Scientific Advisory Committee on Nutrition

Paper for discussion: Working definition of free sugars for use in NDNS

Agenda item: 3

Please see attached paper for discussion.

Members are invited to consider whether the proposed definition of free sugars for use in the National Diet and Nutrition Survey (NDNS) is in line with the Committee's intentions based on the evidence on sugar and health. Members are asked to consider in particular the options at paragraph 11 relating to the inclusion of sugar from processed fruit in the definition of free sugars.

Working definition of free sugars for use in NDNS

Background

1. In its report on Carbohydrates and Health, SACN recommended that a definition of free sugars should be adopted in the UK. This definition is set out in paragraph 11.16 of the report and comprises: "All monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices. Under this definition lactose (the sugar in milk) when naturally present in milk and milk products and the sugars contained within the cellular structure of foods are excluded". This definition is very similar to the definition of free sugars published by the World Health Organization (WHO) in 2015[1].

2. In order to estimate free sugars intake in the National Diet and Nutrition Survey this broad definition needs to be expanded into a set of working principles for estimating the free sugar content of foods, including composite products which have more than one source of sugars.

3. PHE have developed a draft working definition for free sugars over the last few months and have informally shared it with industry, government and academic contacts for comment. The main difficulty in developing the definition was in deciding how to deal with the sugars naturally present in processed fruit and vegetables (including stewed, canned, purees, soups and extruded fruit products). After internal discussion PHE proposed that the sugars naturally present in processed fruit should be taken as 50% free sugars while the sugars naturally present in processed vegetables should be excluded from the definition (see para. 7-10 for the detailed rationale for this). Stakeholders had a number of comments on this aspect of the definition in particular and it was decided to seek views from SACN before making a final decision in order to ensure that the definition used to estimate intakes is in line with SACN's intentions based on the evidence on sugar and health. Stakeholder comments received on the definition are at Annex 1.

Current draft working definition of free sugars

4. PHE have proposed the following general principles for a working definition of free sugars for use to estimate intakes in NDNS. These are summarised in the table below and justification is provided in the following paragraphs.

5. These principles are based on
    a. The definition for free sugars which SACN recommended for adoption in the UK

[1] The definition of free sugars published in the 2015 WHO report: Guideline sugars intake for adults and children, elaborated the definition used in the 2002 WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases. The definition used in the 2015 report was: "All monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates."

b. Understanding of the extent to which the cellular structure of different types of processed foods containing naturally occurring sugar is broken down and the differences in the physiological response to sugar consumed in different forms
c. Public health considerations, in particular the wish to avoid discouraging consumption of fruit and vegetables
d. The need for a practical definition which can be readily applied to NDNS food codes using information available on product labels and which does not rely on detailed product specifications

Table 1: Proposed inclusions and exclusions from the definition of free sugars for use in NDNS – current working definition

Included in the definition of free sugars	**Excluded** from the definition of free sugars
All added sugar in whatever form, including honey, syrups and nectars whether added to products during manufacture or by the consumer during cooking or at the table.	Sugars naturally present in whole, unprocessed and dried and frozen fruits and vegetables All sugars naturally present in processed vegetables, beans and pulses (other than juices), including vegetable soups and purees
All sugars in drinks, other than lactose and galactose in milk-based drinks	Lactose and galactose when naturally present in milk and milk products All sugars naturally present in cereal grains
All the sugars in jams, marmalades, fruit spreads and conserves	All sugars naturally present in nuts and seeds
50% of the sugars in processed fruits including stewed, canned, pureed, extruded	50% of the sugars in processed fruits including stewed, canned, pureed, extruded

