

2020 DIETARY GUIDELINES ADVISORY COMMITTEE

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PUBLIC MEETING

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FRIDAY
 MARCH 29, 2019
 DAY 2 OF 2

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The Advisory Group met in the Jefferson Auditorium at the headquarters of the U.S. Department of Agriculture, 1400 Independence Avenue, Washington, DC, at 8:30 a.m., Barbara Schneeman, Chair, presiding. The meeting allowed for public viewing, both in-person and by Web.

PRESENT

BARBARA SCHNEEMAN, PhD, Chair
 RONALD KLEINMAN, MD, Vice Chair
 JAMY ARD, MD
 REGAN BAILEY, PhD, MPH, RD
 LYDIA BAZZANO, MD, PhD
 CAROL BOUSHEY, PhD, MPH, RDN
 TERESA DAVIS, PhD
 KATHRYN DEWEY, PhD
 STEVEN HEYMSFIELD, MD
 HEATHER LEIDY, PhD
 RICHARD MATTES, PhD, MPH, RD
 ELIZABETH MAYER-DAVIS, PhD, RD
 NOVOTNY, PhD, RDN, LD
 JOAN SABATÉ, MD, DrPH
 LINDA SNETSELAAR, PhD, RD
 JAMIE STANG, PhD, MPH, RDN

 ELSIE TAVERAS, MD, MPH

 LINDA VAN HORN, PhD, RDN, LD

ALSO PRESENT

JACKIE HAVEN, MS, RD, USDA

COLETTE RIHANE, MS, RD, USDA

EVE STOODY, PhD, USDA, Designated Federal Officer

RICHARD OLSON, MD, HHS

JANET de JESUS, MS, RD, HHS

JULIE OBBAGY, PhD, RD, USDA

TUSAREBECCA PANNUCCI, PhD, MPH, RD, USDA

DAVID KLURFELD, PhD, USDA, Co-Executive Secretary

ERIC DECKER, PhD, University of Massachusetts,

Amherst

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1 P-R-O-C-E-E-D-I-N-G-S

2 (8:34 a.m.)

3 DR. STOODY: Good morning. My name is
4 Eve Stoodly and I'm the designated federal officer
5 to the 2020 Dietary Guidelines Advisory Committee
6 and also lead nutritionist for Nutrition Guidance
7 at USDA's Center for Nutrition Policy and
8 Promotion.

9 Thank you again for your interest in
10 the Dietary Guidelines for Americans. We want to
11 welcome you to Day 2 of the first meeting of the
12 2020 Dietary Guidelines Advisory Committee.

13 And just to start off, similar to
14 yesterday, if you weren't here yesterday, for
15 those of you here in person, you have a badge and
16 if you'll just keep that badge on. In order to
17 go through the halls of this building, you need
18 to have either that sticker or a formal USDA
19 badge. So please just hang on to that so
20 security knows that you're a part of this group.

21 Also, there are badges that have a
22 blue dot to indicate staff. And if you need

1 anything at any time throughout the day, please
2 feel free to ask somebody with the blue dot and
3 they will be sure to help you for find someone
4 who can.

5 And if you're looking for
6 refreshments, the cafeteria is down Wing 3.

7 So for this morning's agenda, we're
8 going to begin by having Janet de Jesus join us
9 to talk about the topics and scientific questions
10 to be examined by the committee. Then, Dr.
11 TusaRebecca Pannucci will discuss the state of
12 the current American diet. And we are pleased to
13 have a guest speaker join us today, Dr. Eric
14 Decker, who will talk about Implementing Guidance
15 in the Real World - A Food Science Perspective.

16 We will also have today a fair amount
17 of time for committee discussion. That will be
18 around the topics and questions, about the
19 subcommittee organization, and also talk about
20 steps for moving ahead and what will occur after
21 this public meeting.

22 The agenda for this meeting is

1 available at dietaryguidelines.gov. We will also
2 post the recording of this meeting, as well as
3 the slides from this meeting after the meeting.
4 And we will send out a listerv notification when
5 those materials are posted.

6 For the record, 18 of our 20 members
7 are here with us today. Dr. Taveras is able to
8 join us today and we are happy to have her here.
9 We welcome her to the meeting and to the
10 committee.

11 Drs. Donovan and Naimi were not able
12 to be here today but they are going to tune in as
13 they are able.

14 Please note that this is a meeting of
15 the committee that is open to the public. If any
16 member of the public would like to submit
17 comments to the committee, you are welcome to do
18 so at any time. The written comment public
19 period is now open and you can access it at
20 dietaryguidelines.gov. And there will be the
21 opportunity for oral comments to the committee at
22 two public meetings, the first opportunity at our

1 July meeting, which we will talk about a little
2 more at the end of the day.

3 Now just as we begin today, if we can
4 ask the committee members if you have questions
5 or discussion during the deliberations today, if
6 you will, identify your name. We are still
7 learning voices and that will help everyone to
8 follow along in the process.

9 Our first speaker today is Janet de
10 Jesus, Nutrition Advisor at the HHS Office of
11 Disease Prevention and Health Promotion or ODPHP.
12 In addition to working on the development of the
13 Dietary Guidelines, she participates in other
14 cross-cutting nutrition activities across the
15 federal government.

16 She joined ODPHP from the National
17 Heart, Lung, and Blood Institute at the National
18 Institutes of Health, where she participated in
19 systematic evidence reviews in the development of
20 clinical practice guidelines for the prevention
21 and treatment of cardiovascular risk factors
22 across the life span.

1 She will walk through discussion today
2 of the topics and supporting scientific questions
3 that are the departments are asking the committee
4 to examine.

5 Please join me in welcoming Janet de
6 Jesus.

7 MS. DE JESUS: Good morning. It is my
8 pleasure to be here at this distinguished
9 committee. So as Eve mentioned, I am going to
10 walk through the process for the topic in
11 question identification. So this is a new step
12 in the process for the 2025 Dietary Guidelines
13 for Americans that the department has decided on.
14 So we added this step, really, to be more
15 transparent and deliberate in this process.

16 So we first proposed topics and
17 questions, and posted them online for public
18 comment, and then they were refined with agency
19 input.

20 Okay, some of you may have heard, as
21 you can imagine, the topics and questions that we
22 can examine is immense. So we applied criteria

1 to narrow it down to decide on which topics and
2 questions to cover and the criteria is listed on
3 the slide.

4 So federal nutritionists, including
5 scientists from USDA, and HHS, and across the
6 federal government form the initial list of the
7 topics and questions, based on the needs of
8 federal nutrition programs and initiatives.

9 So next, the departments, USDA and
10 HHS, posted the topics and scientific questions
11 for public comment. So this was February 28th
12 through March 30th that the public comment period
13 was open. We received 12,000 comments. At the
14 same time, federal agencies provided input on
15 this initial list.

16 So I am going to review the criteria
17 that was also put out when we released the draft
18 topics and questions. So the first was
19 relevance. We wanted to make sure that the
20 topics and questions really fit within the scope
21 of the Dietary Guidelines. The focus of the
22 Dietary Guidelines is food-based recommendations.

1 So an example of a topic that doesn't fit within
2 this scope is clinical guidelines, so clinical
3 treatment, such as diabetes, that is covered by
4 our other agencies at NIH and CDC. So it is not
5 -- the purpose is not for treatment of specific
6 diseases and conditions but more prevention.

7 So the topics were also reviewed for
8 importance. Topics should have new relevant data
9 that represent an area of substantial public
10 health concern or a knowledge gap.

11 Potential federal impact was another
12 important factor. So we looked at the
13 probability that the guidance would be used to
14 inform federal food and nutrition policies and
15 programs.

16 And finally, the last criteria. We
17 wanted to make sure that there wasn't duplication
18 and covered by another government program. So
19 for example, as I mentioned, disease treatment is
20 well covered by our colleagues at NIH, CDC. Food
21 safety is another example that USDA, CDC, and FDA
22 cover and provide guidance on for the public.

1 So following this review, we posted
2 the final topics and questions online. So the
3 main topics were similar. They just reflected
4 the priorities and I will summarize these topics
5 today.

6 At the same time we released the
7 topics and questions, we also put a call out for
8 nominations for the committee. So this new step
9 in establishing topics and questions we hope that
10 would drive the expertise of the committee when
11 they were nominated.

12 Okay, so this is just the summary
13 slide and I will really get into the details.

14 So as I mentioned, following all the
15 review, we refined the topics and these are the
16 major -- the main topics. So the main difference
17 in the initial list and the revised final list is
18 that we expanded the topics across the life
19 stage, not just for specific stages.

20 We took into consideration the
21 comments that we received and the four criteria
22 that I outlined. And we also expanded some of

1 the outcomes that we received -- that we received
2 comments on. So some of those are under
3 cognitive health and gestational weight gain. We
4 also expanded the questions on dietary fats,
5 added sugars, frequency of eating, and alcoholic
6 beverages.

7 Okay. So for full transparency, all
8 of the lists are available on
9 dietaryguidelines.gov. The original list that we
10 posted is still available there and we have two
11 lists that you can see.

12 So the first list is List A. So this
13 is organized by life stage. So this follows the
14 format that we originally posted in February. It
15 makes it easy to see what has changed. So you
16 can see that topics continue to reflect an
17 overall view of what we eat and drink to prevent
18 disease and keep people healthy.

19 So List B is actually what we're
20 asking the committee to work from. It's a more
21 streamlined version. It was reorganized to
22 reduce redundancy and better reflect how

1 departments are asking the committee to review
2 the evidence.

3 It is not totally organized by life
4 stage but we ask the committee, as much as
5 possible, if the evidence is available, to speak
6 to life stage in your report.

7 So today I will be discussing the
8 streamlined version: List B.

9 Okay, so the first topic is reviewing
10 the current dietary intake and nutrients of
11 public health concern.

12 So for each stage of life, the
13 following will be described -- we are asking that
14 the following be described and evaluated:
15 current dietary patterns in beverage consumption;
16 current intake of food groups and nutrients;
17 nutrients of public health concern; and the
18 prevalence of nutrition-related health chronic
19 disease. So this is where the Data Analysis
20 Crosscutting Subcommittee will come in.

21 So with this data, how does dietary
22 intake, particularly dietary patterns, track

1 across the life stages from introduction of foods
2 into childhood and through adulthood.

3 So our big crosscutting question.
4 Dietary patterns, looking at the relationship
5 between dietary patterns, such as: Dietary
6 Guidelines-related patterns; Mediterranean-style;
7 Dietary Approaches to Stop Hypertension (DASH);
8 vegetarian/vegan; low carb; high fat are consumed
9 at each life stage. So these are just examples.

10 And looking at the following outcomes,
11 as you can see, we have a long list of outcomes
12 here. Looking at growth, body composition, risk
13 of overweight and obesity, risk of cardiovascular
14 disease, Type 2 diabetes, cancer, looking at bone
15 health outcomes, neurocognitive health,
16 sarcopenia specific for older adults, and all-
17 cause mortality.

18 So in addition to this, this is a very
19 broad question, we are asking that the dietary
20 pattern questions consider quantities,
21 proportions, varieties, and combinations of foods
22 and nutrients when examining these relationships.

1 So studies that examine a specific food group but
2 control for other aspects of the dietary pattern
3 will also be considered.

4 Okay, so this is a specific dietary
5 pattern question for pregnancy and lactation
6 populations. So looking at the relationship of
7 dietary patterns consumed during pregnancy and
8 the risk of gestational diabetes, hypertension
9 disorders, gestational age at birth, so that's
10 for the infant, birthweight, and standardized
11 gestational age and sex, looking at weight gain
12 during pregnancy and micronutrient status of the
13 mother.

14 Also what is the relationship between
15 dietary patterns consumed during lactation, human
16 milk composition and quantity, infant development
17 milestones, including neurocognitive development,
18 and postpartum weight loss.

19 Okay, continuing on with dietary
20 patterns, we really want to examine other changes
21 needed to the USDA dietary patterns based on the
22 relationships identified. If nutrients are not

1 met in these patterns, is there evidence to
2 support supplementation or consumption of
3 fortified foods to meet nutrition adequacy?

4 And this is where food pattern
5 modeling comes in. So as you can see, we are
6 utilizing all of our evidence review methods, so
7 our systematic review, our data analysis, and our
8 food pattern modeling.

9 Okay, moving on to beverages, as you
10 know we consume a variety of beverages, so it's
11 really important to look at the health impact of
12 the beverages that we consume.

13 So the first question: the
14 relationship between beverage consumption such as
15 -- and these are just examples -- cow's milk,
16 milk alternatives, water, fruit juice, sugar-
17 sweetened beverages, beverages with high-
18 intensity sweeteners, caffeinated beverages, and
19 alcohol during relevant stages of life.

20 And the outcomes are: achieving
21 nutrient and food group recommendations, growth,
22 body size and composition, risk of overweight and

1 obesity. And for alcohol only, we are interested
2 in the types of cancer, risk of cardiovascular
3 mortality, neurocognitive health, and all-cause
4 mortality.

5 So continuing on with beverages
6 specific for pregnancy and lactation: What is
7 the relationship between beverage consumption
8 during pregnancy and achieving nutrient food
9 group recommendations, gestational weight gain,
10 birth weight standardized for gestational age and
11 sex?

12 During lactation, achieving nutrient
13 and food group recommendations. Again, as you
14 can hear, these are repetitive across the
15 questions and some of the outcomes: human milk
16 composition and quantity, postpartum weight loss.
17 And for alcohol only, infant development
18 milestones and neurocognitive development.

19 Okay, so getting into more specifics
20 in the dietary pattern. Take a look at added
21 sugar consumption at each stage of life and
22 achieving nutrient and food group

1 recommendations, growth, body size, risk of
2 overweight and obesity, risk of cardiovascular
3 disease and Type 2 diabetes.

4 Okay, types of dietary fats: What is
5 the relationship between types of dietary fats
6 (such as saturated fat; omega-3, omega-6
7 polyunsaturated, and monounsaturated) consumed at
8 each stage of life. And we are asking you to
9 examine the source, amount, and replacement of
10 dietary fat.

11 Looking at neurocognitive development,
12 birth through 18 years old: neurocognitive
13 health for adults, risk of cardiovascular
14 disease, certain types of cancer, and all-cause
15 mortality.

16 Moving on to seafood: examining the
17 relationship between seafood consumption during
18 pregnancy and lactation and neurocognitive
19 development of the infant, examining the
20 relationship between seafood consumption during
21 childhood and adolescent (up to 18 years old),
22 and neurocognitive development; and risk of

1 cardiovascular disease.

2 And moving on to a behavioral
3 question: examining the relationship between
4 frequency of eating (such as meals per day,
5 snacking, fasting) at each stage of life.

6 And looking at the outcomes of
7 achieving nutrient and food group
8 recommendations: growth, body size, risk of
9 overweight and obesity, risk of cardiovascular
10 disease, Type 2 diabetes, and all-cause
11 mortality.

