

Scientific Advisory Committee on Nutrition

Paper for discussion: Work Programme for SACN 2001/02

Agenda Item 3

Please see attached paper for consideration.

Please also see:

1. National Dietary and Nutrition Survey: Young People aged 4-18yrs. Volume 1: Report of the diet and nutrition survey. TSO 2000. (Available on request).
2. Department of Health. Nutritional Aspects of the Development of Cancer. Report on Health and Social Subjects No 48. London: HMSO 1998. (Available on request).
3. National Audit Office 2001. Tackling Obesity in England. Report by the Comptroller and Auditor General. HC 220 Session 2000-2001: 15 February 2001. (Provided)
4. Department of Health. Dietary Reference Values for Food Energy and Nutrients for the UK, Report on Health and Social Subjects No 41. London: HMSO 1991. (Available on request).
5. Department of Health. Nutritional Aspects of Cardiovascular Disease. Report on Health and Social Subjects No 46. London: HMSO 1994. (Available on request).

Scientific Advisory Committee on Nutrition

Work Programme for SACN 2001/02 - Paper for discussion

1. Introduction

1.1 This paper suggests topics that the committee may wish to include in the work programme. The programme suggested below was developed in consultation with UK Health departments, Food Standards Agency and in consultation with the Chair of SACN. Subject to the views of the Committee, it is proposed that the programme should be refined and taken forward to include a mix of short- and long term issues, which could be considered in terms of population groups or health problems or as nutrient issues.

1.2 The aim is to set a work programme, which is balanced and can be delivered within different time frames, taking account of the volume of business the Committee can reasonably expect to handle at the meetings and the available secretariat resources.

2. Short-term issues

2.1 Role of Iron in Human Nutrition

2.1.1 National Surveys have consistently identified that a substantial proportion of some groups in the population, particularly young women and children, have low iron intakes and status as defined by ferritin levels, and consequently they may be at risk of iron deficiency anaemia. Dietary surveys in adults and children have both shown that average iron intakes are below the reference values (RNI). Average intakes of women were 95% of RNI, while average intakes in children aged 1½ - 4½ years were around 80% of the RNI. The National Diet and Nutrition Survey of 4-18 year olds found that average intakes of iron in girls were only 82% of the RNI and intakes tended to fall with age, so that for 15-18 year old girls, average intakes were only 58% of the RNI.

Meat, in particular red meat, contributes a significant proportion of iron in the diet and it is efficiently absorbed compared to iron from vegetable foods. Studies have shown that, even though total iron intakes in vegetarians are higher than those in meat eaters, vegetarians tend to have low body stores of iron which can increase their susceptibility to iron deficiency anaemia.

2.1.2. The COMA report on Nutritional Aspects of the Development of Cancer concluded that there is moderate evidence of a relationship between red and processed meat consumption and colorectal cancer and that the risk is greatest in people with the highest intakes of red and processed meats. The report concluded that lower consumption of red and processed meat would probably reduce the risk of colorectal cancer.

2.1.3 The Working Group on Diet and Cancer were aware that a reduction in red meat consumption could have an adverse effect on other aspects of health and recommended that this should be a subject of review. In light of the fact that total meat consumption has been falling since 1980, there is concern that any general recommendation to reduce meat consumption should not compromise micronutrient status, particularly that of iron. It is therefore suggested that SACN reviews the subject of iron status in the population.

2.1.4 Both beneficial and adverse effects of increasing iron intakes need to be considered. The implications of falling meat consumption, and the possible effects of reduced red and processed meat consumption, would figure, as would the potential role of possible iron fortification and supplementation. In addition the following aspects of iron nutrition can be addressed:

- The effect of low grade infections/inflammation on iron status: Low iron status can increase an individual's susceptibility to infections and the consequent inflammation can in turn lower iron status.
- Effect of iron status on mental and physical development: There is some evidence suggesting that iron status can influence mental functions and cognition.

- Effect of nutritional status of other micronutrients on iron absorption and utilisation: Intestinal absorption and utilisation of iron in the body is influenced by other nutrients such as zinc, copper, calcium and dietary fibre.
- The potential adverse effects of excess iron, in particular promotion of free radical damage and the risk of cardiovascular disease and cancer.

2.1.5 Members are asked to consider the setting up of an expert subgroup on iron to address the above issues. The proposed terms of reference are:

"To review the dietary intakes of iron and the impact of different dietary patterns on the nutritional status of the population with particular reference to the role of iron in preventing anaemia, as well as the effect of excess intakes."

