

External Expert and Stakeholder Panel
Scoping of WHO Guidelines on Saturated-Fatty Acid and Trans-Fatty Acid Consumption

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Public comments and WHO action or response on scope of guidelines on saturated-fatty acid consumption

№	Public Comment	Times stated	WHO Action or Response
Population			
1	Add subgroup by race		To be considered by NUGAG
2	General healthy adult and child populations should be considered.	2	Comment noted
3	Particular attention should be given to the elderly, in light of current demographic changes in many countries.	2	Subgroup by age already considered
4	Older adult aged 60 is missing; it should be ≥ 60	2	Comment noted
5	Guidelines for people with pre-existing metabolic abnormalities should only be considered when confounding influences, especially drug treatment, can be excluded.		subgroup on health status included
6	The general population consists of a substantial and rapidly growing number of people with an early heart disease event and diabetes. The effects of dietary fatty acids could have a different impact for these people compared to those without any prior disease or condition. The committee could consider looking at these important subgroups in the population.		subgroup on health status included
7	It would be also interesting to include pregnant and breast-feeding women as they have different nutritional needs.	7	subgroup added for consideration by NUGAG
8	Should focus on adolescent		Age group subgroup already considered
9	Consider adding by baseline physical activity level, including sedentary lifestyle		subgroup added for consideration by NUGAG
10	Consider adding infancy		subgroup added for consideration by NUGAG
11	To have more subpopulations, e.g. by baseline hypertension status and by baseline glucose status		subgroup on health status included
12	Population: The range of consumption of saturated fatty acids is less than 10% of total caloric value of a diet The results of performing modeling indicate that menus can be planned diets with low quantities of saturated fatty acids of 3 to 5% of the total energy while meeting the needs of essential fatty acids		Comment noted
13	Meaning of baseline nutritional status is unclear. What standards will be used?		Clarified
14	It may also be useful to sort the data by birth weight, baseline body weight, visceral adiposity, and physical activity.		subgroup added for consideration by NUGAG

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15	Which scientific rationale(s) justif(y)ies that SFA intake should be lower than the current maximum target of 10% of the energy within the context of a nutritionally adequate diet based on food based dietary guidelines? This question also applies to gender, age and health status. With regard to current world wide SFA intake levels it would be relevant to study at least intakes levels ranging from 4 to 20 Energy%. If a relation between intake and a specific health outcome is present in this intake range, than the type of relation should be studied as well (e.g. linear, non-linear, etc.).		Updating of the guidelines on SFA follows the methodology set out in the WHO Handbook for Guideline Development (http://www.who.int/hiv/topics/mtct/grc_handbook_mar2010_1.pdf) and using the GRADE methodology for determining the quality of evidence
16	With regard to SFA replacement, careful consideration should be given to the ratio between protein, carbohydrates and fat, and the type of protein, carbohydrate and fat.		Clarified that these could be potential intervention types. But it will be reviewed by the NUGAG meeting.
17	Age: This new guideline evaluation starts from the age of 2 years (24 months), and includes children of 2-13 years in one population category, i.e. children. However, considering that: - Young children of 2-3 years are at an age and have requirements closer to those of 1-2 years children than to those of 4-13 years children. The intake of milk (rich in SFA) and other foods of 2-3 years old children is closer to that of 1-2 years children than that of 4-13 year old children. The children of 2-3 years are often included in disease risk assessment studies covering the age range of from 1-5 years, rather than in those of broader age range of 2-13 year studies. Therefore we think it may be more appropriate to consider the risk of SFA exposure for young children categories covering the age range of 1-3 years (not included in the present table), rather than the broad age of 2-13 years population.	2	Noted and to be addressed at NUGAG
18	Baseline nutritional status should be exemplified: vegans, usual energy intake, alcohol intake...	3	Clarified
Intervention			
19	Add subgroup dy duration of exposure		Subgroup added for consideration by NUGAG
20	Increase short chain and medium chain FA		To be considered by NUGAG
21	Need to consider the influence of changes in saturated fat consumption when substitution is with other types of fat and other macronutrients. In particular, there needs to be an examination of the evidence to show that a reduction in saturated fat intake is necessary in order to achieve improvements in lipoprotein profile. Some evidence suggests that it may be more important to achieve adequate polyunsaturated intake in order to avoid hypercholesterolaemia rather than reduce saturated fat consumption. In addition, evidence is available that the influence of changes in saturated fat intake on blood cholesterol is not linearly dependent on saturated fat dose (as presumed in the Keys and Hegsted equations) but that the response is curvilinear and strongly influenced by polyunstaturated fat intake.		The issues around appropriate replacement of SFA is already addressed in the intervention section.

