *Health impacts – a strategy across government*.¹¹ Many of the responses to the recommendations are included in *Health inequalities: progress and next steps*.

Working through the Obesity Cross-Government Senior Officials Board, and with the National Obesity Observatory, key policies will be identified for natural experiments to contribute to an evidence base for health impact assessment with a focus on obesity in line with government policy in this area.

The Obesity Observatory will support the development of consistent measures and indicators for use across government.

Scan for policies for natural experiments

Continued communication across government at policy and science official level will assist in identifying existing and planned evaluations on which departments can collaborate. At policy level, research and data issues will remain an item for the Obesity Cross-Government Senior Officials Board, which will be asked to recommend key policies as priorities for evaluation. Consideration will also be given to the feasibility of assessing cost-effectiveness. The information will be fed in to scoping of early and ongoing priorities for the NIHR Public Health Research Programme and other research programmes.

Report back

Annual feedback on progress is planned. Feedback will initially be in web-based format. Wider discussions of science, research and surveillance issues will be promoted via the planned 2009 conference.

9 www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4118614

10 www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094550

11 Council for Science and Technology, *Health impacts – a strategy across government*, 2006.

ANNEXES

Annex 1: UK wide activity

The UK view

This document focuses on a plan for government within England. The Research Councils and Food Standards Agency have a key role in the strategy but clearly have a UK remit. In addition, continued discussion with the other administrations offers key learning opportunities. The following offers a snapshot of key activities elsewhere in the UK.

Northern Ireland

Taking forward recommendations contained in the DHSSPS(NI) strategy document *Fit Futures*, an Obesity Prevention Steering Group, chaired by Professor Ian Young, will integrate a number of work streams including a research subgroup.

The Institute of Public Health in Ireland is collating obesity data for Ireland North and South. Population-based data sets (with body mass index (BMI)) are collected through the Child Health System (P1s) and the Health and Social Wellbeing Survey. Among other research projects completed or under way there is a substantial body of work at the Northern Ireland Centre for Food and Health.

Scotland

In June 2008 the Scottish Government published *Healthy eating, active living*, the action plan to improve diet, increase physical activity and tackle obesity over the next three years.¹² Chapter 5 of this outlines planned and ongoing research and evaluation to inform healthy weight policy. This will include the evaluations of three key initiatives:

- the expansion of the Counterweight programme to GP surgeries across the whole of Scotland
- the provision of child healthy weight intervention programmes by every Scottish NHS board
- the piloting of healthy weight community projects.

The BMI of children in Primary 1 is measured as part of the Child Health Surveillance Programme and the recently reviewed Scottish Health Survey collects data on the BMI of respondents as well as their perceptions and understanding of the incidence and risks of unhealthy weight and related behaviours.

Wales

The Welsh Assembly Government, working in partnership with the National Public Health Service, is currently piloting a national obesity surveillance programme through routine measurement of child height and weight.

Research will continue to be commissioned by the Welsh Assembly Government, including the Wales Office of Research and Development and relevant policy departments, to support policies tackling overweight and obesity.

The Health Behaviour in School-aged Children (HBSC) study in Wales collects height and weight data from 11, 13 and 15-year-olds (self-report), alongside information on weight loss behaviour, body image, nutrition and physical activity.

Body mass index is collected through the Welsh Health Survey for adults (self-report) and young people (measured).

Research into overweight and obesity will form part of the work programme of the Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer), a UKCRC-funded centre of excellence led by Cardiff University in collaboration with Bristol and Swansea.

Annex 2: Summary of NICE recommendations on future research

There is a need for:

- better-designed studies including (but not restricted to) randomised controlled trials
- studies with follow-up of participants for at least 12 months post intervention
- use of validated methods to estimate body mass index (BMI), dietary intake and physical activity
- assessment of the benefits of measurements additional to BMI (such as waist circumference in children) that are related more closely to health outcomes
- research among key at-risk groups (e.g. young children and families and black and minority ethnic groups), vulnerable groups (e.g. looked-after children and young people, lower-income groups and people with disabilities) and people at vulnerable life stages (e.g. women during and after pregnancy and people stopping smoking)
- conduct research in multidisciplinary teams, including the private sector where appropriate
- interventions in 'real world' everyday clinical and non-clinical settings
- research investigating how the setting, mode and source of delivery influence effectiveness
- high-quality long-term evaluations of national schemes that are implemented locally and may have an impact on weight, diet or physical activity (such as interventions promoting a 'whole-school approach' to health, Sure Start initiatives and exercise referral schemes for children and adults)
- improvements to the system for translating research evidence into practice.

