

FINAL VERSION

Turning the Tables – Transforming School Food

Appendices: Development and implementation of
nutritional standards for school lunches

Prepared by the School Meals Review Panel

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Appendix 1: Terms of Reference of the Schools Meals Review Panel

1. The Public Health White Paper Choosing Health: making healthier choices easier, explains that the diet of our children contains far too much fat, salt and sugar, and that prevalence of obesity is increasing rapidly. Poor diet, coupled with lower levels of exercise, places this generation of children and young people at increasing risk of coronary heart disease, stroke and Type 2 diabetes which may affect their enjoyment of life as adults, and bring premature death. Our recent survey of secondary school meals
2. (<http://www.teachernet.gov.uk/research/researchtopics/schoolmeals/>) found that even where nutritious food was on offer, pupils were not making healthy choices.
3. In 2001 DfES introduced minimum nutritional standards for school lunches that were based on food groups. The standards were published alongside a document for caterers which set out a range of good practice, for example using lean meat, a wide range of fruit and vegetables, and limiting the availability of food cooked in oil or fat. The document also provides information about the option of adopting 'nutrient based' standards. Our survey of secondary school meals shows that schools have adopted the minimum nutritional standards but not the good practice or underlying philosophy that schools should provide an attractive, nutritionally balanced meal for all pupils who want it. This is of particular concern where school lunch is the main meal of the day for those pupils eligible for free school meals.
4. The White Paper outlines the Government commitment to improve school food. This includes revising school meal standards to reduce the consumption of fat, salt and sugar, and to increase the consumption of fruit and vegetables and foods containing other essential nutrients, so that the school meal contributes appropriately to a well balanced diet. Our priority is to consider secondary schools first, producing recommendations in time to start public consultation in September 2005. We will then consider primary schools, with an appropriate change of membership on the panel.
5. We want the review panel to:
 - Recommend what form nutritional standards for schools should take in the future;
 - In making this recommendation, to strongly consider the introduction of nutrient based nutritional standards in schools, using the Caroline Walker Trust guidelines as a starting point. In doing so the panel should bear in mind the administrative burden, cost and implementation issues that this could pose for schools;
 - In making this recommendation, to consider the benefits and drawbacks of introducing other types of nutritional standard which might include tougher food based standards, or a combination of

nutrient and food based standards. In doing so the panel should bear in mind the administrative burden, cost and implementation issues that this could pose for schools;

- Advise whether there are strong nutritional or other grounds for restricting choice, restricting or eliminating certain types of foods, or food ingredients, from school meals;
 - Advise whether there are health benefits in specifying a proportion of fresh/unprocessed food
 - Advise on an implementation timescale, and any other implementation issues that become apparent in the course of the panel's deliberations;
 - Advise on the benefits of offering hot food, and the practical problems that would arise in making this a universal entitlement;
 - Identify what practical advice and support is required for successful implementation.
6. In formulating its advice, we want the panel to draw on the experience of schools and local authorities that have transformed school food. We anticipate that the panel will want to analyse changes made through the 'Hungry for Success' programme in Scotland, in South Gloucestershire, and in Greenwich, although this is not an exhaustive list. We welcome submissions from other local authorities and schools that have experience that will assist the panel in its deliberations.

Appendix 2: Key Nutrients and Foods

Energy:-

- Is measured as kilocalories or kilojoules
- Is supplied by carbohydrates, fat, protein and alcohol
- If children eat more energy in food and drink than they use up in living, growing, and through physical activity they will become overweight or even obese.
- 3 out of 10 boys and 4 out of 10 girls do not have the recommended minimum of 1 hour a day physical activity¹, and levels deteriorate with age, especially among teenage girls
- Levels of obesity in children have been escalating. 1 in 5 boys and 1 in 4 girls were obese or overweight in 2002². The British Medical Association³ says that conservative estimates are that 1 in 5 boys and 1 in 3 girls will be in the obese category by 2020.
- More detailed statistics are available for children aged 2-10⁴. 1 in 3 were overweight or obese in 2003, with children living in more deprived areas or in low income households being more likely to be obese.

Carbohydrates

- Carbohydrate includes starches and sugars and is the main provider of dietary energy. It is recommended that the consumption of foods containing starches, like bread, rice, pasta and potatoes, is increased to displace energy from fat and sugar in the diet.

Sugars:-

- In recommendations about diet, the type of sugars referred to are 'non milk extrinsic sugars' (NMES). This means all sugars, excluding those in milk and those which are contained in whole cells in fruits and vegetables. For example NMES includes sugars found in table sugar, honey, fruit juices, confectionery, soft drinks and glucose syrup.
- Frequent consumption of NMES is linked to dental decay, particularly in the absence of good dental hygiene and use of fluoride toothpastes, and many foods and drinks which are high in sugars provide energy but proportionately less of other nutrients.
- These sugars provided about 17% of food energy in children's diets⁵, compared to a recommended average of 11%. The main source was carbonated soft drinks, followed by chocolate and other confectionery.

Fibre:-

- Fibre is often thought of as the non digestible part of foods. In fact it consists of various components, many of which are useful in helping healthy functioning of the body, preventing constipation and reducing the risk of some diseases.
- There are different ways of analysing fibre, but that used in dietary recommendations measures 'non starch polysaccharides' (NSP).
- The recommendation for the adult population is, on average, 18g NSP per day. The most recent national survey⁵ indicated that children were eating about a third less fibre than that recommended for adults.

¹ Health Survey for England 2002

² Department of Health. Health Survey for England 2002

³ British Medical Association (2005) Preventing childhood obesity. BMA, London.

⁴ Jotangia D., Moody A., Stamatakis E. & Wardle H. (2005) Obesity among children under 11. Joint Health Surveys Unit/National Statistics.

⁵ Gregory J., Lowe S., Bates C.J., Prentice A., Jackson L.V., Smithers G., Wenlock R. & Farron M. (2000) National Diet and Nutrition survey: Young People aged 4-18 years. The Stationery Office., London.

Fat and saturated fat:-

- Fat contains more energy per gram than any other nutrient (i.e. it is 'energy dense'), and excess energy from fat is more easily stored as body fat. Saturated fat is linked to various chronic diseases, particularly heart disease.
- Levels of fat as a percentage of food energy in diets have slowly been decreasing, but the average proportion of food energy from saturated fats eaten by children in the most recent national survey was just above 14%, compared with the recommendation of 11%.

Protein:-

- Protein is necessary for growth and repair of tissues, but intake is very rarely low in western diets.
- Protein can also provide energy

Sodium:-

Salt is the main source of sodium in the diet. An authoritative report⁶ recently stated:-

- Reducing the average salt intake of the population is likely to decrease the burden of high blood pressure and improve public health.
- Most people consume more sodium than is required. The latest available data show that habitual levels of salt intake are high for both adults and children. For adults, average intake is two and a half times the reference nutrient intake for sodium.
- On a body weight basis, the average salt intake of children is higher than that of adults

Vitamins**Vitamin A:-**

- Some foods contain this as 'ready made' vitamin A, and the body can also make it from carotenes – the colouring in many plants. It is necessary for healthy vision, skin, and other functions.
- In the most recent national survey the average intakes of vitamin A were 98% and 93% of the recommended amount for boys and girls respectively (excluding intakes from supplements).
- Intakes decreased with increasing age. 20% of 11- to 14-year-old girls had vitamin A intakes which were likely to be inadequate⁵ (below the Lower Reference Nutrient Intake).

Vitamin C:-

- This is necessary for healthy tissues, including gums, skin, cartilage. It is important in healing, and helps iron to be absorbed more readily from food, as well as many other functions.
- On the whole intakes in children appear to be adequate⁵

Folate:-

- Folate is necessary for healthy blood, and for the healthy development of the nervous system in fetuses. It is thus particularly important in girls who have passed puberty.
- Intakes of folate are adequate on the whole⁵, but it is recommended that girls who could become pregnant need extra amounts. For women who are planning to become pregnant this is often as a supplement, but teenage girls who are not planning to become pregnant will be reliant on their dietary intake.

⁶ Scientific Advisory Committee on Nutrition (2003) Salt and Health. The Stationery Office, London.

Minerals

Calcium:-

- This is particularly important for healthy teeth and bones. If young people consume enough calcium (and obtain enough vitamin D), in combination with appropriate physical activity, by the end of adolescence they will have a good peak bone mass which will help them maintain healthy bones throughout the rest of their lives, and reduce their risk of osteoporosis.
- Older boys and girls have low intakes of calcium compared with recommendations
- 19% of 15- to 18-year-old girls had intakes which were at a level which was likely to be inadequate (below the Lower Reference Nutrient Intake). One in eight boys and one in four girls aged 11 to 14 years, and 9% boys aged 15 to 18 years, had intakes <LRNI.⁵

Iron:-

- This has many important functions in the body, including being necessary for healthy blood formation and transport of oxygen from the lungs to the cells. Post pubertal girls need to replace iron lost in blood during menstruation.
- Girls have low intakes of iron compared with recommendations⁵
- 50% of 15- to 18-year-olds and 45% of 11-14 year old girls had iron intakes which were at a level which was likely to be inadequate (below the Lower Reference Nutrient Intake). Low iron status was also evident in some older girls, which is of concern as anaemia during pregnancy is associated with lower birth weight and associated problems.

Zinc:-

- This is necessary for a healthy immune system, skin, and wound healing, amongst other functions.
- All groups of children in the national survey⁵, consumed average intakes of zinc which were below the recommended amount.
- 14% of 11-to 14- year-old boys and 37% of 11-to 14- year-old girls had zinc intakes which were at a level which was likely to be inadequate (below the Lower Reference Nutrient Intake)⁵

Fruit and Vegetables:-

- Fruit and vegetables have numerous positive health benefits, as well as the potential to displace foods high in fat or sugar from the diet.
- In the national survey⁵ the children ate on average less than half of the recommended 5 portions of fruit and vegetables a day, with 1 in 5 eating no fruit at all during the survey week.

Oily fish:-

- These are the predominant source of the long chain omega 3 fats, which help to reduce the risk of heart disease and strokes, as well as being important for the development of the central nervous system in babies. Our ability to make these in the body is very limited.
- Only 23% of boys and 29% of girls consumed any oily fish during the survey week⁵.

Appendix 3: Development and application of mandatory nutrition standards

Appendix 3.1 Options for Setting Nutrition Standards for School Meals

Structure of Appendix

1. This appendix concentrates on outlining different options for setting standards, including a preliminary assessment of the potential of each option to provide a robust, practical, and scientifically sound framework for future developments.
2. The main options are:-
 - **Option 1:** Nutrient based standards applied to menus over a specified period of time
 - **Option 2:** Food based standards applied to menus over a specified period of time
 - **2a:** Restriction or elimination of certain foods/ingredients
 - **2b:** Frequency and type of food
 - **2c:** Nutrient specifications for individual foods
 - **Option 3:** Combination of nutrient and food based standards applied to menus over a specified period of time
3. For each of these options, an assessment was carried out against the parameters below, which are derived from the Terms of Reference for the School Meals Panel. Appendix 1.7 collates the preliminary assessments provided in tables throughout this section to facilitate easier comparison of the options.

Note: Abbreviations in brackets are used in tables in subsequent sections

- Potential to achieve reductions in consumption of fat, salt and sugar by children eating school lunches (**↓ FSS**)
- Potential to increase consumption of fruit and vegetables and foods containing other essential nutrients by children eating school lunches (without widespread use of isolated micronutrients presented in 'functional foods') (**↑ FV+**)
- Suitability for use by caterers and schools, particularly in respect of cost, administration and implementation (**Catering**)
- Potential for self monitoring (**SM**)
- Potential for external monitoring (**EM**)

- Any implications for freedom of choice versus restriction of choice **(Choice)**
- Any implications for balance of fresh/ foods versus processed foods, and provision of hot or cold food **(Fresh etc)**
- Overall assessment **(Overall)**

Option 1: Nutrient based standards

4. Nutrient based standards are generally based on public health recommendations and recommended daily amounts of nutrients (or their national equivalent). Nutrient based standards can be used in isolation, but they are more usually found in combination with menus or systems to enable caterers to achieve the nutrient based standards (i.e. Option 3).
5. The following sections give short descriptions of nutrient based standards that have been used both in the UK and elsewhere.

UK

6. In 1941 the first nutritional standards for school meals were laid down. They covered energy, protein and fat. These standards were updated several times, with the last update in 1975, when some food based standards were also introduced (e.g. fresh meat should be served on three days a week). However, in 1980 the Education Act removed all obligations on local education authorities to meet any nutritional standards in school meals.
7. In 1992, the Caroline Walker Trust produced nutrient based guidelines for school meals, and subsequently produced nutrient based guidelines for other population groups (Caroline Walker Trust, 1992). These were voluntary, but have been a well-respected tool which has been used for various purposes since their development. In their wake, a computerised school meals assessment pack was produced to help schools monitor their menus and to assess how they could best achieve nutrient based standards (National Heart Forum, 1995).
8. The Caroline Walker Trust Guidelines have been updated⁷ to take into account more recent public health recommendations, and have been extended to cover other eating occasions in schools (e.g. breakfast). They include some foods as well as nutrients, for example fruit and vegetables, oily fish and fried or processed potato products. As the revised CWT guidelines include foods as well as nutrients, they are described in Option 3.

International examples

9. Very few examples of 'pure' nutrient based guidelines were identified.
10. The National School Lunch Programme is administered by the United States Department for Agriculture (USDA). As well as being available on a means tested basis, uptake is encouraged more widely by offering subsidies for school lunch provision which are part of the Programme. Meals must meet Federal nutrition standards, which are based on the Dietary Guidelines for Americans, and the school lunches must also provide at least one third of the Recommended Daily Allowances of protein, vitamin A, vitamin C, iron, calcium, and calories.

⁷ Crawley H. (2005) Eating well at school: Nutritional and practical guidelines. Caroline Walker Trust, London.

Table 1: Assessment of Option 1: nutrient based standards

Parameter	Relative Strength?	Relative Weakness?	Comments
↓ FSS	Unambiguous targets		
↑ FV+		Targets for foods not specified. Menus that met the nutrient-based targets could theoretically be constructed in ways that do not meet government recommendations for increased fruit and vegetable consumption.	
Catering		Intermediary processes needed e.g. provision of menus/planners to achieve standards, software packages to enable calculation of nutrient composition of food provided, and regular updating of nutrient composition data. Not readily understandable by 'lay' audiences	
SM	Analytical software could provide regular outputs about consumption expressed in terms of nutrient targets	Support would be needed e.g software packages and training in interpretation of output and appropriate responses.	Monitoring measures the endpoints which introduction of standards is attempting to achieve i.e. reduction in fat, sugar and salt, and increase in iron, calcium etc.
EM	Good for monitoring by trained staff with access to software.		Monitoring measures the endpoints which introduction of standards is attempting to achieve i.e. reduction in fat, sugar and salt, and increase in iron, calcium etc.
Choice	The only constraints on food choice are those which ensure that the menus meet the nutrient standards	Development of menus by staff not familiar with the software could be time consuming.	In practice, this approach would mean that menus would be limited, although occasional high fat/sugar/salt items could appear
Fresh etc			Nutrient based only – so these concepts do not apply.
Overall	Clear, objective basis for setting standards, but probably needs to be supported by processes and tools which provide guidance for caterers, schools, and for day to day monitoring.		

Option 2: Food based standards

11. This section describes approaches to food based standards which address issues of nutritional concern (e.g. promoting adequate provision of vitamins and minerals, balance of good health). It does not cover the approach which has been adopted by many local food partnerships across the UK based on product specifications requiring that a proportion of food purchased for use in school meals is locally grown and/or organic.

Option 2a: Restriction or elimination of certain foods/ingredients

UK

12. Most of the examples which have been found from the UK are ad-hoc initiatives rather than anything incorporated in formal guidance. For example:-

- Salt for discretionary use should not be available
- Limits are applied on the amount of salt that can be added during cooking
- Chips can only be served once a week and/or as part of a full meal
- The only drinks available at lunchtime should be water (and sometimes fruit juice).

13. The Scottish Nutrient Standards for School lunches also contain some restrictions (Scottish Executive, 2003). This forms part of a more comprehensive approach to school meals in Scotland, 'Hungry for Success', which is described in more detail later. The restrictions relate to the broad group called 'foods containing fat and foods containing sugar'. For example, full fat crisps, confectionery, and fizzy sugars soft drinks should not be actively advertised or promoted within the dining room. In addition, for example, sweetened soft drinks should not be served as part of a combination meal deal or packed lunch, and if confectionery is sold it should be set away from food service points. Savoury potato snacks should only be offered as part of lunch twice a week at the most.

International examples

Australia

14. There are several school meals initiatives from Australia, but one that is relevant here is a requirement in New South Wales that certain foods, called 'occasional foods' should not be provided more than twice per term and only when there is a particular celebration or event happening. All types of confectionery and deep fried items automatically count as 'occasional foods'. This restriction applies within seven categories of foods, and in these categories if a food item does not meet nutrient specifications for energy, saturated fat, salt and fibre it also counts as an 'occasional food'. The categories are: savoury pastries/pasta/pizza/ potato products; crumbed and coated foods, frankfurters and sausages; sugar sweetened drinks and ices; snack food bars and sweet biscuits; savoury snack food and biscuits; ice-creams,

dairy desserts, etc; and cakes, muffins and sweet pastries. Detailed nutrient criteria are available.

France

15. France has voluntary food-based dietary guidelines for 'community' meals prepared by public and private organisations (Ministere de l'Economie dFedl, 2001). These cover school meals, hospital and prison provision. These are described in more detail in the next section, however they specify that water is the only accepted drink (and also that bread must be served with all meals).

USA

16. Current USDA regulations only apply to foods served in cafeterias at the time of meal service, and contain a ban on the sale of a category of foods called "foods of minimal nutritional value". This comprises sodas, water ices, chewing gum, and candies composed predominantly of sugar. Some states have established what appears to be called in the USA 'competitive food policies'. The extent of these policies varies, with some states using the basic USDA requirement, but barring the sale of foods of minimal nutritional value until after the lunch period (e.g. Maryland). Other states, for example West Virginia, have taken the basic requirements much further and regulate the sale of all foods during the teaching day, have established nutritional guidelines for sugar, and required that foods sold as individual items must be the same as those foods offered through the National School Lunch Programme (Democratic Staff of the Senate Committee on Agriculture Nutrition and Forestry, 2004).

Table 2: Assessment of Option 2a: Restriction or elimination of certain foods/ingredients

Parameter	Relative Strength?	Relative Weakness?	Comments
↓ FSS	Crude elimination of certain products	Difficult to make comprehensive to achieve a good balance of either provision or consumption	
↑ FV+		Not useful for this	
Catering	Simple, transparent	Need clear definition of exactly which products restrictions relate to e.g. what is included in 'confectionery'?	
SM	Simple, transparent	Need clear definition of exactly which products restrictions relate to e.g. what is included in 'confectionery'?	
EM	Simple, transparent		Monitoring does not measure the endpoints which the introduction of standards is attempting to achieve i.e. reduction in fat, sugar and salt, and increase in etc.
Choice			Restricts choice
Fresh etc			Could be used to restrict processed foods
Overall	Crude tool, not appropriate for use in isolation from other approaches		

Option 2b: Food based standards based on frequency of provision of particular types of food.

UK

17. This type of standard forms the basis of the current statutory regulations for school meals, which came into force on 1st April 2001. Foods are categorised into the food groups contained in the Balance of Good Health, and are presented as four main groups, with an additional one. They apply to school lunches provided for registered pupils at schools maintained by local education authorities. There are different standards for early years' provision, primary and secondary schools. Special schools are also covered by the regulations.

18. The four groups are:

- **Fruit and vegetables.** These can be fresh, tinned, frozen, dried, or juices. Potatoes and 'starchy' vegetables are not included in this group.
- **Starchy Foods** e.g. bread, rice, noodles, chapattis, potatoes.
- **Meat, Fish and other non-dairy sources of protein** e.g. all forms of meat and fish, eggs, nuts, pulses, and beans other than green beans
- **Milk and dairy products**, e.g. milk, cheese, yoghurt, but not butter or cream (which fall into Group E)

19. The additional group, from which foods do not have to be made available, is:

- **Foods containing fat or sugar** e.g. cakes, pastries, sweets, fizzy drinks

Table 3: Current food based standards for secondary schools

Each Day	At Least Twice a Week	At Least Three Times a Week
<ul style="list-style-type: none">• Two types of food from each of the groups A-D• From Group A the two types should be one fruit and one vegetable	<ul style="list-style-type: none">• Fish	<ul style="list-style-type: none">• Red Meat
On every day that food in Group B cooked in oil or fat is available one not cooked in fat must also be available		

20. During the consultation carried out in drafting the regulations there was extensive discussion about whether nutrient monitoring or a checklist for use by caterers was more appropriate. The final form of the regulations lends itself more to using a checklist, although use of nutrient based standards was not excluded. The Department for Education and Skills website provides further information, including a description of the national nutritional standards, good catering practice, and advice

on how the standards can be monitored.

International examples

Australia

21. There are numerous approaches to encouraging healthier menu provision for school lunches throughout Australia. Several states operate reward schemes and accreditation programmes, where schools need to meet a range of standards, often including a list of recommended foods and preparation methods. New South Wales Canteen Menu Planning Guide (New South Wales Health, 2004) divides foods into three categories: Green – ‘Fill the menu’; Amber – ‘Select carefully’; and Red – ‘Occasional foods’. The green category includes fresh or minimally processed foods, whereas the amber category is mainly processed foods that have some sugar, salt or fat added to them.

France

22. The French voluntary food based guidance for community meals seeks to decrease fat intake, particularly saturated fat, and to increase iron, calcium, fibre and vitamin (including vitamin C) intakes. However the guidelines themselves are presented in terms of foods, and provide advice on the general structure and desirable frequency of provision for some food items in 20 consecutive meals. A list of acceptable frequently consumed foods (with portion sizes) is also provided (Ministere de l'Economie dFedl, 2001).

Table 4: Assessment Option 2b: Food based standards based on frequency of consumption and type of food

Parameter	Relative Strength?	Relative Weakness?	Comments
↓ FSS		Judgements need to be made about which foods are likely to contribute most to consumption, and the standards are defined in terms of these. This can then lead to reduction in flexibility of menu provision	
↑ FV+	Unequivocal requirements for fruit and veg provision	May lead to loss of flexibility, for example with putting an emphasis on the provision of identifiable portions of fruit and veg, rather than using smaller amounts across a range of dishes.	
Catering	Simple, transparent		
SM	Simple, transparent		
EM	Simple, transparent	But – may not achieve desired endpoints of reducing fat, sugar and salt intakes unless range of choices within a menu is	Monitoring does not measure the endpoints which introduction of standards is attempting to achieve i.e. reduction in fat, sugar and salt,

		severely limited.	and increase in fruit and veg.
Choice			Could increasingly restrict choice if more stringent consumption targets are set.
Fresh etc	Inclusion of fresh/minimally processed* foods could be specified		
Overall	A useful tool for working towards nutrient based standards, but probably best provided as guidance to achieve nutrient based standards, rather than as stand alone food based standards.		

Option 2c: Nutrient specifications for individual foods

UK

23. Generally in the catering sector, various menu labelling or signposting schemes have been developed. These commonly consist of symbols attached to food items on a menu, which meet certain criteria, often fat levels. For example, in the 'Star-struck scheme', foods were assigned one yellow star to indicate medium fat items i.e. contained between 5 and 10 grams of fat/100g, or two yellow stars to indicate low-fat i.e. less than 5 g fat/100g. Medium fibre was indicated by one green star i.e. a product had to contain between 2 - 4 g fibre/100g, and high fibre was indicated by two green stars i.e. a product contained >4g fibre/100g (Williams & Poulter, 1991).
24. In relation to school meals, the most detailed work so far has been done as part of the Scottish Nutrient Standards for School Lunches, which has developed nutrient specifications for manufactured foods (Scottish Executive, 2003). Target nutrient specifications for individual foods were developed to help caterers achieve nutrient based standards. Target maximum values have been set for total fat, saturated fat, sodium and total sugar. A minimum protein specification has also been set for some savoury products to help ensure that vegetarian and vegan menus can also meet the nutrient based standards. Products that do not meet the specifications are only available on a restricted basis.
25. The Food Standards Agency UK intends to build on the work carried out in Scotland, by developing target nutrient specifications for England. Proposals have been issued for public consultation (Appendix 3.3).
26. The other relevant piece of work being carried out by the Food Standards Agency is the development of a nutrient profiling model to restrict foods advertised or promoted to children (Rayner *et al.*, 2004). The model has been refined, and a final proposal issued⁸ which gives foods a score based on their energy, saturated fat, total sugar, and sodium content, as well as the amount of protein, fibre and fruit and vegetables that it contains. It is possible that this approach to profiling could be adapted for use in relation to school meal standards, either in terms of the foods made available (a balance of high and low scoring foods in the menus over specified period) or guidance regarding choices in the dining room.