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22	3. 1) b) - type of macronutrient: Distinction should be made between intake of 6-omega and 3-omega fatty acids and influence of their ratio, because 6-omega FA may influence the endocannabinoid system and endocannabinoids increase food intake if 3 omega intake is low:Abstract and reference: The levels of endocannabinoids are increased by high intake of an omega-6 fatty acid and cause obesity in animalsLinoleic acid, which is found in relatively high amounts in soybean, sunflower and corn oil, increased levels of endocannabinoids in mice and caused obesity according to research by scientists from the University of Bergen, Norway, and the National Institutes of Health in Bethesda, USA.		noted and added to subgroups to be considered at NUGAG
23	By definition, a reduction in %E of SFA will always result in changes in %E from other macronutrients, because by definition the %E should add up to 100%. It is thus not very realistic to look at the effects of reduced %E from SFA relative to higher intake levels without taking the replacing macronutrient into consideration. Therefore, we suggest the committee prioritize the questions addressing SFA replacement over the questions addressing SFA reduction.	1	The issues around appropriate replacement of SFA is already addressed in the intervention section.
24	The draft guideline proposes to address the incremental change in reducing %E from SFA from 10 %E to 0 %E. We suggest addressing the impact on risk of NCD in a more realistic population intake range, for example from 20 %E to 5 %E. Given the (biological) presence of SFA in a wide range of food ingredients (vegetable oils, etc.), 0 E% is only theoretical and practically unachievable. In the majority of countries, the average intake of SFA is above 10 %E, and it may thus be more relevant to address incremental benefits at intakes in the higher ranges.	2	To be considered by NUGAG
25	We question whether an evaluation based on <10%E vs > 10%E will be of much value, given that there are little human data (observational and interventional studies) at <10%E, and given that existing evidence indicates that the relationship between fatty acid intake and risk (factors) are continuous and of a linear rather than discrete nature.		Comment noted
26	When looking at reducing SFA intake through replacement with carbohydrates, we recommend taking into account also the type of carbohydrates that replace SFA. In particular, there are strong indications that unrefined complex carbohydrates from low-glycemic-index foods (whole-meal grains, pulses etc) have different effects on risk of NCD than simple refined carbohydrates.	5	Types of carbohydrates to be used for replacing SFA have been included as a subgroup for consideration by NUGAG.
27	Q1. The question must refer to lipid and non lipid (thrombogenicity indices) markers of CHD risk.		To be considered by NUGAG
28	Q2, Q6, Q7, Q8 This second question must also refer to the background linoleic acid level, because at > 5% energy linoleic acid, the question becomes irrelevant.		To be considered by NUGAG