NICE clinical guideline 43

Annex 3: Summary of NICE recommendations on monitoring and surveillance

There is a need to:

- expand existing surveillance schemes on levels of obesity (especially among children and on black and minority ethnic groups)
- establish systems to improve the collection of local data on obesity
- establish reliable regular data on determinants of obesity such as levels of physical activity programmes
- collate data from action on obesity being undertaken at local level
- improve standards on evaluation and monitoring of obesity initiatives undertaken at a local level
- improve methodologies to measure human behaviour, especially diet and physical activity.

Annex 4: Examples of past and current R&D funding by government departments, agencies and Research Councils

Department for Children, Schools and Families (DCSF)

Past investments include reviews on promoting physical activity and healthy eating among children and children's food choices. Future research is likely to include projects on children's sedentary behaviour and children's engagement in the commercial world.

Department for Communities and Local Government (CLG)

CLG supports a wide range of relevant studies including those on neighbourhood renewal, safe indoor play areas, management of public spaces, and the relationship between transport and development.

Department for Culture Media and Sport (DCMS)

Research was recently supported on play and exercise for young children.

Future activities include the likely evaluation of the Free Swimming Programme, to determine the extent to which free swimming has increased swimming participation over the duration of the Programme, amongst those aged 16 or under and those aged 60 or over.

DCMS and DCSF are also seeking to monitor the introduction of two additional hours of active sport outside school.

Department for Environment, Food and Rural Affairs (Defra)

Defra's main interest is in making the production of food (across the entire food chain) and its consumption more sustainable. Defra has a broad environmental remit, including improving access to the countryside, understanding the basis of individual behaviours and how environmentally positive behaviour patterns can be encouraged. Although not addressing obesity directly the department's work on sustainable behaviours is likely to be relevant to questions of healthy behaviour.

The Sustainable Behaviours Research Centre is an initiative jointly funded between Defra, ESRC, the Environment Agency and the devolved administrations. The centre will consider how to influence behaviour towards more pro-environmental actions. It is currently being commissioned and is likely to be operational from spring 2009.

A new baseline survey on engagement with the natural environment (Monitor of Engagement with the Natural Environment – MENE) is to be carried out by Natural England. The project will be overseen by an advisory group – including key stakeholders such as the Forestry Commission, Visit Britain, Sport England and Defra. MENE will provide information at a fairly detailed level on who uses the natural environment, for what purpose and why, as well as information about those who do not. The MENE format will be a weekly in-home omnibus survey for a minimum period of three years.

Department for Work and Pensions

Studies have been supported on sickness absence including the relationship with obesity.

Department of Health

The Department of Health supports research through its Policy Research Programme, part of the Research and Development Directorate. Substantial investment is also provided by the National Institute of Health Research (see page 26). The department also supports relevant work through funding of the National Obesity Observatory, and investments in various longitudinal and routine data collections.

National Child Measurement Programme (NCMP)

The NCMP entered its fourth year in September 2008, and is one part of the Government's programme of work to implement the *Healthy weight, healthy lives* strategy. Every year children in Reception Year and Year 6 are weighed and measured during the school year. The main purpose of the NCMP is to:

- help local areas to understand the prevalence of child obesity in their area, and help inform local planning and delivery of services for children
- gather population-level surveillance data to allow analysis of trends in growth patterns and obesity, and
- enable PCTs and local authorities to use the data from the NCMP to set local goals as part of the NHS Operating Framework Vital Signs and their local area agreement (LAA) National Indicator Set, agree them with SHAs and government offices, and then monitor performance.

The programme also aims to:

- increase public and professional understanding of weight issues in children, and
- engage parents and families about healthy lifestyles and weight issues, through the provision (whether routinely or by request) of the results and additional information to parents.

PCTs submit children's heights and weights, along with other anonymised information, to the NHS Information Centre (IC). Once the data are validated, the IC undertake analysis and publish a report of the results. The anonymised national data set is made available to public health observatories and others to allow for further analysis according to local need.

National Institute for Health Research (NIHR)

The NIHR was established in 2006 to implement the Government's health research strategy, *Best Research for Best Health*.¹³ The strategy outlines the direction for research and development to establish the NHS as a world-class environment for conducting health research. The strategy creates a number of opportunities for research relevant to obesity and related domains.

