Nutrition Subcommittee of the
Food Advisory Committee[1]
Center for Food Safety and Applied Nutrition (CFSAN)
Food and Drug Administration (FDA)

SUMMARY MINUTES
April 27 & 28, 2004
Loew's L'Enfant Plaza
Washington, DC

Members Present
Norman I. Krinsky, Ph.D., Chair
Susan S. Baker, Ph.D.
R. Jean Hine, Ph.D.
Susan T. Mayne, Ph.D.
Suzanne Pelican, M.S., R.D.
Barbara M. Shannon, Ph.D.
Michael J. McGinnis, M.D., M.P.P. (April 28, 2004)
Guy Johnson, Ph.D.
Eric Rimm, Ph.D.[2]
Alice Lichtenstein, Ph.D.[2]

FDA Staff Present
Jeanne E. Latham, R.D., M.S., Executive Secretary
Robert E. Brackett, Ph.D. (April 28, 2004)
Virginia Wilkening, R.D.
Kathleen C. Ellwood, Ph.D.
Paula Trumbo, Ph.D.
Amy Odegaard, M.S.
Kathleen Smith, R.D.

Agenda

April 27, 2004

The Nutrition Subcommittee ("Subcommittee") of the Food Advisory Committee met on April 27 and 28, 2004, at Lowes L'Enfant Plaza Hotel. Norman I. Krinsky, Chair, Ph.D., called the meeting to order at 12:30 p.m., Tuesday, and introduced the Subcommittee members. Ms. Virginia Wilkening, Deputy Director of the Office of Nutritional Products, Labeling, and Dietary Supplements (ONPLDS), CFSAN, welcomed everyone and made introductory remarks. Jeanne Latham, Executive Secretary, read the conflict of interest statement into the record, announced the appointment of the temporary voting members, and reviewed the FDA policy regarding the disclosing of personal financial interests by public commenters.

[1] The entire meeting was open to the public. For the verbatim transcript of the meeting, contact FDA Dockets Management Branch (HFA-305), 12420 Parklawn Drive, Rockville, Maryland 20857.
[2] Temporary voting member.

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Dr. Kathleen Ellwood gave an overview of FDA's activities relative to *trans* fatty acid labeling, provided background information as a context for the questions, and presented the charges and questions to the Subcommittee. Regarding the first question, Dr. Ellwood described some of the health claims that bear a low total fat criterion, some of the exemptions that FDA has made and the basis for those exemptions. She stated that there seems to have been a shift in the current scientific evidence relative to heart disease, such as the Dietary Guidelines for Americans 2000 and the recent Institute of Medicine (IOM)/National Academy of Sciences macronutrient report, from looking at total fat to the need to consider the type of fat in the diet. Dr. Ellwood indicated that the agency would like to know what scientific evidence suggests in terms of total fat intake and risk of coronary heart disease (CHD), keeping in mind that FDA continues to apply disqualifying levels for low saturated fat and cholesterol for health claims pertaining to heart disease risk. Regarding the second question to the Subcommittee, Dr. Ellwood stated that in the absence of having a Daily Value for *trans* fatty acids, the agency needs to know whether scientific evidence supports a level of one percent of energy (2 g per 2,000 calories) from *trans* fatty acids, as is being proposed by the Dietary Guidelines Committee. Regarding the third question, the agency would like to know if, when compared to saturated fatty acids, *trans* fatty acids are considered to be more, less, or similarly adverse with respect to CHD.

Dr. Krinsky began the meeting by asking for comments and discussion about the three FDA questions to the Subcommittee.

Questions to the Subcommittee

Question #1: One eligibility criterion that FDA has applied to most health claim regulations pertaining to heart disease risk is that foods bearing these claims must be low in total fat. What does the current evidence suggest in terms of total fat intake and risk of coronary heart disease?

Question #2: The Dietary Guidelines Committee may suggest that less than 1% of energy should be obtained from *trans* fatty acids (2 g per day for a 2,000 kcal diet). Does the scientific evidence support this level?

Question #3: When compared to saturated fatty acids, are *trans* fatty acids considered to be more, less or similarly adverse with respect to coronary heart disease?

Public Comment

Dr. Krinsky commenced the open public hearing at 4:35 p.m. He read into the record the statement regarding FDA's policy about disclosure of financial relationships for public commenters. The following members of the public made oral presentations: Robert Earl, Senior Director of Nutrition Policy at the National Food Processors Association (NFPA); Martin Hahn of Hogan and Hartson, on behalf of GFA Brands, Inc.; and Mary Enig, Ph.D., Vice President and Science Advisor of the Weston A. Price Foundation.

Mr. Earl discussed the NFPA's position and principles about disqualifying levels of nutrients for health claims and perspectives on data needs and utility of a DV for *trans* fatty acids. Mr. Hahn discussed the scientific evidence establishing the importance of considering the blend of fatty acids in the total diet when considering risk factors for heart disease. Dr. Enig addressed the

second and third questions to be discussed by the Subcommittee on the level of *trans* fatty acids in the diet and the health effects of *trans* fatty acids on risk of coronary heart disease.