6. Justification for proposed <u>inclusions</u> in the definition of free sugars

i	**Added sugar**	Included in the SACN definition All added sugar in whatever form, whether added to products during manufacture or by the consumer during cooking or at the table. Includes all types of sugar, syrups and nectars: cane sugar, honey, brown sugar, high fructose corn syrup, fruit juice concentrate, corn syrup, fructose, sucrose, glucose, crystalline sucrose, coconut blossom nectar, date nectar/syrup, agave nectar, malt syrup, fruit syrup, invert sugar, rice malt syrup, dextrose, agave, molasses.
ii	**All sugar in drinks (other than lactose and galactose in milk-based drinks)**	All sugar in drinks, whether added or naturally present, is considered as free sugar except for lactose and galactose naturally present in milk-based drinks. This includes the sugar

		naturally present in fruit and vegetable juices, smoothies and dairy alternative drinks. The basis for this is that drinks have the potential to deliver large amounts of sugar and the physiological response to sugar consumed as a drink may be different to sugar in food.
iii	**Sugar in unsweetened fruit juices, fruit juice concentrates, vegetable juices and smoothies.**	Sugar in unsweetened fruit juices is included in the SACN definition. It has been assumed that this also encompasses fruit juice concentrates which were included in the amended WHO definition (see footnote 1). It is proposed that the sugars in unsweetened vegetable juices are also included. Although vegetable juices are lower in sugar than most fruit juices they still have the potential to contribute large amounts of sugar in the diet. Many products marketed as vegetable juice are based on apple or orange juice so it is difficult to draw a clear distinction between fruit juice and vegetable juice. Smoothies are considered as similar to fruit juice in that the sugars have been broken down from the cellular structure. No distinction is made between homemade and manufactured smoothies
iv	**All the sugar in milk substitutes such as almond, oat, rice, soya, coconut, hemp, hazelnut milk alternatives whether sweetened or not**	All the sugar in drinks (except for lactose and galactose in milk-based drinks) is considered free sugar. The basis for this is that drinks have the potential to deliver large amounts of sugar and the physiological response to sugar consumed as a drink may be different to sugar in food. Some unsweetened milk substitutes such as oat milk and rice milk contain 3-4% sugar, which is similar to some vegetable juices.
v	**All the sugar in jams, marmalades, fruit spreads and conserves**	While some jams contain some pieces of intact fruit the vast majority of sugar is added and the cellular structure will have been broken down in processing. It is therefore reasonable to assume for the purposes of estimating intakes in NDNS that all sugar in jams and preserves is free sugar.

7. Justification for proposed <u>exclusions</u> from the definition of free sugars

i	**All the lactose and galactose (milk sugar) in milk and dairy products (milk, cream, cheese, yogurt, ice cream, chocolate, whey and cheese powder)**	SACN specifies that lactose as consumed in dairy products is excluded from the definition of free sugars as it has reduced cariogenicity compared to other sugars. The WHO 2015 report includes galactose with lactose as milk sugars that would be excluded from the definition of free sugars. The SACN report does not specify galactose but it is assumed that the same approach would apply.

		Any lactose or galactose added separately to foods as an ingredient rather than as part of milk, would be classified as a free sugar.
ii	**All sugars naturally present in fresh and frozen fruit**	The SACN definition specifies that sugars contained within the cellular structure of foods are excluded from the definition. This would include intact/unprocessed fruit. Frozen fruit is considered to be more similar to fresh fruit on the basis that the cellular structure is generally maintained. The sugars in pre-prepared fruit and vegetables (such as ready-to-eat fruit pieces sold in tubs) are considered as intact and excluded from free sugars
iii	**All sugar naturally present in dried fruit**	In SACN's response to consultation comments on its draft report on Carbohydrates and Health it noted that the sugars in dried fruits are not included in the proposed definition for free sugars.
iv	**All sugar naturally present in fresh vegetables, beans and pulses**	The SACN definition specifies that sugars contained within the cellular structure of foods are excluded. This would include unprocessed vegetables, beans and pulses.
v	**All sugar naturally present in processed vegetables, beans and pulses (canned, dried, purees, soups).**	PHE propose that the sugars naturally occurring in processed vegetables (other than vegetable juices) should be excluded from the definition of free sugars. Vegetables generally contain less sugar than fruit and it is not desirable to discourage consumption. Processed vegetable products contain relatively low levels of sugar compared with processed fruit products The proposed definition of a fruit or a vegetable is on the basis of how it is eaten (in the UK) so a tomato, for example, is defined as a vegetable although botanically it is a fruit. This means that sugars naturally occurring in canned tomatoes and tomato puree would be excluded from the definition of free sugars, as would be the sugars naturally occurring in other canned vegetables and vegetable purees. Sugars naturally occurring in soups are proposed for exclusion from the definition on the basis that although some soups have a liquid consistency they are consumed in smaller quantities than are drinks and generally contain lower levels of sugar. PHE does not wish to discourage consumption of soups as a non energy-dense food.
vi	**Sugar naturally present in cereal grains (including wheat and**	The SACN definition states that sugars contained in the cellular structure of foods should be excluded from the definition of free sugars. Therefore the sugars contained within the cellular