Members are invited to:

- a) Agree to the review of iron in human nutrition.**
- b) Consider setting up an expert group on iron to address the above issues.**
- c) Comment on the proposed Terms of Reference for the expert group.**

2.2 The Influence of Early Nutrition (*in utero* and *early childhood*) on Development of Disease in Later Life.

2.2.1 In recent years, numerous studies have demonstrated an association between maternal factors during pregnancy, size at birth and growth in the first year(s) of life with development of chronic diseases in adulthood. Many studies, though not all, have found that babies who are thin and/or short at birth are more vulnerable to disease in adulthood (such as cardio-vascular disease (CVD) and non-insulin dependent diabetes mellitus (NIDDMs). The growth of these individuals may have faltered at a critical period *in utero*, adversely affecting the development of organs or tissues and “programming” their future function.

2.2.2 Animal studies have shown associations between early diet (e.g. feeding method, age at weaning and weaning diet) and dietary factors (e.g. specific fatty acids) on disease in later life. However, studies in humans have not consistently replicated these findings, and where associations have been found, mechanisms remain unclear. Furthermore, the majority of studies have been limited to follow up in

childhood and have assessed data retrospectively. Even if factors at birth such as birth weight are affected by maternal nutrition, the key question is whether these factors influence susceptibility to disease and impact on offspring morbidity and mortality through childhood and adulthood.

2.2.3 There is evidence of inequalities in birth weight. Babies of women from low-income groups and of mothers born on the Indian sub-continent are more likely to have reduced growth rates *in utero*, and tend to have lower birth weights. It is therefore important to review the current state of knowledge and understanding particularly to identify factors in early nutrition that could be modified so as to reduce the risk of disease in later life.

Members are invited to:

- a) **Agree that the topic should be included in the committee's work programme.**
- b) **Consider setting up an expert group to address the above issues.**

2.3 Salt

2.3.1 Introduction

The NHS Plan highlighted the Government's commitment to working with the food industry in order to improve the overall balance of the diet, including a reduction in the amount of salt in food. The stated policy is to reduce the level of salt in manufactured foods where it is present beyond technical, safety and palatability needs. The Food Standards Agency and the CMO Wales request that the subject of salt in the diets of both adults and children be considered by SACN at an early opportunity. The issue of particular concern is whether the evidence base, which currently underpins the Government's initiatives in relation to salt has shifted significantly since the publication of the Report of the Cardiovascular Review Group of COMA (1994).

2.3.2 Background

- COMA last considered the dietary requirements for sodium among the general population in its report on Dietary Reference Values in 1991. A Reference Nutrient Intake (RNI) of 1.6 g/day of sodium (equivalent to about 4 g salt) and a Lower Reference Nutrient Intake (LRNI) of 0.6 g/day of sodium (equivalent to 1.5 g salt) were set for adults. RNIs and LRNIs were also set for infants and children.
- In COMA's 1994 report the panel recommended a reduction in the average intake of common salt (sodium chloride) by the adult population, from the then current level of 9g/day to 6g/day. It was believed that the likelihood of a reduction to 4g was small, and therefore a gradual reduction in average salt consumption should be aimed for. COMA also recommended a similar proportionate reduction in the sodium content of children's diets, but were unable to quantify this, as there was insufficient data. The committee felt that on the basis of clinical studies available at the time, the effect of sodium chloride on blood pressure was more significant than that of other sodium salts. As the predominant source of salt in the UK diet is manufactured foods (65-85%) it was suggested that reducing the salt content of manufactured foods could potentially reduce salt consumption in the population. COMA recommended that in order to reduce the population's average blood pressure (and particularly the rise in BP with age), as well as the numbers of people requiring antihypertensive medication or at high risk of CHD and stroke, the diet should contain less sodium, principally from common salt, and more potassium, principally from vegetables and fruits. It was also recommended that research be conducted into effective means of implementing this recommendation.
- In December 1997, a workshop was organised at the Department of Health's request by the Faculty of Public Health Medicine (FPHM) in collaboration with the British Heart Foundation to reassess the evidence on the link between salt/sodium intake and blood pressure. The seminar endorsed COMA's recommendations. It concluded that salt intake was one of a number of dietary and other lifestyle factors influencing blood pressure and that reducing average

salt intake in the diet of the general population would be an appropriate public health measure.