International examples

Australia

27. The Western Australian School Canteen runs a Star Canteen Accreditation Programme (Western Australian School Canteen Association, 2003; Western Australian School Canteen Association, 2004). This awards schools operating healthy canteens by using a star rating of three, four or five stars. These stars are earned by using recommended core foods and 'Star Choice registered products'. Detailed lists of recommended foods are provided. The national criteria used to assess Star Choice Registered Products address levels of fat, salt, fibre and sugar in foods, and some categories of products also have a criterion for calcium. The Star

⁸ <http://www.food.gov.uk/news/newsarchive/2005/jul/finalnutprofcons>

Choice Products Register and Canteen Buyer's Guide lists mainly processed foods that meet the criteria. This is limited in some ways since only products that have been submitted are assessed. WASCA also recommends products which are indicated by the National Heart Foundation Australia's Pick the Tick scheme.

Table 5: Assessment of Option 2c: Nutrient specifications for individual foods

Parameter	Relative Strength?	Relative Weakness?	Comments
↓ FSS	Can contribute to achieving this	Not sufficiently comprehensive to guarantee healthy consumption.	Could encourage change in product specifications
↑ FV+	Can contribute to achieving this	Not sufficiently comprehensive to guarantee healthy consumption.	Could encourage change in product specifications
Catering		Identification of foods would need to be done 'externally' e.g. lists of 'eligible' foods	
SM	Possible to check purchases against list of eligible foods	Could entail costly auditing of purchases.	Could check food used against e.g. lists of 'eligible' foods
EM		Does not address provision of school food comprehensively	<p>Could check food used against e.g. lists of 'eligible' foods</p> <p>Monitoring does not measure the endpoints which introduction of standards is attempting to achieve i.e. reduction in fat, sugar and salt, and increase in etc.. Instead it is using an intermediate step in achieving this.</p>
Choice			Would restrict choice
Fresh etc			Would depend if specifications for individual foods contained anything about degree of processing food is subject to.
Overall	A useful tool for working towards nutrient based standards, but not suitable for stand alone use.		

Option 3: Combination of Nutrient and Food Based Standards

UK

28. The 'new' Caroline Walker Trust (CWT) guidelines, which combine a nutrient and food based approach, were mentioned under Option 1. These guidelines summarise the proportion of nutrients that children and young people should receive from a school lunch in relation to recommended amounts, and the amount of selected foods that should be provided. The figures are for the recommended nutrient and food contents of an average lunch provided for children and young people over a one-week period.

Table 6: CWT nutrient and food-based standards for school lunches for children and young people aged 5-18 years: Summary of recommendations

Energy	30% of the estimated average requirement (EAR)
Fat	Not more than 35% of food energy
Saturated fat	Not more than 11% of food energy
Total carbohydrate	Not less than 50% of food energy
Non-milk extrinsic sugars	Not more than 11% of food energy
Fibre	Not less than 30% of the calculated reference value
Protein	Not less than 30% of reference nutrient intake (RNI)
Iron	Not less than 40% of the RNI
Zinc	Not less than 40% of the RNI
Calcium	Not less than 40% of the RNI
Vitamin A	Not less than 40% of the RNI
Vitamin C	Not less than 40% of the RNI
Folate	Not less than 40% of the RNI
Sodium	Not more than 30% of the SACN recommendation
Fruit and vegetables	Not less than 2 portions
Oily fish	On the school lunch menu at least once a week
Fried or processed potato products	Not on the school lunch menu more than once a week

Salt: Salt should not be made available at counters or at tables.

Water: Free, fresh, chilled water should be widely and conspicuously available to children and young people at school.

EAR = Estimated Average Requirement

RNI = Reference Nutrient Intake

SACN = Scientific Advisory Committee on Nutrition

29. Recent work in Scotland has provided one of the most sophisticated and comprehensive approaches to setting and achieving school meals standards yet available, the 'Hungry for Success' initiative.
30. This uses nutrient based standards (Scottish Executive, 2002) drawing on the earlier Caroline Walker Trust guidelines, modified to take into account Scientific Advisory Committee on Nutrition (SACN) guidance on salt, and with an additional requirement for fruit and vegetables. The context is very much that of encouraging healthier school lunch provision within a 'whole school' approach.
31. The programme describes processes and tools for achieving nutrient based guidelines including: -
- Menu planning guidance (corresponding to Option 2b: Food based standards based on frequency of consumption x type of food)
 - Portion size guidelines
 - Target nutrient specifications (corresponding to Option 2c: Nutrient specifications for individual foods + Option 2a: Restriction or elimination of certain foods/ingredients)
 - A requirement for the provision of drinking water
 - Consideration of the promotion of appropriate choices
 - Consideration of the needs of children with special diets and allergies, and special needs.
32. These standards will be monitored as part of the Her Majesty's Inspectorate of Education programme of school inspections and by independent research in 2007. Nutritional software (Scottish Executive, 2004) has also been produced to help local authorities plan menus and monitor nutritional intake to meet the nutrient standards .

International examples

France

33. The food-based standards used in France have been described earlier. However, there has been some concern that these are only resulting in a modest improvement in the nutrient content of the meals. Recently some work at the National Institute for Medical and Health Research (INSERM) has explored the possibility of using linear programming based on the nutrient standards, to evaluate and provide guidance on foods provided, and hence improve the nutritional value of meals in school canteens. This approach is currently under discussion but preliminary work has indicated that this approach might provide a basis for designing user-friendly computer programs which could be used in school meal planning to generate a large number and variety of nutritionally adequate menus (Darmon et al., 2004).

USA

34. The American School Food Service Association recognises that most food service directors are more familiar with food-based guidelines. However, they also provide information on nutrient standard menu planning, and a list of approved nutrient standard menu planning software programs.

Table 6: Appraisal of Option 3 -Combination of nutrient and food based standards applied to menus over a specified period of time

Parameter	Relative Strength?	Relative Weakness?	Comments
↓ FSS	Unambiguous targets, combined with guidance on menus and types of foods which can help meet these		
↑ FV+	Unambiguous targets, combined with guidance on menus and types of foods which can help meet these		
Catering	Guidance can be provided on types, frequency and amounts of food, or access to software to enable in-house menu planning to meet nutrient standards		
SM	Can either be process evaluation of types, frequency and amounts of food, or software for calculation of nutrient standards.		
EM	Monitoring of endpoints by trained staff with access to software. Best supported by use of smart card technology.		
Choice			Might be restricted to some extent if informed by menu and food guidance, although with more flexibility if nutrient based standards used to generate menus.
Fresh etc			Would depend if specifications for individual foods contained anything about degree of processing food is subject to.
Overall	A combined approach brings together the strengths of the other approaches, whilst minimising weaknesses.		

References for Appendix 3.1

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- Scottish Executive (2002) Hungry for Success: A Whole School Approach to School Meals in Scotland. The Stationery Office, Edinburgh.
- Scottish Executive (2003) Nutrition in Schools: Scottish Nutrient Standards for School Lunches, Edinburgh.
- Scottish Executive (2004) A Menu Planner for School Meals in Scotland. Nutmeg UK.
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Appendix 3.2 Development of mandatory SMRP nutrition standards

35. It was agreed that the revised Caroline Walker Trust (CWT) guidelines would form the starting point for developing the standards. These are summarised in Appendix 3.1. However, these would be scrutinised to assess whether:-

- the nutrients and foods included were appropriate in terms of children and public health
- the nutrients and foods included could be simplified in any way, since some key nutrients might be from common food sources
- the way in which nutrients were expressed (e.g. non milk extrinsic sugars) was appropriate in terms of practical implementation, and monitoring
- there is a need for standards to improve school meals with regard to their contribution to a healthy, balanced diet?
- any additional requirements should be included in the mandatory standards.

36. In addition to the issues raised by the CWT guidelines, the Panel also considered whether there are:

- groups of children who are particularly nutritionally vulnerable, and for whom it might be appropriate to make recommendations on eligibility for free school lunches or other measures
- other aspects of setting standards, such as the provision of hot food, the proportion of fresh and locally produced food that should be provided, which should be included in the standards

37. These are each considered in detail below. The answers to many of these questions come from secondary analyses of the National Diet and Nutrition Survey (NDNS) of young people age 4-18 years carried out in 1997/9, and the 2004 survey of secondary school meals in England¹⁰.

Are the nutrients and foods included in CWT appropriate in terms of children and public health?

38. Appendix 2 summarised the key nutrients and foods in the diet, and highlighted any public health issues associated with these. Section 1 in the main report described the current situation as far as the contribution of school lunches to nutritional health is concerned.

39. The Panel considered this evidence, and in their opinion the evidence validated the

⁹ Gregory J., Lowe S., Bates C.J., Prentice A., Jackson L.V., Smithers G., Wenlock R. & Farron M. (2000) National Diet and Nutrition survey: Young People aged 4-18 years. The Stationery Office., London.

¹⁰ Nelson M., Bradbury J., Poulter J., McGee A., Msebele S. & Jarvis J. (2004) School Meals in Secondary Schools in England. Food Standards Agency,, London.

choice of nutrients contained in the CWT guidance. There was some discussion about whether it was necessary to include protein, since generally levels of intake are more than adequate. However it was decided that it should be retained since, together with fat and carbohydrate, it establishes the main sources of energy in the diet. It is also likely to be of more significance in constructing menus specifically for certain groups e.g. vegetarians.

40. In addition some Panel members expressed concern over trans fatty acids, which are known to raise blood cholesterol. However adult survey data¹¹ indicate that intakes are well below (1.2% energy) the maximum threshold level for health (2%). The Panel also felt that adopting a standard to limit the saturated fat content of school meals would contribute towards controlling levels of trans fatty acids, and that additional food based standards (see below) would include restrictions on foods which tend to be higher in trans fats.
41. The Panel decided that the food group 'fried or processed potato products' highlighted for restriction in the CWT guidance should be dealt with in a different way (see below).

Could the nutrients and foods included be simplified in any way, since some nutrients might be from common food sources?

42. It was suggested initially that it might not be necessary to include both zinc and iron in the standards, since they are found in many of the same food sources. For similar reasons questions were raised about whether Vitamin C, Vitamin A, and folate all needed to be included.
43. To test this, correlations were calculated for these two 'groups' of nutrients, based on analysis of results from the 1997 NDNS. Of 1701 pupils, there were 245 who were unwell with eating affected or slimming. These pupils have been excluded from the analysis. The number of pupils included in all subsequent analyses is shown in. The correlations are shown in Table A3.2.2.

¹¹ Henderson, L, Gregory, J Irving, K, Swann, G (2003) National Diet and Nutrition Survey: Adults aged 19 to 64 years, The Stationery Office, London.

Table A3.2.1. Number of pupils included in analysis of 1997 NDNS data.

	Male	Female	Total
Primary	390	353	743
Secondary	360	353	713
Total	750	706	1456

Table A3.2.2. Correlations between nutrients with some common food sources.

Correlations for Analysis 1

			Age group 2	
			Primary	Secondary
			% Zn (mg) (RNI) from all food	% Zn (mg) (RNI) from all food
Sex				
Male	% Fe (mg) (RNI)	Pearson Correlation	.469	.639

Correlations for Analysis 2

			Age group 2			
			Primary		Secondary	
			% Folate (ug) (RNI) from all food	% Vit A (ug) (RNI) from all food	% Folate (ug) (RNI) from all food	% Vit A (ug) (RNI) from all food
Sex						
Male	% Vit C (mg) (RNI) from all food	Pearson Correlation	.142	.132	.327	.035
		Sig. (2-tailed)	.000	.001	.000	.435
		N	604	604	496	496
Female	% Vit C (mg) (RNI) from all food	Pearson Correlation	.293	.143	.355	.063
		Sig. (2-tailed)	.000	.000	.000	.146
		N	602	602	530	530

44. These correlations were not considered high enough to justify the exclusion of any nutrients on the grounds that they were derived from common food sources.

Are the ways in which nutrients are expressed appropriate in terms of practical implementation and monitoring?

45. The Panel considered what definition of sugars should be used in the standards, and agreed that non milk extrinsic sugars (NMES) should be the preferred option for sugars since it reflects dietary recommendations. It recognised that food composition data containing this information is not readily available, and that work could be undertaken to ensure that NMES figures are included in relevant food composition tables and databanks, and that these are made widely and easily accessible.

46. In addition, the Panel addressed the issue of which analytical method should be used to determine fibre, and recommended that until analytical data is made widely and easily accessible, and a new AOAC-derived Dietary Reference Value has been set, NSP (non starch polysaccharide) fibre should be used.

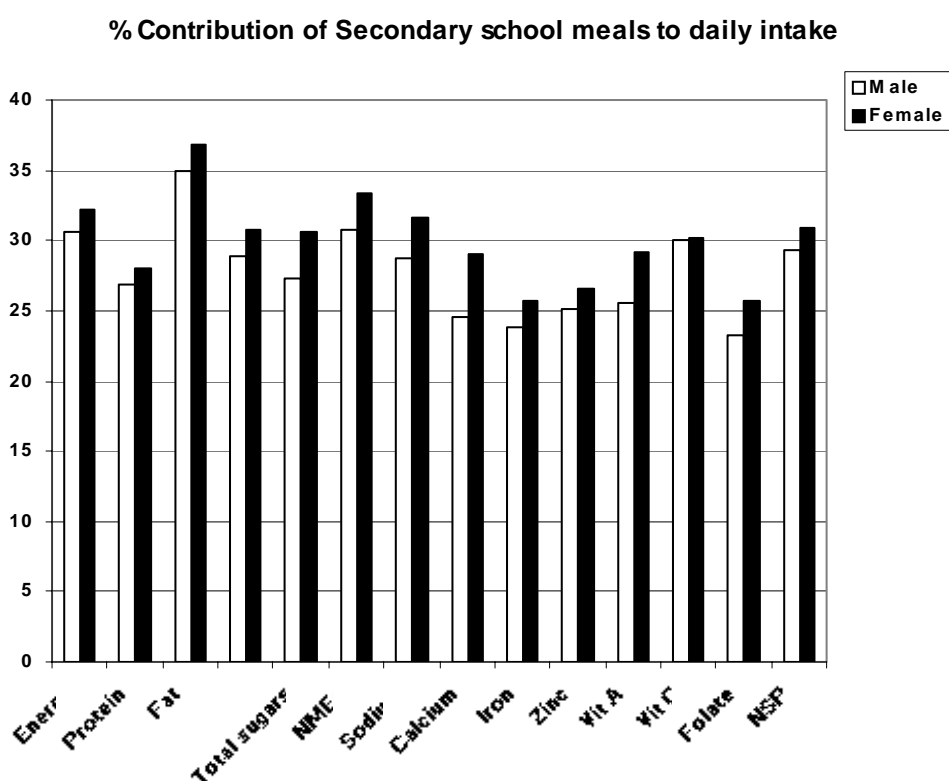
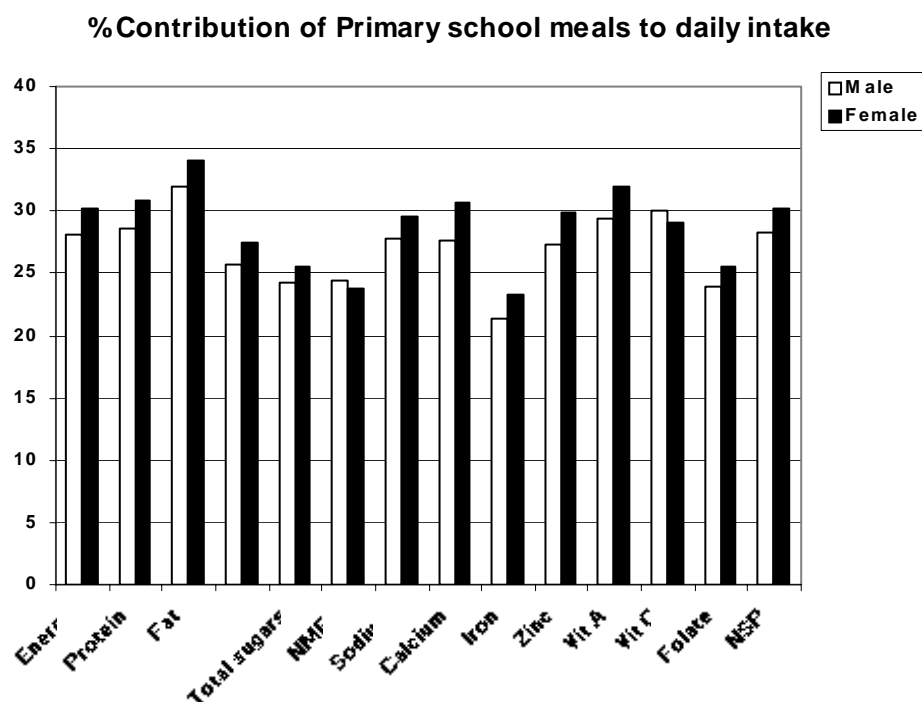
Are the levels of nutrients and foods appropriate in terms of children and public health?

47. The CWT guidelines recommend that lunch should provide a baseline of 30% of

average daily energy requirement, and that intakes of sodium and fibre should also be based on 30% of daily recommendations. Intakes of fats and carbohydrates are given as percentage of energy and therefore remain as current dietary reference values relative to the amount of energy served (total fat, not more than 35%; saturated fatty acids, not more than 11%; carbohydrate, not less than 50%; and NMES, not more than 10%). However, because of public concern about low intakes of iron, zinc, vitamin A, folate, and variable Vitamin C intake, the guidelines propose that school lunches should provide 40% of the recommended amounts for these.

48. The Panel began by assessing whether the 30% baseline was a reasonable assumption, by examining the contribution that school lunches currently make to daily intakes using the 1997 NDNS data. The results of these analyses are shown in Figure A3.2.1. These show that in primary schools school lunches provide 30% of daily intake on average for girls and 28% for boys. In secondary schools the respective figures are 32% and 31%. In view of this, the assumption of 30% used in the CWT guidelines seems reasonable, and the Panel endorsed its use for the new school lunch standards.

Figure A3.2. 1. Percent contribution of school meals to total daily intake of energy and nutrients
1345 school meal days in Primary and 1233 school meal days Secondary pupils in the United Kingdom.

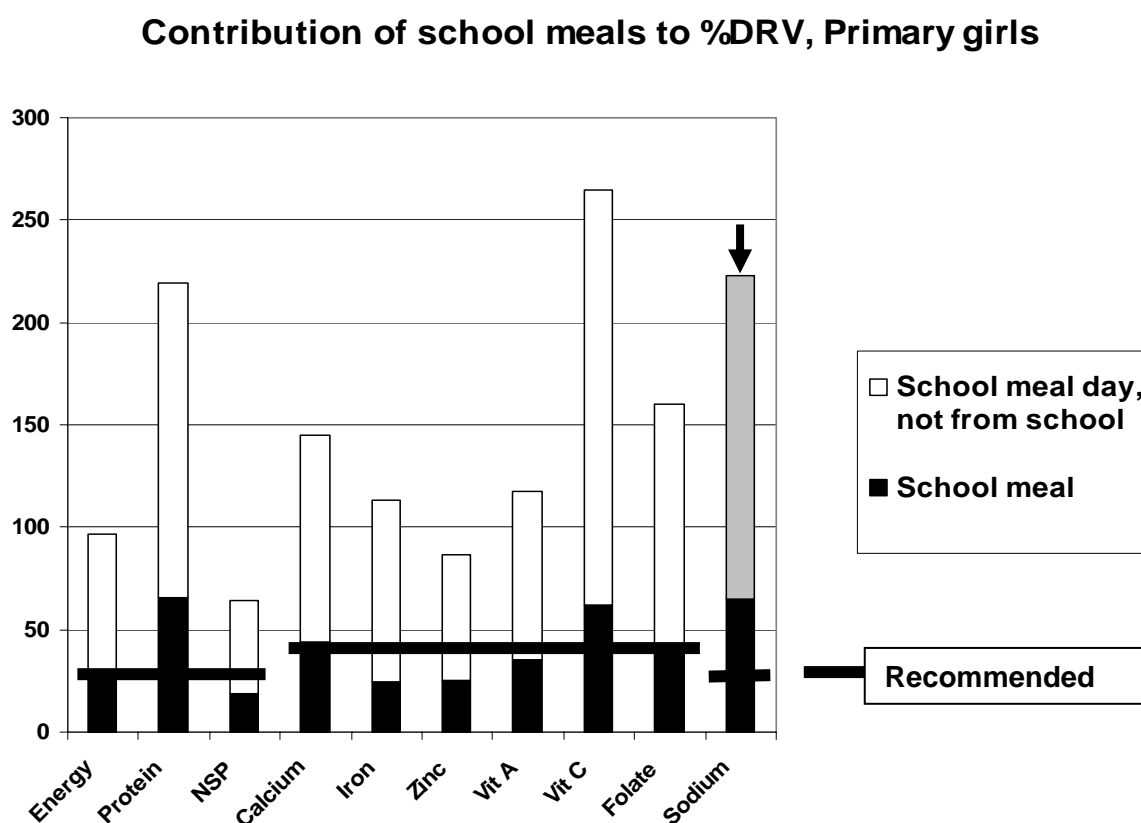


49. The next stage was to test the approach suggested in the CWT guidelines of having higher requirements for iron, zinc, vitamin A, vitamin C, and folate. Analyses were expressed in terms of the % of the Dietary Reference Value (Estimated Average

Requirement (EAR) for energy, and Reference Nutrient Intake (RNI) for all other nutrients. The assumption is that school meals should be providing approximately 30% of the EAR for energy, not less than 30% of the RNI for protein and NSP, not less than 40% of the RNI for calcium, iron, zinc, vitamin A, vitamin C and folate, and not more than 30% of the recommendation for sodium (indicated by downward arrow)

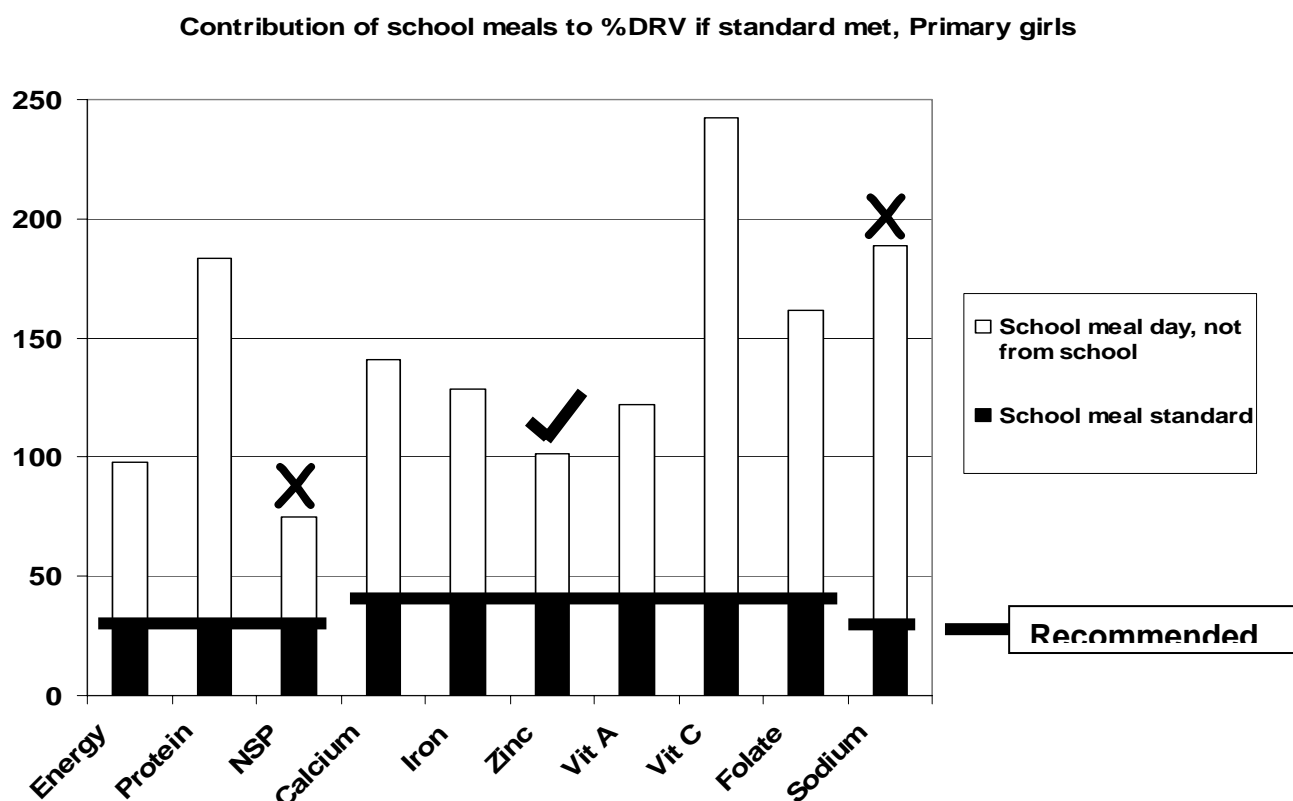
50. Figure A3.2. 2 shows the contribution of school lunches to daily energy and nutrient intake. For energy, protein, calcium, vitamin C and folate, school meals were providing nutrient at the level of the CWT standards. For NSP, iron, zinc and vitamin A, however, school meals were not meeting the CWT standards. Conversely, sodium intake from school meals was more than double the CWT standard. Total dietary intake for NSP and zinc was below 100% of the RNI. Thus, in primary school girls, it would appear that for NSP and zinc school meals have an especially important potential role. Total sodium intakes were over twice the recommended levels, and again school meals could play a role in helping to reduce total intake.