The Subcommittee discussed the three questions and voted on Question 3.

Dr. Krinsky adjourned the meeting on Day 1, at 6:00 p.m.

April 28, 2004

Dr. Krinsky called the meeting to order at 8:00 a.m. on Wednesday, April 28, 2004. Dr. Brackett, Director of CFSAN, welcomed the Subcommittee members and provided opening remarks. Dr. Michael McGinnis joined the meeting as a non-voting participant.

The Subcommittee again discussed and voted on Questions 1 and 2, and provided comments to Question 3.

Dr. Krinsky adjourned the meeting on Day 2 at 11:00 a.m.

Subcommittee Deliberations, Recommendations, and Vote:

Question #1: One eligibility criterion that FDA has applied to most health claim regulations pertaining to heart disease risk is that foods bearing these claims must be low in total fat. What does the current evidence suggest in terms of total fat intake and risk of coronary heart disease?

With respect to Question 1, the Subcommittee discussed what scientific evidence exists and the strength of the evidence that links total fat intake to risk of coronary heart disease (CHD). Dr. Lichtenstein stated that the data support the impact of different fatty acids on CHD risk and the effect of the total fat content of the diet is far less significant, if not at all. As a matter of background, Dr. Lichtenstein shared that some of the initial reasoning behind recommending diets low in total fat, saturated fat and cholesterol was that by decreasing total fat, at least in the U.S., saturated fat is decreased. The low total fat recommendation took on a life of its own independent of the low saturated fat recommendation. There was a proliferation of products low in total fat that had not been high in saturated fat to begin with. Use of these products resulted in a net increase in carbohydrate intake, primarily as refined carbohydrate and simple carbohydrates without much impact on saturated fat intake. Because of this unexpected trend in the marketplace, the total fat issue was reassessed during the deliberations of the 2000 Dietary Guidelines Committee.

Dr. Rimm recalled an issue discussed by the IOM Panel on Macronutrients, that it is difficult to interpret the effects of a high fat versus low fat diet, depending upon what nutrients are substituted for fat. He pointed out that the evidence, including the Nurses Health Study, supports that there is essentially no association between total fat and risk of CHD within the range of what people eat. Rather it is saturated and *trans* fatty acids that are implicated in heart disease risk. Additionally, he said that current evidence suggests that the fatty acid component in the diet is more important than the total amount of fat. The Subcommittee members recognized that there

are studies underway that may identify a relationship between total fat in the diet and other chronic diseases, like cancer and obesity.

The Subcommittee had a difficult time trying to answer the question as originally stated. As agreed to by the Subcommittee and FDA and so that the Subcommittee could provide a yes or no answer, Question 1 was revised by FDA to read:

Does the current scientific evidence suggest a relationship between total fat intake and risk of coronary heart disease?

The Subcommittee continued its discussion addressing the revised question. Various members suggested further modifications to the question. Dr. Johnson stated that what needs to be addressed is should there be an across-the-board requirement or eligibility criterion that foods that make cardiovascular health claims be low in fat. He mentioned that FDA already has eligibility criteria for saturated fat and cholesterol with respect to cardiovascular disease health claims.

Vote on Question 1: Dr. Krinsky called for a vote on the FDA revised question. There were six members that voted no, two members abstained.

Following the vote, Ms. Pelican suggested that it should be made clear that dropping the requirement for health claims for foods to be low in total fat is based on evidence for CHD only, and should not be inferred to mean that total fat is not an important consideration in other areas of intake, e.g., energy density and energy balance.

Question #2: The Dietary Guidelines Committee may suggest that less than 1% of energy should be obtained from *trans* fatty acids (2 g per day for a 2,000 kcal diet). Does the scientific evidence support this level?

Regarding Question 2, the Subcommittee discussed several scientific papers that point to different levels of *trans* fatty acids as percent of calories consumed and their impact on changes in blood lipoprotein concentrations and relative risk of CHD. Dr. Lichtenstein began the discussion and stated that in the studies, among the lower levels of *trans* fatty acids, the differences with respect to the increase in low density lipoprotein (LDL) cholesterol levels were not statistically distinguishable. She added that no studies have really focused on the range of *trans* fatty acid intake of between zero and 3-4 percent of calories to indicate that 1 percent is more efficacious than 0.5 or 1.5 percent. She stated that the evidence indicates that intake of *trans* fatty acids raises LDL cholesterol levels and decreases high density lipoprotein (HDL) cholesterol levels, whereas saturated fats only raise LDL cholesterol levels. Dr. Lichtenstein shared that the estimated average intake of *trans* fatty acids is between about 1.5 and 2.6 percent of calories.

Dr. Rimm pointed out that the IOM Panel, in interpreting the science, could not come up with a health reason for having *trans* fatty acids in the diet. Based on scientific data that indicated that with increased intake of cholesterol, saturated and *trans* fatty acids, there was an increased risk of CHD, the IOM Panel recommended that *trans* fatty acid intake, as well as saturated fat and cholesterol intakes, should be as low as possible. Dr. Lichtenstein added that the IOM report

indicated that it is essentially impossible to have a nutritionally adequate diet by totally eliminating *trans* fatty acids. Dr. Rimm also pointed out that natural *trans* fatty acids that occur in ruminant animals are not associated with CHD, and their contribution to a person's daily intake is small, about 1 gram per day. Dr. Rimm put forward that the totality of evidence suggests a dose response between increasing *trans* fatty acid intakes, increasing biological markers and increasing CHD.