12 So given the emphasis on infants and
13 toddlers, we have some very specific questions,
14 since this is the first time we are examining
15 this population. So for infants and toddlers --
16 really looking at healthy, full-term infants, we
17 have the following topics and questions.

18 So the first topic is recommendation
19 of duration of exclusive human milk and/or infant
20 formula feeding. And the specific question is
21 looking at the relationship between the duration
22 of exclusive human milk or infant formula

1 consumption and growth, and body size
2 composition, food allergies and atopic allergic
3 diseases, longer term health outcomes,
4 micronutrient status, and development milestones,
5 including neurocognitive development.

6 Additionally, the frequency and volume
7 of human milk and/or infant formula feeding and
8 the relationship between frequency and volume of
9 the consumption and micronutrient status, growth
10 size, body composition.

11 And finally, a look at supplements.
12 So the relationship between specific nutrients
13 from supplements and/or fortified foods consumed
14 during infancy and toddlerhood and the nutrient
15 status, growth, composition, body composition,
16 and bone health.

17 Okay, continuing on with infants and
18 toddlers, looking at the relationship of
19 complementary feeding and the timing of
20 introduction, types, and amounts, and
21 micronutrient status, growth and body size,
22 developmental milestones, food allergy, and

1 atopic diseases, and bone health.

2 So we have a very -- we have a
3 definition of complementary feeding because we
4 received a lot of questions. So complementary
5 feeding is defined here as when the infant starts
6 adding foods during the feeding period,
7 transitioning from like about six months or five,
8 transitioning from sole infant formula or breast
9 milk to complementary foods, all the way through
10 24 months. So it's not just that first year but
11 it continues through 24 months any of the diet.
12 And dietary patterns will also be examined in
13 this complementary foods and beverages period.

14 So can the USDA food patterns be
15 established based on the relationships
16 identified? As we discussed yesterday, there are
17 no patterns for this age group. And if so, how
18 well do these food patterns variations meet
19 nutrient recommendations for infants and
20 toddlers? So, you are really starting from the
21 beginning with these dietary patterns.

22 Okay, some specific questions for

1 pregnancy and lactation. The first one on
2 dietary supplements, examining the relationship
3 between specific nutrients from supplements
4 and/or fortified foods consumed during pregnancy
5 and lactation, and micronutrient status, risk of
6 gestational diabetes, and hypertensive disorders,
7 human milk composition and quantity, and
8 developmental milestones, including
9 neurocognitive development for the infant.

10 Additionally, looking at maternal diet
11 during pregnancy and lactation and the risk of
12 infant and childhood food allergies and atopic
13 diseases.

14 Okay, so as I mentioned before with
15 the criteria of duplication, there are a lot of
16 topics that are addressed across the federal
17 government that aren't addressed here but we just
18 wanted to give some of the examples that aren't
19 included on the review list that are addressed
20 through other federal guidance.

21 So for example, as I mentioned, USDA,
22 FDA, and CDC regularly update food safety

1 information and disseminate this to consumers and
2 professionals. Additionally, guidance on health
3 risk of excessive alcohol use, such as binge
4 drinking, is included in programs led by CDC and
5 NIH.

6 Gestational weight gain guidance is
7 provided by recommendations from the National
8 Academies and disseminated by federal agencies.

9 And as you may know, the 2018 Physical
10 Activity Guidelines were recently released by
11 HHS. So physical activity is well covered by the
12 federal government.

13 And finally, Dietary Reference Intake,
14 such as the recently released sodium-potassium
15 DRI.

16 So the entire process for topic and
17 question identification is available online at
18 dietaryguidelines.gov. So you will find the
19 process that we used to establish this, the
20 initial list, and the final list, and you can
21 keep up with the progress of the committee.

22 So the next step on the topics and

1 questions is for the committee to work with the
2 evidence, the NESR Team, and the Data Analysis
3 and Food Pattern Modeling Team, and specifically
4 to refine the protocols. So they will giving you
5 a draft protocol, and you can really help refine
6 that, and make sure that it is asking exactly all
7 of the right questions, inclusion criteria,
8 outcomes, et cetera. So we really look forward
9 to working with you on that process.

10 So I'm happy to take some questions,
11 if you have any. And just to add that this
12 afternoon there is going to be opportunity for
13 discussion (broader) on the topics and questions
14 that Dr. Schneeman is going to lead.

15 CHAIR SCHNEEMAN: Among the committee
16 members, if you have questions, just remember to
17 say your name before. This is Barbara Schneeman.
18 Just remember to say your name.

19 MEMBER MAYER-DAVIS: This is Beth
20 Mayer-Davis.

21 So if in the process of doing the work
22 over this next year, if a new question arises,

1 something new comes out in the literature, or for
2 whatever reason another questions arises, I'm
3 assuming that we can discuss that and include
4 that. Is that the case?

5 MS. DE JESUS: As far as the evidence
6 review process, we ask that the committee really
7 focus on the topics and questions that are
8 provided.

9 I mean if you have suggestions in the
10 protocols to really help make those better, that
11 is perfectly appropriate. But if it is really
12 like outside the scope, I mean you are welcome to
13 discuss any of these topics in the scientific
14 report; there just won't be like the scientific
15 evidence review behind that because we have a
16 very large scope. So we really had to limit with
17 the time that you have.

18 CHAIR SCHNEEMAN: This is Barbara. I
19 think it will be important, though, to capture
20 those if, in the process of the review, you
21 identify a significant issue that needs to be
22 addressed. That's something where in the report

1 we can make sure the Secretaries are aware of
2 that.

3 So don't lose of track of them.

4 MS. DE JESUS: Absolutely. Yes, if
5 we're missing something, like please. It can be
6 noted.

7 MEMBER HEYMSFIELD: Steve Heymsfield.
8 Maybe I'm just thinking out loud and I'm really
9 seeing some of this for the first time but it
10 seems to me that there's a grid. There's the
11 life stages and then there are these different
12 questions.

13 And I guess as someone who writes a
14 lot, I'm trying to think of how you integrate all
15 this information because our tasks are fairly
16 focused, right, for each of our topic areas. It
17 must be a real challenge to put all this
18 together. Am I right?

19 MS. DE JESUS: Yes. So that's, as we
20 discussed yesterday, really how to put it all
21 together in your scientific report and that will
22 really take some crosscutting work with the

1 committee to decide how best to present this
2 across the life span within the topics.

3 So it's a good point. Thank you.

4 MEMBER ARD: Jamy Ard.

5 So the life stages that have been laid
6 out, if I understand correctly, are birth to 24,
7 2 to 18, 19 to 64, and then 65 and over. Is that
8 correct?

9 MS. DE JESUS: Yes.

10 MEMBER ARD: So in my way of thinking,
11 some of those life stages have very different
12 groups within them. So do we, as a committee,
13 have the liberty, or the luxury, or the challenge
14 of sort of refining some of how we think about
15 those life stages? A menopausal woman or a
16 perimenopausal woman will be very different than
17 a 25- to 35-year-old woman in reproductive years.

18 So what is our guidance there?

19 MS. DE JESUS: Right, as the
20 committee, based on evidence, I mean you are
21 welcome to provide more information on subgroups,
22 so different populations, different age groups.

1 So if you really have evidence on a
2 specific age group in the lifespan, you are
3 welcome to. We just gave like broad age groups.

4 So as you know, the DRIs are really
5 cut up into much smaller age groups as well. So
6 definitely, we would love to hear if there is
7 information on that.

8 Thank you. That's a good point.

9 MEMBER MAYER-DAVIS: It's Beth Mayer-
10 Davis again.

11 So thinking about subgroups, something
12 that has been on my mind just over the last day
13 or so is issues around health equity and thinking
14 particularly about vulnerable populations and you
15 can think about that in any number of ways. So
16 is that an example of the kinds of subgroups that
17 we might pay attention to within each of the
18 various topics and questions? Is that an
19 expectation or, from my perspective, a hope?

20 MS. DE JESUS: Yes, so within these
21 questions if there are outcomes in that
22 subpopulation, like absolutely report on that.

1 Thank you.

2 MEMBER STANG: Jamie Stang.

3 I have a question about the timing of
4 the overall modeling and data analysis compared
5 to the other reviews because it seems like you
6 almost need those reviews to inform some of what
7 is going to go on with the modeling and the data
8 analysis. Is that correct or are they going on
9 simultaneously?

10 MS. DE JESUS: So the data analysis
11 has already begun, as TusaRebecca presented
12 yesterday and she is going to present some today.
13 So you will have a lot of the data analysis up
14 front.

15 The food pattern modeling is actually
16 informed by the committee. So it's kind of
17 driven by the evidence. So what is the evidence
18 telling us? You know what do we want to model
19 utilizing the existing food patterns that we
20 have?

21 So it's really a crosscutting. So
22 data analysis and food pattern modelings

1 definitely are crosscutting across all of the
2 subcommittees.

3 Great. Terrific. Thank you very
4 much.

5 Okay. So now I'm going to introduce
6 our next speaker, Dr. TusaRebecca Pannucci, who
7 joined the Center for Nutrition Policy and
8 Promotion in 2015 as the lead nutritionist for
9 Nutrition Economic Analysis Team, she led a
10 multidisciplinary team conducting analysis for
11 the USDA food patterns, Healthy Eating Index, the
12 USDA food plans, and expenditures on children by
13 families. She will be supporting the work of the
14 2020 Advisory Committee and the Working Group on
15 Data Analysis and Food Pattern Modeling, which
16 she will be discussing today.

17 So join me in welcoming Dr. Pannucci.

18 DR. PANNUCCI: Good morning. So it is
19 my pleasure to talk to you today about a
20 selection of analyses that describe the current
21 dietary intakes in America.

22 The 2015-2020 Dietary Guidelines,

1 which included recommendations for ages 2-plus,
2 will be used as a metric for which I am going to
3 compare some data about dietary intakes today.
4 So of course, moving forward, we will be
5 discussing the birth to 24 population but today,
6 my focus will be on the population that was
7 relevant for the 2015-2020 Dietary Guidelines,
8 ages 2-plus.

9 Yesterday I emphasized the interagency
10 collaborations that make this data analysis
11 possible. So again, I will mention that federal
12 scientists at the USDA Center for Nutrition
13 Policy and Promotion, the Center for Disease
14 Control and Prevention, Ag Research Service, and
15 the National Cancer Institute are all important
16 players in the data collection, data nutrient
17 analysis, the supporting data bases that we use
18 that make it possible to do this analysis, the
19 development of analytic methods, and of course
20 the data analysis that I am going to share today.

21 So today I am going to be going over
22 some of the methods for dietary data collection,

1 which we went over yesterday but I will remind
2 everybody again today, the levels or tiers of
3 dietary intake data that we can examine. Then, I
4 will share where we are with overall diet quality
5 using the Healthy Eating Index or HEI. I'm going
6 to discuss data based on food group intakes,
7 distribution of food group intakes, and food
8 category sources of calories and food groups.

9 So by the end, I hope that we will
10 paint a picture of the understanding of where
11 Americans stand compared to the 2015-2020 Dietary
12 Guidelines for Americans food group
13 recommendations.

14 The data I'm sharing come from the
15 National Health and Examination -- National
16 Health and Nutrition Examination Survey, which is
17 supported by the National Center for Health
18 Statistics of the Centers for Disease Control and
19 Prevention. The goal of NHANES is to provide
20 U.S. population-based estimates for health
21 conditions, awareness of treatment and control of
22 selected diseases, environmental exposures, and

1 today, we will be discussing nutrition status and
2 especially dietary behaviors.

3 Also, a reminder that NHANES uses a
4 complex sampling design and constructs sample
5 weights that are used in the analyses that I am
6 presenting today that make it nationally
7 representative. A reminder, again, that this is
8 looking at civilian non-institutionalized
9 individuals in our population and that there are
10 oversampled groups that help us with better
11 estimates for some of these subgroups that some
12 of you keep mentioning.

13 So remember that NHANES data
14 collection is unique because it includes
15 interviews as well as physical exams that,
16 together, provide a host of information about our
17 population. The demographic data and the dietary
18 data can be combined so that we can look at some
19 of those subgroups.

20 So today's presentation, again,
21 focuses on the dietary data. So let's quickly
22 review again the data collection methods.

1 The dietary portion of NHANES, the
2 What We Eat in America portion, is the interview
3 administered 24-hour dietary recall developed by
4 the USDA called the Automated Multiple-Pass
5 Method or AMPM. As a reminder, again, this
6 includes a quick list where participants are
7 asked to recall everything that they ate and
8 drank in the previous 24 hours. The forgotten
9 foods list includes an opportunity for them to
10 review the quick list and add anything they might
11 have forgotten, using standardized lists of nine
12 food categories that probe their memory.

13 Then, they are asked to apply a time
14 and day -- a time of day to each eating occasion
15 and name that eating occasion. That might also
16 prompt memories of other things that they
17 consumed throughout the day.

18 During the detail cycle, they report
19 the portion sizes consumed, any additions to the
20 foods that they consumed, and it provides another
21 opportunity for review and any omitted foods to
22 be added.

1 Finally, the trained interviewer goes
2 through the final probe asking for anything else
3 consumed, even in small amounts throughout the
4 day. This is designed to help participants
5 recall their diet in great detail.

6 What We Eat in America, again, is
7 supported by these databases that make the
8 analysis I am going to share today possible. The
9 Food and Nutrient Database for Dietary Studies or
10 FNDDS provides the nutrient values for about
11 9,000 foods and beverages, including energy and
12 64 nutrients.

13 The FPED or Food Patterns Equivalents
14 Database takes those foods in FNDDS and
15 disaggregates them into their food group
16 components, things like cup equivalents of
17 vegetables, fruits, dairy foods; ounce
18 equivalents of grains, protein foods; and
19 teaspoon equivalents of added sugars. It is
20 really this database that gives us the unique
21 opportunity to compare food group intakes to the
22 recommendations in the Dietary Guidelines for

1 Americans.

2 Lastly, I am going to be showing some
3 data that utilizes the What We Eat in America
4 Food Categories. This exists to apply analysis
5 to foods and beverages as consumed in the
6 American diet. There are about 150 unique food
7 categories and I am going to try to make these
8 databases come to life.

9 We are going to use peanut butter and
10 jelly sandwich as our example. Classic. So
11 somebody in NHANES might report a peanut butter
12 and jelly sandwich with regular peanut butter and
13 regular jelly on whole wheat bread. We are going
14 to say that the sandwich is about 140 grams.

15 I'm just going to present some
16 selected data, not all the information. But the
17 FNDDS is where we would find out that such a
18 sandwich would have about 402 calories, 14 grams
19 of protein, 8.7 grams of monounsaturated fatty
20 acids, and 304 milligrams of potassium.

21 The FPED database lets us know the
22 foods in our food. So let us know that that

1 sandwich contributes two-ounce equivalents of
2 nuts and seeds, 12.7 grams of oils, 1.3 ounce
3 equivalents of whole grains, and 3.75 teaspoon
4 equivalents of added sugars. You can see how
5 these tiers of data are adding to the information
6 that we can look at.