Figure A3.2. 2. Contribution of school meals and total intake as % of Dietary Reference Value in 353 Primary school girls.



51. Figure A3.2. 3 shows how total intakes would appear if school meals in this age and sex group met the CWT standards. School lunches would address the deficit which otherwise occurs in daily zinc intake (shown in the Figure by a tick). However, the levels for fibre (NSP) would continue to be low and the sodium levels remain high (shown in the Figure by crosses). A similar picture can be shown for boys in primary school.

Figure A3.2. 3. Contribution of school meals and total intake as % Dietary Reference Values in 353 primary school girls in the United Kingdom if CWT standards were met.



52. The diets of girls in secondary schools were worse than those in primary schools (Figure A3.2.4) and also worse than the diets of secondary school boys. Introduction of standards at the level proposed by CWT would mean that school lunches (Figure A3.2. 5) would address the deficit which otherwise occurs in daily zinc, calcium and vitamin A intake, but iron and fibre (NSP) intakes would still remain low, and sodium intake would remain high (although iron levels would be even lower without the 'higher' standard)

Figure A3.2. 4. Contribution of school meals and total intake as % of Dietary Reference Value in 353 Secondary school girls.

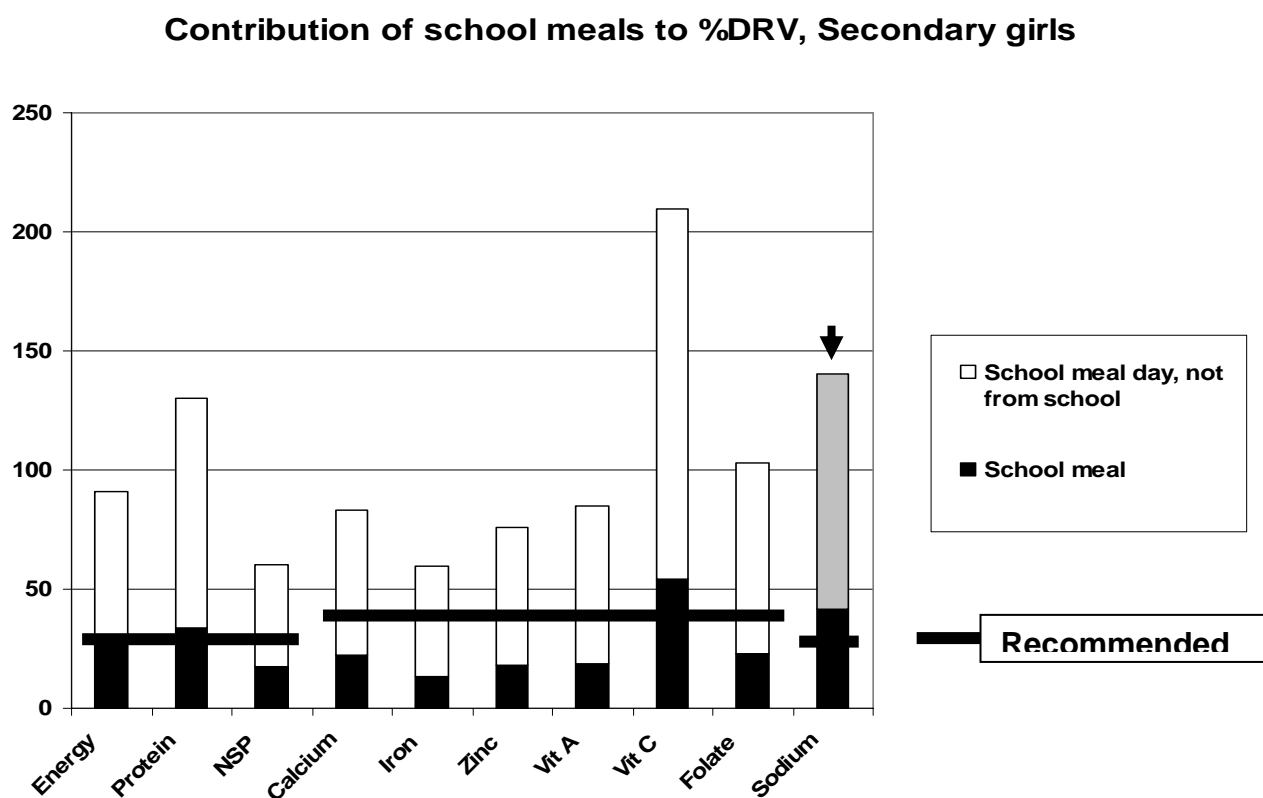
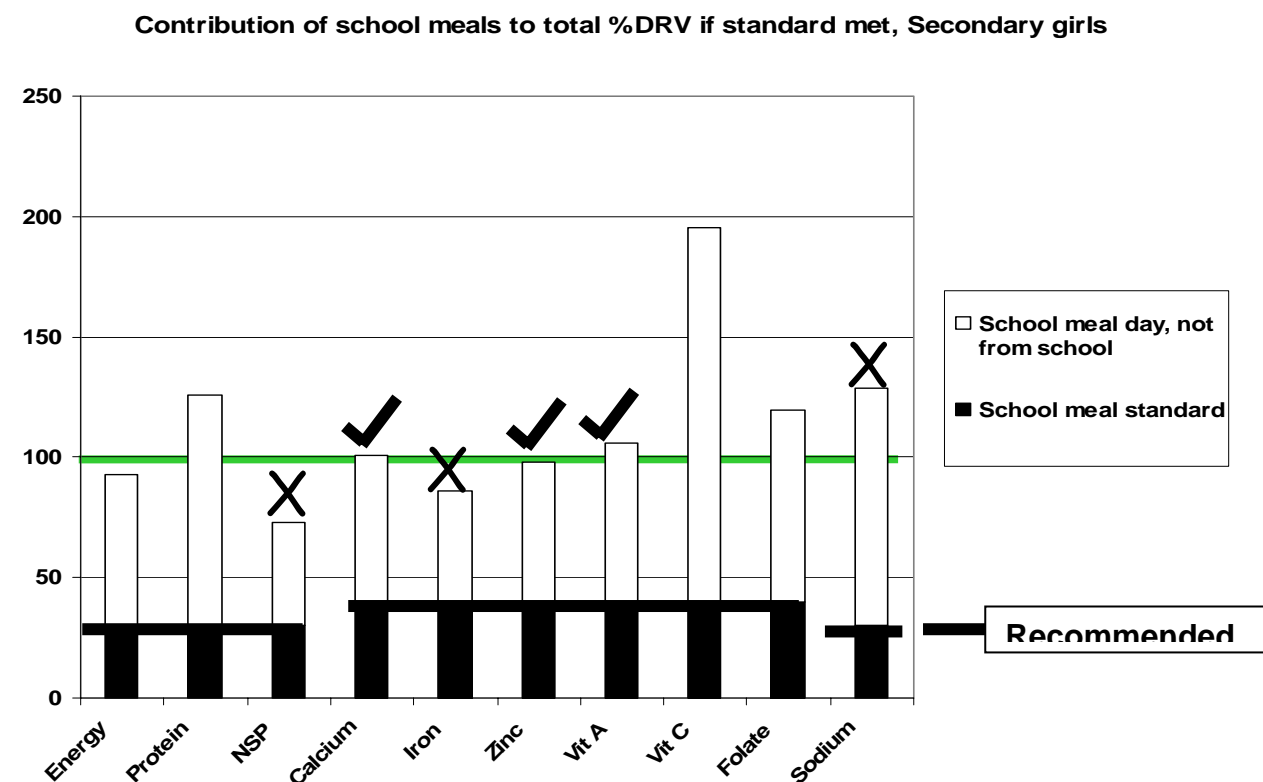


Figure A3.2. 5. Contribution of school meals and total intake as % Dietary Reference Values in 353 Secondary school girls in the United Kingdom if CWT standards were met.

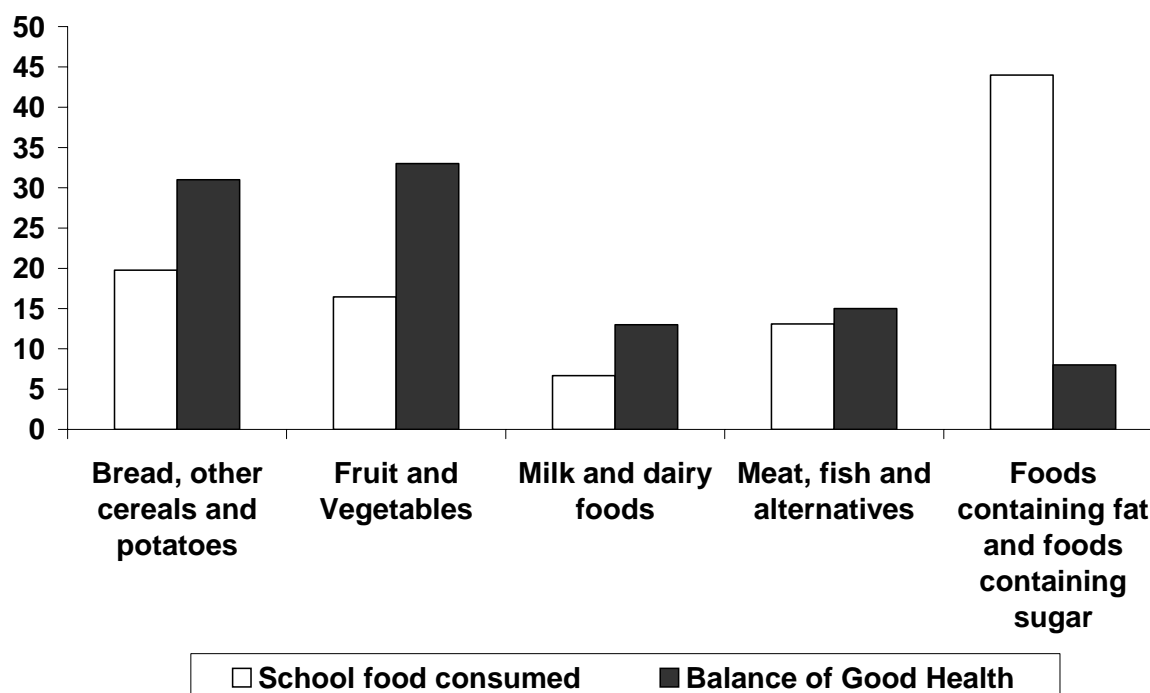


53. Thus, it seems clear that having 'higher' standards for selected micronutrients can help to at least partially compensate for low intakes in the rest of a child's diet, and the Panel endorsed this approach, recognising that it would be of particular benefit to those children whose overall diet outside school is poor, making them nutritionally vulnerable.
54. The CWT guidelines set upper limits for fat, saturated fat, NMES and sodium and a lower limit for fibre, which are the recommended population averages, and do not seek to make the school meal nutritionally superior to the rest of the diet in the same way as they do for selected micronutrients. However, the Panel recognised that it might be difficult to increase the rigour of standards for fat, saturated fat, NMES and sodium beyond those suggested, in the short term, but supported a review shortly after implementation to assess whether the stringency of these standards should be increased.

Is there a need for standards to improve school meals with regard to their contribution to a healthy, balanced diet?

55. A reasonable expectation of school meals is that they should make a positive contribution to the balance of good health. This can be explored in two ways. First, it might be expected that the percent contribution of school meals to fat, sugar and sodium intake would be no greater than the percent contribution of energy, and that the percent contribution of carbohydrate, NSP and micronutrient intakes should be equal to or greater than the percent contribution from energy.
56. Figure A3.2.1 shows that this is not always the case. On a positive note, in both primary and secondary schools, school meals contributed proportionately less sugar (both total and NMES) than energy. In primary schools, however, the proportion of iron and folate contributed by school meals was less than that contributed for energy. In secondary schools, deficits were apparent for protein, carbohydrate, NSP, calcium, iron, zinc, vitamin A and folate. Thus, the nutritional balance of school meals is worse than diets eaten outside of school on school days.
57. A second way of exploring the balance of school meals is to compare the number of portions consumed with the distribution suggested by the Balance of Good Health (ref). Figure A3.2. 6 makes clear that the foods being consumed by pupils who took part in the 1997 NDNS was very different from the balance recommended for good health, with too few foods from the cereals, fruit and vegetable and milk groups, and far too many from the foods high in fat and sugar.

Figure A3.2. 6. Percentage of portions of school foods in the 1997 NDNS compared with the relative proportions of food groups based on the Balance of Good Health.



Should any additional nutrient and food requirements be included in the mandatory standards?

58. The Panel recommended that the following requirements should form part of the mandatory standards:-

- Pupils should have easy access to free, fresh, potable and preferably chilled water throughout the day.
- The Scientific Advisory Committee on Nutrition (SACN) endorsed 'the population recommendation to eat two portions of fish per week, of which one should be oily'¹². On the basis that the Panel is recommending that school lunches should supply about one third of a child's energy requirements, it seemed reasonable to suggest that lunches should only need to supply one third of a child's oily fish requirements i.e. a third of a portion per week or one portion per three weeks. This recommendation also reflected concerns about the sustainability of fish supplies, and the importance of not exceeding the 2 servings of oily fish per week identified for girls as a safe upper limit.
- Bread (without spread) should be available on an unrestricted basis during school lunches to meet the needs of those children with greater energy needs.

¹² SACN (2004) Advice on fish consumption: benefits and risks. TSO: London

- Confectionery and savoury snacks should not be available in schools. It is additionally recommended that individual schools consider developing policies to address pupils bringing these products on to school premises
- The only drinks which should be provided in schools are water, skimmed or semi-skimmed milk, pure fruit juices, yogurt and milk drinks with less than 10% added sugar, or combinations of these (e.g. in smoothies). This means that sugary or sweetened (i.e. 'diet') drinks of minimal nutritional value would not be available.
- Deep fried products should not be available more than twice per week to encourage a shift from deep frying towards other forms of cooking.
- Salt (and highly salted condiments) should not be available at lunch tables or on the food service counter
- The Panel also wanted to discourage the use of over processed food, and so recommended that as a minimum such products must meet the Food Standards Agency's target nutrient specifications for manufactured products used in school meals which are currently being consulted on. We further recommended that reformed or reconstituted products, where the manufacturing process means they no longer have the visual or textural appearance of the original ingredients (i.e. made from meat 'slurry'), should not, irrespective of nutritional content, be part of the school food offer. The Panel believes that the quality of such products is not compatible with a best practice environment or whole school approach.
- In relation to drinks, the removal of soft drinks will include the loss of drinks which are fortified or high in vitamin C. There was concern that this might have an adverse effect on the contribution of school meals to vitamin C intakes and to total vitamin C intakes.

59. Of pupils taking school meals, 41% consumed soft drinks. In primary school, these drinks contributed on average 44% of the vitamin C intake from school meals; in secondary schools, soft drinks contributed 35% (Table A3.2. 3).

Table A3.2. 3. Vitamin C (mg/day) from school meals, soft drinks in school meals, and all sources on school meal days on which soft drinks were consumed.

	Primary		Secondary		Total	
	Mean	sd	Mean	sd	Mean	sd
School meals (all foods)	32	26	30	28	31	27
School meals (excluding soft drinks)	17	17	16	18	16	17
Percent from soft drinks	44	31	35	38	39	35
Total intake on school meal days	81	52	90	86	86	73
Total intake (excluding soft drinks from school meals)	66	47	75	82	71	69
<i>%RNI</i>						
From school meals	108	88	83	75	94	82
From school meals (excluding soft drinks)	57	55	44	48	50	52
From all food	272	173	248	243	258	215
From all food (excluding soft drinks from school meals)	220	158	208	232	214	202

60. The table shows that vitamin C intake as a percentage of the RNI meets the 40% guideline even without soft drinks. And although total vitamin C intake as a percentage of RNI falls from 258% to 214%, it is still well above the recommended population level. Thus, it cannot be argued the removal of vitamin C containing soft drinks from school meals will be harmful. It will also be the case, that drinks which are allowed (fruit juice, smoothies) will replace some of the vitamin C lost. (Similarly, loss of vitamin C from chips due to restrictions on the amount of fried food will be made good through replacement with boiled or mashed potato.

Are there groups of children who are particularly nutritionally vulnerable, and for whom it might be appropriate to make recommendations on eligibility for free school lunches or other measures?

61. The three groups of children who were considered in some detail in relation to this question were:-

- children who currently consume free school lunches
- children on the boundary of eligibility for free school meals
- children who do not eat breakfast.

62. A substantial proportion of pupils lived in households receiving some form of benefit: 26% of primary and 20% of secondary (Table A3.2.4) Free school meals entitlement is only for pupils living in households in receipt of Income Support (IS) or Job Seekers Allowance (JSA). However, from the NDNS survey results it appears that over one quarter of those living in households receiving IS and almost half of those in households receiving JSA failed to take up their entitlement¹³.

¹³ Note. There are differences between these figures, and the figures in the Report, for uptake of Free School Meals. These reflect the different sources and types of surveys from which the figures were taken.

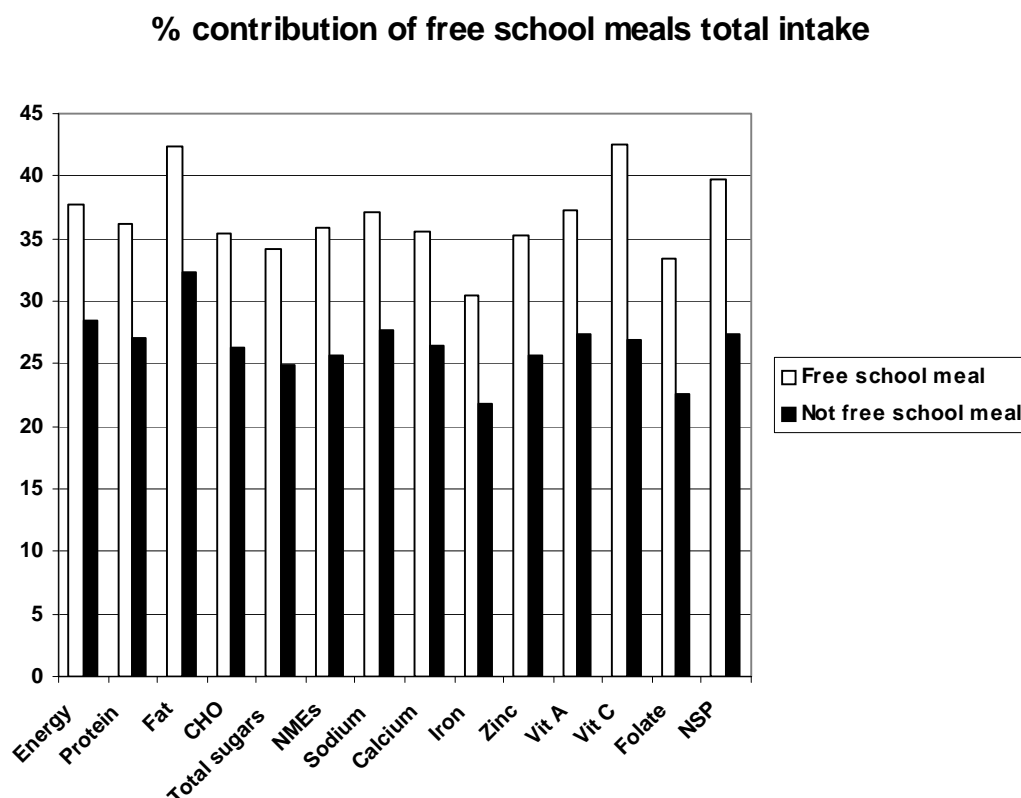
Table A3.2. 4. Percent of pupils living in families in receipt of benefit, by age and sex, and percent taking up entitlement.

	Primary school		Secondary school	
	Male (N=440)	Female (N=397)	Male (N=415)	Female (N=447)
Per cent of student from households received...				
Family credit	11	10	19	20
Income support	14	16	10	12
Job seekers allowance	1	3	1	3
Any benefit ^{a/}	25	27	19	20
Per cent of student entitled to Free School Meals and received... out of benefit received...				
Family credit	14	3	12	3
Income support	72	69	65	52
Job seekers allowance	50	58	50	23
Any benefit ^{a/}	44	43	42	33

Note: ^{a/} not additive

63. Figure A3.2.7 illustrates clearly the importance of free school lunches in contributing to the nutritional quality of the diets of these children.

Figure A3.2. 7. Percent contribution of free school meals to total daily intake of energy and nutrients in Primary and Secondary pupils in the United Kingdom, compared with the contribution in those pupils not receiving free school meals.



64. Conversely, Figure A3.2.7 demonstrates the poor nutritional quality of the remainder of the diets of these children. The importance of free school lunches cannot be overstated, along with the importance of maintaining their provision. The introduction of new standards would address some of the deficits (as shown by the ticks in figure 3.2.8), although not to the extent described for the general school population. In particular, calcium, iron and NSP intakes remained low.

65. Children living in families in receipt of Family Credit (now Working Families Tax Credit) are not eligible for FSM. It is clear, however, that for these children the importance of the school meal (in terms of its contribution to overall intake) is typically between that of those receiving FSM and those children from households not in receipt of benefit (Figure A3.2. 9). For some nutrients such as calcium, vitamin A, vitamin C and folate, the importance is as great as those in receipt of FSM. There is thus a strong argument to extend the entitlement of FSM to children living in households in receipt of Working Families Tax Credit.

Figure A3.2. 8. Contribution of school meals and total intake as % Dietary Reference Values in Secondary school girls in the United Kingdom if CWT standards were met.

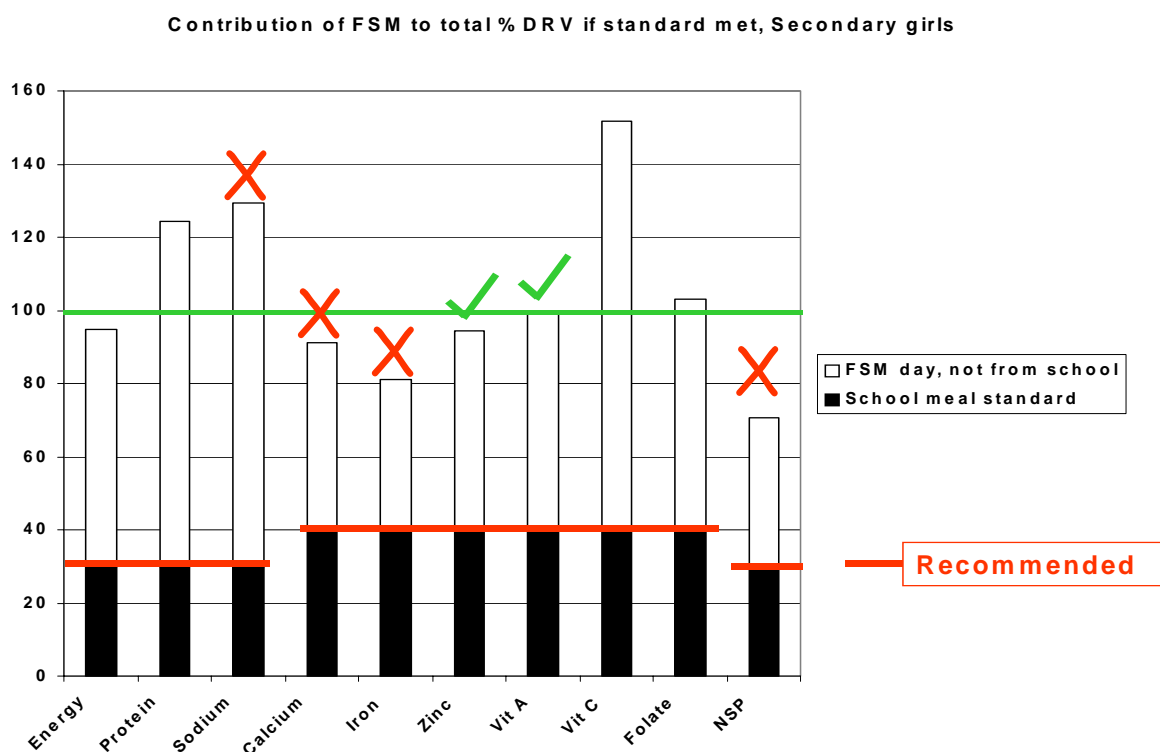
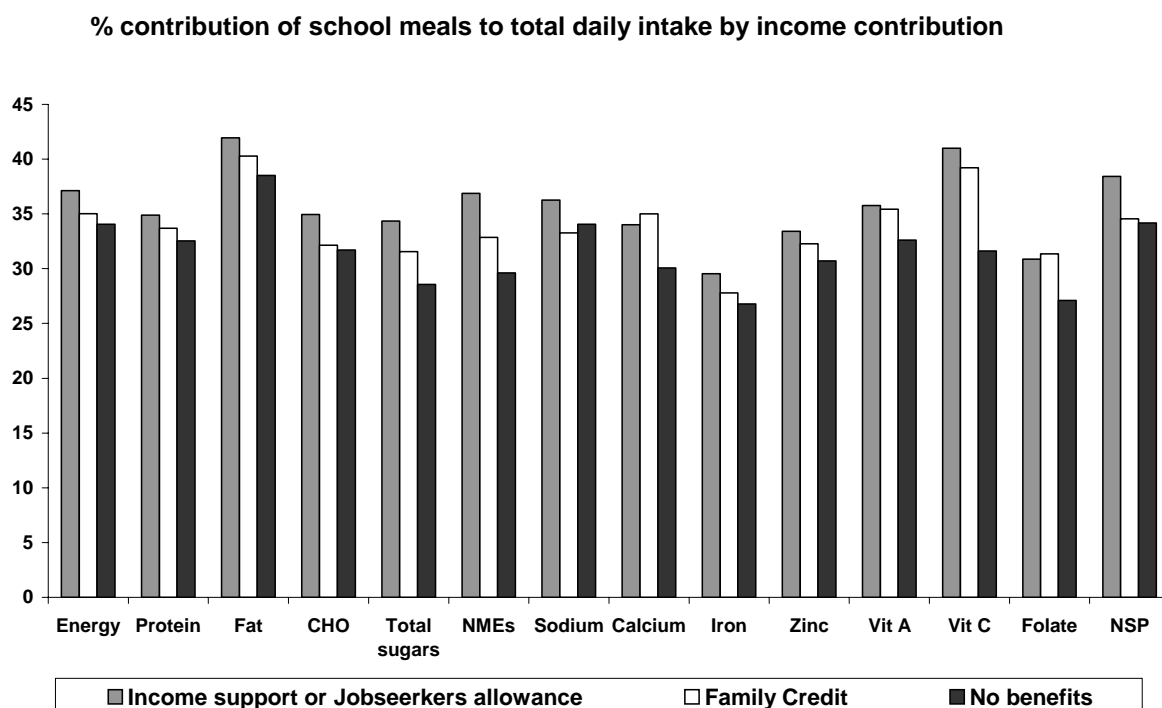


Figure A3.2. 9. Percent contribution of school meals to total daily intake of energy and nutrients in Primary and Secondary pupils in the United Kingdom, compared with the contribution in those pupils living in households in receipt of Family Credit, or no benefits.