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29	Q3. It is not practical to reduce SFA to 0% energy. Even the original AHA Step II diet advocates < 7% energy SFA.	7	To be considered by NUGAG
30	Q4. The question should define what long chain SFA is and very long chain SFA. Anyway, this question maybe relevant as we know the serum/plasma cholesterol raising SFA is limited to the 12-16 carbons SFA (lauric, myristic and palmitic acid).		Comment noted
31	Q5. Short chain SFA (6-8 carbons) and medium chain SFA (8-10 carbons) has no effect on serum lipids parameters. Therefore the question is irrelevant.		Comment noted
32	Q9. The question is irrelevant as it has been well documented that the stearic acid has a neutral effect on serum lipid levels.		Comment noted
33	Q10. The question should specify replacement to what dietary level of omega-6 PUFA. The maximum dietary omega-6 PUFA level should not exceed 8% energy.		To be considered by NUGAG
34	Q11. The question is alright but maximum MUFA dietary level should be specified as high levels of MUFA has a thrombogenic effect.		MUFA will be considered in context of replacement but a guideline for MUFA intake (maximum dietary level) is outside the scope of the guideline on
35	Q12. The level of carbohydrates should be specified because carbohydrates level exceeding 70 % energy raises triglycerides, and depresses HDL.		Comment noted
36	Consider including the trans configuration of monounsaturated fatty acids, such as Elaidic acid in partially hydrogenated vegetable oils, which is associated with raising total and LDL cholesterol similar to saturated fatty acids.		noted and to be considered by NUGAG
37	Consider including reduced SFA intake through replacement with protein. Replacing SFA with proteins results in lower triglycerides than when carbohydrates are used as the substitute.	2	noted and to be considered by NUGAG
38	SFA intake of less than 10%E, reduced SFA intake through replacement with MUFA, reduced SFA intake through replacement with carbohydrates		Already included
39	The definition of SFA should be provided.		Comment noted and definition added to background
40	The chain length of short, medium, long and very long SFA should be specified.	2	Comment noted and definition added to background

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41	To state the percentage of replacement with MUFA, PUFA or carbohydrates.		MUFA will be considered in context of replacement
42	Maintain energy intake of SFA at 10%, reduced myristic		To be considered by NUGAG
43	Regarding ""reduced SFA intake through replacement with carbohydrates"", please add after ""carbohydrates"" this phrase: "", according to their chemical form"".	3	Type of carbohydrate added to subgroup to be considered by NUGAG
44	We welcome that WHO acknowledges recent science showing that different SFA have different physiological properties and therefore, not all SFA have similar metabolic effects. A recent global expert consensus meeting on SFA indeed concluded that the effect of particular foods on coronary heart disease cannot be predicted solely by their content of total SFA because individual SFA may have different cardiovascular effects and major food sources of SFA contain other constituents that could influence coronary heart disease risk (Astrup et al. 2011).With regard to the question "What is the effect in the general population of a reduction in %E from SFA from 10% to 0% in gradual increments relative to higher intake for the reduction in risk of NCD?", we consider that looking at SFA alone is too simplistic. Foods with SFA are not by definition unhealthy and foods without SFA are not by definition healthy. Unintended consequences of dietary recommendations must be taken into account before dietary guidelines and		noted and adverse effects of reduction will also be systematically evaluated as part of the guideline development process. Producing food based dietary guideline is outside the scope of current guideline
45	MUFA or PUFA replace carbohydrates or high in fiber or reduce a specific saturated fatty acid reduces the risk of of cardiovascular disease including stroke, myocardial infarction and coronary heart disease and reduce serum total cholesterol/LDL cholesterol/triglycerides. When replacing saturated fatty acids in the form of fiber carbohydrates reduces the risk of of cardiovascular disease including stroke, myocardial infarction and coronary heart disease and		Comment noted
46	The evaluation should take into account all data showing that specific fatty acids or groups of fatty acids may have different biological effects. For this, saturated fat should be further expanded into specific groups with good definitions of long chain SFA, very long chain SFA, short chain SFA and medium chain SFA. Likewise, PUFA should be divided into long chain vs. very long chain when describing effects from studies comparing SFA with PUFA where available data allow this. The further grouping of fatty acids by class, i.e., MUFA, PUFA and SFA can then be done with a good		Already considered in the subgrouping. To be discussed within NUGAG
47	Will the following types of studies be included: interventions examining effects of low carbohydrate or ketogenic diets (i.e., increase in fatty acid intake from baseline)? Will studies that replace carbohydrates with stearic acid be included?		To be considered by NUGAG