7 And finally, the What We Eat in
8 America Food Category. This sandwich falls in
9 the mixed dish category under sandwiches,
10 specifically, peanut butter sandwiches.

11 So now that we have an understanding
12 of the type of data we have, the tiers of dietary
13 data that we can look at, let's look to see how
14 we're doing. We are going to do that by using
15 the Healthy Eating Index.

16 So the Healthy Eating Index is an
17 analytic tool that we use to compare a set of
18 foods to the key recommendations in the Dietary
19 Guidelines for Americans. It's a unique tool
20 that can be applied to any set of foods but today
21 we specifically are going to be applying this to
22 population-level diets.

1 So the following slides will report
2 the latest version of the HEI, the HEI 2015,
3 which aligns with the Dietary -- the 2015-2020
4 Dietary Guidelines for Americans.

5 HEI scores do not align with the
6 Dietary Guidelines. The average score in America
7 is 59 out of a total possible 100 points. This
8 does not mean that 59 percent of Americans are
9 meeting the Dietary Guidelines, a common
10 misperception. This means that, on average,
11 diets of Americans are not meeting the Dietary
12 Guidelines, a score of 59 out of a possible 100.

13 We can look on the left there, how we
14 changed over time. There has been a little bit
15 of improvement but things have been fairly static
16 across the past ten years. We can also look
17 across age groups. The youngest and oldest age
18 groups shown here, ages 2 to 5 and ages 65 plus,
19 tend to do the best with scores of 61 for the
20 littles and a score of 64 out of 100 for ages 65
21 plus. Ages 6 to 11 receive a score of 52 out of
22 100, as do the age 12 to 17.

1 So knowing that diet quality in
2 relation to the 2015-2020 Dietary Guidelines is
3 poor, what is contributing to the score? Why
4 don't we unpack this a little bit with the data
5 that we have available?

6 We'll first start by looking at
7 average food group intakes compared to the
8 recommendations. So the following data include,
9 again, average food group intakes compared to the
10 Dietary Guidelines recommendations. These data
11 are published by our colleagues at the USDA Ag
12 Research Service and are already available
13 online. And then we will be comparing to the
14 USDA U.S. Health Eating Style Food Pattern that
15 was published as part of the 2015-2020 Dietary
16 Guidelines for Americans.

17 In these figures, we're looking at
18 average daily vegetable intake compared to
19 recommended intake. There is a lot on this slide
20 so I am just going to walk us all through it a
21 little bit here.

22 Along the bottom we have age groups

1 starting with the youngest, 2 to 5, 6 to 11, 12
2 to 19, 20 to 29, 30 to 39, and so on to the far
3 right is 70-plus. And then the blue bars show
4 the range of recommended intakes from the calorie
5 levels that could be assigned to those age groups
6 in cup equivalents of vegetables and the orange
7 dots indicate average intakes for that age group
8 compared to the blue bars.

9 You can see that for all age groups,
10 average daily vegetable intake falls short of the
11 range of recommended intakes.

12 We'll look again for fruit. The same
13 situation. The bars represent the cup
14 equivalents and the recommended range of intakes
15 and the orange dots represent average intake.

16 You can see that across all age
17 groups, except for ages 2 to 5 -- so sorry. Ages
18 2 to 5 falls within the recommended intakes. And
19 then beyond that, intakes hover just under one
20 cup equivalent, for the most part, per day.

21 Here we show average total grain
22 intake. So this is showing whole grains as well

1 as refined grains combined, total grain intakes.
2 And we see that for most age groups the intakes
3 fall within the bars for men. For women, some of
4 the average intakes fall below the bars.

5 Here we have average daily dairy
6 intake. Remember that dairy includes cow's milk
7 as well as cheese, and yogurt, and calcium-
8 fortified soy beverage. And we see an
9 interesting pattern here, where as the age groups
10 increase, intakes tend to decrease.

11 For ages 2 to 5, the average intake is
12 just shy of two cup equivalents per day. For the
13 other age groups, average intakes for men fall
14 between a little over one cup equivalent to
15 around two cup equivalents and for women,
16 starting around age 20 adult women are consuming
17 somewhere around 1.25 cup equivalents a day.

18 Here we see average daily protein
19 foods intake compared to recommended intakes. So
20 for men we see that, starting with young adult
21 men, ages 20 to 29 and throughout ages 60 to 69,
22 the average intakes are above the recommended

1 intake bars. For women, they generally fall
2 within the recommended intake bars.

3 All right, so we have seen how average
4 food group intakes compared to the
5 recommendations in the 2015-2020 Guidelines but
6 we might wonder how have they changed over time.
7 Our colleagues, again at Ag Research Service,
8 published a nice piece looking at this comparing
9 food group intakes from 2003-4 to 2015-16. The
10 reference is shown here. This work was done by
11 Shanty Bowman and colleagues and published in
12 November of last year.

13 All right, we are going to go through
14 each main food group again. So let me orient you
15 to this slide and then most of the rest are
16 similar. Again, we have age groups, a little bit
17 more compact age groups. Along the bottom, ages
18 2 to 5, 6 to 100, 12 to 19, and then all adults
19 over 20 and the total population there on the far
20 right.

21 In the green on this slide -- there
22 will be other colors on other slides but in the

1 green on this slide to the left bars, those are
2 data from 2003-2004 and in the blue bars, those
3 are data from 2015-2016. There have been no
4 significant changes in vegetable intake between
5 these two time periods.

6 These came out as almost purple.
7 There have been no significant changes in fruit
8 intakes between 2003-2004 and 2015-2016.
9 Depending on where you are looking, they are
10 either purple or navy blue, representing data
11 from 2003-2004 or kind of the orange color
12 representing data from 2015-16. Again here we
13 see that intakes hover right around one cup
14 equivalent of total fruit per day. That includes
15 whole fruit, as well as 100 percent fruit juice.

16 All right, well this next slide is a
17 little bit different. Before I showed you total
18 grains altogether but here, I am showing a slide
19 that includes whole grains as well as total
20 grains.

21 So we are looking at the intake of
22 whole grains in blue at the bottom of the bars,

1 refined grains in orange, and the two together
2 represent total grain intake by age group, from
3 youngest on the left to oldest adults on the
4 right, and the total population on the far right.

5 The darker bars or the more opaque
6 bars represent data from 2003-2004 and then the
7 more translucent bars represent the data from
8 2015-2016. For adults, and then that translates
9 to the total population, there has been a
10 significant -- a statistically-significant
11 decrease in total grain intake. But interesting,
12 there is a statistically-significant increase in
13 whole grain intake across the age groups,
14 although we could see that those blue bars do not
15 represent half of the total bar and the
16 recommendation is that half of grains are whole
17 grains.

18 All right, dairy foods, again, which
19 includes cow's milk, cheese, yogurt, and calcium-
20 fortified soy beverage, we see that for the very
21 youngest children ages 2 to 5, that there was a
22 statistically-significant decrease of total dairy

1 intake but across the other age groups and total
2 population, there is no statistically-significant
3 difference between the two time points.

4 For total protein intakes, adolescents
5 have a statistically-significant reduction in
6 total protein food intake between 2003-2004 and
7 2015-16. But for the total population and for
8 most age groups, the intakes are almost
9 identical.

10 All right, last little bit tricky
11 slide, this is like the whole grain slide but
12 this one describes the percent of calories from
13 solid fats and added sugars. There was a
14 substantial and significant decrease between
15 2003-4 and 2015-16.

16 Again, in this slide, added sugars --
17 there's a little bit of color here. Make sure I
18 have the colors right here. Added sugars in the
19 blue on the bottom of the bars and solid fats in
20 the green on the top of the bars. There is a
21 statistically-significant reduction in total
22 percent of calories from these two elements, as

1 well as a statistically-significant reduction in
2 each as an individual component of the diet.

3 Again, in 2015 there was a
4 quantitative limit of ten percent of calories
5 from added sugars and from saturated fat. So if
6 we look at added sugars in the blue bars, we
7 still see the intakes, as a percent of calories,
8 exceed that quantitative limit of ten percent,
9 where the intakes here are shown as ranging from
10 12 percent to 15 percent of calories in the diet.

11 All right so we have looked at average
12 intakes compared to recommendations. We looked
13 at change over time but what percent of the
14 population is falling short of these
15 recommendations?

16 Here, we are using food group intake
17 distributions. This analysis was done by
18 colleagues at the National Cancer Institute and
19 represent two cycles of NHANES data 2013-2016.

20 For each of the main food groups, in
21 the dark green bars going towards the left of the
22 slide, the percent of the population that falls

1 short of the recommended intake. On the lime
2 green bars to the right of the slide is the
3 percent of the population that either meets or
4 exceeds those recommended intakes.

5 We see that for total vegetables,
6 about 90 percent of the population falls short of
7 the recommendation. For fruit, it is about 80
8 percent of the population falls short of the
9 recommendation; for dairy, again, it's close to
10 90 percent of the population; for total grains,
11 41 percent of the population; and for total
12 protein foods, about 40 percent of the population
13 have intakes below the recommended. And this is
14 -- I should have mentioned this is the
15 recommendations being compared are the food
16 patterns published in the 2015-2020 Dietary
17 Guidelines.

18 All right. So what are the food
19 sources for these food groups or for energy or
20 calories? So we are going to look at food
21 category sources of food groups and energy.

22 So the next series of figures

1 illustrate where, as these food categories --
2 remember the peanut butter sandwich example --
3 Americans are getting energy, calories, and then
4 vegetables. These data were also produced by
5 colleagues at the National Cancer Institute.

6 I will remind you about the What We
7 Eat Food Categories that are developed by our
8 colleagues at Ag Research Service. So the main
9 categories are shown on the left, things like
10 milk and dairy as a category, as opposed to a
11 food group. We need to keep those different.
12 But we will unpack mixed dishes because people
13 often wonder gosh, what is in mixed dishes.

14 So then there are subcategories,
15 including meat, poultry, and seafood-mixed
16 dishes, grain-based mixed dishes, Asian and
17 Mexican mixed dishes, pizza, sandwiches, and
18 soups. Within sandwiches, we can drill down even
19 more to burgers and frankfurter sandwiches,
20 chicken and turkey sandwiches, egg or breakfast
21 sandwiches, other sandwiches, cheese, and then
22 peanut butter and jelly sandwiches. So a lot of

1 -- again, there are about 150 unique categories.

2 All right, the next slide has a lot to
3 look at so we will take it slow. So here I am
4 showing the main food category sources of
5 calories or energy. So how are foods or what
6 foods are contributing to energy intake? So by
7 combining the FNDDS and What We Eat in America
8 Food Category data sources, we can examine the
9 distribution of energy intake across the major
10 food categories.

11 In this figure we have ages 2-plus, so
12 the total population, and then the age categories
13 ranging from youngest, 2- to 5-year-olds, 6 to
14 11, 12 to 19, 20 to 24, and so on to 71-plus.
15 All right, let's use this pointer to our
16 advantage here.

17 So this color of green on the bottom
18 is mixed dishes. The lime green is snacks and
19 sweets. The lighter blue is beverages not
20 including milk or 100 percent fruit juice. This
21 blue, this lighter blue -- wait a minute --
22 darker blue is the protein foods. This darker

1 orange is the grains. The lighter yellow is the
2 vegetables. And then we have dairy in what
3 appears to be a grayish color here. Fruits and
4 fruit juices, 100 percent fruit juices, and then
5 condiments.

6 A majority of the calories are being
7 consumed as mixed dishes and this is nice because
8 you can kind of see across the age groups how the
9 distributions shift. Again, mixed dishes include
10 grain-based mixed dishes or casseroles, where I
11 grew up; Asian and Mexican mixed dishes; pizza,
12 sandwiches, soups, things like that.

13 So mixed dishes, along with snacks and
14 sweets in the lime green, and beverages other
15 than milk and 100 percent fruit juice make up
16 nearly 60 percent of calories for most of the age
17 groups except for the small children.

18 We can look at this with a little more
19 specificity. So what are the top ten subcategory
20 sources of intake? A similar slide here but now
21 we're looking at more specific food categories.
22 So in this case, the blue is the burgers and

1 sandwiches. The orange is desserts and sweet
2 snacks. This gray is rice, pasta, and other
3 grain-based mixed dishes. The yellow is sugar-
4 sweetened and diet beverages. The blue is chips,
5 crackers, and savory snacks. This little green
6 line here is vegetables, including beans and peas
7 not starchy vegetables. The purple is pizza,
8 higher fat milks and yogurts, breakfast cereals
9 and bars, and poultry not including deli and
10 mixed dishes.

11 So we can see with a little bit more
12 specificity the food categories that are the top
13 ten sources of contributing to energy in the
14 American diet. And again, it is nice to see
15 across the age groups how those shift from one
16 age group to the next.

17 So that was looking at energy or
18 calorie sources. We talked about vegetables and
19 vegetable intakes fall short of the recommended
20 intakes. But where are Americans getting their
21 vegetables?

22 So we can look at the top ten

1 subcategory sources of vegetables. Again, these
2 are categories, not food groups. So vegetables
3 is the food group. Categories is how the foods
4 are consumed.

5 And again, the age groups across the
6 bottom. In the green we've got vegetables,
7 basically vegetables on their own; starchy
8 vegetables in orange; burgers and sandwiches,
9 including tacos and burritos in gray -- you can
10 see how that changes from one age group to the
11 next; rice, pasta, and other grain-based mixed
12 dishes; chips, crackers, savory snacks; meat,
13 poultry, seafood mixed dishes; purple is pizza;
14 condiments and gravies in this kind of brown
15 color; and then we have soups and eggs. So you
16 can see that those are the top ten subcategory
17 sources of vegetables in the American diet.

18 So these are a selection of data. Of
19 course, there are a lot of data that I described
20 yesterday that are available to examine dietary
21 intakes of Americans. I chose to focus on food
22 groups that can be compared to the

1 recommendations in the 2015-2020 Dietary
2 Guidelines for Americans.

3 Our common goal is to improve the
4 health of our nation. That's why we are all
5 here; the staff to support you and you are
6 committed to the work that you are doing. We
7 know that everything we eat and drink matters.
8 We still fall short of eating according to the
9 Dietary Guidelines. Circling back to the Healthy
10 Eating Index scores, we see that Americans' diets
11 do not align with the 2015-2020 Dietary
12 Guidelines. Data also show that moving towards
13 the Dietary Guidelines matters. There is reduced
14 risk for diet-related chronic disease and major
15 economic benefits.

16 So I hope that this has helped you
17 understand the state of the American diet with
18 this selection of data. And I am happy to take a
19 few minutes to answer any questions.

20 CHAIR SCHNEEMAN: Linda, do you want
21 to -- just to remind the committee, say your name
22 and then the question.

1 MEMBER VAN HORN: Linda Van Horn.
2 Thank you so much. That is so full of
3 information, I'm sure we could talk all day about
4 this set slides alone.