	other flours, pasta, rice etc)	structure of the cereal grain are excluded. In practice these sugars generally make up only a very small proportion of the total sugars in a cereal-based composite product and for the purposes of estimating intakes in NDNS no attempt would be made to take account of the small proportion of sugars coming from the cereal grain, in calculating the proportion of free sugars in, say, a breakfast cereal.
vii	**Sugar naturally present in nuts and seeds**	Excluded from the definition on the basis that these sugars are held within the cellular structure of the nut/seed in the same way as for intact fruit and vegetables. Processed nut products contain relatively low levels of sugar so can be treated like processed vegetable products

Sugars in processed fruit

8. The sugars in fruit juice are defined as free sugars by SACN, while the sugars in intact fruit are excluded from the definition. Therefore it logically follows that processed fruit, where the cellular structure is broken down on processing to a greater or lesser extent, would also include a proportion of free sugars. The degree to which this happens is likely to be highly variable depending on the type and length of processing and there is no evidence on which to set free sugar contents for different types of processed fruit.

9. SACN made the following responses to consultation comments on the draft report: *"When fruit is processed, for example during maceration or blending, the physiological response following consumption is different compared to intact fruit. Therefore weaning foods might contain free sugars although a proportion of the sugars derived from fruit, for example, may still be contained within the cellular structure of the fruit. Fruit smoothies and purees contain free sugars, although a proportion of the sugars may still be contained within the cellular structure of the fruit. The sugars in dried fruits are not included in the proposed definition for free sugars."*

10. PHE considered excluding all sugars in processed fruit from the definition of free sugars but took the view that this was inappropriate for products such as fruit purees where the cellular structure had completely broken down and purees were often used for the purpose of sweetening a product. Conversely, including all the sugars in processed fruit in the definition of free sugars was also considered inappropriate in that there was no basis for this level of distinction between intact/unprocessed and processed fruit. It could make it more difficult to meet the free sugar recommendation and potentially discourage consumption of processed fruit, so reducing the proportion of the population who meet the 5-a-day. Therefore as a compromise PHE proposed in its draft working definition to take 50% of the sugars naturally present in processed fruit as free sugars so as to recognise the variability in the types of processed fruit products and the extent to which the sugars are broken down. However it is noted and

stakeholders have commented that this appears to contradict some statements in the SACN Carbohydrates and Health report:

- The footnote to Table 2.2 in the SACN report states: "*The only difference between non-milk extrinsic sugars and free sugars is that non-milk extrinsic sugars includes 50% of the fruit sugars from stewed, dried or canned fruit (Bates et al., 2012), but free sugars includes none".*

- Paragraph 11.7 states: *"The definition of free sugars, as used by the WHO, captures all sugars added to foods and those present in fruit juice and honey but does not apply the figure of 50% of sugars in dried and cooked fruit. Therefore the definition of free sugars is similar to non-milk extrinsic sugars but overcomes the problem of trying to account for the additional sugars from processed fruit."*

11. Two options are proposed for processed fruit in the definition of free sugars for use in NDNS:

Option 1: To exclude the sugars naturally present in processed fruit from the definition of free sugars

Option 2: To include 50% of the sugars naturally present in processed fruit[2] as free sugars to recognise that some of the sugars in processed fruit will be released from the cellular structure in processing but the degree to which this happens is very variable.

We wish to seek SACN's view on which of these options is more in keeping with the Committee's intention in setting the definition of free sugars, given the evidence on sugars and health. SACN is invited to consider which option it would prefer to be used to estimate free sugars intakes in NDNS.

12. PHE has made an estimation of the relative difference between the two options in estimated free sugars intake. This was done using sugar intake data for NDNS food groups containing processed fruit and estimating for each food group the proportion of sugar coming from the fruit. This indicates that the impact would be small – free sugar intakes under option 2 (50% sugar in processed fruit is free sugars) would be around 0.5g/day higher than under option 1 (processed fruit excluded from free sugars). This is because the sugar from processed fruit accounts for only a small proportion of sugar intake.