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48	The source of SFA should be specified either animal or vegetable fats/oils. Some researches showed lower raising LDL-C effects e.g palmitic acid (source from vegetable oil) as compared to animal sources.	3	Reduction in palmitic acid already considered, nonetheless, comment noted and differences between animal and vegetable sources will be considered by NUGAG
49	Different individual fatty acids may have different effect, therefore we suggest splitting some of the questions: <ul style="list-style-type: none"> - Reduce SFA intake through replacement with MUFA: split into different questions according to which MUFA is used to replace SFA - Reduce SFA intake through replacement with PUFA: split into different questions according to which PUFA is used to replace SFA. In addition, if available, the effect of the form of PUFA that is used to replace SFA should be evaluated (PUFA on a triglyceride or PUFA on a phospholipid). 		noted and to be considered by NUGAG
50	Different handbook give different definitions (number of carbons) of long chain SFA, very long chain SFA, short chain SFA, medium chain SFA. These should be defined in the PICO.		noted and a definition has been provided in background
Comparator			
51	The comparator seems to be low fat vs high fat intake. It is a very difficult question to address		Comment noted
52	Data on diets at 0% SFA are likely to be unavailable in the literature or the result of extreme diets which do not reflect the situation in most low, medium or high income countries. Suggest that the effect in the general population of a reduction in %E from SFA from 10% down to a more likely and achievable value would result in inclusion of higher		noted and to be considered by NUGAG
53	Substitution of saturated fat with all other types of fat and other macronutrients, provided good quality intervention study data are available.		Comment noted
54	We suggest that the type of macronutrient which replaces SFA in the diet is considered for all outcomes.	2	noted and to be considered by NUGAG
55	To specify actual levels of high, normal and usual SFA intake because these levels differ in different countries.	3	noted and will be described in review of evidence
56	It is important to specify the background linoleic acid level.		noted and to be considered by NUGAG
57	Higher SFA intake: Usual SFA intake		Comment noted
58	Reduced %E from saturated fat from a food contributing less nutritional value to the diet		Comment noted
Outcomes			

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59	Add overweight and obesity (defined by BMI cut off by age) for both children and adult	2	noted and to be considered by NUGAG
60	Add waist circumference	6	noted and to be considered by NUGAG
61	Weight and BMI are irrelevant because we do not expect the fatty acid type to influence these two variables.		Comment noted
62	Blood pressure is probably irrelevant; perhaps the outcomes measure arrhythmia should be included instead		noted and to be considered by NUGAG
63	Should include LDL/HDL ratio as an outcome measure. Both for the adolescents and adult age group.		noted and to be considered by NUGAG
64	All-cause mortality is too broad and should focus more on CHD and perhaps also cancer.		Comment noted
65	For the Nutritional adequacy of the diet, they should focus on omega-6 linoleic acid, the omega -3 fatty acids and the omega-6/omega 3 fatty acids ratios.		noted and to be considered by NUGAG
66	Other adverse effects should focus on inflammatory markers and thrombogenicity.	3	noted and to be considered by NUGAG
67	Changes in risk indicators such as LDL but also changes in hard clinical end-points such as diagnosed coronary events. In addition, it is crucial to have evidence on total mortality outcome in order to establish safety of any changes in saturated fat intake suggested by the guidelines.		Already considered
68	We assume that the effects on serum total cholesterol / LDL cholesterol will be looked at together with effects on serum HDL cholesterol, and that total / HDL cholesterol ratio, the most powerful predictor of CHD risk in population studies, will also be addressed.		noted and to be considered by NUGAG
69	How would you account for risk of cigarette smoking and exposure to second hand smoking?		To be described in review of evidence
70	Consider including alcohol intake for adults?		To be considered by NUGAG
71	Consider specifying types of cancers	2	noted and to be considered by NUGAG
72	Quality of life is very much subjective. How it'll be defined?	2	To be considered by NUGAG