5 DR. PANNUCCI: We probably could.

6 MEMBER VAN HORN: But again, I am
7 struck with how valuable it is to be able to look
8 at the little kids and realizing that those
9 school-aged years are when everything seems to be
10 at their worst. It is an opportunity I think,
11 especially again with our new category of B-24
12 and going forward to really emphasize the
13 opportunity to initiate those healthier eating
14 patterns starting early on and then preserving
15 those over time.

16 And I'm not sure, as a group, how we
17 can do that but it would just seem to me that if
18 there was a theme or an emphasis or something
19 that we could do about that, it clearly means
20 educating the adults who are caring for those
21 children but pushing that thought further as far
22 as maintaining those healthier eating patterns as

1 they get older.

2 DR. PANNUCCI: Thank you.

3 VICE CHAIR KLEINMAN: Ron Kleinman.

4 That was a great talk, TusaRebecca.

5 So in the food composition table,
6 there's 9,000 foods. Do those include infants?

7 DR. PANNUCCI: There is data on baby
8 foods, as well as infant formulas.

9 VICE CHAIR KLEINMAN: Great. And how
10 about human milk?

11 DR. PANNUCCI: The data for human milk
12 would have to be imputed.

13 VICE CHAIR KLEINMAN: Okay but we can
14 do that? I mean -- and then the Healthy Eating
15 Index, that doesn't go down, does it, into the
16 birth to 24?

17 DR. PANNUCCI: The Health Eating Index
18 applies to the ages 2-plus at this point because
19 it reflects the dietary patterns that were
20 designed for those age groups.

21 VICE CHAIR KLEINMAN: Yes.

22 DR. PANNUCCI: So the HEI 2015 is

1 based on the key recommendations of the Dietary
2 Guidelines -- or the key recommendations of the
3 2015-2020 Dietary Guidelines and the scoring
4 reflects a density basis of the patterns that are
5 applicable to 2-plus, since B-24 wasn't included
6 in that addition of the guidelines.

7 VICE CHAIR KLEINMAN: Yes, so to some
8 degree I guess we may be developing a Healthy
9 Eating Index. Is that --

10 DR. PANNUCCI: So the Healthy Eating
11 Index is developed through a collaboration --
12 CNPP, as well as the National Cancer Institute.
13 And that's something that occurs after the
14 Dietary Guidelines are released.

15 So traditionally, the HEI has been
16 published about three years after the guidelines
17 are released but work starts right away in that
18 development and evaluation process.

19 VICE CHAIR KLEINMAN: Yes, so what we
20 will be doing is influencing that, if we do our
21 work well.

22 DR. PANNUCCI: Yes, there was a -- if

1 we -- yes, that is right. The key
2 recommendations for that birth to 24 population
3 could be translated in something akin to a Health
4 Eating Index for that population.

5 VICE CHAIR KLEINMAN: All right. And
6 then this isn't specific to what you've just told
7 us but, as a general question, what are the
8 outcomes that we haven't thought about -- that I
9 haven't seen listed here is bone health. Is that
10 -- I don't know if this is a question for you or
11 for Eve, or for someone else, but is it in there?

12 DR. PANNUCCI: It's in the topics.
13 Yes, there are some questions.

14 VICE CHAIR KLEINMAN: It's there.
15 Great because that is very crosscutting,
16 certainly something we would want to talk about.

17 DR. PANNUCCI: Yes, and I spoke of
18 food group intakes but, of course, there will be
19 nutrient intakes to examine from food and
20 beverage alone, as well as food and beverage from
21 -- food and beverage as well as dietary
22 supplements. So that will be something the

1 committee will want to examine as well.

2 VICE CHAIR KLEINMAN: Thank you.

3 DR. PANNUCCI: Thank you.

4 MEMBER BAILEY: This is just a quick
5 question. Regan Bailey.

6 I love the slides where you have the
7 dots for the average and the bars for the
8 recommended range. I'm wondering for the work of
9 the Food Pattern Modeling Committee if we
10 couldn't combine four survey years for that to
11 increase the precision of estimates.

12 DR. PANNUCCI: We could.

13 MEMBER BAILEY: And while we don't
14 have recommended ranges for birth to 24 months,
15 if we couldn't just have a dot to see where they
16 are currently at.

17 DR. PANNUCCI: Yes, that's something
18 that we can talk about as part of the data
19 analysis in the Food Pattern Modeling
20 Subcommittee.

21 MEMBER BAILEY: Thank you.

22 MEMBER TAVERAS: Hi, Elsie Taveras.

1 So a couple of questions.

2 Do you have information to identify if
3 there is a sample of pregnant or lactating women?

4 DR. PANNUCCI: We do, yes.

5 MEMBER TAVERAS: Do you have a sense
6 of the sample of size of that?

7 DR. PANNUCCI: I meant to tuck that
8 away because I was asked that yesterday and I
9 still don't remember.

10 MEMBER TAVERAS: And then --

11 DR. PANNUCCI: I noted it and --
12 thanks -- 30 to 50 per two-year group. So it is
13 a small sample size. We'll have some challenges
14 around that.

15 VICE CHAIR KLEINMAN: I think you
16 mentioned 200.

17 MEMBER BAILEY: If you combine all the
18 survey years.

19 CHAIR SCHNEEMAN: So Regan, if you
20 could say that into the mike. It's mainly
21 getting it on the transcript.

22 MEMBER BAILEY: Sorry. So there's

1 about 20 to 50 in any survey year. In 1999
2 through 2006, pregnant and lactating women were
3 oversampled. So there is a higher sample size in
4 those age groups. But even combining 1999
5 through 2014, there is about 1200 to 1500. So
6 about 1200 with complete dietary data.

7 MEMBER TAVERAS: Thank you.

8 And the other question I had was: Is
9 there any level of detail of diet in some of the
10 categories that you mentioned in surveillance of
11 children in WIC or through other nutrition --

12 DR. PANNUCCI: We can look at program
13 participation.

14 MEMBER TAVERAS: So other nutrition
15 surveillance systems for example like the
16 Pediatric --

17 DR. PANNUCCI: Even with NHANES, there
18 is an ability to identify some levels of program
19 participation. So that's something, again, we
20 could talk about which subgroups that we want to
21 dive into. We were talking about vulnerable
22 populations and how you might want to examine

1 that.

2 MEMBER TAVERAS: Thank you.

3 MEMBER VAN HORN: Sorry, another
4 question.

5 DR. PANNUCCI: Sure, Linda.

6 MEMBER VAN HORN: Linda Van Horn.

7 The other question sort of tagging
8 onto that is it was encouraging to see that there
9 were improvements in terms of reduction in sugar
10 and solid fat intake. And I was just wondering
11 if it was possible to determine where the sources
12 of those are.

13 DR. PANNUCCI: Yes, we can dig down
14 into that and determine where that is coming
15 from.

16 MEMBER VAN HORN: Oh, that's great.

17 And then the second question is
18 related to the fact that, again, it is
19 encouraging to see there are segments of the
20 population that are exceeding the recommended
21 amounts of fruits, and vegetables, and other
22 things of that sort. I just wondered if there

1 have been any attempts to analyze those
2 populations that are meeting or exceeding some of
3 those recommendations to determine not only what
4 the HEI is for them but also how it relates to
5 their own health-related criteria. In other
6 words, the winners. We like to look at --

7 DR. PANNUCCI: How are the winners
8 actually doing well?

9 CHAIR SCHNEEMAN: This is Barbara
10 Schneeman. If I could add to that question, with
11 the HEI we are looking at the single number for
12 the total population and it might be interesting
13 to know the distribution and then, to your
14 question, what is related to where you are in
15 that distribution.

16 DR. PANNUCCI: Yes, and the
17 distribution at the top end of the distribution
18 -- oh, shoot. Now I can't remember what the 95th
19 percentile is. I have that in another
20 presentation. We have that distribution intake
21 data. And I am thinking to the Dietary Patterns
22 Methods Project, which of course Dr. Boushey is

1 very familiar with, where we could look at even
2 quartiles of diet quality scores but the highest
3 quartile does not have a perfect score but we do
4 see that there is a reduced risk for chronic
5 disease mortality, as an example. And some of
6 those publications would allow you to look at
7 kind of if we call those the winners, as you
8 said, then what are the component scores for HEI
9 and things like that.

10 MEMBER BOUSHEY: This is Carol
11 Boushey. And I'll just follow-up.

12 Thank you, TusaRebecca for pointing
13 that out. That is being addressed by activity
14 with the Dietary Patterns Methods Project,
15 however, the sample is not NHANES.

16 DR. PANNUCCI: Right.

17 MEMBER BOUSHEY: So that is one of the
18 cautions. You know a lot of this is NHANES and
19 so that sample comes from three major cohorts
20 that are actually doing exploration of the top
21 and in what's happening. So good insight.

22 DR. PANNUCCI: Yes but we could do

1 something similar in NHANES.

2 MEMBER BOUSHEY: Yes, and you could
3 then and use the same modeling, too.

4 DR. PANNUCCI: Yes, thank you, Linda.

5 MEMBER NOVOTNY: Rachel Novotny.

6 Harkening back a little bit to
7 Elsie's question about the food assistance groups
8 and knowing that you also work with the Thrifty
9 Food Plan, I think it's great that you are able
10 to put together these different data sets but it
11 makes me wonder if one is able to put prices on
12 these food plans or, alternatively, if you could
13 share with us the latest Thrifty Food Plan and
14 how that may be shifting. I think there's going
15 to be a lot of interest in the cost associated
16 with --

17 DR. PANNUCCI: That's something we can
18 have a discussion around, cost, but I think it
19 would be outside of the scope of the questions
20 and topics that have been outlined. But of
21 course, that is follow-up work that happens on my
22 team.

1 CHAIR SCHNEEMAN: Again, even though
2 we may identify things outside the scope, if it
3 becomes important in our discussion at the
4 committee level, then we need to think about how
5 do we incorporate it into the report, even though
6 we may not be making a recommendation about it.

7 MEMBER MATTES: Rick Mattes.

8 So to what degree can you manipulate
9 the categorizations that you have there? So for
10 example, we drink some fruits and vegetables. So
11 that would fall into the beverage category --

12 DR. PANNUCCI: Uh-huh.

13 MEMBER MATTES: -- even though we call
14 them -- and beverages are often snacks but you
15 differentiated beverages from snacks. If we want
16 to start changing the boundaries to understand --

17 DR. PANNUCCI: When it comes to
18 nomenclature and the way we think about
19 nomenclature, you've brought up a good point. So
20 in NHANES in the time and occasion step,
21 participants self-identify what they call that
22 eating occasion.

1 So we can look at data based on how
2 people identify an eating occasion. So what
3 foods are contributing to the eating occasion
4 that participants have identified as a snack?

5 The categories that I was showing
6 today are the What We Eat in America Food
7 Categories that have been defined and there is
8 one of those categories called snacks and sweets,
9 and then it drills down further. I think it will
10 help to see that full list of 150 food
11 categories, to look at it from that element, and
12 then separately to look at an element of the
13 eating occasion labels that people self-identify
14 and what you might want to look at within those
15 self-identified eating occasions and keep those
16 two concepts a little bit -- I suppose you could
17 look at it combined but also self-identified
18 snacks is different from the category snacks and
19 sweets. So it's been defined in the What We Eat
20 in America Food Categories.

21 Does that answer your question?

22 MEMBER MATTES: Yes, we'll have to

1 talk about that more.

2 DR. PANNUCCI: Yes, there's a lot --
3 there are a lot of things that are going to be
4 fun to talk about. Short answer, yes.

5 MEMBER HEYMSFIELD: I had a question.
6 Steve Heymsfield.

7 The source data for the Healthy Eating
8 Index is the NHANES questionnaires you described?

9 DR. PANNUCCI: The -- we -- the --
10 sorry. The Healthy Eating Index calculation is
11 on the NHANES 24-hour recall data.

12 MEMBER HEYMSFIELD: Right. Okay.

13 DR. PANNUCCI: Yes, so the same group
14 of people that contributed to that HEI score,
15 that population also contributed to the average
16 intake and the food category intake data that you
17 saw today.

18 MEMBER HEYMSFIELD: So I know that
19 there is I guess a SAS program that runs these
20 analyses.

21 DR. PANNUCCI: That's right.

22 MEMBER HEYMSFIELD: Is there an

1 individual user interface on the web where
2 someone could calculate their Health Eating
3 Index?

4 DR. PANNUCCI: There is work around
5 that. There are people who are interested in
6 that. We could have another larger conversation
7 around that idea and how people would react to
8 that and things like that.

9 But right now, it's generally used for
10 populations or for other groups of foods. We can
11 apply it to menus. We can apply it to the food
12 supply. We could apply it to -- there is
13 interesting work where they've applied it to
14 foods available at a food pantry, things like
15 that.

16 So it's applied in a lot of different
17 ways and I would be happy to share more on that.

18 MEMBER HEYMSFIELD: I guess I want to
19 work towards 100. You know I don't know where I
20 stand right now.

21 DR. PANNUCCI: We all want to work
22 towards 100, I am sure.

1 MEMBER BAZZANO: Lydia Bazzano from
2 Tulane.

3 So I guess I'm a little bit confused
4 with I guess the same distinction in terms of
5 what is a vegetable. And I think also for people
6 who may be confused about how is it that eggs are
7 in the top ten subcategory of vegetables.

8 DR. PANNUCCI: Okay.

9 MEMBER BAZZANO: Just so that you can
10 explain that to everyone.

11 DR. PANNUCCI: Yes, I'd be happy to.

12 So eggs is not a category of
13 vegetables, rather, the way people eat eggs. You
14 can imagine an omelet contains vegetables. So
15 people are getting their vegetables through egg
16 like an omelet.

17 So it's one of the top ten ways that
18 people get their vegetables. It is not a
19 category of vegetables.

20 Categories of vegetables in the food
21 groups would be things like dark green vegetables
22 but it is a little -- it's a distinction. We

1 have food groups and subcategories for some of
2 those food groups. The What We Eat in America
3 Food Categories are categories as foods are
4 consumed. So sandwich is not a subcategory of
5 grains, rather a sandwich is a source of total
6 grains in the American diet.

7 Does that help?

8 MEMBER BAZZANO: That does, a lot.

9 Thank you and I'm sure it helps others.

10 DR. PANNUCCI: Because that would be
11 confusing if you were wondering how eggs are a
12 category. Eggs are not categories as a
13 vegetables. Eggs are a source of vegetables when
14 vegetables are added to something like an omelet.

15 MEMBER BAZZANO: I do have a follow-up
16 question, though --

17 DR. PANNUCCI: Okay.

18 MEMBER BAZZANO: -- about the veg
19 alone and starchy veg. So I'm assuming starchy
20 veg is mostly potato-based.

21 DR. PANNUCCI: Potatoes, corn, things
22 like that.

1 MEMBER BAZZANO: Okay and veg alone --

2 DR. PANNUCCI: Would be the other veg
3 like -- of course now I'm drawing a blank like
4 that's something I should know.