66. Lastly, Table A3.2. 5 shows the relationship between breakfast eating and being in receipt of FSM or living in a household receiving benefit. It is clear that a higher proportion of children receiving FSM and living in poor households are less likely to eat breakfast or one including cereal compared with children not in receipt of FSM or in better-off households not in receipt of benefit.

Table A3.2. 5. Percentage of children eating breakfast with cereal, breakfast with no cereal, or no breakfast, according to receipt of free school meal or source of income in the household.

		Free school meal		
		Free school meal (n=492)	Not free school meal (n=1732)	Total (n=2215)
Breakfast				
Ate breakfast with cereal		53	64	62
Ate breakfast without cereal		36	27	29
Did not eat breakfast		12	9	9
Total		100	100	100

		Income source			
		Family credit (n=231)	Income support or Job seekers allowance (n=538)	No benefits (n=1444)	Total (n=2215)
Breakfast					
Ate breakfast with cereal		56	58	64	62
Ate breakfast without cereal		30	30	28	29
Did not eat breakfast		13	12	8	9
Total		100	100	100	100

67. Figure A3.2. 10 shows that eating breakfast, particularly cereal (low in sugar and salt) with milk, is an important component of children eating a nutritionally balanced diet (although some types of cereal, like bread/ toast as a breakfast item, can also increase their sodium intake).

68. Equally important, there appears to be an interaction with the quality of school lunches chosen, with those children who did not eat breakfast also eating a nutritionally poorer quality school lunch (Figure A3.2. 11). The net effect, however, is for school meals to make a greater contribution to nutrient intake in those not eating breakfast than to those who do eat breakfast (Figure A3.2. 12). In view of this the Panel supported continuing to increase the widespread availability of a healthy breakfast provision at schools, and the introduction of standards for this along with all other aspects of food provision in school.

Figure A3.2. 10. Nutrient intake as a percent of DRV in children eating breakfast with cereal, eating breakfast without cereal, or not eating breakfast.

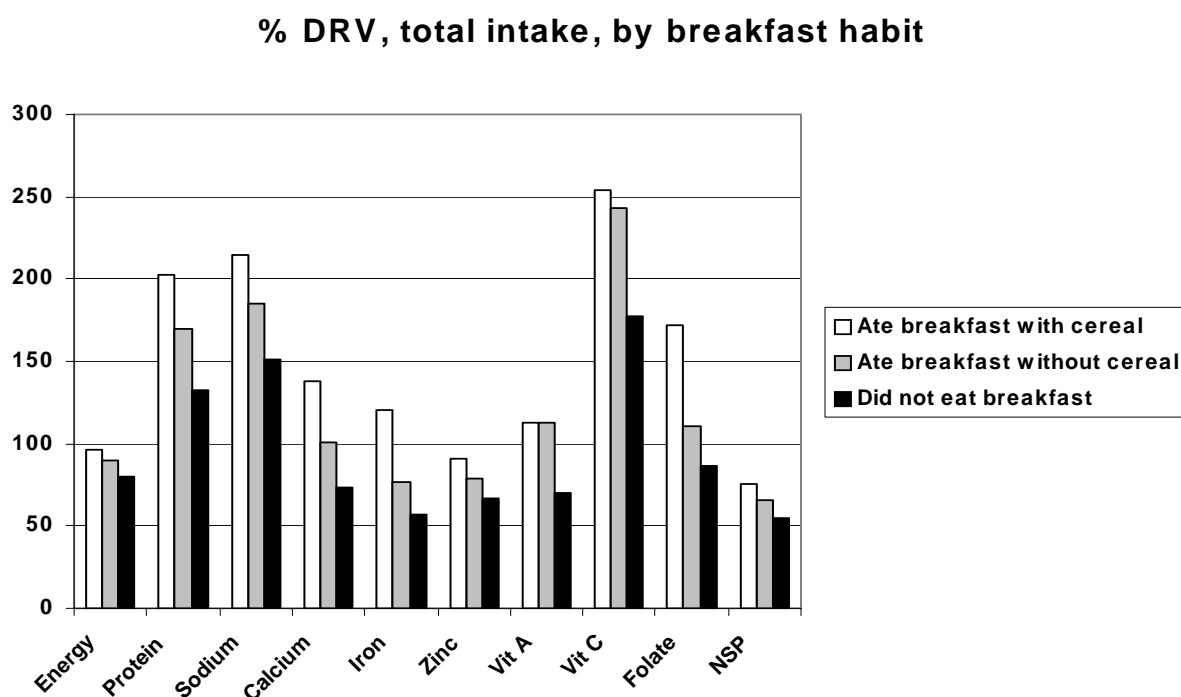


Figure A3.2. 11. Nutrient intake from school meals as a percent of DRV in children eating breakfast with cereal, eating breakfast without cereal, or not eating breakfast.

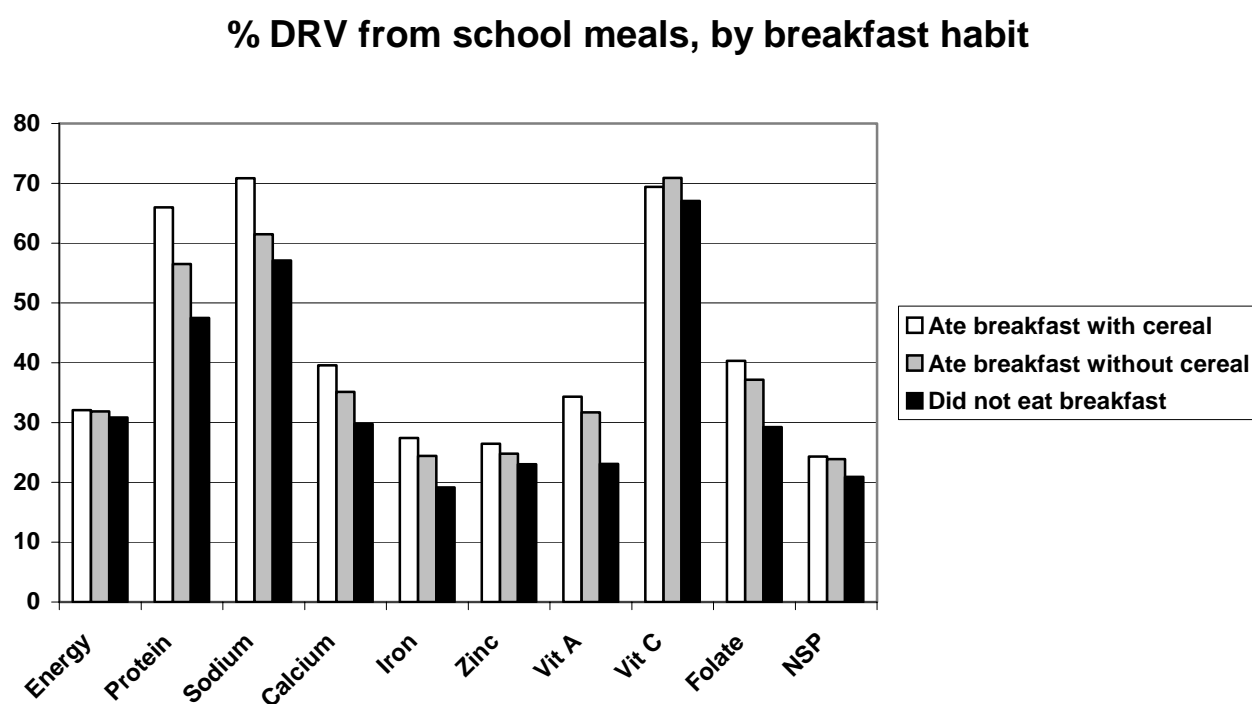
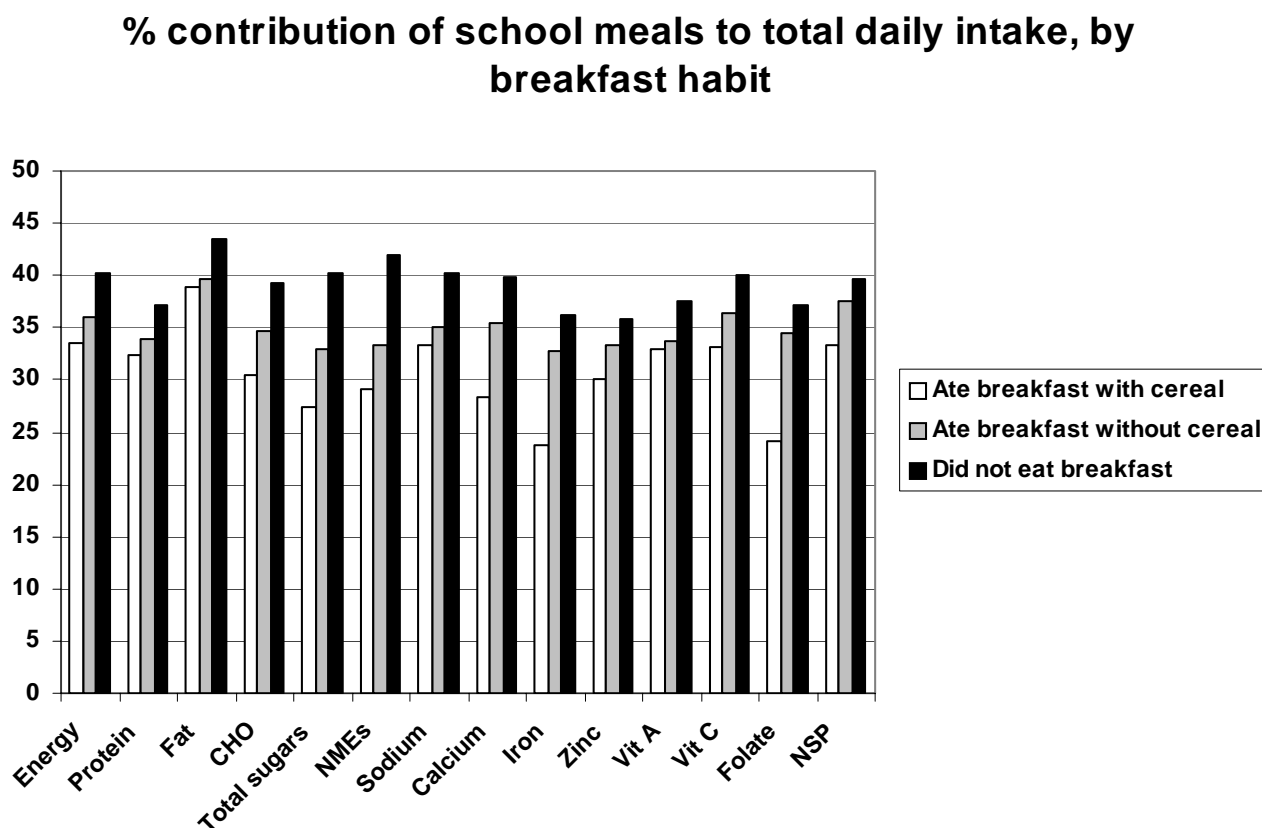


Figure A3.2. 12. Percent contribution of school meals to total daily intake of energy and nutrients in Primary and Secondary pupils in the United Kingdom, according to breakfast eating habit.



Relevance of 1997 data to current patterns of school meal consumption

69. A question was raised by the Panel concerning the relevance of the analysis of the 1997 data to current consumption practices. If school meals were very different now compared with 1997, conclusions from the secondary analysis might no longer be relevant. The pattern of food choices in 1997 was therefore compared with the pattern from the 2004 report of secondary school meals. For the purposes of comparison, the 1997 data were restricted to data from secondary school pupils in England.

70. Table A3.2. 6 shows the percentage of all food choices in school meals by secondary school pupils in England in 1997 and 2004. There are some apparent differences in the percentages: higher fat main dishes were consumed more often in 2004, as were pasta, rice, bread and other cereals, and chips and other fried potatoes. Conversely, higher proportions of sugar, preserves and confectionery, vegetables, and butter, margarine and oil were reported in 1997. All other percentages were within $\pm 2\%$. These apparent differences may have arisen in part because of the reporting process. In 1997, many secondary school children reported their diets themselves, and may have therefore tried to make their diets look more healthy with fewer high fat main dishes and chips and more vegetables. The 2004

data, on the other hand, was based on direct observation of children's choices, and the children had no warning prior to their selection that they might be included in the survey and therefore no motivation for changing their pattern of choice. Thus, it could be argued that the 2004 data is a more honest reflection of habits. Overall, however, it cannot be argued that the choices are very different. There is no strong evidence to suggest that patterns of choice or associations between choice and other factors (such as free school meal eligibility or breakfast consumption) in 1997 would not be relevant to decisions made concerning the need for standards in 2005. If anything, it would seem that the need for standards is greater now than in 1997, and that choices have become less healthy following the introduction of the DfES nutritional standards in 2001.

Table A3.2. 6. Percent of all food choices in school meals in secondary school pupils in England, 1997 and 2004, by main food group.

Food Group	1997	2004
Soft drinks	14	15
Higher fat main dishes and ingredients (pizza, burgers, fried foods)	10	16
Desserts, puddings, cakes, biscuits, ice cream	10	11
Sugar, preserves, confectionery	8	2
Vegetables	8	3
Pasta, rice, bread, other cereals	8	15
Chips and other fried potatoes	8	16
Savoury snacks, nuts, seeds	6	4
Other foods and supplements	5	4
Butter, margarine, oil	4	0
Milk and milk products	4	4
Water	4	1
Lower fat main dishes and ingredients (carcass meat, poultry)	3	3
Baked beans	2	4
Potatoes not fried	2	3
Fruit	2	0
Fruit juice	1	1
Eggs and egg dishes	0	0

Appendix 3.3: Target nutrient specifications

71. The Food Standards Agency issued a detailed consultation on draft target nutrient specifications for manufactured foods used in school meals throughout the UK, in July 2005. Responses have been requested by October 2005.
72. It is proposed that a 'voluntary' approach is adopted, including a combination of voluntary action to reformulate products by leading suppliers and encouragement for schools to procure products meeting the specifications.
73. The target nutrient specifications are based on specifications for manufactured foods used in school meals in Scotland through 'Hungry for Success' and taking into account information on products currently available for use in school meals across the UK. Target specifications are proposed for total fat, saturated fat, total sugar and salt. In addition, target minimum values for protein have been set for certain products to help ensure an adequate protein intake when pupils select vegetarian options. The proposed detailed UK target nutrient specifications are provided in the consultation. The FSA has proposed more stringent targets than those set in 'Hungry for Success' for salt and total fat in a number of product categories because of progress made by the food industry to reduce levels of these nutrients in manufactured foods. Proposed minimum protein contents for vegetarian products are slightly lower than in 'Hungry for Success' recognising that in order to avoid potential allergy problems manufacturers may not wish to use nuts or soya in products intended for use in schools.
74. The proposed targets are designed to help caterers provide foods which are likely to help meet recommended intakes for children and young people. Some products in almost every category already meet the standard and the targets are intended to encourage manufacturers to reformulate products which do not yet do so. The range of products meeting the targets is expected to increase with time.
75. Caterers using manufactured foods procured for use in school meals meeting these proposed target nutrient specifications will be more likely to meet nutrient intake targets. This is demonstrated by a study modelling the impact of key 'Hungry for Success' specifications on nutrient intake of pupils using the data from Secondary School meals in England. This resulted in a 16% reduction in energy intake (100 kcal), 27% reduction in fat, 23% reduction in saturates, 18% reduction in sodium and a 37% reduction in NMES intake. The new outcomes calculated were close to the current recommendations for intakes of fat and saturates and below the current recommendations for intakes of sodium and non-milk extrinsic sugars. A summary of the results of this work is provided as part of the consultation. The proposed target specifications in the consultation are, in some cases, more stringent and would, therefore, be expected to result in further improvements in nutrient intake balance for children and young people from school meals.

Appendix 3.4 : Definitions of ‘confectionery’ and ‘savory’ snacks, with examples of foods which would be ‘inside’ or ‘outside’ the standards.

76. Lunchtime offerings which include chocolate, sweets and crisps will not meet the nutrient standards proposed in this report. There is consensus that these products have no place within the school meals service. For these reasons a clear ‘no confectionery or pre-packaged savory snacks’ standard has been set, and definitions of these products are provided below. The accompanying table gives examples of products which fit or fall outside these standards. Relatively small amounts of higher sugar/salt/fat items will work within a food offering which meets the nutrient standards if they are offered as part of a meal.

77. **Confectionery**¹⁴ includes:-

- Chocolate and chocolate products e.g. milk chocolate, plain chocolate, and white chocolate bars, chocolate flakes, chocolate buttons, chocolate eggs, filled chocolate.
- Chocolate-coated confectionery bars
- Non-chocolate confectionery e.g. boiled, chewy, gum, liquorice, mint and other sweets, sherbet, fudge, toffee, marshmallows, nougat, Turkish delight, cereal chewy bar, cereal crunchy bar, chewing gum

78. **Savory snacks** include:-

- Potato-based, maize-based, wheat-based and rice-based snacks

79. **Additional snacks** which should not be provided are: salted nuts, sugared dried fruit, processed ‘fruit bars’, and chocolate covered biscuits.

Note: These definitions refer to packaged items which need no further preparation.

¹⁴ These categories are from Eurocode-2 system
(<http://www.ianunwin.demon.co.uk/eurocode/index.htm>):

Examples of products	
Outside the standards	Within the standards
<p><u>Non-chocolate confectionery</u> For example: All types chewing gum Liquorice sweets Packets of mints Fruit pastilles Wine gums Fruit drops, fruit gums Marshmallows Toffees Cereal bars Compressed fruit bars</p> <p><u>Chocolate/Chocolate products</u> For example: Milk chocolate, plain chocolate, white chocolate Filled chocolate Bags/Tubes of chocolate drops Chocolate eggs</p> <p><u>Chocolate coated confectionery bars and biscuits</u></p> <p><u>Pre-packaged savoury snacks</u>¹⁵ For example: Crisps, Onion rings Tortilla chips Japanese rice crackers Salted nuts Bombay mix</p>	<p><u>Ice cream and frozen dairy products</u> For example: Choc ices, servings of ice cream</p> <p><u>Bread products</u> For example: bagels, croissants crumpets, English muffins malt loaf, teacakes pitta breads, breadsticks sandwiches, rolls</p> <p><u>Biscuits and cakes</u>¹⁶ For example: Biscuits, cookies and cakes made by school caterers American (sweet) muffins Ginger nuts, digestives Oatcakes, Cream crackers Cake bars Iced buns, doughnuts</p> <p><u>Yoghurt and Fromage Frais</u> For example: Fruit yoghurts Greek yoghurt, Thick and creamy yoghurt Custard style yoghurts Frozen yoghurt</p> <p><u>Snacks</u> For example: Unsalted nuts Dried fruit Peanut and raisin mixes Unsalted/unsweetened popcorn</p>

¹⁵ Except for vending and meals other than lunch where pre-packaged savoury snacks which are low in both fat and salt are acceptable.

¹⁶ Only as part of a school lunch.

Appendix 4: Food Based Guidance, and examples of portions sizes and menus

Appendix 4.1 How can school caterers meet the standards?



What does this guidance do?

1. Guidance is provided in this Appendix to highlight how to attain the mandatory nutrient and food based standards recommended by the Panel. This guidance is provided as a starting point and it is envisaged that further resources will be developed and piloted to meet the needs of school caterers.
2. The core objectives of the standards and this guidance are to:
 - promote dietary variety,
 - reduce the amount of sugar, salt and fat currently consumed in school lunches
 - increase the amount of fruit and vegetables, fibre and key minerals and vitamins in school lunches
 - encourage the provision of types and portion sizes of foods which reflect the Balance of Good Health (BGH), shown above, along with appropriate cooking methods and choice of ingredients

Where to find extra practical help?

3. There are already various resources about healthier catering practice and these are a useful source of practical ideas. They include:

- guidance currently produced by the Department for Education and Skills¹⁷ - available on the DfES website.
 - ‘Catering for Health’¹⁸ is a useful reference and a simplified version of this will soon be posted on the FSA’s website (www.foodstandards.gov.uk)
 - the revised Caroline Walker Trust guidelines, Eating Well at School¹⁹
4. In addition some schools and caterers are already involved with the Heartbeat Award scheme which is managed by local authorities. The guidance produced for this also signposts changes in practice.

How often to serve different types of foods?

5. The Balance of Good Health illustrates what a healthy diet looks like. That is:-
- **Group A- Fruit and Vegetables.** A third of total food intake should be made up from fruit and vegetables. People should aim to eat at least five portions of a variety of fruit and vegetables each day. These can be fresh, frozen, canned, dried or juices (juice and canned beans only count a maximum of once a day towards the ‘five portions’). See the Department of Health’s website for further information and resources²⁰ Red and yellow fruits and vegetables are a good source of vitamin A (carotenoids) Citrus fruits, berries and green vegetables provide good sources of vitamin C. All fruit and vegetables provide fibre.
 - **Group B – Starchy Foods e.g. bread, pasta, rice and potatoes.** A further third of total food intake should be made up of these. They should make up a main part of a meal, and it is important to make sure they are not accompanied by large portions of fats like spreads or fatty sauces. Wholegrain varieties provide more fibre. These foods provide energy
 - **Group C - Meat, fish and alternatives** (e.g. eggs, nuts, pulses, soya products) provide concentrated sources of essential nutrients, particularly iron and zinc. For non-vegetarians, red meat especially beef is the best source of iron, and iron availability from other foods can be improved by eating a food containing plenty of vitamin C (fruit juice, fruit sauce, salads like tomatoes or peppers) at the same time.
 - **Group D - Milk and dairy foods** provide concentrated sources of essential nutrients, particularly calcium. Moderate amounts should be eaten, and it is best to choose the reduced or lower fat varieties.
 - **Group E - foods containing a large amount of fat or sugar** should make up a relatively small proportion of the total food and drink consumed. Sugars can appear on the label described, for example, as glucose syrup, corn syrup, dextrose, and a

¹⁷ Department for Education and Skills (2005a) Healthy School lunches for pupils in primary schools, London.

Department for Education and Skills (2005b) Healthy school lunches for pupils in secondary schools, London.

¹⁸ Food Standards Agency and Department of Health (2002) Catering for health. The Stationery Office, London.

¹⁹ Crawley H. (2005) Eating well at school: Nutritional and practical guidelines. Caroline Walker Trust, London.

²⁰ <http://www.5aday.nhs.uk/>

variety of other names. Concentrated fruit juices and honey are also high in sugars. Fats lower in saturates should be used such as rapeseed, soy or sunflower oils.

6. These Balance of Good Health principles have been translated by DfES into menu planning guidance for schools.

Menu Planning for Schools

Primary Schools		
Each Day	At Least Once a Week	At Least Twice a Week
<ul style="list-style-type: none"> • Foods from groups A-D must be provided in the lunch • Fresh Fruit, or tinned fruit in juice or fruit salad • Vegetables 	<ul style="list-style-type: none"> • Fish 	<ul style="list-style-type: none"> A. Red Meat B. Fruit based dessert

Menu Planning for Schools

Secondary Schools		
Each Day	At Least Twice a Week	At Least Three Times a Week
<ul style="list-style-type: none"> • Two types of food from each of the groups A-D • From Group A the two types should be one fruit and one vegetable 	<ul style="list-style-type: none"> • Fish 	<ul style="list-style-type: none"> • Red Meat

What ingredients to use?

