Public Health England

Protecting and improving the nation's health

External Reference Group - eatwell plate

Paper for discussion: includes options for updating the eatwell plate segment sizes - options paper

Agenda item 4

This paper considers different approaches for assessing the potential impact that draft SACN recommendations associated with changes in definitions for sugars and fibre may have on any update of the eatwell plate.

The reference group is asked to:

- Consider the background and possible approaches to updating the relative proportions of the food groups within the eatwell plate should the dietary reference values for sugars and fibre change;
- Comment on the different approaches identified. Do you agree with the pros and cons outlined for each or are there additional issues to consider?
- Comment on whether there are other approaches which might be useful to explore?

Options for updating the eatwell plate segment sizes

Background

1. The original *Balance of Good Health*, aimed to achieve the dietary targets set out in the Health of the Nation White Paper.[1,2] The calculation of segment size was based upon quantitative guidelines for the consumption of foods within each of the five food groups to ensure an average diet, consistent with Dietary Reference Values. These calculations were based on the model average diet developed as part of the COMA Diet and Cardiovascular disease report.[3]

2. SACN has recently published a draft report on Carbohydrates and Health[4], which draws conclusions that indicate a need to revise dietary reference values for sugars and fibre. Although the responses to the draft consultation are being reviewed and the outcome is not concluded, it is appropriate to assess potential implications for the eatwell plate and associated healthy eating messaging in order to be able to respond in a timely manner.

Should SACN retain their draft risk assessment the dietary targets which would result would be:

Carbohydrates	At least 50% of total energy (47% food energy)
Of which free sugars	No more than 5% total energy (5% food energy)
Fat	No more than 35% total energy (33% food energy)
Of which saturated fat	No more than 11% total energy (10% food energy)
Salt	No more than 6g for adults (children need less)
Micronutrients	As given by the DRVs
Other nutrients/foods	
Fibre	At least 30g (AOAC) a day
Fruit and vegetables	At least 5 portions of a variety of fruit and vegetables a day
Fish	At least 2 portions (140g) a week, one of which should be oily
Red and processed meat	For adults with relatively high intakes of red and processed meat (ie over 90g/d) to consider reducing their intake to the population average (about 70g/d)

[1] Dept of Health (1992) Health of the nation: A strategy for health in England. London. HMSO.
[2] Dept of Health (1994a) Eat Well! An action plan from the nutrition task force to achieve the health of the nation targets on diet and nutrition. HMSO
[3] Dept of Health (1984) Diet and cardiovascular disease. London. HMSO
[4] Scientific Advisory Committee on Nutrition (2014) Draft SACN Carbohydrates and Health Report
https://www.gov.uk/government/consultations/consultation-on-draft-sacn-carbohydrates-and-health-report

Approaches to review and update the relative proportions of food groups within the eatwell plate

3. It is not the intention of an updated national food model to be a diet plan. In addition, there would be many different ways of combining foods and drinks that will deliver a healthy balanced diet, meeting government recommendations. No single combination of foods and drinks will meet all eventualities.

4. There are a range of different approaches available that could potentially inform the proportion of food categories depicted within the eatwell plate should an update of the national food guide be necessary. This paper considers possible options for assessing the segment size of each of the food categories to achieve government healthy eating recommendations. While it is not our current intention to change the longstanding nomenclature of the food group categories, parallel work will be undertaken with the public to understand current trends in comprehension and message delivery.

5. Additionally, it is accepted that if the population were to move from the current pattern of intake[5] to one similar to the current national food model (i.e. the eatwell plate) intakes would be more sustainable given that as a population we eat more meat and dairy than and less fruit and vegetables than recommended. While consideration of sustainability is relevant, the specific requirement of the discussion for this paper relates to the nutritional health of the population.

6. Initial considerations suggest there may be a range of options:
   - Interrogation of National Diet and Nutrition Survey (NDNS) data to identify those participants who meet the potentially revised Dietary Reference Values (DRVs) and model food groups on this basis;
   - Data modelling based on movement from current dietary intakes to potentially revised DRVs to inform the proportion of food groups. It is envisaged that the methodology might follow an approach similar to that utilised for the *Balance of Good Health* (using up-to-date consumption data from the NDNS) in conjunction with the nutrient databank which underpins this survey);
   - Data modelling using linear regression approaches to identify an 'ideal' model;
   - Data re-modelling of the FSA Scotland eatwell week utilising NDNS and the associated nutrient databank;
   - Data modelling based on PHE healthier and more sustainable catering example menus;
   - Alternative approach(es).

Interrogation of NDNS data to identify those participants who meet the potentially revised DRVs and model food groups on this basis

7. Initial analysis of NDNS identified only 20 individuals who would meet the potential DRVs among the NDNS sample. Products consumed significantly more often by people meeting the guidelines included fruit and vegetables (absolute amounts and portions) while those consumed less often included low calorie soft

[5] Bates B, Lennox A, Prentice A, Bates C, Page P, Nicholson S and Swan G.(2014) National Diet and Nutrition Survey. Results from Years 1, 2,3 and 4 (combined) of the Rolling Programme (2008/2009 – 2011/2012). Public Health England.

drinks; bacon and ham; biscuits; chips, fried roast potatoes and potato products; white bread; sugar preserves and sweet spreads; savoury sauces, pickles, gravies and condiments; and processed red meat.