5 MEMBER BAZZANO: Like broccoli?

6 DR. PANNUCCI: Green beans, broccoli,
7 tomatoes, vegetables that are not starchy. And
8 again, those are not subcategories of vegetables
9 but, rather, those are the What We Eat in America
10 categories, although there are starchy vegetables
11 as a subcategory. This gets quite confusing if
12 we talk in circles.

13 MEMBER BAZZANO: Got it. Thank you.

14 DR. PANNUCCI: Sure.

15 CHAIR SCHNEEMAN: So this is Barbara
16 Schneeman, if I could follow up on that. So you
17 can present us data, though, of within the actual
18 sources of vegetables --

19 DR. PANNUCCI: Yes.

20 CHAIR SCHNEEMAN: -- how they
21 distribute across the different categories.

22 DR. PANNUCCI: We can do both. We can

1 look at intakes of vegetables and their subgroups
2 as an example and we could look at what are the
3 sources of dark green vegetables as categories.

4 MEMBER ARD: So Jamy Ard.

5 From an energy balance standpoint, if
6 take a look at the average food group intakes
7 compared to recommendations, and if we were to
8 say well, we move everyone up to the
9 recommendations, then we would expect people to
10 just gain weight, right, because we are just
11 adding calories. No one is meeting the
12 recommendations.

13 So the question is: What are the food
14 groups that we are overconsuming. I mean you
15 showed there is a decrease in solid fats and
16 added sugars but if you had a comparable set of
17 food groups that we are overconsuming so we would
18 be able to understand what the displacement needs
19 to be.

20 DR. PANNUCCI: Sure. There is an
21 interesting analysis that has been done that we
22 can also discuss thinking about the nutrient-

1 dense forms of foods. So forms of foods that are
2 prepared in their most nutrient-dense forms would
3 be those with the least amounts of sodium, added
4 sugars, and saturated fat. But if we look at
5 typical intakes within the food groups, then we
6 know that Americans are not always making the
7 most nutrient-dense choices. So even an average
8 intake of vegetables doesn't mean it is the
9 average intake of the most nutrient-dense forms
10 of vegetables.

11 And so looking at that analyses, I
12 believe, if I remember correctly, the last time
13 that analyses was done was published in 2010 and
14 we really saw that within those food groups like
15 vegetables or fruits, we can see what the
16 nutrient profile would be in the food patterns
17 versus what the nutrient profile is of typical
18 choices of Americans and look at the difference.
19 I think it is that kind of analysis that would
20 answer your question.

21 CHAIR SCHNEEMAN: So other questions,
22 at this point, from the committee?

1 MEMBER SABATE: Joan Sabate.

2 DR. PANNUCCI: Yes.

3 MEMBER SABATE: I wanted to follow a
4 question that you mentioned. It looks like,
5 other than protein foods and grains in some
6 categories were low in the foods that you have
7 presented and, at the same time, there is good
8 news that solid fats and added sugars there is a
9 time frame to decrease.

10 So the goods news seems like the
11 Dietary Guidelines from previous editions do have
12 an impact. The bad news is that all these
13 difference in energy probably comes from foods
14 that are not categorized in a clear way. I mean
15 they are not the measure of food groups as we
16 understand. By that I mean you know the fruits,
17 the vegetables, the legumes, the so on and so
18 forth. So probably the excess of energy, because
19 overall in America we have obesity, so basically
20 that may come from beverages, from ultra-
21 processed foods, from alcohol, and excess of fats
22 and sugars.

1 I mean I just would like to know if
2 there is a way that indeed quantify these because
3 that will be useful for us as far as making
4 recommendations.

5 DR. PANNUCCI: Again, I think the
6 typical choices analyses will help to enlighten
7 us related to both of your questions.

8 Heather.

9 MEMBER LEIDY: Heather Leidy. Just
10 two quick questions.

11 In more philosophical, I guess,
12 nature, how long does it take for guidelines to
13 elicit change that is observed statistically?

14 So my question I guess is related to
15 Healthy Eating Index. We know what Americans are
16 eating now and we were talking about it in the
17 context of the 2015 Dietary Guidelines but there
18 is a time there at which those things come out
19 where it actually has a practical change and I
20 don't know how that actually works in the realm
21 of -- I'm sure in the past there has been a
22 nutrient of concern that we have been able to

1 target and then you can see a change over x
2 number of years. I don't know if that is the
3 case or not.

4 Please add some context around the
5 time at which the guidelines come out versus how
6 we can track that effectively and what that time
7 frame would look like.

8 DR. PANNUCCI: That's an interesting
9 question. I think it would take a little bit
10 more discussion but what comes to mind related to
11 NHANES is that within the questionnaire there are
12 questions about familiarity with MyPlate. It
13 previously, the Food Guide Pyramid was that
14 question and now it's been changed to familiarity
15 with MyPlate. So there has been some analyses to
16 look at those who are familiar with MyPlate and
17 difference in their diet quality scores. And
18 those who are familiar with MyPlate or those who
19 tried to follow MyPlate, that is another
20 question. Their HEI scores are higher than those
21 who are not familiar with MyPlate.

22 That doesn't directly answer your

1 question but trying to point out that there is
2 data -- there is data in the questionnaire
3 portion of NHANES that does address familiarity
4 with the Dietary Guidelines.

5 Another thing about the Healthy Eating
6 Index, we are often careful to say that we are
7 describing how diets do or do not align with the
8 Dietary Guidelines, not projecting on people
9 whether they are trying to follow the Dietary
10 Guidelines. So that's another distinction,
11 trying to understand whether or not people are
12 even trying to versus how their diets do or don't
13 align.

14 MEMBER LEIDY: And then just a follow-
15 up question along those lines. Oh, I'm sorry.

16 CHAIR SCHNEEMAN: I just wanted to do
17 a follow-up question from that because I believe
18 in the Dietary Guidelines process, things like
19 added sugars and solid fats have always been
20 there but I think it was maybe around 2005 that
21 solid fats/added sugars was really identified as
22 a category that could be used in thinking about

1 the food pattern.

2 And I'm wondering if any data suggests
3 tracking from that point gets to your question,
4 in terms of how long does it take to really get
5 an awareness that leads to behavior change.

6 DR. PANNUCCI: Yes, I think those are
7 questions that can be further discussed and
8 thought about within the scope of the topics and
9 questions that have been identified.

10 Thank you, Heather.

11 CHAIR SCHNEEMAN: Other questions?

12 Great.

13 This has been a wonderful discussion
14 and very useful data. I'm sure we're going to
15 have a lot more questions for you.

16 DR. PANNUCCI: I'm sure. Fantastic.

17 Thank you.

18 CHAIR SCHNEEMAN: Thank you.

19 MS. DE JESUS: That was an excellent
20 discussion. Thank you, Dr. Pannucci and
21 committee.

22 So we are delighted to have a guest

1 speaker with us today. Dr. Erick Decker is a
2 professor at the University of Massachusetts
3 Amherst and Director of its Industry Strategic
4 Research Alliance. He has lent his expertise in
5 food science in numerous leadership positions,
6 including the Food and Nutrition Science
7 Solutions Task Force in the Institute of Food
8 Technologists in the National Academies of
9 Sciences Sodium and Potassium DRI Committee,
10 which recently concluded its work.

11 Dr. Decker is joining us today to
12 provide perspective on implications that the
13 Dietary Guidelines for Americans have in the real
14 world of providing foods that can help consumers
15 eat closer to the recommendations.

16 So please join me in welcoming Dr.
17 Eric Decker.

18 DR. DECKER: Good morning, everyone,
19 and thank you for the invitation.

20 So I will just go through my
21 disclosures real quickly. I serve on a couple of
22 advisory boards, Cranberry Institute and Sensient

1 Technologies, where I do a lot of evaluation of
2 their research programs. I also do some
3 consulting work throughout the industry. Most of
4 these are on rancidity solutions. My expertise
5 is in lipid oxidation and free radical chemistry.
6 I am, obviously, an employee of UMass and I get
7 research support from the Agriculture and Food
8 Research Initiative, which is part of USDA, as
9 well as some industry groups like ASM -- DSM.

10 So I wanted to just kind of start off
11 a little bit about just talking about what some
12 of the drivers are for food purchase choices
13 amongst consumers. And you know we all hope that
14 nutrition is the main driver but, unfortunately,
15 there's a few other factors that go in there and
16 one of those major ones is value, which I define
17 not only as cost but why you would buy something
18 you might feel like you pay a little bit more
19 because of certain values.

20 And then convenience is also a big
21 driver, as I will show you shortly. More
22 recently, sustainability has become part of that

1 mixture but the one big and most important driver
2 for food purchases is really taste. And you are
3 not going to eat food -- you know people will go
4 to a restaurant and if it doesn't taste good,
5 that restaurant will be out of business very
6 shortly. So taste is one of the main things that
7 are driving how we make foods.

8 So in terms of convenience, if you
9 look back over a century ago, we were spending
10 about half of our time getting food onto the
11 table. And this has dropped dramatically and
12 seems to drop almost every year. It is down to
13 about 37 minutes to do all food preparation. And
14 that amount of preparation time actually
15 decreases as you make more money because you can
16 buy certain foods and make it easier to get it on
17 the table quickly. And this is really being
18 driven by the changes in what is going on with
19 dual working families, commuting times, family
20 demands, need for quality time, as people are
21 spending less and less time in the kitchen.

22 The food industry has tried to deliver

1 this in many, many ways. This is a list of all
2 different kinds of things, some of which are new,
3 some of which have been around for a long time
4 but these are really food products that help you
5 get dinner on the table more quickly.

6 The other part of the equation here
7 then is value. And really a remarkable thing
8 that has happened in the U.S. is how we have been
9 able, over the last century, to really decrease
10 how much of our disposable income is spent on
11 food. And we've gone from over 20 percent to
12 down less than ten percent currently.

13 A couple takeaways here is that this
14 food away from home tends to keep creeping up and
15 up and it's almost -- we're spending almost the
16 same amount of money on food outside of the
17 household as inside of the household.

18 And then the other things is, one of
19 the last questions is, is really what is the --
20 how do we look at this in terms of how much money
21 people have to spend on food. And mean household
22 disposable income levels now are only \$31,000 for

1 a household and these calculate out to be less
2 than \$100 per week that people spend on food.

3 So the food industry is one of the
4 reasons that the amount of money that we spend on
5 food has decreased quite dramatically. And this
6 is first -- several different factors but one is
7 that they can go out and they actually contract
8 with a farmer and they can get a really good
9 price on the raw material to make that food.

10 If you ever go into a food processing
11 plant and talk to a plant manager, one of their
12 main concerns is how much electricity they are
13 using in their plant. So they are constantly
14 trying to drive down and become more energy
15 efficient. When you have a big food plant, you
16 create a lot of byproduct. And because you have
17 a large amount of byproduct, you can find a
18 market for that byproduct. So the cheese
19 industry and whey is a great example of this,
20 where whey proteins are now more valuable than
21 casein, as you have been able to convert that
22 waste product into a valuable resource that helps

1 keep costs down.

2 And then finally lots of technologies
3 around food processing operation packaging
4 ingredients to maximize shelf life. So the
5 longer we can keep the food, the less often we
6 have to replace that food.

7 And just to give you a little snapshot
8 of this, we do this -- I do this exercise with
9 one of my classes, where we go through making
10 tomato paste and we do that from making it at
11 home and all the steps that you would actually go
12 through. And if you do that at home, it's going
13 to cost you about \$10 a pound but if you go into
14 the grocery store, it is going to cost you about
15 \$2 a pound.

16 So I think one of the things that I
17 think about is it really likely to try to get a
18 consumer to adapt a diet that is going to require
19 them to spend more time cooking, to pay more for
20 foods, and to sacrifice taste. And so to me, the
21 more realistic goal is to provide a healthy,
22 convenient, affordable, sustainable, and great-

1 tasting food supply that is accessible to
2 everybody.

3 So one of the things I want to talk a
4 little bit about is kind of the difficulties of
5 translating nutritional recommendations to
6 actually change the food supply. And we have
7 seen quite often that we end up with unintended
8 consequences as you say let's get this ingredient
9 out and then what that ingredient actually is
10 replaced with.

11 And a lot of people don't think this
12 but the food industry actually does react quite
13 quickly to policy changes. And you know we've
14 seen this. The industry is big and it can do
15 this very fast. And if it feels like it gets a
16 marketing advantage, it will do this. And we
17 will see things like I'm sure most of us remember
18 the no cholesterol craze where almost everything
19 in the store seemed to say no cholesterol, even
20 stuff that never had cholesterol in it from the
21 beginning.

22 And then I think the other side is

1 this rule of substitution. If you're going to
2 make a recommendation to take something about,
3 you need to think about what's going to go back
4 in its place. And a good example of this is the
5 low fat food craze, where basically food
6 companies had to make the quality of the food the
7 same and when they took the fat out, they had to
8 put something in to keep the quality and that
9 substitute ingredient ended up being
10 carbohydrates.

11 So there are unexpected consequences
12 and being a fat chemist, I would like to use this
13 as an example that back in the '20s we were using
14 mostly animal-derived fats of butter, lard,
15 tallow. Then the first nutritional
16 recommendations came out on cholesterol and so
17 the food industry responded by taking out those
18 animal fats and replacing those primarily with
19 tropical oils. Then the recommendations said no,
20 it's not the cholesterol; it's the saturated fat.

21 And so the tropical oils were taken
22 out and were replaced with hydrogenated fats.

1 And then the recommendation was no, it's the
2 trans fatty acids. So now hydrogenated fats have
3 been removed and I don't know how many of you
4 realize it, but these are being now replaced
5 primarily with high oleic vegetable oils. So we
6 are going to change the unsaturated fatty acid
7 profile of our diet.

8 So the real challenge is how do we
9 actually change the food supply in a way that it
10 positively impacts health. And the thing that I
11 always talk to people about is that it doesn't
12 matter how nutritious a food is; if that's not
13 incorporated into a daily diet, it's not going to
14 change health. So we have got to figure out how
15 to get healthy foods into the diet every day.

16 So I want to talk about a couple,
17 three different examples of foods and food
18 components that serve some challenges. And I
19 want to just use this. This is kind of old data
20 from USDA ERS but it just gives you an idea of
21 how people in the vegetable category are making
22 choices.

1 So you see if you look at the top five
2 most purchased vegetables, you see things like
3 potato being at the top of the list. Well,
4 that's partially because potato has a lot of
5 value. It is very cheap. It fills you up and
6 people like it.

7 Tomato follows that and you can see
8 tomato is quite a bit more expensive but people
9 are probably buying that because they like tomato
10 because tomato is really versatile and you find
11 it in sauces, you find it in many, many different
12 places.

13 Then you look at onion third. Well
14 why is onion added? It's only pretty much added
15 for taste. You're not adding it for nutrients.