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73	How will Nutritional adequacy of the diet be measured?	3	To be considered by NUGAG
74	Children/Adolescents10. Cardiovascular disease incidence, mortality, morbidity11. Coronary heart disease incidence, mortality, morbidity12. Stroke incidence, mortality, morbidity13. Myocardial infarction incidence, mortality, morbidity16. Inflammatory bowel disease incidence mortality, morbidity(short chain)		noted and to be considered by NUGAG
76	To add endothelial/vascular function (sICAM-1, sVCAM-1, E-selectin, flow mediated dilation).		noted and to be considered by NUGAG
77	Serum Total Cholesterol, Serum LDL Cholesterol, Serum HDL Cholesterol	2	Already considered
78	Regarding ""Children / Adolescents"", and ""Adults / Older adults"", please add C-reactive protein, interleukin-6 and total cholesterol/HDL-cholesterol ratio.	4	noted and to be considered by NUGAG
79	Regarding ""Adults / Older adults"", please add Body Fat Distribution, Adiposity, Intra-abdominal fat and Waist circumference.		noted and to be considered by NUGAG
80	Please add another subgroup: Pregnancy and Breastfeeding (Outcome: labor complications; Outcome: children's growth: weight, length, head circumference -at birth time OR during lactation-)	3	noted and to be considered by NUGAG
81	Causing a disease should be the concern of overdosing with saturated fats. Preventing LDL increase of HDL decrease should not be a safety related goal since these are no diseases. Results obtained with statins, which prevent to a certain extent cardiovascular disease, are largely responsible with the assumed relationship between plasma cholesterol and cardiovascular disease. Large trials with torcetrapib, rosiglitazone, estrogens and ezetimibe show that for other treatments than with statins no such relationship exists. In view of structural relationship of saturated fats with LPS it is possible that saturated fats may play a role in cardiovascular disease. However it is time to see effects on the cardiovascular system of saturated fats as completely different from their effects on plasma cholesterol.	2	noted and to be considered by NUGAG
82	Children /Adolescents :Prioritize weight, body mass index , nutritional adequacy of the diet Serum total cholesterol, Serum LDL cholesterol, quality of life and other adverse effects.	2	Already considered and prioritization will be considered by NUGAG
83	Adults / older adultsCardiovascular disease incidence, mortality, morbidity, Coronary heart disease incidence, mortality, morbidity Stroke incidence, mortality, morbidity myocardial infarction incidence, mortality, morbidity Serum total cholesterol, Serum LDL cholesterol, Nutritional adequacy of the diet, weight, body mass index, Systolic blood pressure, Diastolic blood pressure, cancer events mortality , morbidity, quality of life.	2	Comment noted

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84	How will nutritional adequacy of the diet for children and adults be defined? Will measures of diet quality be included?		to be determined by NUGAG
85	A recent IOM report (IOM Committee on Qualifications of Biomarkers, Surrogate Endpoints in Chronic Disease. 2010. Evaluation of Biomarkers and Surrogate Endpoints in Chronic Disease. National Academies Press, Washington, DC, USA) concluded that LDL cholesterol is an appropriate surrogate endpoint for some statin drug interventions, but not for CVD interventions in foods. How will this WHO review take into account the IOM view that effects of foods on CVD cannot be evaluated based on LDL and HDL, alone?		WHO will look at the entire body of evidence and look not only at one outcome but multiple outcomes to work with NUGAG to generate a guideline
86	<p>reduce risk of cardiovascular disease including stroke, myocardial infarction and coronary heart disease;</p> <p>A recent expert consensus meeting on the role of reducing intakes of saturated fat in the prevention of cardiovascular disease concluded that the effect of particular foods on CHD cannot be predicted solely by their content of total SFA because individual SFA may have different cardiovascular effects and major SFA food sources contain other constituents that could influence CHD risk (Astrup A, 2011). The paper highlights that food-based recommendations are more practical for the general public than is nutrient-based dietary advice. The latter is also addressed by Mozaffarian and Ludwig (Mozaffarian D, 2010) stating: "Nutritional science has advanced rapidly, and the evidence now demonstrates the major limitations of nutrient based metrics for prevention of chronic disease. The proportion of total energy from fat appears largely unrelated to risk of cardiovascular disease, cancer, diabetes, or obesity. Saturated fat - targeted by nearly all nutrition-related professional organizations and governmental agencies - has little relation to heart disease within most prevailing dietary patterns".</p> <p>So the scope of the question should be broadened to "What is the range of SFA consumption within the context of a nutritionally adequate diet..."</p>		The guideline process will attempt to determine the recommended levels within the context of a nutritional adequate diet