[2] Processed fruit includes: stewed, canned, pureed fruit end extruded fruit products. It excludes fresh, frozen and dried fruit

Difference between the definition of non-milk extrinsic sugars (NMES) and the proposed definition of free sugars

13. Option two for the definition of free sugars is very similar to the definition of NMES on which the previous dietary recommendation for sugars was based. Intrinsic sugars are those naturally incorporated into the cellular structure of foods, extrinsic sugars are those sugars not contained within the cellular structure of a food. The extrinsic sugars in milk and milk products (i.e. lactose) were deemed to be exempt from the classification of sugars in relation to the Dietary Reference Value (DRV). NMES include sugars added to foods, e.g. sucrose, glucose and fructose, and sugars naturally present in fruit juices, e.g. glucose and fructose. Sugars naturally present in fruit that are canned, stewed, dried or used in preserves were taken to be half extrinsic and half intrinsic. In practice this was also applied to some processed vegetable products such as soups. The main difference between option 2 for the definition of free sugars and NMES is that the definition of NMES used in NDNS included 50% of the sugars in dried fruit (which has been excluded from the definition of free sugars). Therefore estimated sugar intakes based on the free sugars definition are expected to be slightly lower than those using the NMES definition, particularly if processed fruit is excluded from the definition of free sugars.

Sugars naturally present in:	**Free sugars**		**NMES**
	Option 1: Processed fruit excluded	**Option 2: 50% of sugar in processed fruit included**	
Canned fruit	Excluded	50% included	50% included
Stewed fruit (by consumer)	Excluded	50% included	50% included
Dried fruit	Excluded	Excluded	50% included
Frozen fruit	Excluded	Excluded	Excluded
Fruit component of a yogurt	Excluded	50% included	50% included
Fruit bars made from a mixture of dried, pureed fruit and juice concentrate	Sugar from juice included only	Sugar from juice plus 50% sugar from pureed fruit	Sugar from juice plus 50% sugar from pureed and dried fruit
Fruit bars made from dried pressed fruit	Excluded	Excluded	50% included
Fruit purees	Excluded	50% included	50% included
Fruit crumbles/pies etc. purchased or homemade	Excluded	50% included	50% included
Chilled desserts containing fruit. Purchased or homemade	Excluded	50% included	50% included

Composite foods containing sugar from more than one source.

14. The free sugar content of composite foods with more than one source of sugar would be estimated based on available information about the relative quantities of sugar from different sources in the product. Examples are yogurts (added sugar, lactose and sugar in added fruit) and breakfast cereals (added sugar and sugar from dried fruit).

Approach used estimating sugar intakes in other countries

15. In the US, dietary recommendations and reported sugar intakes are based on added sugars, defined as sugars and syrups added to foods during processing or preparation. This excludes naturally occurring sugars such as in milk and fruit. EFSA also define added sugars[3] but most national dietary surveys report only total sugar intake.

[3] EFSA defined added sugars as 'sucrose, fructose, glucose, starch hydrolysates (glucose syrup, high fructose syrup,) and other isolated sugar preparations used as such or added during food preparation and manufacturing.'

Annex 1: Stakeholder comments and queries on PHE's draft working definition of free sugars