- In January 1999, the Government announced that it would discuss with the food industry the scope for broadening public choice in, and reducing the salt content of manufactured foods. This commitment was reaffirmed in the Government's White Paper *Saving Lives: Our Healthier Nation*. The Government's response to the Acheson report entitled *Reducing Health Inequalities: An Action Report* published in June 1999 also mentioned the Government's discussions with the food industry and made the commitment to 'provide clear information on the risks of high salt intake'. *The NHS Plan* launched in July 2000 included mention of the Government's commitment in this area. A number of the Government's publications promoting healthy eating advise salt reduction.
- At the request of Ministers, the government's officials held initial discussions with the Food and Drink Federation (FDF) which represent major food manufacturers. Following these discussions, the FDF announced in June 1999 that it was going to conduct a review of the purpose and usage of sodium in manufactured foods. The review was submitted to the FSA and DH in May 2000 but has not "as yet" been made publicly available. In the context of the commitment in the *NHS Plan*, Yvette Cooper, the Minister for Public Health, agreed that DH and FSA officials would meet with the FDF and other key players to discuss the way forward. The two departments have since started ongoing discussions with industry to reduce the salt content of manufactured foods. We are also planning a wider stakeholders meeting in the summer.
- In April 2001, as part of its ongoing review of upper safe levels the Expert Group on Vitamins and Minerals reviewed sodium chloride.
- Both the Agency and Health Departments continue to receive representations notably from industry, about the extent to which evidence in this area has been

fully considered. A clarification of the evidence in relation to children with a view to setting targets would be particularly helpful.

2.3.3 Members are invited to:

- a) **Agree to consider this issue.**
- b) **Consider how the issue of salt or sodium in the diet including children's diet might best be approached. It is suggested that the focus could be on evidence that has become available since 1994 when the COMA Report on Nutritional Aspects of Cardiovascular Disease was published.**

3. Long term issues

3.1 Metabolic Disturbances in Obesity and Development of Chronic Disease

3.1.1 The prevalence of obesity has increased dramatically in England over the last 15 years; in 1998 17% of males and 21% of females were classified as obese and nearly two thirds of men and just over half of women were either overweight or obese. There is also evidence that the number of overweight and obese children has increased in recent years. Two major reports on obesity have recently been published: the National Audit Office report *Tackling Obesity in England* (2001) and the WHO report *Obesity: Preventing and Managing the Global Epidemic* (2000). Both reports highlighted the high health care costs attributed to obesity and the likelihood that these will increase, as current trends do not appear to be abating. It is estimated that obesity costs the NHS at least £0.5 billion per year and the wider economy at least £2 billion per year, making it a priority health issue.

3.1.2 Obesity has been consistently implicated in the development of several diseases, most notably cardiovascular disease (CVD) and its associated risk factors such as insulin resistance and hypertension. However, some of these relationships are not fully understood. This is particularly true for the various metabolic disturbances which may develop as a consequence of both overweight and obesity, and increase the risk of other diseases such as diabetes, coronary heart disease and some cancers.

3.1.3 There are marked gender differences in body fat distribution. A central distribution of body fat is associated with increased risk of CVD and related risk factors in both sexes, but the role of fat distribution in increasing the susceptibility of both men and women to CHD has not been fully resolved. Several other issues remain to be clarified:

- Interactions between measures of body fatness, dietary factors and physical activity in determining co-morbidities
- Gene-environment interactions in the development of obesity
- The influence of macronutrient balance and the role of specific macro- and micro-nutrients on development of obesity
- The long term impact of different stages of growth and development on obesity and its co-morbidities.
- Interactions between social factors and the development of obesity.

3.1.4 There is a need to develop a deeper understanding of the fundamental mechanisms involved in the development of obesity. In particular, the consequent metabolic disturbances that have a profound influence on development of chronic diseases. It is suggested that the Committee could address a series of fundamental questions and then all the information could be consolidated into a comprehensive report. The committee may need additional expertise and may need to set up working groups to address particular issues.

Members are invited to:

- a) **Agree that the above topic be included as a long-term issue in the committee's work plan.**
- b) **Agree to the suggested approach of setting up expert groups to address particular aspects.**

3.2 **Revision of Dietary Reference Values (DRVs) for the UK**

3.2.1 The COMA DRV report was last published in 1991. Since then there has been a significant expansion of the research base, and an increased understanding of

nutrient requirements and food constituents. There is evidence on the potential role of some nutrients and other food constituents in the prevention of CVD and cancer, a role which is beyond the classic prevention of deficiency diseases. In addition, there is now a greater understanding of genetic factors, particularly polymorphisms in the population, which may influence requirements for particular nutrients.

3.2.2 It is proposed that a review of the DRVs be undertaken. However, this task has to take account of developments in the area particularly in the European Union and by international agencies such as FAO and WHO.

Members are invited to:

- a) **Agree that the above topic be included as a long-term issue in the committee's work plan.**

SACN Secretariat

June 2001