16 Then you find things like corn, which
17 again, more expensive but probably accepted more.
18 And also there are food processing operations
19 which can make frozen corn, canned corn, which
20 have pretty high acceptability.

21 So then I picked out asparagus because
22 that's my favorite vegetable. I said why aren't

1 people eating more asparagus? So when I looked
2 at asparagus, it's 66 cents a serving. So now
3 you can see where value becomes a big important
4 part and this isn't in the top five probably
5 because it is very expensive.

6 And then you look at the other side,
7 you know eat more kale, right? And kale falls in
8 that category up here with the corn and the
9 tomatoes but kale is last of all the vegetables
10 in terms of purchases. And again, probably
11 driven a lot by taste and people just don't like
12 this vegetable and maybe some by convenience
13 because this is not an easy vegetable to prepare.

14 So some of the challenges then to
15 delivering more vegetables is they are short
16 shelf life. So a lot of them aren't going to
17 last very long. That means you are going to need
18 to shop for vegetables more often. That is going
19 to drive up that convenience factor. It is going
20 to take you longer to shop and prepare for that
21 food.

22 Preparation time, again, a convenience

1 issue. You have got to wash them, you have got
2 to peel them, you have got to seed them. Some of
3 them you need to juice them, portion them, and
4 cook them.

5 So there are technology solutions and
6 we see these in the grocery store all the time.
7 One is the ability to pre-wash and package
8 vegetables. So all those bagged salads you come
9 across in the store, that's not a regular plastic
10 bag. That is actually a bag that creates a
11 controlled atmosphere that allows that lettuce to
12 last a lot longer. So if you think about it at
13 home, if you chopped up that lettuce and put it
14 in your refrigerator, it would be brown in a day
15 but this controlled atmosphere changes the
16 respiration of the vegetable and allows it to
17 last longer.

18 Then we have preservation techniques,
19 things like freezing, which is hundreds of years
20 old now that can create products that will last a
21 long time. They won't spoil. They will be very
22 convenient. Pull them out of the freezer and you

1 can eat them right away. But the downside of
2 this is that that freezing does change the
3 texture and the quality and some people don't
4 like those frozen vegetables.

5 And then of course, you know the magic
6 of the baby carrot, just taking a big carrot and
7 industrially making it into a little carrot with
8 no peel makes it much, much easier to incorporate
9 this into your daily diet.

10 But the downside of this is the cost.
11 All these kind of convenience operations that you
12 would have in fruits and vegetables tend to drive
13 up costs, compared to the raw material, the
14 original raw material but their popularity is
15 huge. And I can go to the grocery store now and
16 you've got this huge section of bagged lettuce
17 and it's pretty hard to find the true head of
18 lettuce, the original intact head of lettuce.
19 You know they are there but they are not nearly
20 as possible -- as popular as they used to be.

21 Another challenge with fruits and
22 vegetables is safety. Fruits and vegetables are

1 now the highest food safety risk category. This
2 is for a bunch of different reasons. You can go
3 back in history and you can look the first E.
4 coli outbreaks actually occurred in apple cider
5 before we pasteurized it and that was mainly
6 because they were using dropped apples and there
7 was deer that were getting into the orchards and
8 contaminating it. So most of these are enteric
9 bacteria. So these are bacteria that only live
10 in the G.I. tract. So if you have contamination
11 with these organisms, it means you have fecal
12 matter of some sort that is on the food product.

13 Most recently is romaine lettuce
14 recalls that happened and this was contaminated
15 irrigation water. We had some outbreaks with
16 salmonella in cantaloupe and it was because they
17 used the wrong kind of handling machines that
18 they couldn't be properly washed. Then the
19 highest risk food safety risk is sprouts. And
20 some of the biggest outbreaks we've had have been
21 around bean sprouts and this is because it is
22 very hard to decontaminate the seeds and the

1 seeds actually carry the microorganisms. And
2 then the way sprouts are grown, high
3 temperatures, high moisture, it is just a perfect
4 environment for microbial growth.

5 Recently, the Food Safety
6 Modernization Act is becoming implemented and
7 that will handle a lot of this. And it's really
8 a lot of that is to move the control of food
9 safety all the way back to the farm; whereas,
10 before it was mostly once it left the farm that
11 we dealt with food safety.

12 So the other problem that you have
13 with fruits and vegetables is the inability to
14 control those microorganisms and the most common
15 way we do that is through heat. And you know so
16 you actually see that meat products have actually
17 improved food safety quite a bit but they have a
18 luxury in that most of those meat products are
19 cooked and you can kill the bacteria. And we
20 just can't do that for most of our fruits and
21 vegetables because texture changes, flavor
22 changes. You know kale is a great example. It

1 is a totally different taste from raw to cooked
2 and so you are going to change flavor, you are
3 going to change texture, and then these are going
4 to often be unacceptable.

5 So there are a bunch of new
6 technologies that are coming out: high pressure
7 technologies, these all are what they call non-
8 thermal, so they don't involve high temperatures;
9 ultraviolet technologies that can be used on a
10 lot of fruit juices; and then pulse electrical
11 field, which is the newest and not really that
12 much commercially-implemented at this point.

13 The high pressure is a good example,
14 all that guacamole that you can get in the store
15 now. You know here is you think about guacamole,
16 this is a pretty intensive food that you need to
17 prepare but now because of this high pressure
18 processing, you can make that in industrial
19 settings and have a very, very high-quality
20 product that is acceptable by a lot of people.

21 The second example I want to talk
22 about is solid fat. So very interesting data

1 that solid fat consumption is starting to be
2 decreased. Solid fat is very important in a lot
3 of different products. It builds structure into
4 the product. It prevents migration of fat out of
5 the product. And then also just more highly
6 saturated fat sources are much more stable
7 against oxidation than unsaturated.

8 So there are technology now to make
9 solid fats that are high in unsaturated fatty
10 acids. So a lot of the fat that is now being
11 made -- that is being used for products such as
12 baked goods and things like that that need solid
13 fat is produced by an interesterification
14 technique, where you can make the fat solid with
15 high amounts of unsaturated fatty acids in it.

16 But the problem is when these
17 unsaturated fatty acid levels go up, now the risk
18 of oxidation increases. And so you can do
19 things. You can try to package the food in a way
20 to get oxygen away from it to stabilize it. You
21 can use a whole series of different kinds of
22 antioxidants. And as I mentioned before, one of

1 the reasons the high oleic vegetable oils are
2 becoming so popular is because they are much,
3 much more stable.

4 The problem is a lot of these
5 antioxidants are phasing out. There's a whole
6 bunch of synthetic antioxidants that work
7 terrifically that have horrible names and nobody
8 wants them in their foods. But there are natural
9 equivalents but even those you don't see because
10 of clean label trends and because of organic
11 trends. And so I'm biased in this because I can
12 smell rancidity from a hundred yards away but
13 there are a lot more rancid food products that I
14 am coming across in the grocery stores,
15 especially on the organic side.

16 So just to put this a little bit in
17 relevance, if we give oleic acid an oxidative
18 stability of one, when we add the second double
19 bond to linoleic acid, that oxidation rate goes
20 up ten times and then we end up adding additional
21 reaction centers as we get more unsaturation. So
22 you see up here with EPA, the omega-3 fatty acid

1 is going to oxidize 40 times faster than that
2 oleic acid.

3 And a couple years ago and close to my
4 hometown, there was actually an incidence where a
5 guy was using linseed oil. So linseed oil is
6 from flax and this is used to finish furniture.
7 And he cleaned up all the linseed oil with
8 newspapers, put it in his garage on a nice hot
9 day. The reaction of the oxidation was so fast,
10 the newspapers spontaneously combusted and burned
11 down his house. So these reactions are very,
12 very fast and hard to control.

13 And most recently when you start to
14 look at the products that are in these rancid
15 fats, and this is work of Guodong Zhang in our
16 department and he has got a mouse model on
17 inflammatory bowel disease that when you put this
18 in an animal with a challenged gut, these
19 oxidation products both increase inflammation and
20 also increase incidence of colon cancer. So this
21 is something that could be a problem as we push
22 more and more unsaturation into the food without

1 adequately protecting that oil that goes into the
2 food.

3 So the last one I will talk about will
4 be sodium, since I've spent a lot of time on
5 sodium in the last year. I think the talk before
6 was great to see that some of these numbers -- I
7 think the big challenge is like we keep making
8 recommendations and making recommendations and
9 the needle doesn't move at all. And sodium is a
10 great example of this.

11 The Dietary Guidelines have been
12 around for 40 years. The first Dietary
13 Guidelines says decrease sodium and here we are
14 40 years later eating the exact same amount of
15 sodium we ate then.

16 So there's a lot of challenges around
17 sodium because sodium is -- most people think
18 they are just putting sodium in there to make it
19 taste good but that's not really true because
20 sodium impacts protein functionality. It impacts
21 the ability to ferment foods. It controls water
22 in that food and it acts as a preservative. So

1 there's a lot of different roles that you have in
2 there.

3 Because of these roles, it's really
4 hard to just say let's take salt and let's take
5 sodium out of everything across the board; let's
6 just do a ten percent reduction across the board.
7 And the reason that it is very hard to do this is
8 that there just isn't technology to replace that
9 sodium and produce the same food with the same
10 quality.

11 So in some ways the recommendations
12 would be, I think, easier to implement if we
13 could really focus those recommendations on where
14 are the foods that we can actually achieve this
15 and still get that food that tastes great and has
16 the proper value and convenience that we need.

17 So if there's anybody from the dairy
18 industry here, I apologize because I'm going to
19 pick on cheese in this section. This is the top
20 ten sources of sodium in the diet. And you can
21 see that cheese is in, what, one, two, three,
22 four, five, six, seven of these categories.

1 So obviously, cheese is something that
2 is delivering lots of sodium into the diet but
3 the problem is is that of all the products, salt
4 plays the most roles in cheese. It controls the
5 fermentation, so it lets the lactic acid bacteria
6 grow and prevents any pathogens, which help
7 prevent any pathogens from growing at that time.
8 It helps take water out of the cheese curd. It
9 makes the casein more functional so it can
10 aggregate and form the textures that we expect in
11 cheese. It acts as a preservative because it
12 lowers water activity. And then, of course, it
13 also give salty flavor.

14 So if we took the salt out of the
15 cheese, what we're going to see is we're going to
16 lose some of that salty flavor, which everybody
17 loves, but we are also going to change
18 fermentation. And the fermentation process
19 produces a lot of the flavors that we expect in
20 cheese. So there's something like 300 different
21 kinds of cheese in France alone and all of those
22 have different fermentation patterns. And if you

1 start taking the salt out, you are going to
2 change the flavor of those cheese, not just from
3 the salty side but from the fermentation flavors.

4 You are going to change shelf life
5 because these aren't going to last nearly as
6 long. A good example of this is stuff called
7 squeaky cheese, which is fresh cheese curds. The
8 cheese curds occur before the salting of the
9 cheese and they last like a week before they are
10 going to spoil.

11 It will potentially change safety
12 because you're going to have a lower salt
13 environment where pathogens can grow and then
14 you're also going to change texture because you
15 are going to change enzyme activity. You're
16 going to change fermentation pathways and you're
17 going to get differences in creaminess,
18 elasticity, melting properties.

19 So with cheese, it's really hard to
20 say let's just knock ten percent of sodium out of
21 all cheeses because you're not going to be able
22 to make a lot of those cheese products without

1 that salt and there's no technology right now to
2 do that.

3 But we could try to target and say
4 let's look at the products where we could try to
5 get sodium out and those would be the products
6 where sodium is really there mostly as a function
7 of flavor. Now processed foods have a lot of
8 sodium in it. One of the reasons for that is a
9 lot of the sodium diffuses into the center of the
10 food and so when we eat that food, we actually
11 swallow the sodium before we ever taste it. So
12 to get to the same sodium salty taste, you have
13 to add more sodium in there.

14 Now if you go back a hundred years,
15 even, you'll start to see that there's a lot of
16 culinary practices where you can add different
17 kinds of ingredients to get umami flavors, which
18 can help you decrease the amount of salt. So
19 using seaweed and mushrooms in soup. I mean all
20 ramen soups, this is the fundamental recipe to
21 make ramen broth, pastas with parmigiana,
22 anchovies with vegetables, and tomato paste in

1 sauces and stews.

2 These all actually have a common
3 thread by how they enhance flavor and produce
4 umami and this is the evil food ingredient
5 glutamate, which we eat every day at very high
6 levels. And so when you go look at these
7 ingredients, you see that they are just naturally
8 very high in glutamate. So they are actually
9 producing an umami flavor that is very similar to
10 what you would get -- probably almost identical
11 to what you would get from MSG.

12 Unfortunately, even though the science
13 says glutamic acid or MSG is not harmful, this
14 has not been accepted by many health
15 professionals and certainly not by consumers. So
16 if you go to the website and look up MSG, you
17 would think you'd drop dead the day you ate some
18 of this stuff. But this just isn't true and here
19 you really have a technology and a tool that you
20 could drop sodium levels by 30 percent in some
21 food products by using a little bit of MSG.

22 So in conclusion, dietary

1 recommendations, in my opinion, are going to be
2 very unlikely unless they can be incorporated
3 into the foods that will be included into a daily
4 diet. And that -- sorry -- that ability to
5 incorporate a food into a daily diet has got to
6 have the matrices to say it's got to taste good;
7 it's got to be at the right price and value; and
8 it's got to be convenient because that's just the
9 reality of where we are today in how people are
10 going to be incorporating these foods into their
11 daily diet.

12 So the industry can and does react to
13 nutritional recommendations and can improve the
14 healthy profile of the food supply but it will
15 only do that if they can make these foods in a
16 form that are acceptable by consumers because the
17 company will go out of business if it's not
18 accepted by the consumer.

19 And it could be that instead of making
20 broad-based recommendations on how to make foods
21 healthier or how to remove things from foods, it
22 might be much more effective if you could focus

1 those on where the technology exists to replace
2 them in a way that that food still has the taste,
3 value, and convenience that is expected.

4 So the bottom line is you know
5 certainly going forward, as the populations swell
6 and we need more food on the table, but even
7 today, we need to think about really using
8 science to figure out how to best change the food
9 supply and make the food supply healthier so
10 consumers accept those healthy food products.

11 And I think the last presentation, one
12 of my takeaways from the last presentation is
13 hamburgers are a great vehicle to deliver
14 vegetables. So you know it's just the reality
15 that this is -- you know how do we figure out how
16 to get people to eat more vegetables.

17 So thank you very much.

18 CHAIR SCHNEEMAN: So we will take some
19 time to see if there are some questions from the
20 committee. Yes, please.

21 MEMBER BAZZANO: Well in terms of salt
22 reduction, I did notice that you didn't mention

1 the top breads and rolls, the top source. And I
2 do know other countries have made progress in
3 working with industry to decrease some of that.