Stakeholder group	Theme
	General Comments
Industry	We are generally supportive of the proposed approach. Most of the points are consistent with WHO and other definitions of free sugars. We agree with the inclusion of fruit juice in the definition (though we would recommend to also specify fruit juice concentrates) as well as of honey and syrups. However, we would encourage work towards a more objective classification basis for different types/forms of processed fruit and vegetables.
	Proposed definition contradicts SACN with respect to processed fruit
Government and Government Agencies	From our perspective, it is important that we have a clear rationale and justification for the definition of free sugars, and we have some misgivings about the proposed approach of including 50% of sugars naturally present in processed fruit as it is different from the WHO definition and what SACN have published to date. It is also unclear as to why processed vegetables would not be treated in the same way as processed fruit. Given how far away we are in Scotland from achieving 5% of energy from free sugars, then allowing processed fruit (and vegetables) to be excluded from free sugars doesn't seem too much of a concern to us. The proposed definition appears different (and more complex) compared to that published in the SACN report and the WHO definition (e.g. paragraphs 5.5, 11.7). This is because the new working definition proposed by PHE includes 50% of sugars naturally present in processed fruit, and this is not mentioned in the SACN report. • The new working definition would not include 50% of sugars from processed vegetable products.
Academic	I am a little confused about the '50% of the sugars naturally present in processed fruit (fruit purees, stewed fruit, fruit in yogurts and other desserts, canned fruit, processed fruit bars, jam etc)' being included as free sugars (as below). In the SACN report (Table 2.2) it states that this 50% fraction from processed fruits isn't included as a free sugar. The main difference being that, unlike free sugars, NMES includes this 50% sugar from processed fruit and sugars from dried fruit.
Academic	Your proposed definition adds several items (vegetable juices, smoothies, milk substitutes and 50% of the sugars in processed fruits) to the SACN or WHO lists. Although for most people these items are not a major part of the diet, the inclusion of extra food sources will make it even harder to keep below the 5% or 10% targets.
Charity	Surprise that you are proposing deviating away from the SACN definition of free sugars e.g. by incorporating the

	pragmatic 50% approach, especially as SACN's definition is aligned with the WHO definition as it stands. The outcome could be two different definitions for the same term – free sugars - one from the UK and the other from WHO. In effect, incorporation of 50% in relation to processed fruit into the draft guidelines brings the definition close to the NMES definition despite SACN's comment that "The 50% figure is arbitrary and is used to account for the partial breakdown of the cellular structure during processing (Buss et al., 1994; Bates et al., 2012), but proves problematic when trying to estimate the sugars composition of certain foods". I recognise this approach has some benefits as it would presumably mean that data going forward for free sugars would be relatively similar to the existing NMES data in terms of its derivation.
Industry	Why is the PHE draft free sugars definition very similar to the NMES definition, rather than replicating the WHO free sugars definition which SACN recommended? In the SACN report it states 'The only difference between non-milk extrinsic sugars and free sugars is that non-milk extrinsic sugars includes 50% of the fruit sugars from stewed, dried or canned fruit but free sugars includes none'; however the draft definition does not maintain this difference. There was concern that having different definitions for free sugars would undoubtedly lead to confusion, both in the literature and, if the UK's request to the Commission is successful, in labelling for free sugars in the future.
Theme	**Exclusion of dried fruit from definition of free sugars**
Academic	Your decision to exclude dried fruit surprised me as I understood that the sugars were more exposed than those in fresh fruit but also that dried fruit had a particular tendency to stick to teeth and hence increase the risk of dental caries (though can't find any evidence for this in a quick search). Some cereal products e.g. certain mueslis and cereal bars are very high in dried fruit, accounting for 30% or more by weight, so their free sugar content would be very different if the sugar in dried fruit, or even 50% of it, were included. NHS choices says that ' It's important to remember that honey, fresh fruit juice and dried fruit all contain sugars that can cause tooth decay'.
Independent consultant	Sugars in dried fruit What if these are sweetened / rehydrated in some way? It's not always obvious to the consumer: Whitworths Cranberries
Independent consultant	How might dried fruit in cakes and pies be treated. Is this 50% of sugars from the dried fruit plus the added sugar content, or is the whole treated as free sugars? (Is dried fruit in cakes still excluded from the 5 a day portions on the grounds that these are HFSS foods?)
Independent	How is dried fruit treated if soaked (like prunes)?