7. The choice of ingredients will make a large difference to the nutritional composition of the final dish. When ready prepared ingredients are bought in, it is worth finding out if there are low salt, fat and/or sugar versions available. For example, there are an increasing variety of low fat sauces available. Also manufactured foods procured will need to meet the target nutrient specifications (Appendix 3.3). To implement this nutritional information for fat, saturated fat, salt (sodium) and sugars content will need to be checked either from labels or directly with the manufacturer.

How to prepare dishes?

Healthier Preparation Methods:

- use monounsaturated and polyunsaturated fats wherever possible for cooking, spreading and in dressings
- use pastry sparingly – offer pastry dishes infrequently and when they are offered minimize the amount of fat by for example only using pastry on the top of pies.

Chips:

- large pieces of potato, thick or straight cut chips absorb less fat than thin or crinkle cut chips.
- use frying oil which high in unsaturated fat (e.g. corn or sunflower oil).
- heat oil to the correct temperature, change it regularly
- Add chips at chilled or ambient temperature to hot oil

Other potato dishes:

- boil potatoes in the minimum amount of water and for the shortest amount of time to retain vitamins.
- use no or minimum amounts of salt to boil or steam potatoes and vegetables
- roast with minimum fat

Meat, fish, and ‘main’ dishes:

- select the leanest cuts of meat you can afford
- steaming or poaching fish reduces fat content.
- larger pieces of fish and meat absorb less fat.
- incorporate vegetables into meat dishes such as casseroles, lasagne and shepherd’s pie.
- offer dishes made with beans and pulses (e.g. kidney beans, baked beans, butter beans) on the menu cycle. they can be used to extend meat dishes, and without meat are popular with meat eaters as well as vegetarians.
- thicken sauces by reducing the cooking liquid and adding cornflour to give a quality end product. Sauces in casseroles and meat dishes can also be thickened with lentils or split peas.

Salads and fruit:

- serve salads 'undressed' but offer a range of dressings, including reduced fat varieties, including lower fat vinaigrette dressings
- offer a selection of fresh fruits, attractively presented, as a dessert, served with a choice of toppings.
- include fruits in desserts.
- provide canned fruit in natural juice rather than in heavy syrup.

Which 'special' foods to include in menu planning

8. The present standards set levels for 7 micronutrients. Menu planning exercises to date suggest that some of these standards (particularly for iron and calcium) will be challenging to meet. The following lists foods which are either rich or good sources of certain micronutrients. If menus are falling short on a vitamin or mineral standard then this list provides clues on which foods to include.

Sources of vitamins and minerals

Best Sources	Other sources
Calcium <ul style="list-style-type: none"> • Hard cheeses, cheese spread, soya cheese, • Canned sardines or salmon, drained and mashed up with the bones, fish paste • Tofu (soya bean) steamed or spread • Milk and yogurt • Soya drink with added calcium • Soya mince • Ice cream • Egg yolk • Bread, (except wholemeal), crumpets, muffins, plain and cheese scones • Beans, lentils, chickpeas • Ready to eat or stewed figs 	Calcium <ul style="list-style-type: none"> • Baked squash, sweet potato • Broccoli, dark green leafy vegetables, turnip, carrots, cabbage, peas • Tomato puree • Dates, sultanas, raisins, ready to eat or stewed apricots
Folate <ul style="list-style-type: none"> • Fresh cooked brussels sprouts, asparagus, spinach, kale, cooked black eye beans • Breakfast cereals (fortified with folic acid) 	Folate <ul style="list-style-type: none"> • Fresh, raw, frozen and cooked broccoli, spring greens, cabbage, green beans, cauliflower, peas, bean sprouts, okra, cooked soya beans, iceberg lettuce, parsnips, chick peas. • Kidneys, yeast and beef extracts
Zinc <ul style="list-style-type: none"> • Lean beef, lamb, pork: such as roast, mince, burgers, • Chicken or turkey: especially dark meat, Sausages • Hard cheeses • Eggs • Canned pilchards, sardines, tuna 	Zinc <ul style="list-style-type: none"> • Brown and wholemeal bread • Whole grain breakfast cereals • Red kidney beans, chickpeas, lentils nuts
Iron (well absorbed sources) <ul style="list-style-type: none"> • Lean beef, lamb, pork: roast, mince, burgers • Canned sardines, pilchards, mackerel, tuna, shrimps, crab • Liver pate and sausage, kidney, heart • Chicken or turkey: especially dark meat, liver • Sausages, grilled • Fish paste 	Iron (Better absorbed if vitamin C containing foods eaten at the same time) <ul style="list-style-type: none"> • Breakfast cereals with added iron • Breads • Red kidney beans, haricot beans, pinto beans - boiled or canned • Dahl, lentils, chickpeas - boiled or canned • Baked beans, peas - raw, cooked, frozen or canned • Tofu, creamed coconut • Apricots, prunes, figs, peaches - ready to eat or stewed • Raisins, sultanas • Cauliflower, spring greens, broccoli, mixed vegetables
Vitamin A <ul style="list-style-type: none"> - Milk, cheese and butter or fortified yellow fats and spreads 	Sources of ProVitamin A (Carotenoids) <ul style="list-style-type: none"> • Carrots • Dark green leafy vegetables (cabbage, spinach, kale) • Corn • Tomatoes • Oranges

Appendix 4.2: Examples of Portion Sizes

9. These portion sizes have been devised by Hungry for Success²¹. They are designed to be guidance only.

Group A (Fruit and Vegetables)	Recommended Portion Size (grams/mls) for 5-11 year olds	Recommended Portion Size (grams/mls) for 12-18 year olds
Cooked vegetables including peas, green beans, sweetcorn, carrots, mixed vegetables, cauliflower, broccoli, swede, turnip, leek, brussel sprouts, cabbage, spinach, spring greens	40-60	80
Raw vegetables or mixed salad	40-60	80
Baked beans in tomato sauce	70-100	140
Coleslaw (served together with a mixed salad)	30-40	60
Vegetable-based soup	170-220	300
Medium-size fruit, e.g. apples, pears, bananas, peaches, oranges	Half to one fruit (50-100 g)	One fruit (100 g)
Small-size fruit, e.g. satsumas, tangerines, plums, apricots, kiwis	One-two fruits (50-100 g)	Two fruits (100 g)
Very small fruits, e.g. grapes, cherries, strawberries, raspberries, blackberries	Half to one cupful (50-100 g)	One cupful (100 g)
Dried fruit, e.g. raisins, sultanas, apricots	Half to one tablespoonful (10-20 g)	One tablespoonful (20 g)
Fruit salad, fruit tinned in juice and stewed fruit (at least 80% of the weight should come from fruit)	65-130	130
Fruit juice	150	150

²¹ Scottish Executive (2002) Hungry for Success: A Whole School Approach to School Meals in Scotland. The Stationery Office, Edinburgh.

Group B (Bread, other Cereals and Potatoes)	Recommended Portion Size (grams/mls) for 5-11 year olds	Recommended Portion Size (grams/mls) for 12-18 year olds
Rice (cooked weight)	80-120	180
Pasta (cooked weight)	80-120	180
Pasta canned in sauce	90-140	200
Mashed potatoes, boiled potatoes, potato croquettes	90-130	190
Jacket potatoes	120-170	250
Chips, roast potatoes, other potato cooked in fat, e.g. potato wedges	70-100	150
Bread: sliced, rolls, French stick (served instead of rice, pasta or potatoes)	45-65	100

Group C (Meat, Fish and Alternatives)	Recommended Portion Size (grams/mls) for 5-11 year olds	Recommended Portion Size (grams/mls) for 12-18 year olds
All dishes containing meat which are allowed at any time (e.g. stew, casserole, curry, tikka, sweet and sour) will have a minimum raw meat content of (this weight may be reduced proportionately in composite dishes if adding another protein based food such as beans/TVP/cheese/milk)	50-60	80
Sausages: beef, lamb, pork	60-80	120
Scotch pies, sausage rolls, Cornish pasty, encased meat pastry pies, quiche, cold pork pie (e.g. Melton Mowbray)	80	110
Lasagne, ravioli, cannelloni	150-215	300
Breaded or battered shaped chicken and turkey products, e.g. nuggets, goujons, burgers	60-80	120
Meat-based soup	170-220	300

Pizza	80-120	160
All dishes containing fish and shellfish which are allowed at any time (e.g. pie with potato topping, casserole, curry, sweet and sour) will have a minimum raw fish content of (this weight may be reduced proportionately in composite dishes if adding another protein-based food such as beans/cheese/milk)	50-60	80
Breaded or battered fish portions or products, e.g. fish cakes, fish fingers, fish goujons, fish shapes	60-80	120
Fish or shellfish such as tuna, salmon, mackerel and prawns, served in a salad, baked potato or sandwich	30-40	50
Egg served in a salad, baked potato or sandwich	1 egg	1-2 eggs
Vegetarian sausages, burger, nut cutlets	60-80	120
Vegetarian stew, curry, tikka, sweet and sour	50-60	80

Note: Composite dishes using the caterer's own recipes, such as home-made pies, pasta bakes, lasagne, spaghetti bolognese, stew, should supply the equivalent amount of meat, poultry, fish or vegetarian alternative per portion.

The initials TVP refer to the meat substitute, texturised vegetable protein

Group D (Milk and Milk Products)	Recommended Portion Size (grams/mls) for 5-11 year olds	Recommended Portion Size (grams/mls) for 12-18 year olds
Drinking milk	200	300
Milk puddings and whips made with milk	150-200	240
Custard (served with fruit for example)	100	140
Yoghurts	100-125	125-150
Cheese (served in a salad, baked potato, sandwich or with biscuits)	30-40	50
Macaroni cheese	150-215	300
Cheese sauce for use with composite dishes	70-95	120

Group E (Foods containing Fat and Foods and Drinks containing Sugar)	Recommended Portion Size (grams/mls) for 5-11 year olds	Recommended Portion Size (grams/mls) for 12-18 year olds
Fruit pies, sponge puddings or crumbles	90-130	145
Cakes, muffins, sponges, fairy cakes, scones, sponge puddings, doughnuts, cookies, tray-bakes	40-50	65
Ice cream	60-80	100

Appendix 5: Final Report on the Economic costs of Implementing Caroline Walker Trust guidelines

August 2005

Department for
Education and Skills

Economic Costs of Implementing
Caroline Walker Trust
Recommendations

Final Report

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Executive Summary

Background

1. PricewaterhouseCoopers LLP (PwC) was commissioned in July 2005 by the Department for Education and Skills (DfES) to estimate the additional costs associated with the implementation of the Caroline Walker Trust (CWT) guidelines in England. We were not asked to consider the appropriateness of the CWT guidelines themselves or any issues associated with the implementation of the guidelines. We have presented our findings following a survey of Local Authority Catering Association (LACA) members and desk based research and analysis.

Quantitative Analysis

Variable Costs

2. At primary school level, the results indicate that the **extra** cost of implementing Caroline Walker Trust (CWT) recommendations relating to the basic nutritional standards are in the region of between **£43** and **£52** per primary school pupil initially and between **£42** and **£51** per primary school pupil per annum on a recurrent basis for those taking up school meals. These estimates have been aggregated to account for the entire primary school population currently taking up meals (approximately 43%) and translate into an initial annual total of between **£79** million and **£95** million and between **£77** million and **£93** million per annum thereafter. The range of these estimates is based on alternative assumptions relating to the cost of food ingredients to comply with the CWT recommendations.
3. If the Government were fully to subsidise these additional costs, such that they were not passed onto the pupils consuming the service, a subsidy of between **£0.23** and **£0.27** per pupil taking school meals per day would be necessary to prevent price increases. In recurrent years, the subsidy equates to approximately **£0.22 to £0.27** per pupil per day.
4. At secondary school level, the results indicate that the **extra** costs of implementing CWT recommendations are in the region of **£49** and **£66** per pupil initially and between **£45** and **£61** per pupil per annum taking up school meals on a recurrent basis. These estimates have been aggregated to account for the entire secondary school population currently taking up meals (assumed to be 42%) to provide an initial annual total of between **£69** million and **£92** million and between **£63** million and **£85** million per annum thereafter.
5. As with primary schools, if the government were to provide a subsidy to ensure that increased costs were not passed on to pupils, these aggregate estimates equate to between **£0.26** and **£0.35** per pupil taking up school meals in the first year. In recurrent years, the subsidy equates to between **£0.24** and **£0.32** per pupil per annum.
6. The combined variable costs of the implementation of the recommendations across primary and secondary schools in the first year are in the range **£164m to £171m** falling to between **£156m** and **£161m** per annum thereafter.
7. To put these estimates in context, total annual resource allocation per pupil made by the government from the education budget in 2005/2006 was estimated to be £3,930. The additional cost per pupil associated with implementing these guidelines (excluding any refurbishment costs) accounts for approximately **0.55-0.57%** of the current per capita resource allocation in the first year falling to **0.53-0.54%** in recurrent years.

8. We have also benchmarked this analysis with the expenditure on Hungry for Success²². From the information available, the initial three year costs associated with the programme (adjusted to mirror the assumptions presented here relating to take up) would approximate **£51m** and equates to **£528** million (excluding any refurbishment costs). The additional cost of implementing CWT recommendations in England over three years excluding refurbishment costs is in the range **£476m** to **£493m**.

Refurbishment Costs

9. The estimates presented above do not include any refurbishment costs. These additional costs in the first year might be as much as **£206m** at primary level and a further **£83m** at secondary level. The estimates indicate that an average subsidy to schools of approximately **£48** per primary school pupil in the first year or **£0.25** per pupil per day would be required to cover the cost of refurbishment. At secondary level, the daily subsidy is in the region of **£0.13** per secondary school pupil initially (**£24** per pupil). These estimates relate to every pupil irrespective of whether they take school meals or not.

The total cost at primary and secondary level including refurbishment in the first year was estimated to be £453-£459m and £156-£161 million per annum thereafter.

10. There is some uncertainty surrounding these estimates and as such we have provided a range of estimates depending on a variety of assumptions relating to CWT compliant ingredient costs. Significantly more research work would need to be undertaken to ensure the robustness of these results. In particular, there needs to be precise agreement on the scope of the recommendations, the degree of renovation and refurbishment work that the schools estate may require as well as the timescale in which these guidelines may be implemented. Many of the costs assessed as part of this study may be managed and reduced if a phased implementation of the initiative takes place.

Qualitative Analysis

11. Though not strictly part of the brief for this work, we took the opportunity to gather some qualitative information as part of the interviews with caterers. In summary, we found the following:

Supply Chain

12. There was a strong belief that the supply chain was suitably developed to cope with the likely changing nature of consumer demand, though there was variation according to whether catering was undertaken within an authority (for an authority) or by a private organisation (on behalf of several authorities). Generally speaking individual authority respondents believed that the supply chain was better developed than private caterers. A possible reason for the discrepancy in the results relates to the market share of caterers. In particular, individual authorities might have the view that a change in their demand (which is small relative to the overall market) can be easily absorbed whereas those providers catering for multiple authorities might have a better overall view of the supply side and understand that a change in the nature of their demand could have significant impact on the supply chain. The overall implication of the findings is that there may not be significant price implications associated with rigid supply chains.

CWT recommendations of price of ingredients

13. We asked respondents specifically whether the CWT recommendations of approximate prices per main school (70p per pupil in primary schools and 80p in secondary schools) were underestimates of the anticipated ingredient cost. Respondents indicated that these costs were **not** underestimates on average. Moreover, only two authorities in our sample that indicated that these estimates were considerably wide of the mark – one higher and one lower – indicating that the extent of expected variation from the CWT recommendations may not be great.

Impact of price charged to pupils

14. In the absence of any government subsidy, we asked whether the increased costs associated with preparation, ingredients and the general cost of meal provision would have to be passed onto pupils. The overwhelming response from the questionnaire information was strong agreement. Only two authorities – who both claimed to have already implemented the vast majority of the CWT recommendations – answered in the negative. Every other authority or caterer either agreed or strongly agreed. We asked

²² Hungry for Success (H4S) is an initiative designed to promote a whole school approach to school meals in Scotland. The initiative sets out recommendations connecting school meals with the curriculum as a key aspect of health education and health promotion. In addition, national nutrient-based standards for school lunches and detailed mechanisms for monitoring these standards are proposed.

respondents to indicate the approximate increase in price that may have to be charged. The average response was in the region of 11% though there were some authorities who expected a much more significant increase in prices (up to 35%).

15. From an assessment of the wider economic literature relating to the price elasticity of demand as well as respondents' initial views on the impact of price changes on the quantity demanded, any attempt to pass on the costs to consumers will result in a reduction in school meals take up. This would occur especially at secondary level where there are more economic substitutes to school meals and would disproportionately affect from pupils from lower socio-economic groupings where there is greater price sensitivity.

Timescales

16. We asked respondents for views on the necessary time required to implement the guidelines. Given the fundamentally different nature of the consumers in primary and secondary schools and the greater options available to most secondary school pupils, there was a clear difference in the time required to implement the CWT recommendations at primary and secondary levels. In particular, it was thought that the recommendations might be implemented in 12 months on average in primary schools with a few authorities indicating that 24 or 36 months might be more appropriate. For secondary schools, it was thought that the process might take as long as 5 years and there were many who questioned whether the initiative might ever be implemented given the consumer led nature of secondary school provision.

Refurbishment

17. There are a number of issues relating to kitchen building/refurbishment that will have an impact on whether and how quickly the recommendations may be implemented for some schools. These include:
 - The state of the current kitchen facilities
 - Availability of suitable land or internal accommodation
 - Planning permission – the opportunity cost, timeframe, and effort involved
 - The level of procurement skills required to secure building projects successfully
18. Moreover, there are shortages of building skills in parts of the country. This allied with a surge in demand occasioned by an autumn 2006 deadline might have a direct positive impact on price. The Department may wish to consider the particular complexities and pressures which this requirement might bring about.

Other considerations

19. In general there is very little information on the extent to which schools provide catering for their pupils – even at the most basic level. The survey information collected as part of this exercise does illuminate the topic to some extent but standardised information needs to be collected in the future alongside any potential implementation of nutritional standards (or any initiative relating to school meals).
20. Although we have not been commissioned to provide recommendations, there are strong arguments in favour of undertaking an evaluation of the implementation of the CWT recommendations in a nationally representative number of schools within local authorities and comparing the results with a sample of similar schools unaffected by the initiative. Following HM Treasury guidance, effort should be made to assess the causal links (if any) between the implementation of these guidelines and positive effects on pupil behaviour and attitudes, health and specific measures of educational attainment.

Background

Context

21. In April 2005 the Department for Education and Skills (DfES) convened a panel of experts - the School Meals Review Panel (SMRP), to review nutrition-related standards for school meals and to develop draft minimum standards for roll out to schools in Autumn 2005, with the final version of the standards becoming mandatory from September 2006. The Panel will advise on a major revision of current school meals standards aimed at delivering a reduction in pupils' consumption of fat, salt and sugar; and an increase in the consumption of fruit, vegetables and other foods containing essential nutrients.
22. The School Meals Review Panel is currently considering the implications of introducing a combination of nutrient and food based standards for school meals. It is envisaged that the nutrient standards will be based around those released by the Caroline Walker Trust (CWT) in June 2005. In translating these standards into menus and meals, it is likely that many more dishes will need to be produced 'from scratch'. It is also envisaged that there will be significant resource implications both in terms of revenue and costs of delivering the catering service. On the revenue side there is mixed anecdotal evidence suggesting either an increase or decrease in uptake of meals following introduction of CWT style menus in secondary and primary schools.
23. The SMRP will recommend nutrition standards based on the CWT guidelines, and are required to provide a detailed regulatory impact assessment to assess the associated costs of their implementation. PricewaterhouseCoopers LLP (PwC) has been commissioned to estimate the cost implications of implementing the CWT standards.

The Scope of the Caroline Walker Trust Standards

24. In considering the implications of the implementation of CWT 2005, it is first necessary to understand their requirements and then consider the role of the associated recommendations, many of which go beyond the delivery of basic standards.
25. The standards are relatively straightforward in that they are explicit, clear and measurable, albeit only with the assistance of food content analysis software which will need to be developed. The guidelines propose the recommended content of an average meal provided for children and young people in school over a period of one week or more.
26. The standards include values for energy, macronutrients (protein, fat, saturated fat, total carbohydrate, non-milk extrinsic sugars and fibre), and the micronutrients (iron, zinc, calcium, vitamin A, vitamin C, folate and sodium).
27. The standards are to be used for planning the supply of food. This means that caterers and menu planners must be able to demonstrate that the food they are offering over a period of one week or more is able to meet the standards specified. There will be a need for an easy-to-use computer-based tool to enable menu planners to devise menus which meet the nutrient-based standards. This tool will need to contain detailed information on the composition of foods and recipes.
28. The standards set out very specific requirements on the percentage of nutrients which school meals must provide for particular meals and for pupils of different age groups and genders.

Caroline Walker Trust Recommendations

29. In addition to the standards, the report sets out a range of recommendations for the sourcing of ingredients, the preparation of food, food policies in schools, training and for the monitoring of standards. Some of these are particularly relevant for this study and their adoption could have quite significant and varying cost impacts; they are matters which the Nutrition Working Group have been considering. Examples of relevant recommendations or suggestions include:

- A view that it is unlikely that providers will be able to meet the standards if they spend less on ingredients than 70p per pupil in primary school and 80p in secondary school (at current prices)
- All those responsible for food procurement should develop links with local sustainable food suppliers and set targets for the amount of locally sourced food, and organically grown food, that will be included in school meals
- All catering staff should receive training on good nutrition and menu planning. This could be part of their skills development plan. Local authorities and other providers should ensure that this training takes place at local level and is also made available to managers, inspectors and other relevant staff.

30. We were also advised to consider the views of the Nutrition Working Group, a sub group of the SMRP, which is charged with:

- recommending the nutritional basis for school meals standards which address both the provision and consumption of food
- advising on approaches to monitoring school meals standards, including both internal monitoring (so that schools and caterers can assess their performance and use the feedback to make positive changes), external monitoring (e.g. by Ofsted), and nationwide evaluation of the impact of the introduction of new school meals standards

31. Among the agreed principles guiding the consideration of the group is the following:

- That the nutritional basis for school meal standards should take account of:-
 - public health needs, with associated clear evidence based dietary recommendations
 - practical implementation
 - the measurability and specificity to enable external monitoring
 - simplicity and transparency

32. We were provided with the minutes of the most recent meeting of the Nutrition Working Group to assist us in understanding the potential cost drivers. This is described as identifying the group's 'current thinking' on a range of issues. The most relevant of these relating to our analysis is this:

"In relation to the recommendations on local, hot, fresh and unprocessed, NWG was asked to advise the Panel whether there is any nutritional component to these aspects of the Standards.

The NWG is clear that there is no relevant nutritional component. These aspects of the standards raise considerations such as the inclusion of culturally appropriate foods at lunchtimes, socialisation of children, sustainability, and development of preferences for certain types of foods."

33. We have taken this to mean that it is not proposed that the food standards will include targets in respect of local food or fresh food per se. This is significant as the issue of targets for local sourcing in particular could have significant cost implications, in terms of the ability of local domestic production meeting the demand created, and/or the impact on price of attempting to meet it.

34. There are two other matters which we also need to raise:

35. **'Choice to the end'** – we are advised that the issue of 'choice to the end' was discussed, but that no conclusions were drawn. It seems that there is a significant potential cost issue here that may need to be considered at some stage – not so much in terms of caterers having to provide a range of meal choices right to the end of service, but more that it ought to be possible for a child at the end of service to still be able to select a meal or meal components that meet the broad CWT guidance. The estimate from the study is this could be as much as 2.5% per meal to cover wastage.
36. **Hot Food:** The Panel asked the NWG to make recommendations on extending its work from school meals to other aspects of school food provision. NWG agreed that this would be possible in principle, but was not feasible to do until the current work on school meals has been completed. It was also agreed that this might include a recommendation that hot food should be made available, and all possible options explored to achieve this.
37. We have not addressed the issue of hot food directly in this costing exercise, but would make the observation that a 'hot food' requirement might be of particular significance for the 20 or so local authorities who do not currently provide other than the statutory minimum, usually in the form of a cold packed lunch. The logistics and cost of this additional requirement would have to be explored in some detail in order to understand the varying baseline positions in these authorities, so that the much higher cost implications for these authorities can be estimated.
38. The final point to be made is that this report has looked at the costs associated with the implementation of the CWT recommendations. We have not been tasked with assessing whether there are any wider benefits. Strong anecdotal information suggests that there may be substantial motivational and behavioural benefits from the adoption of nutritional guidelines and provision of improved school meals and we suggest that additional research work is undertaken to compare the costs presented here with the potential educational (and eventual labour market) impacts that might materialise.