The Subcommittee recognized that some companies have begun to reduce or eliminate *trans* fatty acids from their products, but there are no recent data on dietary intakes of *trans* fatty acids in the U.S., so the impact of the current food supply is not known.

For the benefit of the Subcommittee, Ms. Wilkening explained how *trans* fatty acids will appear on the Nutrition Facts Panel of food products, the fact that there is currently no percent Daily Value (%DV), and the FDA request for comment regarding whether to list one joint %DV for both saturated fat and *trans* fatty acids. The Subcommittee discussed how additional label information on *trans* fatty acids might be helpful versus confusing to consumers.

As part of the discussion, many members agreed that education about *trans* fatty acids has to be an important component of the advisory committee recommendations. Some of the members felt that it is important to communicate information about both *trans* and saturated fatty acids, since they are not the same.

Vote on Question 2: Dr. Krinsky called for a vote on Question 2. There were five members that voted no; three members voted yes.

The majority of Subcommittee members agreed to transmit a statement to the FDA, as an addendum to Question 2, that although current scientific evidence does not indicate a specific acceptable daily intake for *trans* fatty acids, it is consistent with reducing *trans* fatty acid intake to a level of less than 1 percent of energy (2 grams per day for a 2,000 kilocalorie diet).

Question #3: When compared to saturated fatty acids, are *trans* fatty acids considered to be more, less or similarly adverse with respect to coronary heart disease?

With respect to Question 3, Dr. Rimm pointed out that intervention studies show that *trans* fatty acid intake increases LDL or LDL/HDL ratio - risk factors of CHD - in a dose-dependent manner by about two to three-fold that of saturated fatty acids. With observational studies, the risks associated with a 1 percent increment in *trans* fatty acid is about three to four times that observed for a 1 percent increase in saturated fatty acid. In the interventional studies, that magnitude of change is unlikely to have a measurable biological effect, at least in the short term. Additionally, Dr. Rimm stated that when looking at diabetes research, it seems that there is an impact for *trans* fatty acids and not for saturated fat. Insulin sensitivity research suggests that there is an adverse effect for *trans* fatty acids and not necessarily for saturated fat. With regard to inflammatory markers, there are a number of biological studies, some observational and some experimental, that would suggest that *trans* fatty acids are very different from saturated fat. Within the range of 1 to 6 percent of energy of *trans* fatty acids, there is a very big difference in the impact of *trans* fatty acids compared to saturated fat on measurable biological effects (lipids). Dr. Lichtenstein pointed out that at low levels of intake of *trans* fatty acids, e.g., at one and two

percent of energy, there seems to be little difference in the effect of *trans* fatty acids versus saturated fatty acids on risk of CHD. She indicated that in intervention studies there is less of an effect than seen in observational studies. So, in the interventional studies that magnitude of change is unlikely to have a measurable biological effect, at least in the short term.

Dr. Krinsky added that, as stated in earlier discussion, at higher intake levels, a marked difference between *trans* fatty acids and saturated fatty acids is observed, with *trans* fatty acids being more adverse with respect to CHD.

Dr. Rimm pointed out that *trans* fatty acids are different than saturated fat, and *trans* fatty acids will be quantitatively listed on the label. He indicated that consumers need to be aware that at very low intake levels of *trans* fatty acids intake, the impact on blood lipids is not different than saturated fat; however, at higher intake levels, the impact of *trans* fatty acids is more adverse than saturated fat. Dr. Mayne suggested that there is a continuum when looking at effects of *trans* fatty acids versus saturated fat, i.e., the difference is more magnified as intake levels increase, keeping in mind that datapoints are lacking.

Dr. Johnson added that the *trans* fatty acid message needs to be communicated by more than just the nutrition label, and this should be a shared responsibility with FDA, other government agencies, the Dietary Guidelines Committee and industry. Other members of the Subcommittee agreed that the public needs more education regarding *trans* fatty acid intake.

Vote on Question 3: Dr. Krinsky called for a vote on Question 3. The vote was 8 yes's, zero no's, zero abstentions, that *trans* fatty acids are more adverse with respect to CHD.

Dr. Johnson provided an additional comment on Question 3. He indicated that the "yes" answer does not reflect the considerable uncertainty discussed by the Subcommittee as to whether this difference is significant from a public health perspective at the level of *trans* fatty acid intake that is typical in the United States.

I certify I attended the April 27-28, 2004 meeting of the Nutrition Subcommittee of the Food Advisory Committee, and these summary minutes accurately reflect what transpired.

Jeanne E. Latham, R.D., M.S. 08/26/04

Jeanne E. Latham, R.D., M.S. Date
Executive Secretary

Norman I. Krinsky 08/25/04

Norman I. Krinsky, Ph.D. Date
Chair