consultant	
Theme	**Basis for 50% figure for processed fruit**
Industry	We are happy with the 50% value for processed fruit as a pragmatic approach. However, it lumps together quite a varied range of materials and could be applied in misleading ways, e.g. purees that are almost but not quite juice, yet claim 50% less free sugars. This is therefore open to challenge. Also, some of the points open the idea that some types of processing are good (drying, freezing, etc.) while some are bad (juicing, canning, etc.). Overall, there is a need for research to establish relationships of plant materials breakdown (intact cells, particle size etc) to sugars availability in the mouth and the gut). Definition of free sugars may need to be adapted as new research data become available.
Industry	50% is an arbitrary figure – can you share / clarify what this was based on? Have various methods been reviewed such as those stated and others such as High pressure processing?
Industry	What definition do you use for "processed fruit"? Is frozen fruit and sliced prepared fruit deemed as processed? When fruit thaws, this produces a liquor – would this liquor be deemed as free sugar?
Charity	Clarification whether this includes processing in the home as well as during food manufacture would be helpful. This is because, based on questions we've had from the public, people often don't consider blending whole fruit at home (in a blender) to be the same as commercially blended fruit. It would be helpful if the position on home blended fruit could be clarified, eg with regard to Nutribullets etc. inclusion of jam here (with 50% of sugars being excluded from the free sugars definition) seems strange as this is an extreme form of processed fruit and typically very high in sugars. "released to varying degrees" – use of this term has made me wonder about the metabolic significance of the sugar being freed. The argument presumably with fruit juice is that the juicing removes much of the fibre and also in effect concentrates the sugars (and as a liquid is potentially consumed in larger amounts/ more quickly) and perhaps this is more important than the freedom of the sugars per se. However, the softening of fruit through stewing is a totally different process in that so long as sugar is not added, all that is happening is that the structure of the fruit breaks down, yet the fibre is still present and the concentration of the sugars present will only be substantially greater if much of the moisture is boiled off, as happens in jam making. I wonder whether distinction should be made between canned fruit / stewed fruit without added sugars and those forms which have sugars added during the processing. There is also the issue of alignment with 5 a day which includes canned fruit.
Industry	We question whether sugars in canned fruit should be considered in line with sugars in fresh and frozen fruit.

Theme	**Fruit juice concentrate**
Industry	It would be useful to add a note to clarify that sugars from fruit juices and fruit juice concentrates count towards free sugars irrespective of the intent of use, i.e. whether they are used for sweetness purposes, or for taste or colour. It would be useful to clarify this point as questions pertaining to the intent of use come up regularly in discussions within industries around this topic.
Academic	Fruit juice concentrate is not specifically mentioned in your definition: does it count as processed fruit? I understood it could be added as a 'natural' sweetener and if so it would be good if it could be clearly classified.
Independent consultant	Sugars are often being replaced with concentrated fruit juices and I assume you want those to be 100% FS vs a fruit puree 50% FS
Theme	**Smoothies**
Independent consultant	Fruit purees; if used in smoothies that would mean a juice and puree smoothie would be calculated differently? Or regardless of how the smoothie is made it is always 100% free sugars
Industry	Frozen and Fresh Smoothie packs e.g. mixed berries – if we know the product is intended to produce smoothies – will this be classified as a free sugar?
Industry	The third bullet point states all smoothies are classified as free sugar? Using the fourth bullet point on processed fruit – does the third bullet point supersede the processed fruit definition? For example a banana, mango and apple smoothie made of apple juice and whole banana and mango is all free sugar or does the apple juice and 50% of the whole fruits added contribute to free sugar?
Charity	I wonder whether some smoothies, particularly home prepared ones, might have a fruit contribution where this has not been juiced.
Theme	**Processed vegetables / vegetable juices**
Industry	We were highly surprised with the exclusion of "sugars in vegetables, beans and pulses in any form (including vegetable soups and vegetables purees) other than juice". We don't agree with this as we cannot see any physiological rationale for this, so we assume that this must be driven not by science but by a desire to encourage more vegetables intake and/or specifically discourage consumption of sugars in 'beverage' forms. Moreover, we know from UK dietary intake data that 'vegetables and vegetable based dishes' contribute in all age groups to total sugars intake. In any case, we would prefer to see vegetable soups and vegetable purees apply the 50% value,