Methodology

General

39. In January 2004, there were approximately 17,762 primary schools in England with an associated pupil headcount of 4.252m, and 3,409 secondary schools with a headcount of 3.325m. There were also 1,078 LEA maintained special schools, 426 pupil referral units (PRUs), 14 City Technology Colleges (CTCs) and 12 City Academies with a combined headcount of 126,000 pupils. Due to the relative lack of robust data relating to special schools, CTCs, Academies and PRUs, this analysis deals with the impact of the CWT recommendations on mainstream state funded primary and secondary schools only.
40. As there is little or no centrally collected information on school meals provision, the state of the school estate and the current or anticipated costs of provision apart from the eligibility and take up of free school meals, we surveyed 20 members of the Local Authority Catering Association (LACA) who indicated their willingness to share information with the DfES. The sample includes respondents who are responsible for the provision of meals within their own authority as well as a number of catering organisations responsible for the provision of school meals across many authorities. The short form of the questionnaire is provided in the appendix.
41. We received 13 responses from the LACA members and throughout our analysis the responses were weighted according to the number of schools (and pupils) covered by the catering activity of respondents.
42. In addition, we undertook desk based research to assess whether there was any recent and relevant publicly available information relating to the adoption of nutritional standards to help baseline the findings. We also reviewed the wider economic literature to understand the estimates of the elasticity of demand for school meals with respect to price to understand whether there might be any impact of price increases on the quantity of school meals demanded, as well as the elasticity of supply of fresh food to understand whether increasing demand following the implementation of the CWT guidelines could have a significant cost impact in excess of the standard estimates.
43. Given the timescale involved, the analysis only considered what were thought to be the most significant costs associated with implementation in primary and secondary schools. We did not consider the implementation of the guidelines in special schools, PRUs, CTCs or City Academies nor did we consider some of the actual implementation costs that might fall on central and local government such as the issuance of guidance or civil servants' time.

Sample achieved and representativeness

44. The anonymised authorities contacted and the sample of pupils and schools covered by the survey responses are as follows:

Table 1: Schools and number of pupils covered by survey responses

Organisation/Authority	Primary Schools catered for (catered for / total)	Primary School Headcount catered for	Secondary Schools catered for (catered for / total)	Secondary School Headcount catered for
Authority 1	325	22,000	20/37	22,865
Authority 2	20	3,300	7/8	8,050
Authority 3	40/48	5,000	-	

Organisation/Authority	Primary Schools catered for (catered for / total)	Primary School Headcount catered for	Secondary Schools catered for (catered for / total)	Secondary School Headcount catered for
Authority 4	344	79,000	32/53	35,984
Authority 5	44	17,120	8	8,410
Authority 6	76	20,090	5	5,597
Authority 7	423	94,300	78	79,290
Authority 8	42	14,400	6	5,800
Authority 9	92	28,529	7/18	7,774
Authority 10	93	30,270	4/21	3,554
Authority 11	69/78	21,408		
Authority 12	210/252	37,392		
Authority 13	114/218	18,815		
Authority 14	235/249	56,457		
Authority 15	58	16,820	11	12,210
Authority 16	153	51,120	14/28	17,335
Authority 17	63	21,470		
Authority 18	65	14,950	6/10	7,758
Authority 19	214/226	27,318	25/54	8454
Authorities 20,21,22	122	31,450	11/22	11,665
Authority 23	43	14,550	4/8	4,290
Authority 24	51	13,640	6/17	7,056
Authority 24	153/156	36,386	20/27	21,370
Authority 25	422/474	100,051	18/104	16,985
Authority 26	20/29	7,779	3/11	2,301
Authority 27	56	17,410	6/10	7,434
Authority 28	245	43,020	22/36	20,166
Authority 29	69	22,080	13	1,640
Authority 30	83/88	22,032	5/19	5,453
Authority 31	41	12,560		
Authority 32	146	25,190	2/57	1,324
Authority 33	47	14,720	4/9	3,493
Authority 34	47	11,440	4/9	4,306
Authority 35	8/72	2,612		
Total	4223	954,679	344	357,934
Proportion of total	23.9%	22.4%	10.1%	10.8%

45. The total number of primary schools covered by catering organisations participating in the survey was 4,223 and the total number of secondary schools covered by the survey was 344. The corresponding estimate of the number of primary school pupils covered by responses from caterers was 954,679 while the number of secondary school pupils covered by the survey stood at 357,934.

46. The sample achieved represented 22.4% of primary school pupils and 10.8% of secondary school pupils.

47. It is clearly impossible to provide a fully accurate cost of the implementation of the CWT recommendations from a sample size of 13 LACA members despite the fact that this sample covers almost 23% of primary school pupils and 11% of secondary school pupils. Every school situation is in many respects unique and the results from the questionnaires that were sent out to LACA members reflect this view.
48. Also in each local authority, there is a different model of school meals provision. We have not been commissioned to discuss the various means of school provision but merely to analyse the information that we have collected in a meaningful way, given the absence of better prior information in the public domain.
49. In terms of the representativeness of our sample, we have compared it for primary schools in Table 2 below with national averages and some additional geographical statistics. It is clear that there are disproportionately few primary schools (and pupils) from the North East and North West and disproportionately large number from the South East and the South West (and as a result it is likely that there is a lower proportion of pupils entitled for Free Schools Meals compared to national averages). It is unclear as to the effect of this slightly skewed sample on the aggregate cost estimates. However, it is encouraging that the take up rates based on information from a national sample of caterers and the survey used as part of this work are similar.

Table 2: Sample representativeness for primary schools

	National	Achieved Sample
Primary School Average Roll	239.4	-
Weighted average Take up Rate ²³	43%	43.1%
Take up (Lowest, Highest) ²⁴	26% - 80%	27%-79%
Eligibility for FSM ²⁵	17.3%	-
Take Up of FSM ²⁶	82%	-
Regional Profile		
England Total	17,762 (100%)	4,244
North East	949 (5.3%)	6.8%
North West	2,639 (14.9%)	2.3%
Yorkshire and the Humber	1,921 (10.8%)	3.6%
East Midlands	1,729 (9.7%)	5.1%
West Midlands	1,892 (10.7%)	2.2%
East of England	2,085 (11.7%)	13.4%
Inner London	702(3.9%)	5.1%
Outer London	1,147 (6.5%)	8.5%
South East	2,717 (15.3%)	33.9%
South West	1,981 (11.2%)	19.1%

50. In Table 3 overleaf, we present information on the sample of secondary schools covered by the survey. There were disproportionately fewer schools from the West Midlands and Yorkshire and the Humber and disproportionately more from the South East and East of England. There is no central government information available nationally on school meal take up that we are aware of apart from in relation to the eligibility and take up of free school meals. The take up of school meals in our sample was 3.5 percentage points higher than take up at primary school level – standing at 46.7%.

²³ S Local Authority Catering Association *School Meals Survey 2004*

²⁴ Soil Association

²⁵ Department for Education and Skills: Statistics of Education

²⁶ Department for Education and Skills: Statistics of Education

Table 3: Sample representativeness for secondary schools

	National	Achieved Sample
Secondary School Average Roll	975.3	-
Weighted average Take up Rate ²⁷	42.0%	46.7%
Take up (Lowest, Highest)	-	26%-75%
Eligibility for FSM ²⁸	14.3%	-
Take Up of FSM ²⁹	73.6%	-
Regional Profile		
England Total	3409 (100%)	
North East	211 (6.2%)	28 (8.1%)
North West	476 (14.0%)	11 (3.2%)
Yorkshire and the Humber	327 (9.6%)	14 (4.1%)
East Midlands	317 (9.3%)	25 (7.3%)
West Midlands	415 (12.2%)	7 (2.0%)
East of England	427 (12.5%)	80 (23.2%)
Inner London	132 (3.9%)	29 (8.4%)
Outer London	273 (8.0%)	17 (5.0%)
South East	502 (14.7%)	95 (27.6%)
South West	309 (9.1%)	38 (11.0%)

²⁷ Local Authority Catering Association *School Meals Survey 2004*

²⁸ Department for Education and Skills: Statistics of Education

²⁹ Department for Education and Skills: Statistics of Education

Generic assumptions

Labour costs

51. For ease of questionnaire completion, we have assumed that there are four categories of employee within the school workforce engaged in the provision of school meals

52. These are:

- Catering assistants;
- Cooks/chefs;
- Supervisors/managers³⁰; and
- Mid day assistants.

53. Using information from the Quarterly Labour Force Surveys, we have estimated the mean hourly earnings of the various categories of employee not based in London. We have up-rated this pay by 3% per annum to provide an estimate of current hourly wage rates since the data we have made use of are from 2004. The baseline pay of the school workforce involved in school meals provision is as follows:

Table 4: Basic hourly labour rates for school workforce

	Hourly wage (outside London)	Hourly wage (Inner and Outer London)
Catering Assistants	£5.05	£5.32
Cooks/chefs	£6.43	£7.54
Supervisors/Managers	£8.50	£9.03
Mid-day Assistants	£5.80	£6.45

54. We have used these hourly labour costs to measure the extent of the additional resources that that may be required following the introduction of the CWT recommendations. These additional labour costs may primarily occur in the additional time that will be required to prepare fresh produce. We have also adopted these hourly wage rates to assess the additional opportunity cost of training that may be required for the school workforce post implementation, both initially and on a recurring basis.

55. We have assumed that members of the school workforce will have to be paid their hourly wage rate to attend training courses, irrespective of whether a qualification is attained and regardless of the location of the training (in house or by attendance at a training provider's premises).

³⁰ In the case of one questionnaire responses, it was indicated the role of the cook/chef was actually undertaken by individuals with supervisor/manager job titles. The analysis and cost estimates have been amended to take account of this fact.

National Insurance and employer on-costs:

56. In Table 4 above, we have not included any employer national insurance contributions or other associated employer on-costs. In this analysis, we have assumed that on costs amount to 25% of the basic hourly wage. The full hourly labour costs are presented in the following table.

Table 5: Gross hourly labour rates for school workforce

	Hourly wage (outside London)	Hourly wage (Inner and Outer London)
Catering Assistants	£6.31	£6.64
Cooks/chefs	£8.04	£9.43
Supervisors/Managers	£10.62	£11.29
Mid-day Assistants	£7.25	£8.06

Summary of Results

Headline Results

Table 6: Variable Costs associated with implementation of CWT guidelines

Variable Costs for schools ³¹	Initial		Recurrent	
	Estimate 1	Estimate 2	Estimate 1	Estimate 2
Primary total based on these estimates	£79.0m	£95.4m	£76.6m	£93.0m
Secondary total based on these estimates	£91.5m	£68.5m	£84.7m	£63.3m
Total	£170.5m	£163.9m	£161.3m	£156.3m
Mean estimate	£167.2m		£158.8m	

Table 7: Fixed Costs associated with implementation of CWT guidelines

Fixed Costs for schools	
Primary total based on these estimates	£205.9m
Secondary total based on these estimates	£83.3m
Total	£289.2m

Primary Schools

57. The results indicate that the extra cost of implementing Caroline Walker Trust recommendations relating to the provision of basic nutritional standards is in the range of £43 and £52 per primary school pupil initially and between £42 and £51 per annum on a recurrent basis. These estimates have been aggregated to account for the entire primary school population currently taking up meals (approximately 43%³²) to provide an initial annual total of between £79m and £95m and between £77m and £93m per annum thereafter.
58. These estimates equate to between £0.23 and £0.27 per pupil per day taking school meals and to between £0.22 and £0.27 per pupil per day in recurrent years.³³
59. The estimates do not include any refurbishment costs. These additional costs in the first year might be as much as £206m.

³¹ Estimate 1 relates to indicative information provided by the Local Authority Catering Association on the cost of ingredients required for CWT compliant menus. Estimate 2 relates to the information gathered as part of the survey of LACA members on estimated extra ingredient costs following the implementation of CWT guidelines.

³² Local Authority Catering Association *School Meals Survey 2004*

³³ The recurrent estimate is marginally lower than the initial year's estimate due to the reduction in staff training and reduced need for contract renegotiation.

Variable Costs

60. The primary component of the increased costs arises from the higher perceived costs associated with food ingredients. We present more information later in the report; however, these costs have been estimated at between £24 and £32 per primary school pupil per annum.
61. The next greatest component of extra cost is associated with the additional labour cost for extra preparation time and training. These costs are highly variable across local authorities but for the average pupil they equate to £12.23 per annum on an ongoing basis. The estimated cost of training the school workforce is approximately £2.42 per pupil in the first year falling to £1.13 per pupil on a recurrent basis
62. There may be a significant cost associated with waste. At primary level, the anticipated wastage rate was assumed to be marginally lower than the rate that might exist at secondary level due to the different nature of provision. We have assumed that the wastage rate equates to 1.5% of the total food cost. For primary pupils this equates to between £1.73 and £2.23 per pupil per annum.
63. The last extra variable costs of note relate to marketing and education of children (and their parents) to promote healthier eating. These costs approximate £2.62 per primary school pupil per annum and account for approximately 5% each of the initial costs of implementing the CWT recommendations.
64. This information is presented in the figures overleaf using the average of the two estimates used to date for the total additional cost per pupil per annum.

Fixed Costs

65. We also attempted to estimate the extent of the capital infrastructure that might need to be redeveloped to allow primary schools to prepare fresh produce on site. The estimates indicate that an initial capital outlay of approximately £206m might be required assuming that 70% of schools require some additional works to be undertaken. This estimate assumes that the average cost of kitchen refurbishment is in the region of £13,000 and dining room refurbishment just over £6,000.
66. If the Government were to subsidise these expected cost increases so that they are not passed on to the pupils consuming the service, the estimates indicate that the average subsidy to schools would be £56 per primary school pupil or £0.25 per pupil per day³⁴. These costs will not be evenly distributed across the entire schools estate. The estimates presented here relate to a representative school and are estimated at an aggregate level for the purposes of this analysis. In reality, many schools will require little or no refurbishment while some schools will require a complete overhaul.
67. There are possible knock on effects associated with kitchen and dining room refurbishment that have not been modelled explicitly. In particular, it is probable that improving the dining room infrastructure will result in increased take up rates, which in turn will increase the expected cost of ingredients and possible waste, but reduce the cost of preparation and training time on a per capita basis.

³⁴ This estimate relates to every pupil irrespective of whether they take up school meals or not.

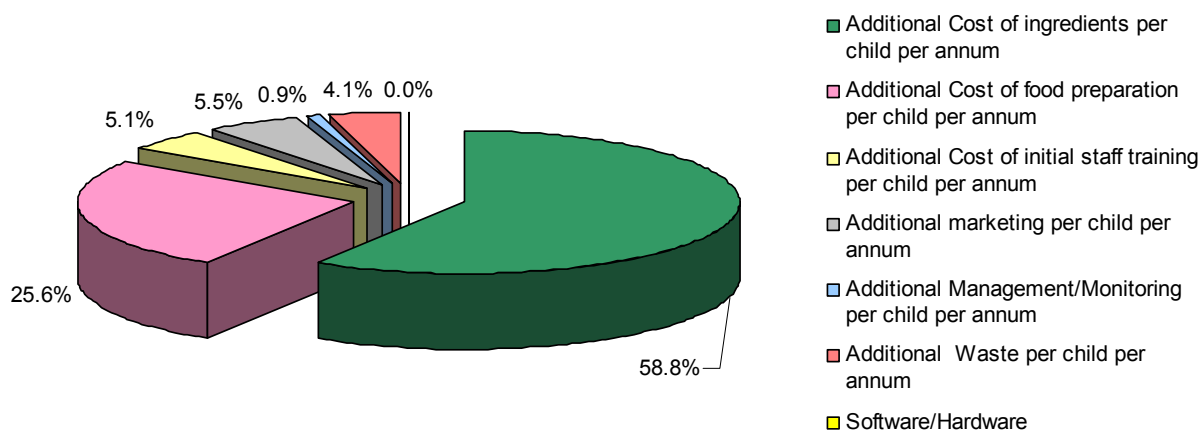
Table 8: Variable Cost breakdown associated with implementation of CWT guidelines at primary level

Variable Costs	Primary School	
	Initial	Recurrent
Additional Cost of ingredients per child per annum	£23.79-£32.28	£23.79-£32.28
Additional Cost of food preparation per child per annum	£12.23	£12.23
Additional Cost initial staff training per child per annum	£2.42	£1.13
Additional marketing per child per annum	£2.61	£2.61
Additional Management/Monitoring per child per annum	£0.41	£0.41
Additional Waste per child per annum	£1.73-£2.23	£1.73-£2.23
Software/Hardware	£0.01	£0.01
Subtotal per pupil	£43.21-£52.20	£41.93-£50.91
Total number of primary school pupils	4,252,240	4,252,240
Subtotal (Assuming 43% take up Rate)	£79m-£95m	£77m-£93m

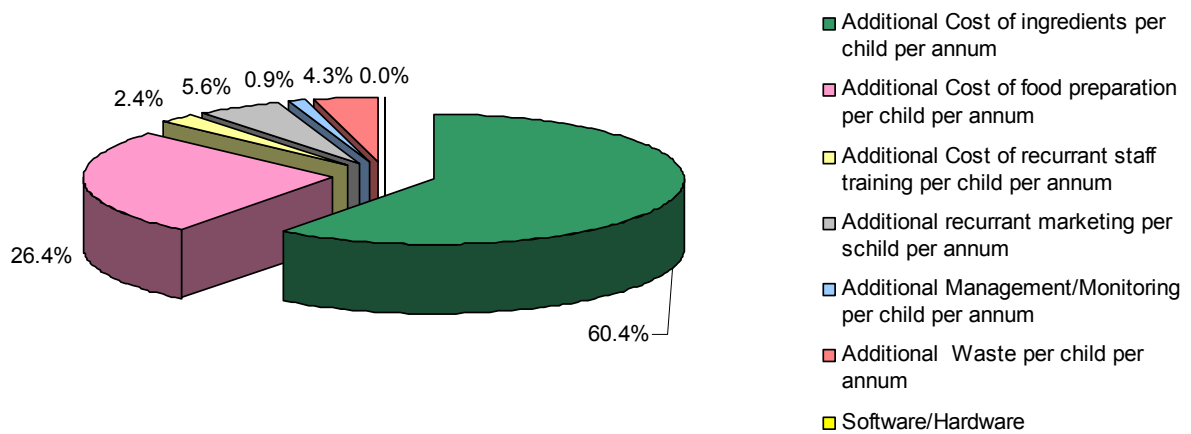
Table 9: Fixed Cost breakdown associated with implementation of CWT guidelines at primary level

Fixed Costs	Primary School	
	Initial	Recurrent
Kitchen Refurbishment per school	£12,993	
Dining Room Refurbishment per school	£6,153	
Subtotal per school	£19,146	
Total number of primary schools	17,762	
Subtotal (Assuming 70% of schools)	£205.9m	£0

Per primary school pupil per annum initial costs



Per primary school pupil per annum recurrent costs



Secondary Schools³⁵

Variable Costs

68. The results indicate that the cost of implementing CWT recommendations for those taking up school meals are in the region of between £49 and £66 per secondary school pupil initially and between £45 and £61 per annum on a recurrent basis. These estimates have been aggregated to account for the entire secondary school population currently taking up meals (approximately 42%³⁶) to provide an initial annual total (excluding refurbishment costs) of between £69m and £92m and between £63m and £85m per annum thereafter. These estimates equate to a cost of £0.26 to £0.35 per pupil taking up school meals in the first year. In recurrent years, the subsidy equates to an estimate of between £0.24 and £0.32 per pupil per annum.
69. Again, the primary component of the higher costs per pupil arises from the increased perceived costs associated with food ingredients. We present more information later in the report; however, these costs are between £37 and £52 per secondary school pupil per annum. The next greatest component of cost is associated with the additional labour cost arising from the need for additional preparation time. These costs are highly variable across authority but for the average pupil they equate to £3.88 per annum on an ongoing basis. This is significantly less than the per pupil costs incurred at primary level due to the greater economies of scale that exist in secondary schools (which are, on average, approximately 4 times as large as the average primary school).

Table 10: Variable Costs breakdown associated with implementation of CWT guidelines at secondary level

Variable Costs	Secondary School	
	Initial	Recurrent
Additional Cost of ingredients per child per annum	£36.89-£51.65	£36.89
Additional Cost of food preparation per child per annum	£3.88	£3.88
Additional Cost initial staff training per child per annum	£0.55	£0.26
Additional marketing per child per annum	£0.34	£0.34
Take up risk per child	£3.44-£4.59	£0.00
Additional Management/Monitoring per child per annum	£0.41	£0.41
Additional Waste per child per annum	£3.53-£4.13	£3.53-£4.13
Software/Hardware	£0.01	£0.01
Subtotal per pupil	£49.06-£65.56	£45.33-£60.69
Total number of secondary school pupils	3,324,950	3,324,950
Subtotal (Assuming 42% take up Rate)	£69m-£92m	£63m-£85m

Table 11: Fixed Costs breakdown associated with implementation of CWT guidelines at secondary level

Fixed Costs	Secondary School	
	Initial	Recurrent
Kitchen Refurbishment per school	£23,039	
Dining Room Refurbishment per school	£11,876	
Subtotal per school	£34,915	
Total number of secondary schools	3,409	
Subtotal (Assuming 70% of schools)	£83.3m	£0

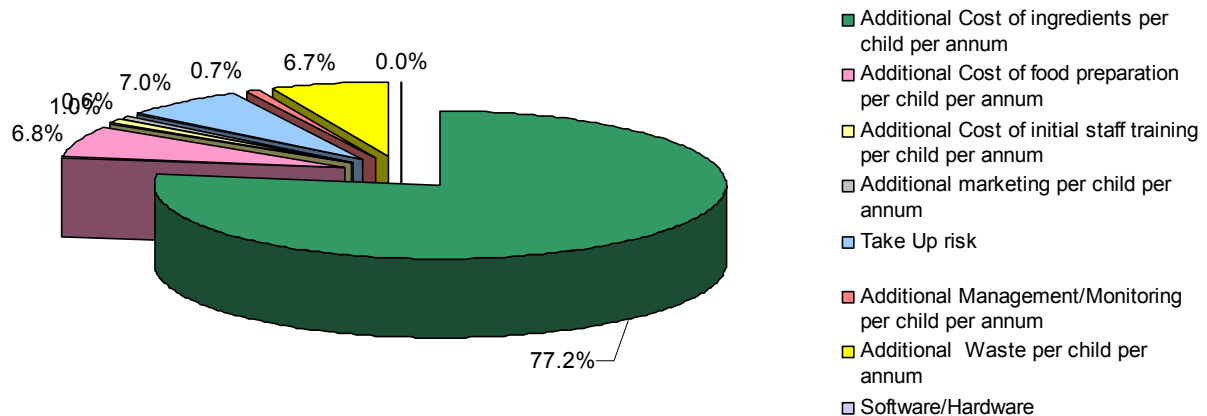
³⁵ Note that for ease of presentation, we have presented the results based on the two estimating methods in reverse order in these tables rather than the higher estimates first and the lower estimate second. Where ranges are presented and comparisons or summations with the primary school information needs to be undertaken, the first entry relating to primary schools and the second entry relating to secondary schools should be combined and vice versa

³⁶ Local Authority Catering Association *School Meals Survey 2004*

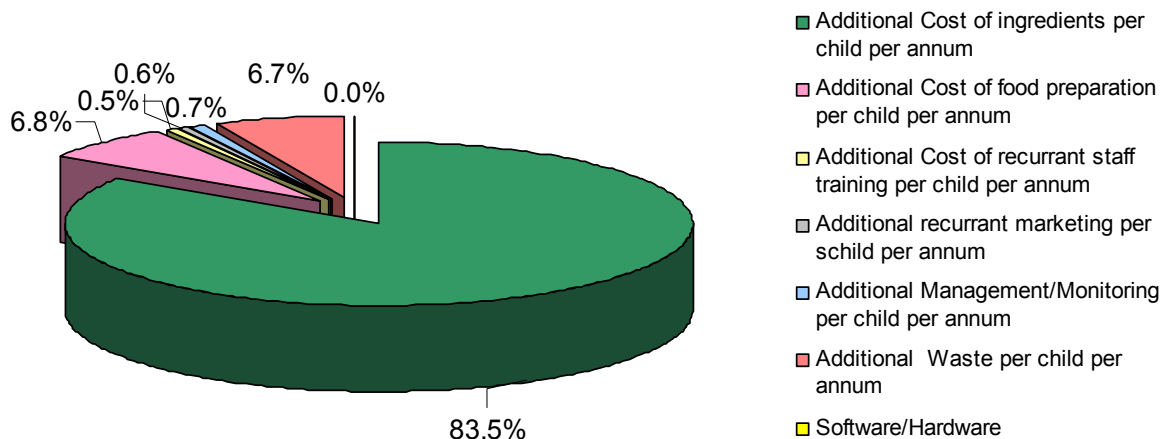
70. The next largest costs relate to the potential waste associated with provision of full service choice and take up risk. Waste adds between £3.53 and £4.13 per pupil per annum in the first year only. Assuming that there is a four percentage point drop in take up in first year of implementation, this cost component is estimated at between £3.44 and £4.59 per secondary school pupil per annum in the first year³⁷.

71. This information is presented in detail in the figures below.

Per secondary school pupil per annum initial costs



Per secondary school pupil per annum recurrent costs



Fixed Costs

72. We estimated refurbishment costs in the first year to be an additional £83m.

73. As with the primary school estate, we have assumed that there is a need for some capital and estate refurbishment. The average cost of undertaking a kitchen refurbishment is just over £23,000 while the

³⁷ We have made the assumption that take up risk only affects secondary schools as in primary schools additional measures can be taken to ensure that pupils remain on site during the school meal period. In secondary schools, the four percentage point fall in take up results from the availability of alternatives from outside sources which might occur following the introduction of new menus.

typical dining room refurbishment costs in the region of £12,000. Based on the survey information that almost 70% of schools require refurbishment, the initial costs associated with this are approximately £83.3m. This estimate equates to £0.13 per secondary school pupil initially.

