Tackling Obesities: Future Choices
Challenges for research and research management

The Foresight project 'Tackling Obesities: Future Choices' has collated the existing evidence base of scientific research pertinent to obesity to give a platform from which to develop a long term vision for the public health response. This expands the more specific and focused reviews of the research evidence collated by NICE as part of the development of the Clinical Guideline for the prevention, identification, assessment and management of overweight and obesity in adults and children (http://www.nice.org.uk/guidance/CG43).

It is clear that obesity reflects a sophisticated biological system perturbed by a complex matrix of societal change. The prevention and treatment of obesity cuts across a wide array of scientific disciplines and research funders. The Foresight analysis provides a useful starting point for discussions about the management of obesity research.

Obesity Systems Map – implications for future research

The Foresight short science reviews include specific issues for future investigation within focused areas, including gaps in the evidence and promising areas for future research (http://www.blackwell-synergy.com/toc/obr/8/s1?cookieSet=1). More broadly, the Foresight obesity systems map provides a tool for research funders to identify priority areas.

Broadly, areas requiring increased support include:

- Long term interventions
- Studies focused on prevention
- Research targeting large population groups (relative to individually-focused interventions)
- Evaluation of 'natural experiments (relative to highly controlled experimental paradigms)

The system map was developed based on current evidence and expert opinion to show established linkages. Closer examination reveals that the

quantity and/or strength of the evidence for each linkage is variable. These maps may therefore be interpreted to reveal specific research gaps or to give insights into the relative priority of different areas. For example areas that are under-researched (low quantity of evidence) relative to their perceived importance or, in contrast, areas with abundant evidence but suggesting limited strength of the linkage.

At present, the map relies heavily on observational data and information from mechanistic studies. Accordingly, this underscores a need for more intervention studies that explore opportunities for change. The system map can inform these interventions by providing insights into the critical links in the causal chain relating individual variables to the core components of energy balance. It may be used to identify potentially confounding factors and/or unintended consequences. Notwithstanding these considerations, the interpretation of data from intervention studies will always need to take account of the context in which they are conducted since this is an important modifier of effects when extended beyond the confines of controlled research studies.

Areas in the systems map where there is a particular paucity of research 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
- Integration of basic biological mechanisms at the whole-body level

Given the value to policy makers of this overarching analysis of the scope of obesity research, there is merit in exploring ways of refining the system map further, by adding new variables or links and updating the data on existing linkages as new evidence accumulates. There is a particular need to develop the evidence base for vulnerable groups, including children, low income and ethnic minorities in order to build a series of maps directly pertinent to these important sub-groups.

Inter-disciplinary obesity research

In some respects obesity is an exemplar of a number of other inter-disciplinary research issues that do not fit neatly into existing structures. It is particularly timely to consider these broad issues for the research framework around public health alongside the emerging new research structures linked to the Cooksey review. In the case of obesity this needs to reach well beyond the remit of the MRC and NIHR. At present, obesity research is fragmented, split mostly across medical and social sciences. The increasing recognition of the scope of obesity research requires that other funders must be engaged in this area such tat research extends to fully encompass biotechnology, the physical and engineering sciences and beyond, to the humanities that shape the nature of society and culture. Such diverse groups will need specific opportunities and training to develop truly multi-disciplinary research programmes.

There are **opportunities to involve the private sector** in obesity research. This is a particular challenge for research into the prevention of obesity that requires long-term support, often on a very large scale. Collaboration with the private sector, particularly the food industry, often raises concerns over independence. Mechanisms need to be developed to exploit the opportunities afforded by such collaborations while protecting the independence and the credibility of the findings among policymakers and the public.

Underpinning research issues

During the course of the Foresight project a number of underpinning issues to facilitate obesity research became recurring themes. These include:

- Expansion of existing surveillance schemes
- Exploitation of existing datasets in public and private domain
- Improvements in the methodologies to measure human behaviour, especially diet and physical activity
- Development of more detailed models to examine the future impact of obesity and its comorbidities, including the use microsimulation techniques

Application of research in policy and practice

Discussions held over the lifetime of the project highlighted some of the barriers that exist between scientists and policymakers which hamper the efficient **translation of new scientific developments into policy and practice.** Obesity challenges the traditional evidence trajectory and its incorporation into policy. The nature of the problem necessitates the collation of diverse data over long periods of time and sits uneasily alongside the scale of the problem and the demand for immediate action. Scientists, trained to strive for the best evidence possible, must 'make do' with the best evidence available, and rather than collecting evidence of efficacy to underpin 'evidence-based practice', may need to place greater priority on effectiveness from 'practice-based evidence'.

In turn, policymakers must accept the limitations this imposes on the nature of evidence. They must recognise the need for incremental change; the concept of 'better practice' rather than 'best practice' and acknowledge that some well-intentioned interventions may fail.

Given the gap between the expectations of policymakers and scientists, both may require additional training to simulate effective communication. New review systems may be required to recognise scientific contributions to obesity policy and incentivise researchers to engage in this area which at present is often viewed as a time-consuming distraction to career progression.

There is also a need to refine the **communication of obesity research to the public**. Unlike some areas of research there is significant public interest and obesity offers an opportunity to engage the public in matters of scientific debate. However the Foresight obesity system map shows that the perception of a high level of scientific inconsistency drives an increase in ambivalence that, in turn, reduces the likelihood of successful changes in behaviour. With such a complex multi-faceted issue it is particularly important that new research findings are placed in the context of the wider understanding of the problem. This challenges the quest for headlines on the part of journals, universities and research institutions and demands a more sophisticated communication strategy with the public and other stakeholders.