4 DR. DECKER: Yes, so with the 20
5 minutes I had, I could have done that same graph
6 with bread, pizza, sandwiches, bread, right? So
7 here's an example where the reason that they need
8 salt in bread is to actually slow down the
9 fermentation. And so there are attempts now to
10 change yeast genetics so that they have the
11 proper fermentation rates without that salt. So
12 there are technology changes but you're still
13 going to change flavor of that product.

14 So you will find low-salt breads. For
15 that matter, you'll find a low-salt product in
16 almost every category of food in the supermarket
17 but the reality is, nobody buys it.

18 CHAIR SCHNEEMAN: So related to
19 sodium, you use glutamate as an example where
20 sodium could be reduced. But isn't it often in a
21 form where you have sodium -- monosodium
22 glutamate? So does it actually result in a

1 reduction of sodium or just a reduction of salt
2 use?

3 DR. DECKER: So MSG works by having
4 salt and MSG in combination. It enhances -- it
5 is a flavor enhancer. So the glutamate is not
6 creating flavor. It's just making the flavor of
7 the salt stronger.

8 So even though there is sodium on the
9 MSG, you put so little in that you can reduce the
10 total sodium level in some products by as high as
11 30 percent.

12 MEMBER MATTES: Rick Mattes.

13 I would ask you if you would just
14 expand a little bit more on the concept of the
15 degree to which the food industry drives
16 preferences versus they respond to things. And
17 it's an important point because subtle
18 recommendations from this committee could drive
19 the food industry to make changes which may have
20 unintended consequences.

21 There's really an important message in
22 what you were saying there that I think we have

1 to keep in mind as we go forward.

2 DR. DECKER: So you know the foods
3 that are going to be produced in the reformulated
4 a lot of times is going to be driven by marketing
5 and marketing is all going to be around a
6 competitive advantage. So if they feel the
7 nutritional recommendation can give them a
8 marketing advantage, they are going to change the
9 formulation.

10 So I think this was a perfect example
11 in changing dietary fats because we saw those,
12 every one of those labels, no cholesterol, low in
13 saturated fat, no hydrogenated fat, no trans
14 fats. Those are all competitive advantages and
15 reasons why that is why the food industry is
16 going to change those formulations.

17 MEMBER DEWEY: Kay Dewey. Thank you
18 very much.

19 Two questions. First, you mentioned
20 interesterification as a relatively new process
21 for solid fats using more unsaturated fats. And
22 I'm just wondering are there any potentially

1 adverse consequences of that? We got burned by
2 trans fats in a previous effort to supposedly
3 improve the fat supply. So I'm just curious
4 about that.

5 And the second question is we saw in
6 the previous presentation that intakes of
7 vegetables and fruits were sort of going in the
8 wrong direction over time. And I'm wondering, of
9 the factors you mentioned, taste, value, and
10 convenience, which of those do you think are the
11 major drivers of vegetable and fruit consumption
12 that we should really focus on?

13 DR. DECKER: So hydrogenation is a
14 chemical process by which you attempt to remove
15 the double bonds from fatty acids. The problem
16 with hydrogenation is it's not a 100 percent
17 efficient reaction so you tend to get some back
18 reaction that occurs where the double bond
19 reforms. When the double bond reforms, the
20 natural configuration is cis but it reforms. It
21 ends up forming about 50/50 cis and trans. So
22 that is where the trans came from in that case.

1 Interesterification is not a chemical
2 modification of the fat. Interesterification is
3 just a rearrangement of the fatty acids, the same
4 exact fatty acids on the glycerol backbone. So
5 in other words, you could take a very highly
6 unsaturated fat and a small amount of saturated
7 fat, interesterify them, and put a saturated fat
8 say on every triglyceride molecule. And this
9 changes the melting profile.

10 But the advantage of this is you can
11 create some very high-melting fat in there that
12 will crystalize and entrap the liquid fat. And
13 so you've seen this. It's different processes in
14 margarines and spreads but you know you'll see a
15 margarine that could be 80 percent unsaturated
16 because the liquid oil is entrapped by the solid
17 fat. And this is kind of the same principle that
18 you would have for interesterification, where a
19 small amount of saturated fat can entrap and
20 change the functionality of the unsaturated fat
21 to allow you to put it in to something like a
22 baked good that will give you the same properties

1 as that -- the lard we used to use a hundred
2 years ago.

3 You know that's really a hard one
4 because it is just so multifaceted. You know if
5 you're really going to eat fresh fruits and
6 vegetables every day, it's hard to do that in
7 weekly shopping, which is what we do in the U.S.
8 So the convenience side of that is really hard.
9 The value side of that is hard. You know fresh
10 fruits and vegetables are expensive so a lot of
11 people won't incorporate them.

12 And then the reality is is the flavor
13 is a big issue, right? Everybody likes broccoli
14 better if you put some cheese on it. You know so
15 the flavor is also an inhibitor of a lot of
16 people just don't like vegetables. It's the same
17 thing with seafood. Seafood is way too
18 expensive. It spoils fast. And there's just a
19 large population that hates seafood and will
20 never eat seafood.

21 So all of those categories I think
22 make it the reason that it's hard to get people

1 to eat more vegetables, at least. Maybe fruits
2 isn't so much that same issue but certainly with
3 vegetables, I think that is the challenge.

4 MEMBER TAVERAS: In your second slide,
5 you gave the distribution of kind of the value
6 that we place on certain things with taste
7 driving that. But one of the things I was
8 wondering about: Is there any information about
9 how sustainability and environmental impact of
10 foods are starting to change potentially those
11 trends? And is there any indication that value
12 is being more placed on environmental impacts and
13 climate impacts on some of the choices that
14 Americans are making in their diet?

15 DR. DECKER: So that's why I used the
16 term value and not cost because certain people
17 will buy something if they see some other value
18 in it. And sustainability could be a value that
19 is important to them and they would spend more
20 money on a product that they figured had more
21 sustainability.

22 So I think that trend is growing and

1 probably the place it is growing the most is on
2 the packaging side is how to make packaging more
3 sustainable, how to decrease packaging, how to
4 decrease packaging waste, how to make packaging
5 recyclable, food packaging recyclable. So I do
6 think that's a driver but it's a relatively new
7 one. The other four have been around for a long
8 time.

9 MEMBER TAVERAS: And is there any way
10 of tracking the trends towards that? So if
11 someone is making choices and the driving of food
12 choices and purchases, do we have any national
13 data on trends of that being of greater
14 importance, climate and environmental impact on
15 the choice of what foods are being purchased?

16 DR. DECKER: So IFIC has an annual
17 report and they do these surveys every year. So
18 there is a lot of data on that.

19 MEMBER TAVERAS: Thank you.

20 MEMBER MATTES: Thank you. Rick
21 Mattes.

22 Can you comment on the NOVA

1 classification of foods? This is a point of view
2 about convenience and ultra-processing food that
3 has influenced the dietary guidelines in Canada
4 most recently. What are the trends? Can you
5 expand on that for our consideration?

6 DR. DECKER: So the problem with just
7 saying processed foods are bad for you is there
8 is a lot of different ways we process foods and
9 they are not the same.

10 In my mind, I would have a hard time
11 going to the grocery store and finding a food
12 that is not processed, even fresh fruits and
13 vegetables. Everything is processed to some
14 extent.

15 So to make broad categorizations like
16 that does not deliver a message that helps the
17 consumer decide what is healthy and what is not
18 healthy. And the problem is is a lot of those
19 things like the NOVA, they haven't really defined
20 what ultra-processed foods are. And so I don't
21 even -- you know I couldn't tell you the
22 difference between a processed food and an ultra-

1 processed food.

2 So I don't really think -- you know if
3 you want to talk about a food that is really
4 highly processed that you might not want to make
5 a recommendation against, it would be white wine.
6 Lots of processing steps. Lots of science that
7 goes into making that white wine. So I am not
8 sure that there's more processing in white wine
9 than there is in soda or the other way around.

10 MEMBER SABATE: Joan Sabate.

11 I think you make a good review for us
12 of the importance of the food industry and how
13 every one of us take advantage of some of the
14 conveniences.

15 On your first slide that you said the
16 drivers for food purchase, you didn't mention
17 health. This committee I think is making the
18 connection between food and health. So do you
19 have any data that you would like to share as far
20 as how the importance of health to the American
21 consumer is a driver for purchase of any kind of
22 food?

1 DR. DECKER: So the first slide the
2 first circle I had was nutrition. So that's the
3 health component.

4 Generally, the order in which these
5 come is taste is first, value is second, then
6 over the years, convenience and nutrition have
7 bounced around but they are usually pretty
8 similar. And then sustainability is quite a bit
9 below that.

10 MEMBER SABATE: I think nutrition may
11 be a subcategory of health because now there is a
12 movement, as you know, in the slow food, and
13 cooking, and all these things that besides, I
14 would say, taste reasons I mean is also based on
15 the importance of health, prevention of diseases.

16 And I don't know if this has been in
17 a way tracked and how relevant it is for the
18 American public I mean all these social trends
19 that, at least according to the media, seems very
20 relevant. But, at least personally, I lack the
21 statistical component of that, as far as how
22 relevant it is.

1 DR. DECKER: I mean I guess to me if
2 I think about how do foods impact health, I think
3 about the components of those foods, the
4 nutrients of those foods, and what they do to
5 impact health.

6 VICE CHAIR KLEINMAN: Eric, Ron
7 Kleinman. Nice to see you. Thank you for your
8 talk.

9 I know we only gave you 20 minutes and
10 you covered an awful lot in those 20 minutes.
11 One area you didn't cover is sweetness, and added
12 sugars, and use of non-nutritive sweeteners. Do
13 you want to say just a few words about how the
14 industry sees this?

15 DR. DECKER: You know so again, why
16 are they there? It's the taste side, right? And
17 it's an interesting thing in this country I think
18 I know most of you have traveled the world and I
19 think our foods are sweeter than anywhere else in
20 the world, especially our desserts. We just, for
21 whatever reason, we love sweet food.

22 There are some technological tools to

1 take away. I mean non-nutritive sweeteners and
2 aspartame has been around for 40 years and
3 everybody and their brother has tried to show
4 that it is unhealthy and I think generally have
5 been largely unsuccessful to show that there's
6 problems except -- you know I think one of the
7 things to think about, all food additives. You
8 could have small subsets of the population that
9 do have sensitivities to these.

10 I'll bring back the white wine
11 example. Most of the time if you buy a bottle of
12 white wine, it is going to say contains sulfites.
13 And there is a small subset of the population
14 that is sensitive to those subsets and have to
15 avoid that food product.

16 But I think now especially there are
17 a lot of non-nutritive sweeteners that are out
18 there that have the ability to decrease our sugar
19 consumption. It's probably better now than it
20 was 40 years ago where we only had one. And so
21 we were eating a lot of one. And anytime you eat
22 a lot of one, the toxicological risk gets higher.

1 We now have five or six and those are spread out.
2 So you are not going to eat any one in as high
3 concentrations as we once did.

4 I think even on the other side, you
5 know high fructose corn syrup, you another one of
6 those hated ingredients but fructose is sweeter
7 than sucrose. And so you could use fructose in
8 applications to drive the total sugar number down
9 because you could achieve the sweetness that you
10 want at a lower sugar concentration.

11 And then I think what we don't see
12 that much now you see in a few products is we
13 don't see people doing blends of non-nutritive
14 sweeteners and sugars because they certainly
15 don't taste the same. And people have tried to
16 blend the non-nutritive sweeteners to get closer
17 to what sucrose tastes like and it's a hard
18 achievement. But sometimes if you do a blend,
19 you can get the flavor that you want from the
20 actual sugar but reduce the caloric intake from
21 the non-nutritive sweetener.

22 On an unrelated topic -- well kind of

1 related topic, it's kind of the same thing with
2 meat. We've been doing a lot of research in our
3 department to actually blend vegetables into
4 meat. And there is one group of people that are
5 trying to make 100 percent vegetable meat
6 analogues but you can put like mushrooms into a
7 hamburger at 50 percent of the total weight and
8 people can't tell the difference.

9 So there are ways I think. You don't
10 have to go all the way to the extreme. We can
11 meet somewhere in-between and change dietary
12 patterns and also maybe increase the vegetables
13 since we now know hamburgers are a great delivery
14 source of vegetables.

15 CHAIR SCHNEEMAN: We have one more
16 question.

17 MEMBER ARD: It's red but it's
18 working. Jamy Ard.

19 So this discussion reminds me of some
20 of the conversations we had around the National
21 Academy Study where we talked about the potential
22 -- or not the potential need but a very clear

1 need for inclusion of food science and technology
2 in this type of setting in the Dietary
3 Guidelines. And I don't know if we are making a
4 running list of like what our next set of
5 recommendations or questions might be for future
6 committees but I think all of the things that you
7 have in the conclusion slide are empirically
8 testable.

9 I really think like the nutritional
10 recommendation might be more effective if focused
11 on foods where the tools exist to maintain these
12 different things. I mean to me, that is a very
13 strong statement and could be really impactful
14 because I also think about it from a subgroup
15 perspective. I think about it across the life
16 stage perspective. Different socioeconomic
17 groups may value convenience and value more than
18 taste, food-insecure individuals, et cetera, et
19 cetera.

20 So to me, I don't know if we're making
21 a running list but I would throw this on the list
22 with also the adjunct that having some more

1 incorporation of food science in this
2 deliberative group to be able to really sort of
3 take the step beyond saying okay, here's what we
4 should do and here's how we should do it.
5 Because otherwise, I think we'll see the same
6 slides that TusaRebecca put up, we'll see that
7 for you know the next 20 years.

8 CHAIR SCHNEEMAN: Well thank you
9 again, Eric --

10 DR. DECKER: Sure thing.

11 CHAIR SCHNEEMAN: -- for a great
12 presentation and stimulating an excellent
13 discussion amongst the committee. So please join
14 me in thanking Eric.

15 MS. DE JESUS: Thank you, Dr. Decker.
16 So we have a well-earned break. This has been a
17 great morning.

18 So we will reconvene at 11:00. Thank
19 you.

20 (Whereupon, the above-entitled matter
21 went off the record at 10:42 a.m. and resumed at
22 11:02 a.m.)

1 DR. STODY: Thank you. So this next
2 discussion will actually be discussion among the
3 committee and that will be facilitated by Drs.
4 Schneeman and Kleinman.

5 CHAIR SCHNEEMAN: And I am going to
6 just sit with the committee to do this
7 discussion.

8 So the first thing we want to talk
9 about before the lunch break is the
10 subcommittees' structure and membership that the
11 committee will be using. And just the bullets on
12 this slide are important for everyone to
13 understand that the purpose of the subcommittees
14 is to review the evidence and provide advice to
15 the parent committee. And I will remind you
16 again, under the FACA provision, the
17 subcommittees are not the decision-making body
18 but they do function as a working group to bring
19 issues back to the parent committee so that the
20 decision-making of how we are going conclude and
21 make recommendations will be done by the full
22 committee. But just to get the work done, we

1 have to use subcommittees as working groups.