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87	<p>FAO Food & Nutrition paper 91(FAO, 2011) states: "randomized controlled trials have generally failed to provide any consistent effect of changing either the level of fat or type of fat on insulin sensitivity when changes in weight or physical activity are taken into account."</p> <p>Meta-analyses and systematic reviews evaluating the effects of dairy products on a healthy weight / body composition and/or the metabolic syndrome generally indicate absence of adverse effects in adults (Abargouei AS, 2012) (Elwood PC, 2010) (Tong X, 2011) (Crichton GE, 2011) or children / adolescents (Spence LA, 2011), despite the contribution of dairy products to SFA intake.</p> <p>Furthermore, for obese insulin resistant persons, an ad libitum high protein, high fat diet might be more effective for weight loss and insulin sensitivity improvement than a calorie-restricted high carbohydrate diet. This is in contrast to slightly overweight or normal weight people that might react the same to both types of diets.</p> <p>So the scope of the question should be broadened to "What is the range of SFA consumption within the context of a nutritionally adequate diet..."</p>		The guideline process will attempt to determine the recommended levels within the context of a nutritional adequate diet
88	<p>reduce risk of cancer;</p> <p>FAO Food & Nutrition paper 91 (FAO, 2011) states: "There is insufficient evidence for establishing any relationship of SFA consumption with cancer". This statement is in line with the conclusions from the World Cancer Research Federation report of 2007.</p> <p>Since very recently there was not sufficient evidence to establish the link between SFA consumption and cancer, the scope of the question should at best be whether new data are available which justify recommendations on SFA consumption for cancer.</p> <p>Furthermore the type of cancer should be specified.</p> <p>In addition, careful consideration should be given to the replacement nutrients, since for example high levels of omega-6 fatty acids have been linked to an increased risk of breast cancer (Sonestedt E, 2008).</p>		Noted and to be considered by NUGAG
89	<p>reduce serum total cholesterol/ LDL cholesterol/triglycerides;</p> <p>As this measurement is considered a risk factor for cardiovascular disease risk, it should be covered in that section in conjunction with a food based rather than a nutrient based approach.</p> <p>Furthermore the effect on the ratio of total cholesterol/HDL cholesterol should be included.</p>		Noted and to be considered by NUGAG
90	<p>increase serum HDL cholesterol;</p> <p>As this measurement is considered a risk factor for cardiovascular disease risk, it should be covered in that section in conjunction with a food based rather than a nutrient based approach.</p>		Noted

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91	improve quality of life. Is it realistic to evaluate an outcome which is dependent on many variables, including non-dietary factors, in relation to one specific nutrient?		to be determined by NUGAG
92	Reduction in NCD risk		Noted
93	We suggest adding BMI/waist to hip ratio, total cholesterol/HDL-cholesterol ratio, insulin resistance.		Noted and to be considered by NUGAG
94	We assume that the effects on serum total cholesterol / LDL cholesterol will be looked at together with effects on serum HDL cholesterol, and that total / HDL cholesterol ratio, the most powerful predictor of CHD risk in population studies, will also be addressed.		Noted
Other comments			
95	As Asian population is higher risk than their western counterparts, evidence should be looked into whether they require a different cut-off than the other population.		World geographical region already considered. Issues of ethnicity to be considered by NUGAG.
96	The influence of physical activity and intra- and inter-individual variation in responses to dietary change must be assessed before advice to the general population can be considered. Evidence of the safety of any proposed dietary advice, including to vulnerable groups, must be available before advice may be given to the general public. Guidelines should not assume that the whole human population can be given the same advice unless there is evidence that this is the case. In light of the difficulty in achieving dietary change, advice should not require greater changes than necessary. Therefore, it is unsatisfactory to give advice to the general public that is only necessary for particular vulnerable groups. If necessary, different advice should be aimed at different groups.		The guideline process will attempt to determine the recommended levels within the context of a nutritionally adequate diet for the general population and will consider potential adverse effects in making that decision
97	Suggest adding a SFA-PICO question that addresses the effect of triglyceride structure. I.e. do SFA at the sn-1,3 and sn-2 positions of dietary fats have equivalent physiological properties of dietary fat? This question is relevant to the commercial availability of semi-solid fats interesterified with SFA that are now being marketed as a replacement for margarines and shortenings containing TFA.	3	To be considered in the TFA guideline
98	Setting: When applies to all countries it is important to standardise fish consumption as high intake of fish has a protective effect on CHD.		Comment noted