74. It is important to note that in some respects the extent to which kitchen and school dining rooms require refurbishment or extension will be dependent upon the success of the initiative. Although we have assumed that there is a drop in take up in secondary schools in the first year, there is evidence that take up has increased significantly in some school where healthy menus have already been introduced. If there is a significant increase in the take up of school meals, then it is likely that a greater proportion of schools will require additional works to be undertaken. There is the related issue that in many schools (both primary and secondary) this is not always possible due to the historic conversion of kitchen space for alternative uses.
75. Combining the costs at primary and secondary level, the total costs of the implementation of the recommendations in the first year are estimated to be £164m and £171m falling to between £156m and £161m per annum thereafter. Refurbishment costs are estimated to be an additional £289m.
76. There is some uncertainty surrounding these estimates and significantly more research work would need to be undertaken to ensure the robustness of these results. In particular, there needs to be accurate agreement on the scope of the recommendations and the degree of renovation work and refurbishment work that the schools estate may require.
77. In general there is very little information on the extent to which schools provide meals for their pupils – even at the most basic level. The survey information collected as part of this exercise does illuminate the topic to some extent but standardised information needs to be collected in the future alongside any potential implementation of nutritional standards (or any initiative relating to school meals).

Detailed Results

Current Ingredient Costs

Primary

78. In the main questionnaire, we asked respondents to indicate the current approximate cost of food ingredients per two course main meal (net of any discounts). At primary level the responses ranged from £0.40 to £0.65. The weighted average of food ingredients (currently) was estimated to be £0.485.
79. The associated standard deviation measures the extent to which the sample responses are bunched or widely dispersed around the mean estimate of food ingredient costs at primary level. In this case the standard deviation is estimated to be £0.05. This implies that approximately 70% of the sample responses lie in the range £0.435 - £0.535.

Secondary

80. There was less information relating to the average food cost at secondary level. This is in part due to the fact that the respondents were in general more focused on the provision of school meals at primary level, but also reflects the fact that the nature of school meal provision at secondary level is fundamentally different from that at primary level.
81. In many cases, respondents were neither able to assess the take up of meals at secondary levels given the canteen style nature of provision nor estimate the type of purchasing that took place. Specifically, the concept of a main (two course) meal is simply not as prevalent in the case of secondary school pupils.
82. However, for those caterers that were able to provide a response, the average cost of ingredients was £0.598 per secondary school pupil with a standard deviation of £0.04. The response ranged from between £0.558 to £0.638. This information illustrates that the cost of food ingredients at secondary school level is significantly more concentrated around the average (compared to primary school level).

Ingredient Costs under the CWT Recommendations

Primary Schools

83. We asked all respondents what they estimated the average cost per main (two course) meal might be if the CWT recommendations were adopted. We found that the respondents' estimates ranged from between £0.48 to £0.78; however, this range is skewed towards the top end of the range. Specifically, using the same approach as previously to estimate the current cost of ingredients, we found that the average estimate of fresh food ingredients stood at £0.668. The average increase in ingredient costs across the entire sample was estimated to be £0.184 which is equivalent to a 37% increase in ingredient costs³⁸.
84. However, the expected increase in costs was not uniform by any means. The relative increase in costs per pupil per day ranged from between £0.02 to £0.38. There were four authorities that stated that they already considered themselves to adhere to the CWT recommendations for the most part and that the effect of the implementation of the recommendations would be minimal. In contrast, there were some authorities that thought that ingredient costs might increase by as much as 55%.
85. LACA have also presented information on the cost of implementing the CWT guidelines by producing a

³⁸ Interestingly, we asked whether these cost increases might be passed onto pupils (and parents) and found that the average increase in school meal prices at primary level was limited to **10.9%**.

representative menu, assessing the nutritional components and the associated cost of provision. The ingredient costs associated with the sample menu at primary level was estimated to be approximately £0.61 per pupil per day.

86. We have calculated the additional ingredient costs based on both the estimate resulting from the survey work as well as the cost implications resulting from the adoption of the sample LACA menu.
87. The impact of a £0.01 increase in food ingredient costs per primary school pupil per day equates to £3.4-£3.7m nationally per annum (assuming that current levels of take up do not change in any way) at primary level. For a typical primary school pupil, this increase in ingredient costs equates to between £23.79 and £32.28 per annum.
88. The additional cost associated with the fresh ingredient component of the recommendations accounts for almost 55% of the total initial costs in the first year excluding refurbishment costs and 61% of the recurrent costs once the primary fixed costs associated with kitchen and dining room refurbishment have taken place.

Secondary Schools

89. In secondary schools, the responses to the questionnaire indicated that the average cost of fresh produce following the implementation of CWT recommendations would approximate £0.768, an increase in absolute terms of £0.170 per pupil per day which in turn corresponds to 28.4% increase in costs.
90. Again, LACA have developed a representative sample menu for secondary school provision and have indicated that the approximate costs associated with ingredients that are CWT compliant is approximately £0.87.
91. The impact of a £0.01 increase in food ingredient costs per secondary school pupil per day corresponds to £2.6-£2.8m nationally per annum (assuming that current levels of take up do not change in any way). For a typical secondary school pupil, the weighted average of the increase in ingredient costs is estimated to be between £36.89 and £51.65 per annum.
92. The additional cost associated with the fresh ingredient component of the recommendations accounts for 77% of the initial costs in the first year excluding refurbishment and 83% of the recurrent costs once the primary fixed costs associated with kitchen and dining room refurbishment have taken place.

Additional Preparation time

Primary Schools

93. Many of the respondents indicated that there would be significant additional costs associated with the preparation of fresh produce. As mentioned in the section outlining general assumptions, there are four categories of employee contained within the school workforce. In a typical primary school, there are approximately 2.37 catering assistants each working on average 12.62 hours per week. In addition, a typical primary school contains 1.00 chefs/cooks working 22.93 hours a week, 0.68 managers/supervisors working on average 29.5 hours per week and 3.04 mid-day assistants working 7.3 hours per week. In the table below we present this information along with the estimate of the average additional amount of preparation time that each category of employee might be required to provide to implement the recommendations.

Table 12: Employee profile in a typical primary school

	Average number employed	Number of hours per employee per week	Number of weeks per year	Additional percentage of base hours required for additional preparation
Catering Assistants	2.37	12.62	39.0	20.3%
Cooks/Chefs	1.00	22.93	39.0	18.5%
Supervisors/Managers	0.68	29.5	43.1	10.4%
Midday assistants	3.04	7.30	39.1	10.5%

94. As can be seen from the table, additional labour costs are potentially significant. For catering assistants respondents indicated that an extra 20.3% of labour time might be required for the preparation of food while an additional 18.5% of labour might be required for cooks and chefs, 10.4% for supervisors/managers and 10.5% for midday assistants. There was significant variation in the estimates relating to the additional preparation time required for catering assistants; however, this was primarily as a result of the low average base hours undertaken by accreting assistants.
95. The implied labour cost associated with this additional preparation time equates to £3,193 per school per annum and would occur initially and on a recurrent basis. This translates to a per pupil per annum additional cost of £12.23.

Secondary Schools

96. Using the previous information about the canteen structure of secondary school meal provision, we have been able to construct the employee profile associated with a typical secondary school from the information provided by respondents.
97. The information suggests that there is an average of 7.2 people employed as catering assistants with each working approximately 14.1 hours per week for 38.4 weeks in the year. On average there are 1.42 cooks and chefs employed in schools working an average of 25 hours per week and 1.05 supervisors/managers working approximately 32.7 hours per week for 39.1 weeks in the year. Finally, the evidence suggests that there are approximately 3.87 midday assistants employed in a typical school with each working approximately 7.4 hours per week for 38 weeks in the year.

Table 13: Employee profile in a typical secondary school

	Average number employed	Number of hours per employee per week	Number of weeks per year	Additional percentage of base hours required for additional preparation
Catering Assistants	7.20	14.1	38.4	16.1%
Cooks/Chefs	1.42	25.0	38.4	15.4%
Supervisors/Managers	1.05	32.7	39.1	18.9%
Midday assistants	3.87	7.4	38.0	0.0%

98. The information gathered suggests that the approximate amount of additional preparation time required by catering assistants is about 16.1% and, as with primary schools, the equivalent estimate of additional preparation time is marginally lower for cooks/chefs (standing at 15.4%). The only difference in the amount of training required by the school workforce between primary schools and secondary schools is that, in secondary schools, respondents indicated that approximately 18.9% of labour hours would be required by supervisors/managers in secondary schools (compared to 10.4% in primary schools).
99. The implied labour cost associated with this additional preparation time equates to £8,170 per school per annum and would occur initially and on a recurrent basis. This translates to a per pupil per annum additional cost of £3.88.

Training

100. We assessed the extent to which additional training might be required for the school workforce. We asked respondents whether formal training might be required, whether the training required a formal qualification (and if so what level), how many hours of training might be required initially and on an ongoing basis.
101. The catering workforce in schools is predominantly low skilled and subject to a high degree of turnover (both within employment and from employment to other forms of economic activity and inactivity). We have made the assumption that there is a 20% turnover of staff in any one year, which implies that 20% of the estimate we derived for the cost of initial training should be carried on to subsequent years in addition to the recurrent training (for the remaining 80% of the school catering workforce). It is possible that if training is provided at the expense of the employer or the state and the individual needs to make no contribution to the cost of the training, then there may be an increased rate of staff turnover as more

qualified workers leave for positions in other organisations³⁹. If this does occur, then there is a possibility of increased wage inflation resulting from the need to retain existing employees as well as recruit new entrants, given that relatively higher skilled employees become more employable throughout both the public and private sectors.

102. We did not distinguish between the needs of the primary school workforce and the secondary school workforce separately.

Table 14: Training requirements in a typical primary school

	Training Required Proportion answering 'yes'	Proportion requiring training	Number of hours per annum (Initial)	Number of hours per annum (Recurrent)
Catering Assistants	100%	94%	18.79	8.90
Cooks/Chefs	94%	93%	30.72	14.67
Supervisors/Managers	100%	95%	45.33	10.39
Midday assistants	100%	96%	5.95	5.03

103. For the most part, participants thought that the overwhelming majority (if not all) of their catering workforce required training and that, within each category, the majority of employees required training. However, there was substantial variation in the responses relating to the extent of training required according to whether formally recognised qualifications (generally at NVQ Level 2) were required or whether modules of instruction on issues such as basic hygiene and nutrition were sufficient.
104. Within the catering assistants category the responses ranged from 6-8 hours all the way up to 200-250 hours though the distribution might really be considered bi-modal with a significant proportion of respondents indicating approximately 30 hours might be required while another significant minority indicated that 6 hours might suffice. The average estimate was 18.79 hours.
105. Similarly for chefs/cooks, again there was a wide variation in the amount of training required with responses ranging from zero where it was believed that the workforce was fully trained at present (though this authority claimed to be ahead of the game and had already worked very hard to implement the recommendations) to an authority that considered 250 hours of training to be appropriate. The average number of hours of initial training required stood at 30.7 with just over half of this amount on a recurrent basis.
106. The number of initial hours of training for supervisors and managers stood at 45.3 with only 10.39 in recurrent years, while for midday assistants a minimal amount of training would be required – approximately 5.95 hours initially and just over 5 hours per annum in recurrent years.
107. The degree of recurrent training required was significantly less than that indicated initially. The mean response was estimated to be 8.90 hours for catering assistants, 14.67 hours for cooks/chefs, 10.39 hours for managers/supervisors and just over 5 hours for midday assistants.
108. In primary schools, the additional labour cost of this training per typical primary school was estimated to be £636 in the first instance falling to £316 per primary school per annum. These estimates do not include the cost of training provision but merely the opportunity cost of the school workforce participating in training.
109. Translating these estimates into a cost per pupil per annum, these estimates equate to a training cost of £2.42 per primary school pupil in the first year and £1.13 per pupil on a recurrent basis.
110. In secondary schools, adopting the same labour inputs (though a different secondary school workforce mix), the training requirements equate to £953 per secondary school on an initial basis and £455 per annum on a recurrent basis (driven by the larger workforce). These estimates equate to £0.55 per

³⁹ This is known as a poaching externality

secondary school pupil per annum initially and £0.26 per pupil per annum cost in recurrent years. The estimates per pupil are lower than the equivalent for primary schools due to the fact that the training costs can be spread over a larger population of students.

Refurbishment Costs

111. One of the most difficult components of the costs associated with the CWT recommendations to assess accurately is refurbishment costs. For many of the respondents, although they could make a reasonable assessment of the proportion of kitchens at primary and secondary level that needed complete and partial refurbishment, there was a less clear idea of the cost associated with implementing these changes. In addition, the fact that schools fundamentally differ in their existing size and scope introduces another element of uncertainty into the analysis.
112. A related point is the possible implications of the recommendations for the existing proportion of meals that are prepared off site. If the recommendations indicate that hot meals need to be produced on school sites, then it is not always the case that either total or partial refurbishment of the kitchen or dining room space can be undertaken. In many schools, previous kitchen and dining room space has now been removed and replaced with teaching space. The creation of brand new kitchen and dining room space may take significant effort as it would involve (essentially) new building work and there would be significant costs associated with the planning and construction of such space. These costs and their incidence have not been quantified but it can be assumed that in many authorities they would be very significant and could only take place as part of a wider initiative dealing with school capital infrastructure (for instance, Building Schools for the Future).
113. There is also an issue relating to the subjective nature of the relative assessment of refurbishment needs between authorities. This could have led some respondents to indicate that kitchen and dining rooms need total refurbishment, whereas in other authorities similar kitchens and dining rooms might be thought only to need partial updating and upgrading. The sample size for undertaking a robust benchmarking analysis did not allow for such comparisons and further research work would need to be undertaken in this area.
114. Notwithstanding these significant issues, we did achieve an acceptable proportion of credible responses to our survey. From this information we were able to determine that, of the primary schools covered by the sample, it was thought that approximately 30.2% required total refurbishment at an average cost of £30,970, while 60.2% of primary schools were thought to be in need of partial refurbishment (at an average cost of almost £6,056). In addition, it was thought that 36% of primary school dining rooms required total refurbishment (at an average cost of £14,000) while an additional 16.6% of primary school dining spaces required partial upgrading at an average cost of £6,092.
115. The implications of these results are that for a representative primary (representing the aggregate characteristics of the primary school estate), the average resources required to update the kitchen infrastructure amounts to £12,993 with a further £6,153 required to update dining room facilities.
116. At an aggregate level, the cost of kitchen and dining room refurbishment is in the region of £205.9 million at primary level which is equivalent to an average subsidy to schools of £56.21 per primary school pupil or £0.25 per primary school pupil per day⁴⁰.
117. For the secondary school estate the respondents estimated that 21.3% of kitchens need complete refurbishment at an average cost of £66,825 while a further 51.6% required partial up-grading at a cost of £17,063 on average. In addition, respondents indicated that 24.2% of secondary school dining rooms required total refurbishment (at an average cost of £26,588) while an additional 32.8% of secondary school dining spaces required partial upgrading at an average cost of £16,615.
118. On this basis, an illustrative secondary school which represented the refurbishment needs of the entire schools estate would require approximately £23,039 of resources for kitchen upgrading and a further £11,876 to upgrade dining room facilities. At an aggregate level, the cost of kitchen and dining room

⁴⁰ Note that approximately 13.5% of primary school pupils are educated in schools within local authorities that either do not have kitchen facilities or the local authority provides 'packed' lunches, e.g. *Sandwich Plus*. We have assumed that these schools are not included in the analysis with respect to refurbishment costs and thus the cost estimates have been applied to 86.5% of the total number of schools nationwide. The assumption that approximately 70% of schools require refurbishment work is applied to this reduced total of schools.

refurbishment is in the region of £83.3 million at secondary level which is equivalent to an average subsidy to schools of £15 per secondary school pupil per annum or £0.13 per secondary school pupil per day.

119. It is clear that a virtuous circle might be generated with the refurbishment of school kitchens and dining rooms. There is strong evidence that suggests that one of the reasons why pupils do not take up school meals is the need to queue and the lack of facilities that allow pupils to sit with their friends. If this refurbishment work does take place, then it is likely that meal take up will increase and this knock on effect will add some additional cost to the estimates.
120. However, there is also the strong possibility that increased take up, irrespective of why it takes place, will lead to greater economies of scale and the ability of meal providers to spread the fixed costs over a wider number of pupils. This will have the affect of reducing the per pupil estimates that have been presented to date.

Marketing and Education

121. There were significant variations in the responses relating to the extent to which additional marketing might be required and if so how much this might cost. The responses received were provided either at local authority level or at school level adding to the degree of variation in the data. In particular, some authorities indicated that the marketing and education associated with the provision of schools meals following the implementation of CWT recommendations might be as much as £2,000 per school per annum, though these estimates include the costs associated with encouraging parental involvement through tasting sessions etc. At the lower end, some authorities indicated that additional marketing might be zero as this activity is already included in the service as currently provided.
122. On average however, the estimated cost per school of providing additional marketing and education was approximately £726 per school.
123. For primary school pupils, this equates to a cost of £2.61 per pupil per annum and for secondary school pupils, translating to £0.34 per pupil per annum. Again it can be seen that the relatively small size of typical primary schools has the effect of raising the average expenditure per pupil per annum compared to pupils in secondary schools.

Software and assessment of nutritional information

124. Local authorities had relatively little information on the costs associated with the implementation and training associated with new software that might be required for assessing the nutritional information associated with meal provision. If undertaken by schools at an individual level or by schools that are not catered for by the local authority, it is clear that these costs might be extreme and there is every possibility that these costs alone will essentially prohibit schools from opting out of local authority provision. From the information gathered we have assumed that the cost of software for the purposes of nutritional planning is in the order of £25,000 per authority (including training and use of the software per annum), though in many cases it may be significantly greater.
125. The manner in which menus are planned and menu nutritional assessments are made has an important bearing on the indirect costs that may be faced by schools. The implications of alternative means of menu assessment need to be carefully considered.
126. The effect of this assumption on costs is to raise the average cost to pupils (either primary or secondary) by approximately £0.015 per pupil per annum. Although there is the possibility of significantly higher costs associated with this item in absolute terms, this will have little effect on the overall estimates, though as previously mentioned the effect is not equally distributed on all schools. For some schools, this cost may mean the difference between contracting out and opting for local authority provision.
127. There is an additional cost that has not been quantified in this report relating to the potential requirement on food suppliers to schools to provide information on the extent of micro-nutrients for every product sold to schools. Although we do not have representative documentary evidence as to the additional costs that would be imposed on suppliers as a result, they are expected to be significant.

Waste

128. In the CWT recommendations, there is a requirement to provide a choice of meals with the required nutritional standards throughout the entire lunchtime meal service. As a result, there may be the possibility of an increased rate of wastage. Although difficult to quantify, some authorities indicated that the increased waste might be as much as 5% of meal costs (though some indicated that after a short initial period, waste would either be eliminated or be included in the initial meal costs). The average response was closer to 2.5% though it is anticipated that waste at primary level will be significantly lower than at secondary level. The effect of waste is to increase costs by between £1.73 and £2.23 per primary school pupil per annum and by between £3.53 and £4.13 per secondary school pupil per annum. We have assumed that the waste element is a fixed proportion of ingredient costs both initially and in recurrent years, though clearly there would be some expectation that the proportion of waste might fall over time as the recommendations embed.
129. The cost element associated with wastage is not a stand alone cost. The need to provide choice to the pupil spanning full lunchtime service results in the possibility of waste. To combat this, a reduced element of choice may be considered appropriate. However, this is likely to result in a lower take up rate especially amongst secondary school pupils, which will in turn reduce the recurring costs of meal provision (it also obviously contradicts the stated aims and objectives associated with implementing the recommendations).

Contracts and Risk

130. We asked respondents whether there would be any costs associated with contract renegotiation with ingredient suppliers. Although most respondents did not have a fully accurate view of the costs of this, most indicated that the costs would be negligible.
131. However, most respondents were clear that there might be some risk associated with an initial drop in the demand for school meals. Although there is evidence to suggest that meal take up is on a par (or higher in some cases) following the introduction of a whole school approach towards healthy eating, in the first period following the introduction of new menus, there has generally been a reduction in demand.
132. We have assumed in this analysis that the reduction in take up is in the region of 4 percentage points in the first year but that demand recovers to the pre implementation levels in recurrent years. We have costed this drop in demand at secondary level only as there is a lower probability of this drop in demand occurring at primary level compared to secondary level.
133. The effect of take up risk on per pupil costs is in the region of £3.44 and £4.59 per secondary school pupil. These estimates equate to between £8m and £9m at secondary level.
134. There were strong views amongst the survey respondents about the extent of take up risk, the associated costs and the aggregate costs associated with implementation of CWT recommendations. In particular, there was a belief that the phased implementation of the recommendations within a whole school approach across schools would assist in greater and more effective planning and reduce many of the costs estimated to date. A rapid or premature implementation of the recommendations would result in costs in line with the estimates presented in this report.

Qualitative Information

135. We asked several questions relating to the impact of the CWT recommendations on factors relating to both the price that might be charged to pupils as the ultimate consumer as well as the ability of the current supply chain to accommodate the increased demand for fresh produce.
136. In particular, we asked respondents to indicate how strongly they agreed or disagreed with a series of statements as follows:
- a) The supply chain is well enough developed to cope with the increased demand for fresh produce in the short term?
 - b) The CWT recommendations on average ingredient costs (70p per pupil in primary schools and 80p in secondary schools) are underestimates of the true cost of providing minimum nutritional standards?
 - c) The price of school meals charged to pupils will inevitably increase if the CWT recommendations are adopted (and if it is thought that that the price of school meals charged to pupils will increase, can you say by how much in percentage terms)?
137. The answers to the first question were surprisingly consistent and there were very few respondents who did not have a strong view on the question. The average response was 3.97 (where 1=strongly disagree and 5= strongly agree). The implication was that there was strong agreement with the statement though there was variation according to whether catering was undertaken within an authority (for an authority) or by a private organisation (on behalf of several authorities). Generally speaking individual authority respondents believed that the supply chain was better developed than private caterers. The implication of the findings is that there may not be significant price implications associated with rigid supply chains. This reflects the fact that even though the number of school meals provided daily is large, compared to the total food business, the significance of this element of aggregate demand for food ingredients is reduced.
138. The second question asked specifically whether the CWT recommendations of approximate prices per main school (70p per pupil in primary schools and 80p in secondary schools) were underestimates of the anticipated ingredient cost. The mean response was 2.73 indicating marginal disagreement with the statement. There were only two authorities that indicated that these estimates were considerably wide of the mark and only one of these authorities however indicated a specific cost of compliance exceeding the CWT estimates.

Price effects

139. Finally in this section of the questionnaire, we asked whether the increased costs associated with preparation, ingredients and the general cost of meal provision would have to be passed on to pupils. The overwhelming response from the questionnaire information was strong agreement. Only two authorities who claimed to have implemented the vast majority of the recommendations answered in the negative. Every other authority or caterer either agreed or strongly agreed.
140. We asked respondents to indicate the approximate increase in price that may have to be charged. The average response was in the region of 11% though there were some authorities who expected a much more significant increase in prices (up to 35%).
141. There is little information generally on the elasticity of demand for school produced food with respect to price. Although in the economic literature, the majority of studies find that most basic raw ingredients

have low price elasticities indicating that there is a less than proportionate reduction in the quantity demanded of a particular good following a given percentage increase in the price of the good, these studies generally are concerned only with food groups (meat, fish, dairy etc). There is very little information on the elasticity of demand for 'canteen produced' food. However, from the evidence that is available, it is highly probable that quantity demanded is significantly more sensitive to changes in the price of 'canteen food' than the price of basic foodstuffs.

142. In addition, the elasticity of demand will depend on the socio economic characteristics of the purchasers. It is certainly the case that for a given percentage increase in the price charged there will be a disproportionate reduction in the take up of school meals for those children from less well off backgrounds but who do not qualify for free school meals.
143. Another point to note is that the price elasticity of demand for school meals is likely to be much higher (in absolute terms) for secondary school pupils (for whom there are greater substitutes from external retailers) than for primary school pupils.
144. If this is the case, then any attempt to pass on the costs to consumers will result in a reduction in school meal take up and a disproportionate fall in meal take up for pupils from lower socio economic groupings.

Incentives

145. In the survey, we asked two questions to try and gain an understanding of whether there may be any way to encourage pupils to take up healthy meals in schools. We asked whether pupils might respond to incentives but the overwhelming answer was that they would not. Only three authorities indicated that pupils might, but in conversations with the survey respondents and additional material provided on the questionnaires, respondents confirmed that it could be a thankless task trying to get pupils to eat healthy produce and that 'bribing' them was pointless.
146. This fact reiterates the previous point indicating that the purchase of school meals is sensitive to price. If pupils are unlikely to respond to a fall in the price of food purchased, then they are very likely to react negatively to any increase in price. This point reiterates that for a standard linear demand curve, the elasticity of demand associated with price reductions is relatively small (no increase in quantity demanded) while the elasticity of demand for price increases is relatively large (falls in the quantity demanded).
147. We also asked whether schools might respond to incentives to encourage pupils to eat healthy meals and the response was marginally positive. This backs up the whole school approach to healthy eating that is seen as core to the success of any initiative attempting to target pupil behaviour. The average response was 3.24, with many respondents strongly agreeing.