13 Department of Health, *Best Research for Best Health: A new national health research strategy*, 2006.

National Institute of Health Research – recent developments

NIHR has established 12 Biomedical Research Centres within leading NHS and university partnerships to translate basic medical research from the laboratory into clinical practice, meaning patients will benefit more quickly from new scientific breakthroughs. A number are undertaking research in the area of nutrition and energy balance.

Nutrition, diet and lifestyle (including obesity) have been identified as priority research areas which were underrepresented in the portfolios of the Biomedical Research Centres and an NIHR Biomedical Research Unit in the field of nutrition has been established.

The NIHR Programme Grants for Applied Research, and the NIHR Research for Patient Benefit funding schemes also support work in these areas.

Relevant work is also supported through other NIHR programmes including the new NIHR Public Health Research Programme, which will evaluate a wide range of public health interventions delivered outside the NHS. This will complement the work of the existing Disease Prevention Panel within the Health Technology Assessment programme.

DH/NIHR – Early projects to support policy development

The Department of Health **Policy Research Programme** has funded:

- An initial mapping exercise on weight management interventions targeted at children through the EPPI-Centre at the Institute of Education, University of London.¹⁴
- The EPPI-Centre is also carrying out a series of systematic reviews on the topic of children and obesity. A map of existing reviews examining the effects of social and environmental interventions has just been completed and a review of children's perspectives on body size, weight and obesity is ongoing. The review series will continue to work on the link between educational attainment and obesity and children's play.
- The Public Health Research Consortium (www.york.ac.uk/phrc/) is undertaking a number of relevant projects including an analysis of the social patterning of obesity, an investigation of whether physical activity can reduce the adverse effects of obesity, and a project exploring the potential for interventions to reduce obesity in children from black and minority ethnic groups.

The **NIHR Health Technology Assessment programme** (HTA) is supporting a number of relevant studies.

Recently completed projects include:

- a study comparing the effectiveness of a leisure centre-based exercise programme, an instructor-led walking programme and advice only
- an assessment of the clinical and cost-effectiveness of a licensed anti-obesity drug treatment (rimonabant).

Research being planned includes:

- research being commissioned to look at obesity prevention in primary school age children
- a recent call covering the assessment of interventions to help obese adults maintain weight loss and exercise referral schemes.

¹⁴ The project report and a searchable database is available on the EPPI-Centre website: <http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=53&language=en-US>

Food Standards Agency (FSA)

The FSA supports a wide range of research and data collection relevant to the obesity agenda.

Obesity related research

The Agency has a broad range of work that aims to help reduce the burden of diet related chronic disease. Areas of this work relevant to obesity are given below. More information about these projects can be found on the FSA's website www.food.gov.uk under *Science and Research*.

The Agency also receives expert advice on nutrition from an independent expert advisory committee, the Scientific Advisory Committee on Nutrition (SACN), and the Social Science Research Committee.

Food choice research programmes (N09 and N14)

These programmes of research aim to understand the physiological and psychological influences upon consumers' food choices and how barriers to making healthy choices can be overcome, particularly for vulnerable groups of the population.

Other nutrition research programmes (N02, N05 and N12)

The research programmes Diet and Cardiovascular Health (N02), Nutritional Status and Function (N05) and Diet and Colonic Health (N12) aim to provide evidence to inform nutrition recommendations. These programmes include projects that assess the effect of diet in high-risk groups (e.g. overweight individuals), on markers of diseases that are co-morbidities of obesity (e.g. cardiovascular disease) or on physiological functions (e.g. immune function).

National Diet and Nutrition Survey

The National Diet and Nutrition Survey (NDNS) provides detailed data on foods consumed by individuals and their nutrient intakes, with additional information on nutritional status, physical measurements and lifestyle habits, such as smoking, drinking and physical activity.

The Agency funds a programme of nutrient analysis of foods to support the estimation of nutrient intakes in NDNS and other dietary surveys. It also funds a research programme which aims to develop improved methods for assessing diet, nutritional status and levels of nutrients in foods.

Low Income Diet and Nutrition Survey

The Low Income Diet and Nutrition Survey (LIDNS) was published in July 2007. It is the first national survey of food consumption and nutrient intakes in the low income population across the UK.

Saturated Fat and Energy Intake Programme

The Agency is working with health and other departments to tackle obesity, by helping consumers to achieving a balance between calorie intake and energy output.

To fulfil these and other objectives the Agency has developed a Saturated Fat and Energy Intake Programme, which was launched in February 2008.