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99	General PICO questions should be more general and avoid specified target values, unless justified by referring to previous recommendations/advice. Specifying values may result in unnecessary constraints in searches and eligibility criteria.		Comment noted
100	SFA PICO question should be more open and focus on effects of exchanging SFA with other fatty acids, or energy providing nutrients, i.e. carbohydrates and protein.		already considered
101	It is also essential to consider and evaluate the food source/type of macronutrients, e.g. refined carbohydrates, wholegrain, animal/vegetable protein.		To be considered by NUGAG
102	Dietary and policy recommendations frequently focus on reducing saturated fatty acid consumption for improving cardiometabolic health, based largely on ecologic and animal studies. The main three SFA in Human Diet are myristic acid, palmitic acid and Stearic Acid. it is well-established that Dietary saturated fatty acids (C12-C16) are hypercholesterolemic and increase CHD risk. Evidence also suggests that SFA intake may correlate with increased colorectal cancer, breast cancer , diabetes and insulin resistance, and stroke. The US Dietary Guidelines recommend consuming less than 10%E (percentage of total energy intake) from SFA , and the American Heart Association less than 7%Energy . Health effects of reducing SFA consumption vary depending on whether the replacement nutrient is carbohydrate (CHO), monounsaturated fat (MUFA), or polyunsaturated fat (PUFA)?		Comment noted
103	The PICO questions should explicitly explore the potential impact on stroke risk associated with consuming lower saturated fat intake. Results from the United States Nurses Healthy Study, among other prospective studies, have reported increased risk of stroke in individuals consuming lower saturated fatty acids (less than 7 g/day).		The guideline process will attempt to determine the recommended levels within the context of a nutritionally adequate diet for the general population and will consider potential adverse effects in making that decision
104	PICO questions might also examine any existing studies with information on genetic predispositions or genetic differences possibly contributing to variability within the general population for fat metabolism and cardiovascular-related outcomes.		noted and to be considered by NUGAG

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105	Another PICO consideration is to structure the questions to explore both the positive and negative contributions of a range of fatty acids. That is, fat is vital to the human body. More sophisticated analyses on fatty acids consumption has increasingly helped clarify that not all fats are the same. Recent studies are helping differentiate the positive and negative contributions of various fatty acids. As one example, consumption of omega-3s have been positively associated with heart and brain health. Moreover, food scientists and technologists are concerned about studies that focus too exclusively on the health implications of one nutrient; rather than more holistically examining the impact fat replacement has on other nutrients such as carbohydrates, sodium, dietary fiber, and other key macro- and micro-nutrients. PICO questions should consider health implications beyond dietary fat intakes and the evidence reviews should not be limited to evaluating only the associated risk of cardiovascular-related outcomes. Besides human health, fat has key functionality roles in food. For instance, fat acts as a flavor carrier, provides lubricity and texture, and improves food appearances. Food scientists and technologists continue to explore how the types, amounts, and mixtures of fat can promote health and functionality in foods. WHO guidelines should recognize the importance of food		The guideline process will attempt to determine the recommended levels within the context of a nutritional adequate diet for the general population and will consider potential adverse effects in making that decision. The guideline development process also considers feasibility.
106	Effects on blood pressure, cholesterol or plasma TG should not be categorized with Quality of life, cancer cardiovascular disease or other diseases. The first three are risk factors at best, the others are diseases! It is time to learn to see the difference between the two.		Outcomes will be prioritized by NUGAG.
107	It is very good to make a difference between the health effects of the different saturated fatty acids, and also not to include the medium chain fatty acids.		Comment noted
108	It is obvious that different fatty acids can have different effects. So a separate evaluation is very important.		Comment noted
109	The range of SFA consumption that should be recommended for the general population to: reduced risk of cardiovascular disease including stroke, myocardial infarction and coronary heart disease, and reduce serum total cholesterol/LDL cholesterol/triglycerides and reduced other NCD as cancer, diabetes, is less than 10% of total caloric value of a diet and in general this effect is greater as we approach the percentage of energy provided by saturated fat zero		Comment noted
110	We consider that it is important to analyze if the final amount of SFA consumption recommended for the population is compatible with a high intake of nuts and olive oil (Mediterranean Diet).	3	The guideline process will attempt to determine the recommended levels within the context of a nutritionally adequate diet, values and preferences around the globe and feasibility.