Reasons for School Meal variability

148. We asked respondents their opinions of what the main determinants of the variability of school meal provision were. This was done to add context to the other survey responses but also to benchmark or 'anchor' some of the responses previously provided. For instance we needed to ensure that those respondents who indicated that significant kitchen or dining room renovation was required for the purposes of assessing refurbishment costs also stated that the existing kitchen and dining room infrastructure was an important reason for school meal variability.
149. We asked respondents to consider a number of statements and to rank their responses to indicate which statements were considered most important and which statement were considered least important.
150. The statements were as follows:

Lack of staff training is the greatest reason for the variability in food quality between schools/authorities

The kitchen and dining infrastructure is the greatest reason for the variability in food quality between schools/authorities

School attitudes are the greatest reason for the variability in food quality between schools/authorities

The structure of the catering contract is the greatest reason for the variability in food quality between

schools/authorities

Historical reasons are the greatest reason for the variability in food quality between schools/authorities

151. For local authorities, the main reason's stated for variability between schools and authorities were historical reasons/inheritance and the current lack of staff training while the least important reasons were the current structure of the catering contract (which was also the least important reason provided by organisations catering for more than one authority). Organisation catering for multiple authorities indicated that school attitudes were the greatest reason for variability in quality of school meals. It is interesting that there is such a divergence in the view relating to school attitudes and more work may need to be undertaken to understand why this divergence takes place.

Time to implement CWT recommendations

152. Given the fundamentally different nature of the consumers in primary and secondary schools and the greater options available to most secondary school pupils, there was a clear difference in the time required to implement the CWT recommendations at primary and secondary levels. In particular, it was thought that the recommendations might be implemented in 12 months on average for primary schools with a few authorities indicating that 24 or 36 months might be more appropriate.
153. For secondary schools, it was thought that the process might take as long as 5 years and there were many who questioned whether the initiative might ever be implemented.

Sensitivity Analysis

154. In the final part of this analysis, we undertook a sensitivity analysis to understand the marginal effect of changes in the assumptions made in the cost analysis on overall and constituent costs. The analysis also illustrates how sensitive the underlying costs are to different elements of the constituent costs.

We have presented abbreviated results of the overall costs of implementing the CWT recommendations for ease of reference:

Variable Costs for schools ⁴¹	Initial		Recurrent	
	Estimate 1	Estimate 2	Estimate 1	Estimate 2
Primary total based on these estimates	£79.0m	£95.4m	£76.6m	£93.0m
Secondary total based on these estimates	£91.5m	£68.5m	£84.7m	£63.3m
Total	£170.5m	£163.9m	£161.3m	£156.3m
Mean estimate	£167.2m		£158.8m	

Fixed Costs for schools	
Primary total based on these estimates	£205.9m
Secondary total based on these estimates	£83.3m
Total	£289.2m

Raising the costs of food ingredients by £0.01 per pupil per meal

Effect at primary level: **+£3.4m to £3.7m** both initially and in recurrent years

Effect at secondary level: **+£2.6m to £2.8m** both initially and in recurrent years

Price of meals increases by 5% (assuming unitary elasticity of demand)

Effect at primary level: **-£4.3m to -£6.0m** in the first year and **-£3.7m** and **-£4.6m** in recurrent years

Effect at secondary level: **-£3.5m** and **-£4.5m** in the first year and **-£2.2m** and **-£4.2m** in recurrent years

Meal take-up increase by 1 percentage point

Effect at primary level: **+£2.0m-£2.5m** in the first year and **+£1.8m-£2.3m** in recurrent years

Effect at secondary level: **+£2.2m-£2.6m** in the first year and **+£1.5m-£2.0m** in recurrent years

⁴¹ Estimate 1 relates to indicative information provided by the Local Authority Catering Association on the cost of ingredients required for CWT compliant menus. Estimate 2 relates to the information gathered as part of the survey of LACA members on estimated extra ingredient costs following the implementation of CWT guidelines.

Labour costs increase by 5%

Effect at primary level: **+£1.4m** in the first year and **+£1.2m** in recurrent years

Effect at secondary level: **+£0.3m** in the first year and **+£0.25m** in recurrent years

Capital works cost 5% more than anticipated

Effect at primary level: **+£10.3m** in the first year only

Effect at secondary level: **+£4.1m** in the first year only

Capital works required on 10% fewer schools than anticipated

Effect at primary level: **-£20.6m** in the first year only

Effect at secondary level: **-£8.3m** in the first year only

Conclusions

Variable Costs

155. The results indicate that the extra cost of implementing CWT recommendations relating to the basic nutritional standards are in the region of between £43 and £52 per primary school pupil initially and between £42 and £51 per primary school pupil per annum on a recurrent basis for those taking up school meals (assumed to be 43%). These estimates translate into an initial annual total of between £79m and £95m and between £77m and £93m per annum thereafter. The range of the estimates is based on alternative assumptions relating to the cost of food ingredients to comply with the CWT recommendations.
156. If the Government were fully to subsidise these additional costs, such that they were not passed on to the pupils consuming the service, a subsidy of between £0.23 and £0.27 per pupil taking school meals per day would be necessary to prevent price increases. In recurrent years, the subsidy equates to approximately £0.22 to £0.27 per pupil per day.
157. At secondary school level, the results indicate that the extra cost of implementing CWT recommendations is in the region of £49-£66 per pupil initially and £45-£61 per annum on a recurrent basis per pupil taking up a school meal. These estimates have been aggregated to account for the entire secondary school population currently taking up meals (assumed to be 42%) to provide an initial annual total of £69-£92 million and £63-£85m per annum thereafter.
158. As with primary schools, if the government were to provide a subsidy to ensure that increased costs were not passed on to pupils, these aggregate estimates equate to between £0.26 and £0.35 per secondary school pupil taking up school meals in the first year. In recurrent years, the subsidy equates to between £0.24 and £0.32 per pupil per annum.
159. The combined variable costs of the implementation of the recommendations in the first year are in the range £164m-£171m falling to £156m-£161m per annum thereafter.

Refurbishment Costs

160. Refurbishment costs in the first year might be as much as £206m at primary level and £83m at secondary level. The estimates indicate that an average subsidy to schools of approximately £48 per primary school pupil in the first year or £0.25 per pupil per day would be required to cover the cost of refurbishment. At secondary level, the daily subsidy is in the region of £0.13 per secondary school pupil initially (£24 per pupil). These estimates relate to every pupil irrespective of whether they take school meals or not.
161. The costs associated with refurbishing both primary and secondary school dining rooms and kitchen facilities are almost £290m, more than the aggregate variable costs associated with implementation.
162. In many cases, these estimates may be underestimates as in many schools the kitchen space that once did exist has been converted for pedagogical use. As such, entirely new kitchens many have to developed (space permitting) and there are significant planning, architectural, building and displacement costs associated with this. However, given the massive phased capital expenditure programme currently taking place (Building Schools for the Future) consideration should be given to linking the implementation of the CWT recommendations with this initiative.
163. The total cost at primary and secondary level including refurbishment in the first year was estimated to be £453-£460m and £156-£161m per annum thereafter.

164. To put these estimates in context, total annual resource allocation per pupil made by the state from the education budget in 2005/2006 was estimated to be £3,930. The additional cost per pupil associated with implementing these guidelines (excluding any refurbishment costs) accounts for approximately 0.55-0.57% of the current per capita resource allocation in the first year falling to 0.53-0.54% in recurrent years.
165. We have also benchmarked this analysis with the expenditure on Hungry for Success. From the information available, the initial three year costs associated with the programme (adjusted to mirror the assumptions presented here relating to take up) would approximate £51m and equates to £528 million (excluding any refurbishment costs). The additional cost of implementing CWT recommendations in England over three years excluding refurbishment costs is in the range **£476m to £493m**.

Prices

166. There is variable information relating to the impact of increased costs on the prices charged to the ultimate consumer. However, it is reasonably clear that if costs are passed on to pupils and parents then there may be a significant reduction in take up – especially at secondary level and for pupils from less well-off backgrounds. If the aim of the initiative is to ensure more widespread and healthy eating, then it is clear that some government subsidies will be required to ensure these dual aims.

Cost savings and benefits

167. This report has predominantly considered the costs associated with implementation of the CWT recommendations. Many of these costs are fixed costs associated with the redevelopment of the schools estate, however there are other costs associated with the training of the school workforce and additional meal preparation time. If a whole school approach to the implementation of the guidelines is adopted then there is evidence to suggest that take up rates may increase over time. If this occurs, then there is likely to be significant efficiency savings and a reduction in the per pupil costs as the set up and fixed costs are distributed over a greater number of pupils.
168. In addition, there is strong anecdotal evidence relating to the improved pupil behaviour and motivation following the introduction of healthy eating in particular schools. There are strong reasons to undertake a properly structured quasi experimental evaluation study where the costs and benefits in the form of educational attainment are assessed.

Implementation

169. We were not commissioned to assess whether the CWT recommendations should be implemented or over what time scale. However, we have gathered evidence from survey respondents indicating that implementation at primary level might take place over 24 months with the implementation at secondary level taking between 36 and 48 months. The costs described above might be associated with rapid implementation, however, appropriate lead time, phased implementation with appropriate risk management might mitigate against many of these peripheral costs.

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Appendix 6: Curriculum issues for the School Meals Review Panel

Introduction

1. Aspects of food and nutrition have a place within three areas of the National Curriculum (NC). Since the SMRP is clear that the question of school meals is related to the wider area of healthy lifestyles, it is appropriate to ask what impact the NC currently has in supporting healthy living.

Science in the NC

2. The scientific basis of human nutrition is part of the NC in science. The strand Sc2 includes from KS1 an emphasis on the need for exercise and appropriate diet as components of healthy living.

Humans and other animals

Pupils should be taught:

- a) to recognise and compare the main external parts of the bodies of humans and other animals
- b) that humans and other animals need food and water to stay alive
- c) that taking exercise and eating the right types and amounts of food help humans to keep healthy
- d) about the role of drugs as medicines
- e) how to treat animals with care and sensitivity
- f) that humans and other animals can produce offspring and that these offspring grow into adults
- g) about the senses that enable humans and other animals to be aware of the world around them.

By KS3 there is a requirement for detailed understanding of the basics of food and nutrition:

Humans as organisms

Pupils should be taught:

- a) About the need for a balanced diet containing carbohydrates, proteins, fats, minerals, vitamins, fibre and water, and about foods that are sources of these
- b) the principles of digestion, including the role of enzymes in breaking down large molecules into smaller ones
- c) that the products of digestion are absorbed into the bloodstream and transported throughout the body, and that waste material is egested
- d) that food is used as a fuel during respiration to maintain the body's activity and as a raw material for growth and repair

3. Science remains a compulsory element in the core curriculum through KS4, and the ongoing emphasis in the Life processes and living things (Sc2) strand on the human organism should ensure that a basic understanding of nutrition is acquired by all students by the age of 16.

Personal, Social and Health Education (PSHE) in the NC

4. There are only non-statutory framework provided for PSHE, and it is unclear to what extent these are an effective framework for the educational experience of students across the country. A recent report from Ofsted (January 2005) indicates significant shortcomings in PSHE, with some schools having no programme, others confusing PSHE with tutorial work or Citizenship. More positively, the report also found that at Key Stage 3 almost 90% of lessons taught by specialists are good or better, compared with 70% of lessons taught by tutors. The key challenge is to ensure that teachers are trained to teach PSHE effectively.

Developing a healthy, safer lifestyle

Pupils should be taught

- a) what makes a healthy lifestyle, including the benefits of exercise and healthy eating, what affects mental health, and how to make informed choices

It is unlikely that in itself this aspect of the curriculum has much impact as far as ensuring a real understanding of a healthy lifestyle is concerned.

Design and Technology in the NC

5. Food Technology is part of the design and technology curriculum and is compulsory in primary schools. It includes introducing practical food handling skills; using equipment and tools; establishing simple food hygiene; encouraging positive attitudes to food; and developing sensory vocabulary.
6. The current NC provides a process-oriented focus, with an emphasis on the 'design and make process', and a consequent relegation of practical skills to a subsidiary position within the educational experience of students. Food-related skills do not currently feature strongly in Key Stages 1-3, as the following extract from the KS1 curriculum indicates:

Working with tools, equipment, materials and components to make quality products

Pupils should be taught to:

- d) select the tools, techniques and materials for making their product from a range suggested by the teacher (use kitchen utensils)
- e) explore the sensory qualities of materials (taste different foods and understand flavour)

- f) measure, mark out, cut and shape a range of materials (cut food and calculate amount to be used)
- g) assemble, join and combine materials and components (prepare and mix different foods)
- h) use simple finishing techniques to improve the appearance of their product, using a range of equipment (present food)
- i) follow safe procedures for food safety and hygiene.

It is notable that by KS3, the mention of food-related skills has disappeared, and the note appended to KS3 provides only a very gentle prompt in the direction of safeguarding food skills within the KS3 curriculum:

7. The Government believes that schools should be encouraged to look for opportunities to teach both food and textiles as part of the range of contrasting materials that pupils should use as part of the key stage 3 programme of study.
8. At Key Stage 3, around 90% of schools offer pupils the opportunity to study food technology. The QCA Schemes of work provide practical support for teachers in teaching food technology at KS1-3
9. At KS4, there is no longer a requirement for students to take a Technology subject, and there is in the 'Entitlement Statement' only what might (again) be regarded as a weak prompt towards the retention of food-related study:
10. Schools can fulfil the entitlement by providing access to courses in the following areas:
 - product design (including textiles technology, resistant materials technology and graphic products) or manufacturing
 - food technology or hospitality and catering/home economics
 - systems and control, electronic products, electronics and communication technology, industrial technology or engineering.

Appendix 7: Case Studies

Appendix 7.1 - Hungry for Success

1. In 2002 Scottish Ministers accepted all the recommendations of the Expert Panel on School Meals. This was set up to improve the provision, presentation, nutritional content and uptake of school meals in Scotland. Amongst a comprehensive range of measures targeted at setting changes to school meals in the context of wider health promotion in schools, voluntary standalone nutrient standards (based on those published by CWT in 1992) for the provision of school lunches were issued to all authorities. These standards advocate that the school lunch will provide an average of one third of the child's daily energy and most nutrient requirements. Detailed implementation plans were released alongside a 3 year funding package of £63.5 million covering the period 2003-06, and those additional resources have now been extended beyond 2006. Key milestones include implementation in all primary schools by December 2004 and all secondary schools by December.
2. The package also contained tough targets, for example requiring fruit and vegetables to be part of every set meal; recommended limits on the frequency of fried and highly processed foods being included in weekly menus, and requiring that no confectionery or fizzy drinks should be provided as part of set meals. Detailed guidance and support was provided to local authorities about portion sizes, nutrient specifications for manufactured foods used in school catering and through the provision of a software package to allow authorities to plan menus which met the Hungry for Success nutrient standards. These measures were also supported by the provision of fresh, chilled drinking water, and wider education around healthy living choices for young people
3. Hungry for Success also supported measures to improve the quality and ambience of dining accommodation, to cover the cost of more expensive ingredients and larger portions, to support the training of caterers, to provide universal access to fresh, chilled drinking water, to encourage schools to de-brand their food and drink vending facilities, to support healthy tuck shops and to support engagement with pupils and parents over these changes.
4. Scottish local authorities have used these standards as a springboard to revolutionise catering in their schools. For example, Eastbank Primary School in Glasgow now has an extremely high uptake of school meals (up to 75% on busy days) with 94% of children entitled to free school meals taking them. Glasgow City Council has re-branded school dining rooms as "Fuel Zones" with carefully thought out menu mixes to encourage children to choose meals containing fruits, vegetables, a starchy plus dairy food and a protein source – all designed to be nutritious and deliver enough calories. The catering manager is convinced that the introduction of pick'n'mix maximised access to fruit, milk, yoghurt and bread. Testing and marketing the Fuel Zone concept with young people in schools has played a very important part in ensuring its success with the council, aiming to ensure that healthy eating is seen as attractive
5. Research carried out amongst secondary school pupils in Glasgow revealed that

queuing was perceived as the main problem. The caterers tackled this with training and ensuring that all meals were prepared in advance. The aim is to serve 600 – 700 customers within 20 minutes as pupils only have 40 minute lunch break. There has been a 105% increase in school meal uptake since 1996 when figures were rock bottom at 34%. The city council has also taken out all the commercial branding from its secondary schools and replacing household brands with Fuel Zone branding. Another vital implementation strand has been the introduction of a cashless payment system helping schools to overcome the stigma and bullying attached to free school meals. The system uses debit card technology where credit is loaded on to the card and healthy choices are rewarded by points which can be accumulated and exchanged for prizes. “Points get prizes.”

Secondary Fuel Zone Menu







3 Course Meal of the Day £1.15
 See Daily Display (with milk, water or fruit juice)


£1.15
 (all with milk, water or fruit juice)

Soup with Mexican pasta, tortilla chips and fruit

Soup and sandwich (lemon chicken or tuna & cucumber or ham salad or vegetable medley with garlic dressing or red cheese & onion) with Golden Lights crisps and fruit

Soup with lemon chicken pitta bread, yoghurt and raisins

Soup with salad tub (tuna & peppers or cheese savoury or lemon chicken & sweetcorn pasta) and biscuits, cheese & fruit





Meal Deals £1.15
 (all served with complimentary soup & roll)

Any 1 of 6 items plus drink

Classic beefburger with or without cheese

Cheese and tomato or pepperoni pizza

Baked potato with vegetable curry or ham & pineapple or vegetable medley with garlic dressing or cheese & onion

Hotdog

Swedish meatballs or falafel

Filled baguette with lemon chicken salad or tuna & cucumber or ham salad or vegetable medley with garlic dressing or grated red cheese & red onion



 Healthiser Choice
 Vegetarian











3 Course Meal of the Day £1.15
 See Daily Display (with milk, water or fruit juice)


£1.15
 (all with milk, water or fruit juice)

Soup with chicken 'n' rice, frozen yogurt and fruit

Soup and sandwich (chicken salad or tuna & sweetcorn or egg mayonnaise or ploughmans or ham & tomato) with Golden Lights crisps and fruit

Soup with oriental chicken wrap, fruit and yoghurt

Soup with salad tub (tuna & sweetcorn pasta or ham & potato or tomato & herb pasta) fruit and cereal bar





Meal Deals £1.15
 (all served with complimentary soup & roll)

Any 1 of 6 items plus drink

Classic beefburger with or without cheese

Cheese and tomato or pepperoni pizza

Baked potato with vegetable chilli or coloslaw or cheese or tuna & sweetcorn

Hotdog

Turkey burger

Roasted mediterranean vegetable couscous



 Healthiser Choice
 Vegetarian
 Halal





6. Hungry for Success has which advocates a phased approach both focussed and funded, and the schools highlighted in this case study characterise the sort of success which is possible. However, it is also clear that changing the culture and ethos of young people's attitudes and approach to food in schools is challenging, and dietary change is a long slow process spread over a number of years.
7. 2005 survey figures indicated the following key evaluative statistics:
 - Free school meal uptake declined from 69% (2004) to 67% in 2005,
 - 33% of mainstream schools had an anonymised system for free school meal receipt (up from 26% in 2004),
 - 47% of Scottish pupils took a school meal, a decrease from 49% in 2004. The decrease was largest in secondary schools. Local authorities have reported that some of the reduction was due to temporary factors, including initial response to new menus and teething problems with cashless transaction systems,
 - Nearly every primary school gave free fresh fruit to P1 and P2 pupils and 94% of all schools had free fresh chilled water available to pupils and staff at all times, up from 78% in 2004.

For more information about the Hungry For Success programme see www.scotland.gov.uk/education/schoolmeals

Appendix 7.2 - South Gloucestershire

8. School Meals in South Gloucestershire (originally part of Avon Country) are provided in-house by the Education Departments Catering Division. It employs approximately 500 staff, delivering 4 million meals per year to 99 primary, 14 secondary and 2 special schools with a requirement to supply around 600,000 free school meals.
9. In 1996/7 the local school meals service was floundering. Only 22% of children chose a school meal and uptake of free school meals was 69%. A centrally planned, single choice menu built around convenience foods was imposed on all primary schools. A vegetarian meal was only provided on written request.
10. The service was reviewed in 1998 and targets based around sustainable lifestyle combined with health and wellbeing were set. The underpinning values of the service were now to deliver nutritionally balanced menus that are attractive, appetising and actively sought by children regardless of their ability to pay. The key pillars of change to move towards this new visionary service in S. Gloucestershire were:
 - Removal of vending machines from schools
 - Transformation of the catering work force with a view to maximising staff retention helped by an extensive skills training programme.
 - Programme of continuous refurbishment and equipment replacement.
 - Introduction of new nutritionally evaluated menus limiting chips to once a week and a heavier emphasis on a wider variety of vegetables.
 - Menus focus on usage of fresh local produce particularly meat, eggs, fruits and vegetables and review of the product base to incorporate healthier commodities (e.g. unsaturated margarines, tinned fruit in water)
 - Research and consultation with pupils and parents
 - Marketing initiative to brand primary school meals and introduce fun days and tasting sessions.
 - Staff training programme to enhance nutrition, craft and customer care skills in order to build confidence, motivation and self esteem amongst school cooks.
11. During the period of change the price of the school meal (£1.30p for a hot 2 course meal) remained static and the service was supported by subsidises from other contracts (e.g. cleaning).
12. The results of this re-design of S. Gloucestershire's school catering services are impressive. Meal uptake across the authority has increased to 52%. Take up of

free school meals has risen to 88%. Staff retention has improved to 96% and 630, 000 portions of fruit were served in 2004/5. In addition, survey results revealed that 92% of parents were satisfied with the school meals served to their children in 2004. Recently the caterers have received a number of professional awards including the ISO 14001 and investors in people accreditation.

13. Recently Kay Knight, who is in charge of providing school meals in S Gloucestershire, analysed the transformation of her service and identified 3 key factors which contributed to their success. In her view these were:

- Prioritising and addressing workforce issues to create a climate where school cooks' skills are developed and valued
- Commitment from the highest levels of the local authority
- The high degree of entrepreneurship – be it procuring high eating quality organic vegetables (hitherto rejected by supermarkets on shape) or cross subsidies of the meals service through other contracts.

14. For more information about this case study look at 'Recipe For Change' (2004) London: CPAG

Appendix 7.3 - Greenwich

15. Many people in the UK are familiar with the television series portraying Jamie Oliver's attempts to transform the school meals service in a small number of schools in Greenwich in 2004. This series was the first to seriously showcase the issues facing caterers in their challenge to encourage healthy eating habits in school dining rooms across the UK. It helped millions understand the complexity of issues and the massive level of change in attitudes and behaviours which are needed to drive school food provision and pupil intake patterns in a healthier direction.
16. Within Greenwich 90% of school meals contracts have been awarded to the in-house provider. This service provides 15, 200 meals / day spread over 86 sites. Historically the menu relied on a heavy content of convenience/processed foods particularly low quality minced and reformed products. Healthy eating initiatives had moved very slowly and there was recognition for the need for change within the council. Jamie Oliver's approach to the council in 2004 to 'do something about school meals' provided the spearhead for change.
17. Behind the scenes, the main challenges to driving services in a healthier direction were:
 - Budget constraints.
 - The need for new equipment.
 - Re-training needs and in particular a short fall in craft skills.
 - Attitudes to food amongst children, parents and catering staff.
 - Perceived risk to uptake and the viability of the catering service.
18. In weighing up these constraints the council invested more than £600,000 to provide new equipment (£95,000) and training (£50, 000) including sending school cooks off to army catering units for food preparation training. School caterers also received 'on the job' support from commercial chefs to mentor them through the changes in catering practice needed to produce more meals 'from scratch'.
19. Kidbrooke secondary school acted as a pilot site to trial revamped menus featuring cous cous instead of chips; chicken portions instead of reconstituted meat products, and salad in place of spaghetti hoops as a vegetable. Freshly-cooked meals that were developed by Jamie Oliver have now been rolled out across all schools in Greenwich. The results are slow to emerge but recent figures show that primary meal uptake has increased by 2.4% and free school meal uptake in secondary schools has increased by 3.2%. Uptake of school meals at the pilot Kidbrooke school have now recovered after an initial sharp drop following the introduction of Jamie's menus.
20. Anecdotally, there have been numerous teacher reports of improved concentration and classroom performance following the introduction of the

‘wholesome’ meals. The publicity has also had a positive impact on the profile and image of school cooks in Greenwich. Recently 500 applications were received for 60 vacancies in school catering.

21. The council is now working hard to integrate these changes in school lunch provision within a whole school approach. Specifically work is in hand to involve the curriculum and mirror these changes within the wider school environment. In the future the main challenges for this health eating initiative are perceived to be its long term sustainability. Evaluation and ongoing training are seen as the key elements of this project’s ability to grow and thrive.

For more information about this case study, particularly a breakdown of the investment needed to deliver this transformed meals service, see www.greenwich.gov.uk