Elements of the Agency's programme include:

- improving consumer awareness about the impact of saturated fat on health
- encouraging voluntary reformulation of mainstream products with a focus on those foods that contribute the most to saturated fat, added sugar and energy intakes
- encouraging promotion and increased uptake of healthier options, e.g. reduced fat products and retailers' 'healthier' ranges, and
- encouraging smaller food portion sizes, particularly of energy dense and salty foods.

The FSA is currently putting together a proposal for a research collaboration with the Economic and Social Research Council (ESRC) for the 'Understanding Individual Behaviour' exploratory network. The aim is to explore food behaviours, taking a holistic and multidisciplinary social science approach about people's lives and how these impact on food shopping and consumption choices.

Research Councils

The Research Councils are also major players in funding research both directly and indirectly relevant to the obesity agenda.

Economic and Social Research Council (ESRC). Understanding social determinants and psychological bases of behaviour are key to this issue – ESRC is well positioned to fund research on both, and has a strong base of large longitudinal data sets on which researchers from a range of disciplines can build. The breadth of the social science contribution is evident from the fact that it falls within all but one of the above categories shown in Figure 3 (p.12). Research contributions include understanding structural patterns, and the importance of evidence from beyond the 'healthy living' agendas, e.g. the prevalence of technology, transport, fears about safety and the effect of changing family structures.

Arts and Humanities Research Council (AHRC). AHRC funded research has the potential to contribute in the following ways: through the role of culture, fashion,

beliefs etc in shaping behaviours in relation to body image, food, exercise etc and the potential for art, media and design-based interventions to tackle obesity.

Engineering and Physical Sciences Research Council (EPSRC). EPSRC supports research into medical modelling, bioinformatics, managed exercise using mobile computing and sensors, physical aids and the built environment that are relevant to obesity. This includes research into transports systems, sustainable environments and environments which encourage physical activity.

Biotechnology and Biological Sciences Research Council (BBSRC). BBSRC supports research on human nutrition both in universities and at its Institute of Food Research (www.ifr.ac.uk/). Its current annual spend on diet and health-related research is in excess of £12 million including approximately £1.3 million on obesity-related research. Research supported by BBSRC on complex interactions between genetic, physiological and psychological factors is offering new opportunities to diagnose high-risk individuals and to develop new drugs to prevent obesity and associated conditions. Examples of research areas include: *Genetic and early life factors: prenatal nutrition, and monitoring what young people eat; The role of fat tissue itself; Hunger, dieting and exercise: sending messages to the brain, screening the next generation of slimming products, exercise and weight loss.* In addition, BBSRC supports training in research relevant to obesity and examples of some relevant studentship projects are: *The relationship between normal and binge eating behaviours and physiological appetite signals; Lipoproteins, diet and genotype: Mathematical models of the interaction of lipoproteins with hepatocytes; Investigating overeating as an addiction; Appetite and satiety as explanatory constructs in motivation.* Furthermore, research on nutrition and energy balance pervades all of the Institute of Food Research programmes: Gastrointestinal biology and health; Natural products and health; Food borne pathogens; Food structure and function; Risk and behaviour.

Medical Research Council (MRC). The MRC has a long-standing interest in obesity, and is a major funder of obesity-related research (for examples, see www.mrc.ac.uk/Test/OurResearch_old/Impact/NutritionMetabolism/Obesity and www.mrc.ac.uk/utilities/search/MRC002589). MRC spend on research directly relevant to obesity was over £10 million in 2006/7, including molecular mechanistic studies; research into genetic, epigenetic or molecular factors affecting obesity, appetite control and energy balance; the effect of diet, exercise, lifestyle or environmental factors on obesity; strategies for prevention or treatment of obesity; and how obesity affects or causes other diseases. The often underplayed role of genetics in determining susceptibility to obesogenic environments is a significant focus of MRC research. Major MRC investments are highlighted below. Interests are international and multidisciplinary, and go beyond obesity itself to examine the wider health consequences, including metabolic diseases, arthritis and asthma. There is a logical progression from epidemiological and aetiological research towards interventions in the MRC portfolio, and a continual translation of basic research findings into policy and practice. Recent

developments include the opening in 2007 of the MRC Centre for Obesity and Related Metabolic Diseases at the University of Cambridge, under the translational medicine centres initiative.