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111	In scoping question 1.a., for many of the diseases listed, the available data will be insufficient or no association will be found. Final recommendations should clearly state such findings.		The guideline development process will follow the methodology set out in the WHO Handbook for Guideline Development (http://www.who.int/hiv/topics/mtct/grc_handbook_mar2010_1.pdf) and outcomes will be prioritized by NUGAG. Then the results of the systematic review of the evidence on those prioritized outcomes will be
112	The category inflammatory bowel disease is very broad, may need to include specific types (e.g., common forms -- Crohn's disease and ulcerative colitis, or less common forms -- ischaemic colitis and Behcet's disease).		noted and to be considered by NUGAG
113	Need to look at the food source of SFA and chain length	2	Already considered
114	Scoping question 1.b., suggest adding the following variables -- birth weight, exposure to under-nutrition, baseline body weight, visceral adiposity, physical activity, source of SFA (e.g., dairy, specific isomer)		noted and to be considered by NUGAG
115	It is important to consider what nutrient is replacing the saturated fat, as the effects of lowering saturated fat are likely to differ depending on this. FAO/WHO (2010) indicates that there is probable evidence that replacing SFA with largely refined carbohydrates has no benefit on CHD, and may even increase the risk of CHD and favour metabolic syndrome development		Already considered
116	In order to provide the best dietary guidance on SFA, it would be prudent to examine the overall influence that SFA-containing foods, in the context of dietary patterns, have on NCD risk.		Comment noted. Also please note that the guidance on how to translate the nutrient recommendations to dietary practice is provided in other work area which is implemented by WHO, i.e. food-based dietary guidelines.
117	Scoping question 1b: we suggest to add food source of SFA, chain length of SFA, smoking, physical exercise, baseline body weight, birth weight		noted and to be considered by NUGAG

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118	Because many outcomes will be examined, we would suggest to specify which are the more critical to decide on the guidelines		Outcomes will be prioritized by NUGAG
119	Some draft PICO question (point 2) that would be good to consider and add into the point Intervention: - What is the effect in the general population of replacing different types of SFA (short chain or medium chain or long chain) with PUFA or MUFA or CHO relative to no replacement for the reduction in risk of NCD? - What is the effect in the general population of replacing short chain SFA with medium chain or long chain SFA; medium chain SFA with long chain SFA; long chain SFA with short or medium chain SFA		noted and to be considered by NUGAG
120	Could other components in a food matrix reduce the risk of the effect of SFA in NCDs? For example, could other components in a dairy product influence the effect of SFA that is also found in dairy?		Comment noted. Also please note that the guidance on how to translate the nutrient recommendations to dietary practice is provided in other work area which is implemented by WHO, i.e. food-based dietary guidelines.
121	To our knowledge it will be difficult to answer the draft PICO questions (point 2) outside the field of cardiovascular diseases.		Comment noted