	same as fruit purees.
Charity	I wonder about the logic of including vegetable juice as all the other forms of vegetables are excluded from the definition.
Theme	**Fruit yogurts**
Independent consultant	A yogurt which is a natural yogurt with chopped strawberries would be treated the same as a sweetened yogurt base with a fruit compote?
Independent consultant	I note that sugars from fruit in yogurts would be 50% free sugars, rather than zero as implied in the "Why 5%?" document; presumably this is because the fruit added is normally a thick puree?
Industry	Fruit in yogurts - If fresh fruit is chopped up e.g. halving raspberries and added to yoghurt – would the sugar from the fruit be classed as free sugar? Compotes added to yoghurts will be classified as free sugar.
Theme	**Fruit snack bars/ confectionery products**
Independent consultant	Fruit purees used to make fruit bars would be 50% (e.g. Yoyos) but Concentrates to make fruit snacks (e.g. Wriggles or Peelers) It would therefore be clearer to use the specific "ingredient" (perhaps referencing 5 a day) and methods of processing. In processing is it the pureeing or the heating or sieving that is more important? Would mashing a banana vs stewing an apple be considered the same (i.e. 50% FS) to recognise that the sugar in processed fruit is released to varying degrees as the cellular structure is broken down. 50% is an arbitrary figure to recognise the variation in the extent to which this happens. How can this be proved – it will be important in future as industry strives to develop technologies to reduce free sugars in processed fruits.
Theme	**Lactose / milk powder as an ingredient**
Independent consultant	[Lactose added as an ingredient would be regarded as free sugar] What is the significance of the difference between a milk powder and lactose? It seems that Dairy can be processed to almost its component nutrients and not have free sugars but fruit only has to be mashed – again the evidence to support this is important.
Industry	Is it possible to have some background as to why additional lactose as an ingredient is deemed as free sugar please?

Theme	**Milk substitutes**
Industry	What is the driver of including sugar presence in milk substitutes of rice and milk and drinks but they are not classified as free sugars when whole grains?
Charity	I can see the logic here but have the consequences of the message this sends been thought through – calcium fortified versions of these drinks are important for those people who consume such products in place of milk?
Theme	**Baby Foods**
Industry	Do you have any views on babyfoods which is has a significant number of products made of stewed fruit (and vegetables) with regards to this definition?
Theme	**Composite foods**
Independent consultant	Overall it's important that a manufacturer can understand what the right choice of ingredients is rather than working out how to categorise their product. For example in this product: Ingredients: Whole Rolled Oat Flakes (33%), Date Syrup (17%), Apple Paste (Concentrated Apple Juice, Concentrate Apple Puree), Chopped Dates* (13%) ,Crisp Rice (Rice Flour, Salt, Sunflower Oil), Dried Apple, Sunflower Oil, Cranberries (3%, Apple Juice infused), Oat Flour, Blueberries (1.1%, Apple Juice infused), Freeze Dried Raspberries (0.5%), Gelling Agent: Natural Agar (from Seaweed). The date syrup and apple paste would clearly contribute to the "Free Sugar". The cranberries and blueberries are less clear – they are infused with apple juice so would be partially "free". The sugar contributed by the chopped dates; dried apple and raspberries are not free. (N.b this is a Branded line which makes a "no added sugar" claim) Ingredients such as date syrups and coconut sugars are on the rise and need to be clearly placed in the free sugar debate!
Independent consultant	in calculating free sugars in Muesli, would you estimate free sugars as total sugars minus (sugars in) the amount of dried fruit, based on the ingredients list and nutrition label?

Nutrient analysis software provider	Is there an easy way to differentiate sugar added to something like tomato soup, or should all sugar just be excluded and left as intrinsic as per the 'sugars in vegetables' definition
Nutrient analysis software provider	Where sugar has been added to stewed fruit, is it correct to exclude 50% of the intrinsic sugar of the whole fruit, and then the rest of the sugar is assumed free, or is it simply 50% of total sugar content of the food item without any prior calculation
Nutrient analysis software provider	For baked goods, I am subtracting the small amount of sugar in flour from total sugar - lactose - galactose, is it accepted then that the remaining sugar is added? (in the case of a scone / croissant etc)
Nutrient analysis software provider	When calculating sugars is it safe to assume maltose is never counted towards free sugars? I understand maltose would be broken down to glucose by salivary amylase, but I assume the interpretation is applied on the food prior to consumption rather than during...
Industry	We believe that some polymers of glucose or fructose (dextrin, maltodextrins, fructans etc) contain a certain amount of mono and disaccharides. These ingredients are used as bulking agents and, sometimes, to provide some sweetness. If polymer mixes contain measurable mono- or disaccharides those components will count as free sugars and should be therefore included in the definition.