MRC investment relevant to obesity research

The **Dunn Human Nutrition Unit** – investigates fundamental mechanisms underlying nutrition, and the influence of nutrients on health and longevity. www.mrc-dunn.cam.ac.uk/

Human Nutrition Research – carries out scientific research into relationships between nutrition and health, of national and international priority, through partnerships with other academic groups, governments, industry and others. www.mrc-hnr.cam.ac.uk/

The **MRC Epidemiology Unit** – investigates the causes and prevention of diabetes and obesity. www.mrc-epid.cam.ac.uk/

The **MRC Epidemiology Resource Centre** – provides an international centre of excellence in epidemiological research, which maintains and develops the long-term cohort studies assembled in Southampton as national resources to explore the developmental origins of adult disease. www.mrc.soton.ac.uk/

The **MRC Social and Public Health Sciences Unit** – promotes human health via the study of social and environmental influences on health. www.sphsu.mrc.ac.uk/

The **MRC International Nutrition Group** – undertakes research focused on understanding the role of nutrient-gene interactions in the occurrence and severity of infectious disease. www.lshtm.ac.uk/nphiru/research/nutrition.html

The MRC has recently established two MRC University Centres relevant to obesity research:

The **MRC Centre for Obesity and Related Metabolic Diseases** – investigates the fundamental causes of obesity and how it is related to insulin resistance, diabetes and cardiovascular disease. www.mrl.ims.cam.ac.uk/

The **MRC Centre for Nutritional Epidemiology in Cancer Prevention and Survival** – researches the epidemiology and molecular origins of the dietary causes of cancer. www.srl.cam.ac.uk/cnc/

Research Councils – recent developments

ESRC

The ESRC, in conjunction with the BBSRC and MRC, has recently issued a call for exploratory networks in 'Understanding Individual Behaviour' with the central question of '*How can we best develop the integrated study of the social and biological influences on behaviour of individuals?*' Applicants are asked to consider one of the following areas within their applications: Timing over the life course; Decision making and risk taking; Adaptation, well-being and resilience; Innovative methodologies and new technologies; Longitudinal data.

BBSRC

BBSRC published its high-level food research strategy in July 2007 (www.bbsrc.ac.uk/organisation/policies/reviews/scientific_areas/0707_food_research.html).

This sets out BBSRC's future food research priorities. These include: 'Diet as a modifier of development and health' which focuses on the mechanisms by which nutrition during fetal development and infancy can affect health later in life, and 'Nutrition, metabolic regulation, ageing and health' which seeks to understand how the complex interactions among genotypes, gender, metabolic phenotypes and the environment influence body weight. Furthermore, the BBSRC has committed approximately £4 million over the past year to their responsive mode priority area of 'Developmental origins of optimal health'.

MRC

The total UK annual spend on nutrition and energy balance is in excess of £70 million, of which the MRC contributes ~£40 million (~£10 million directly relevant to obesity). The impact of UK science relative to spend is above that of the USA, and has increased over the last ten years (bibliometric analysis, 2008). The MRC's intramural programme in nutrition and energy balance is above the world benchmark and UK baseline in relevant disciplines.

The MRC Strategic Review of Research into Nutrition and Energy Balance in May 2008 identified research relevant to obesity as a major challenge for the immediate future. Several areas relevant to obesity were highlighted as priorities for future research. In particular, the link between obesity and disease, developmental origins of disease, control of appetite, physical activity and preventative strategies were identified as priorities. The need to view obesity as a heterogeneous condition was also recognised. Finally, the need for greater co-ordination between funders in nutrition and energy balance was highlighted, with the potential to build on preliminary meetings involving the Department of Health, BBSRC, the Food Standards

Agency and others. MRC research on obesity extends beyond that covered by this Strategic Review, and also includes public health, translation of research knowledge into policy and practice, mechanisms of obesity and linked disease, methodology development (including biomarkers) and methods of evaluation.

Annex 5: Key strategic collaborations on health research

Two major funder collaborations which have specific relevance to the topic of obesity have developed over the last few years.

The National Prevention Research Initiative was established in October 2004. It was founded by the National Cancer Research Institute (NCRI) and brings together a broad range of funders drawn from the public and charity sectors. Pooled funding is used to support research aimed at improving health and at preventing diseases or conditions, such as poor diet, physical inactivity, smoking and alcohol consumption, and on environmental factors that influence those behaviours. There have been three calls for proposals to date. A number of the resulting studies focus on physical activity and nutrition.

An investment of £20 million has recently been made in five public health centres of excellence. One of these, led by the University of Cambridge, will focus on diet and physical activity. The funding has been committed by a partnership of funders, under the umbrella of the UK Clinical Research Collaboration.



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