8. Taking this approach demonstrates that the dietary recommendations are achievable but would also have a range of difficulties. The small number of individuals within this sub sample provides a difficult basis for setting food choices across the population; with choices unlikely to reflect those within the wider population and may be too far removed from the average diet to be acceptable to wider population groups which may result in rejection of a visual image solely based on this analysis.

Data modelling based on movement from current dietary intakes to potentially revised DRVs to inform the proportion of food groups

9. This approach would utilise the current patterns of consumption identified from the NDNS, together with the up-to-date nutrient databank that underpins this survey, to consider the food based changes to current consumption that would be required to achieve the potentially revised DRVs. Although this approach would be similar to that adopted by those who devised the *Balance of Good Health*, it would necessitate a much more complex modelling exercise. The *Balance of Good Health* used data from the National Food Survey, which used a much simpler coding frame for food and drinks based on household food purchases only (i.e. excluding food and drinks consumed away from home). NDNS has a vastly more detailed coding frame incorporating all food and drink consumed, regardless of where consumed.

10. This approach would require secondary analysis of NDNS through substitution at the food code level and may also require substitution to increase fibre content alongside looking to reduce sugar contribution to the diet. This will also require review to ensure all DRVs are being met.

11. In undertaking this approach the analysis would reflect current population intakes and would have strong validity with products currently available for purchase. Substituting at the individual food level could also provide the basis of a diet that would be generally more acceptable to the wider public. However, the approach itself may predetermine the outcome without the potential to easily depict the required changes (to lower fat, sugar and salt options), may continue to allow products that some commentators would assume should not form part of a healthy diet and may not strengthen messages for example, to reduce foods high in sugar.

Data modelling using linear regression approaches to identify an ideal model

12. This approach is similar to that used by the authors of 'the livewell plate' [6] on behalf of WWF-UK and the healthful food plan[7].

[6] Livewell: a balance of healthy and sustainable food choices: http://assets.wwf.org.uk/downloads/livewell_report_jan11.pdf
[7] Malliot et al. Public Health Nutr 2010; 13(8): 1178-1185. Are the lowest-cost healthful food plans culturally and socially acceptable? http://journals.cambridge.org/download.php?file=%2FPHN%2FPHN13_08%2FS1368980009993028a.pdf&code=dbb450bfe6816e2367d2aaa56a4c8e16

13. The livewell plate attempted to estimate the contribution of different foods and drinks in the current UK diet (from NDNS) by allocating 106 'food groups' to the eatwell plate food categories. This requires considerable assumptions and highlights difficulties in assigning composite foods to the eatwell food groups, including the difficulty in assigning specific foods within the NDNS food categories. Wider learning from the approach taken to develop the livewell plate could support the development of revised eatwell plate food category proportions; however, this approach would more likely develop an 'ideal' range of food categories, which may be far removed from what UK consumers are likely to find acceptable with the potential of general rejection of this being achievable by the public.

Data re-modelling of FSA Scotland eatwell week utilising NDNS and associated nutrient databank

14. The Food Standards Agency Scotland (FSAS) identified that consumers found it difficult to translate food based dietary advice, as depicted by the eatwell plate, into meals and snacks. Therefore FSAS commissioned work to develop the eatwell week[8]: a week's worth of recipes based on commonly eaten foods to help consumers understand what a healthy balanced diet might look like. The weekly menu was designed to meet current government dietary recommendations over the period of one week.

15. Despite meeting all government diet and nutrition recommendations (with the exception of vitamin D and selenium) the amounts and proportions of the foods contained within the eatwell week did not map directly onto the eatwell plate.

16. This methodology has some limitations owing to the single week menu approach, but has advantages in that it is less complex than modelling at a population (NDNS) level. However, it provides a limited opportunity to consider the role of a range of foods within each food group and earlier attempts to map the one week diet across the eatwell plate were not successful.

Data modelling based on PHE healthier and more sustainable catering example menus

17. In 2014, PHE updated its Healthier and More Sustainable catering guidelines. This did not include an update of the 7 example menus developed in 2007 and 2008 to meet dietary recommendations at that time within specific settings. As part of other delivery activity, PHE is looking to update these menus while considering the potential implications of the draft SACN report on *Carbohydrates and Health*.

18. Although not the primary activity within this update of menus, it may be possible to assign foods to the food groups within the national plate model. While limitations with this approach include only having a one week menu for each

[8] The Food Standards Agency Scotland's eatwell week: http://www.foodbase.org.uk/results.php?f_report_id=712

setting, this is somewhat offset by the fact there are 5 settings/menus, these reflect the types of foods regularly served in a range of settings, the ‘canteen approach’ to the menus provides for a wider range of foods within each food group. However, menus were developed to meet specific nutrient intakes and thus necessitate purchases of ingredients and cooking practices to provide lower fat, sugar and salt which may therefore predetermine the products within the plate model.

Alternative approaches

19. It is likely that there may be other approaches which would help inform the relative proportions of each food category. PHE would welcome views on any approach that would prove useful in the considering the update of the eatwell plate.

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