2 So there are six topic-area
3 subcommittees and then we have one crosscutting
4 working group as well. And in structuring the
5 subcommittees, we varied the size based on the
6 expected workload for each of those committees.
7 So particularly in the new areas, we anticipate
8 that there will be a significant workload for
9 those subcommittees. And generally we have tried
10 to target it so that members serve on no more
11 than two subcommittees.

12 So this is the structure. It may be
13 difficult to read but you have the slide in your
14 notebooks. So you see across the top the six
15 subcommittees: Dietary Patterns, Pregnancy and
16 Lactation, Birth to 24 Months, Beverages and
17 Added Sugars, Dietary Fats and Seafood, and
18 Frequency of Eating.

19 And then the crosscutting subgroup is
20 Data Analysis and Food Pattern Modeling. That is
21 for crosscutting issues.

22 And we've identified a chair. We've

1 proposed a chair and a membership for each of
2 those subcommittees. And I guess just so people
3 who are here as observers can know what is on the
4 slide, if you can't read it very well, so the
5 chair for Dietary Patterns will be Carol Boushey;
6 Sharon Donovan is proposed for Pregnancy and
7 Lactation; Kay Dewey for Birth to 24 Months;
8 Elizabeth Mayer-Davis for Beverages and Added
9 Sugars; Linda Snetselaar for Dietary Fats and
10 Seafood; Steven Heymsfield for Frequency of
11 Eating; and Regan Bailey for the Data Analysis
12 and Food Pattern Modeling.

13 And then we have for each of the
14 subcommittees, Dr. Kleinman or myself will be
15 there just as a contact point. We felt it was
16 important just to maintain the continuity of the
17 work and, as the issues come forward, to help
18 then facilitate the discussion at the committee
19 level for deliberation and decision-making if one
20 of us functions with each of the subcommittees.

21 And then I'm not going to read out the
22 membership for each of the subcommittees but I

1 would now open it to the committee, if you have
2 questions. And certainly, we can ask some
3 general questions about the subcommittee
4 structure. And so in some cases, we may need to
5 call on Eve to talk about how they will actually
6 function but also, if you have any questions
7 about the composition or membership of those
8 subcommittees.

9 MEMBER BAILEY: As the proposed chair
10 for the Food Pattern Modeling and Data Analysis
11 crosscutting group, I am wondering. It looks
12 like a member of each of the other subcommittees
13 is represented except for Frequency of Eating. I
14 think it might be beneficial that we have
15 somebody from each of the committees function on
16 that committee but I understand that might also
17 put some people into more than the recommended
18 committees. But just for your consideration.

19 Regan Bailey -- sorry.

20 CHAIR SCHNEEMAN: Okay, I understand
21 your point. And I'm the Chair/Vice Chair
22 Representative for that particular -- so I wind

1 up -- well, no, you [referring to Dr. Kleinman]
2 are the Frequency of Eating.

3 So yes, let us look at that and see if
4 there is a way we can adjust or if we count on
5 the staff to also help carry forward any issues
6 that come up in the Frequency of Eating Subgroup.

7 Eve, did you want to comment on that?

8 DR. STODY: No.

9 CHAIR SCHNEEMAN: Okay.

10 MEMBER BAZZANO: This is Lydia
11 Bazzano.

12 So is the membership set in stone? Is
13 it flexible? I'm just curious.

14 CHAIR SCHNEEMAN: I think this is our
15 opportunity to --

16 MEMBER BAZZANO: This is our
17 opportunity. Got it.

18 CHAIR SCHNEEMAN: -- if we got it
19 wrong or if there are other things we really need
20 to be thinking about. Just keep in mind some of
21 those other conditions of not wanting to overload
22 one committee member with more than two.

1 MEMBER DEWEY: Just to follow-up on
2 that, when there is a certain life stage being
3 discussed within some of the other subcommittees,
4 let's say Birth to 24 Months, there are some
5 questions well, in all of these topic areas, but
6 for example, for the Food Pattern Modeling group,
7 there are some questions related to whether we
8 can establish a dietary pattern for that age
9 group. And that's a fundamental question.

10 So I'm wondering whether when the
11 subcommittees have conference calls, would there
12 be opportunities when on that particular day
13 they're going to talk about that, could there be
14 additional people from some of the other
15 subcommittees participating just for those
16 questions?

17 CHAIR SCHNEEMAN: I think -- I know
18 that one of the things we will need to look out
19 for is to make sure that we're always below a
20 quorum. But we can facilitate -- when it's
21 important that that input be exchanged, I think
22 we can facilitate that.

1 I think, Regan, you were going to
2 follow up.

3 MEMBER BAILEY: I was just going to
4 propose if I move from Fats and Seafood to
5 Frequency of Eating, that would fix the problem I
6 identified, as one proposed. Then I would be in
7 that as a subcommittee member for your
8 consideration.

9 CHAIR SCHNEEMAN: That may be a harder
10 one to consider because we have to make sure that
11 there's enough people on the Fats and Seafood.
12 So yes, we -- let us kind of -- it's basically
13 making sure we have good balance across.

14 MEMBER SABATE: Yes, could either you
15 or the chair of that Analysis Food Pattern
16 Modeling, what is the specific purpose of this
17 committee and how this relates to the other six
18 subcommittees?

19 CHAIR SCHNEEMAN: Eve, we haven't
20 looked at questions that are assigned to each of
21 the subgroups yet. And I'm wondering if we
22 should try to do that before the lunch break,

1 just so people understand how the workload is
2 being distributed amongst the subgroups.

3 Is that possible, do you think?

4 DR. STOODY: So yes, the questions are
5 at the end divided by subcommittee. And again,
6 that's proposed. It's just looking at the topics
7 and questions and then grouping them based on
8 those topic areas.

9 So for the public, they have a Word
10 document that has just the topics and questions
11 that Janet reviewed divided into these different
12 subcategories.

13 CHAIR SCHNEEMAN: So we are in such a
14 cozy place, I can't turn my notebook. So if you
15 look in your notebook, it is actually -- if you
16 go in front of the tab that says USDA and HHS
17 staff -- it doesn't have a page -- oh, it's page
18 -- no, that's a date. Just before that tab.

19 Yes, so there you will see it shows
20 the Food Pattern Modeling and Data Analysis
21 Subcommittee, the data analysis questions that --
22 right -- oh, that's the Pregnancy and Lactation

1 Subcommittee. Yes.

2 So for each life stage, the following
3 will be described or evaluated: current dietary
4 patterns, current intakes of food groups and
5 nutrients, nutrients and public health concern,
6 prevalence of nutrition-related chronic disease.
7 How does the dietary intake, particularly dietary
8 patterns -- you can see the list of questions.

9 So there's questions about current
10 dietary intake and nutrients, which is part of
11 our task, beverages, added sugars, frequency of
12 eating, and then food pattern modeling questions
13 around dietary patterns, and infants and toddlers
14 from birth to 24 months.

15 Okay? Okay.

16 So other questions/comments?

17 MEMBER MAYER-DAVIS: Beth Mayer-Davis.

18 So we've mentioned a couple of times
19 that there is some overlap in some of the
20 questions and I don't know if this is an
21 appropriate time to make a suggestion or maybe
22 talk about what the process would be to sort that

1 out in the interest of efficiency. Okay, why
2 not?

3 So for Beverages and Added Sugars
4 Subcommittee, questions 2 through 5 talk about
5 relationship of beverage consumption, either
6 during pregnancy or during lactation, with
7 respect to different outcomes. And so the
8 question is whether that set would be better
9 placed in the subgroup that is addressing
10 pregnancy and lactation so that the beverage
11 consumption could be considered as part of the
12 rest of the dietary issues for that population.

13 So that's one suggestion of just
14 moving a chunk of questions from one place to the
15 other, which is not exactly because I am trying
16 to get out of some work here but it just seemed
17 like that might be a more efficient way to go
18 with that. So, just a suggestion.

19 CHAIR SCHNEEMAN: Carol, you have to
20 make sure your comments are such that they go on
21 the record. It is a public meeting.

22 MEMBER BOUSHEY: Yes, this is Carol

1 Boushey. We probably should hide the microphone
2 from Carol Boushey. But what we were talking
3 about here is that particular question has very
4 little data; thus, that will be their easiest
5 task to handle. Thank you.

6 CHAIR SCHNEEMAN: Well I think what
7 you pointed to is the dilemma that you face in
8 creating the subgroups because the questions do
9 cut across the life span.

10 So I am going to propose that we go
11 forward maybe and include Dr. Dewey's suggestion
12 that, as needed, we can bring someone from the
13 other subcommittee onto the call so there is at
14 least that opportunity for exchange of
15 information, as long as we stay below the quorum
16 level.

17 And then I think as we keep moving
18 forward, we will adapt. And we can always, at
19 some point, if we need to, we can have a call
20 with the subcommittee chairs just to check in and
21 make sure that you are confident that you are
22 able to keep moving the work forward.

1 Other questions?

2 So we want to move to introduce some
3 topics that we need more consideration from the
4 committee to help guide the work of the
5 subcommittees. And I think Julie is going to
6 give us an introduction of that. So you will get
7 the introduction and then you'll be able to
8 digest it over lunch.

9 DR. OBBAGY: So if you started to look
10 at the questions and you heard Janet's
11 presentation this morning, you probably noticed
12 that many of the questions address the same
13 outcomes in relation to a different aspect of
14 diet. And in many instances, those questions are
15 addressed in different subcommittees.

16 And so we have highlighted two here
17 today for your discussion: neurocognitive-
18 related outcomes and cancer-related outcomes,
19 which are two topic areas that we have not
20 addressed very frequently in NESR systematic
21 reviews in the past. And so I think there would
22 be some benefit to having some discussion amongst

1 the full committee around what outcomes you might
2 consider in those categories.

3 So there are ten, as is noted on the
4 slide, ten questions address the relationship
5 between diet and neurocognitive-related outcomes
6 across the life span. Three questions address
7 cancer as an outcome.

8 So if you go to the next slide,
9 there's a few sort of guiding principles to think
10 about as you consider which intermediate and
11 long-term health outcomes might be most relevant
12 for neurocognitive and cancer-related reviews.
13 And I think the discussion really would recommend
14 focusing on whether -- and you'll see as I go
15 into the next few slides whether additional
16 outcomes are warranted or are there some outcomes
17 that are -- have been considered previously that
18 may no longer be relevant to consider, always
19 keeping in mind that the outcomes that are
20 included in the NESR systematic reviews used from
21 the Guidelines really need to be those of very
22 high public health significance, which either

1 promote population health or well-being or reduce
2 significant burden of avoidable disease.

3 They may include endpoint outcomes as
4 well as intermediate outcomes. So it relates to
5 a question that came up yesterday but, generally,
6 for many outcomes, validated biomarkers are
7 included but emerging biomarkers are typically
8 excluded.

9 So those are some sort of discussion
10 questions to keep in mind and then some guiding
11 principles to think about as you might suggest
12 outcomes to consider.

13 Now the next two slides, we have just
14 compiled some of the outcomes in these particular
15 areas that have been considered in previous
16 reviews done by NESR. So for example,
17 developmental milestones was addressed in one of
18 our Pregnancy and Birth to 24 Months reviews,
19 which Kay actually was a part of that. And so
20 you can see which outcomes were considered as
21 part of that for the very young age group,
22 although there is a question mark there. So I

1 think the applicable age ranges for some of these
2 outcomes are something you might consider
3 discussing as well.

4 The neurocognitive development from
5 birth to 18 years of age, those are some of the
6 types of outcomes that we considered when doing a
7 recent review in the Pregnancy and Birth to 24
8 Months Project.

9 And then finally in 2015, the
10 committee did look at a few questions in relation
11 to dietary patterns and the outcomes you see
12 listed on the slide. So neurocognitive-related
13 outcomes is a very, very broad area. And for
14 Pregnancy and Birth to 24 Months, in particular,
15 we really cast a wide net. But I think we would
16 certainly appreciate your input and discussion
17 around this outcome in particular to try to
18 really hone in on those that might be of greatest
19 public health significance in relation to the
20 questions you are addressing.

21 And then when it comes to cancer, in
22 2015 the Advisory Committee did do a systematic

1 review or a series of systematic reviews on
2 dietary patterns in relation to the four cancers
3 you see listed on the screen. The committee did
4 discuss which ones to select and review and they
5 settled on these four because they represent the
6 four most common cancers in the United States.
7 According to the most current data, these are
8 still the four most current -- or most prevalent
9 cancers in the U.S. but I think it's also sort of
10 up for discussion as to which set of cancers --
11 whether the most common? Are there other diet-
12 related cancers you might want to put on the
13 list? Are there some here you might take off the
14 list?

15 So I think this is sort of to tee up
16 a discussion about some of these outcomes that I
17 think are crosscutting in nature and it would be
18 nice to have some consistency around.

19 CHAIR SCHNEEMAN: So I am wondering
20 if, since cancer was a part of it, do you have
21 information from the scientific review that was
22 done with the last committee of sort of where

1 they -- more in terms of the nature of the
2 evidence that they had available and the specific
3 inclusions they might have made?

4 DR. OBBAGY: Yes, so there were
5 conclusions drawn. I believe they were in sort
6 of that strong-moderate range of strength of
7 evidence around breast cancer and colorectal
8 cancer in relation to some dietary patterns.
9 There was a limited body of evidence to draw a
10 conclusion around dietary patterns and lung
11 cancer. And the conclusion statement for
12 prostate cancer indicated that there wasn't
13 enough evidence to draw a conclusion. So a grade
14 wasn't assigned.

15 So that's sort of the spectrum that
16 was in the evidence at the time.

17 VICE CHAIR KLEINMAN: Just to continue
18 on that theme, have you reviewed the cancers that
19 are common in childhood and looked to see whether
20 there are relationships there? And I am thinking
21 about acute lymphatic leukemia, neuroblastoma,
22 osteosarcoma.

1 DR. OBBAGY: Yes, so as part of the
2 Pregnancy and Birth to 24 Months Projects, there
3 was a group of experts that looked at a series of
4 questions on human milk consumption. And one of
5 the outcomes they looked at in that review was
6 leukemia.

7 VICE CHAIR KLEINMAN: Yes, I wondered
8 if it went beyond that, the human milk
9 relationship to diet relationship in those ages.

10 DR. OBBAGY: Yes, so that cancer was
11 considered in the project as well.

12 VICE CHAIR KLEINMAN: Okay.

13 MEMBER BAZZANO: Are we having a
14 discussion about outcomes right now?

15 VICE CHAIR KLEINMAN: We seem to be.

16 MEMBER BAZZANO: This is Lydia
17 Bazzano. If you could, go back one slide to the
18 neurocognitive outcomes.

19 It is interesting that you have birth
20 to 18 years here and you have a number of
21 outcomes here that you don't include in the 18
22 years and older. For instance, I see anxiety in

1 there and it's not included in the 18 years and
2 older. And if you're going to measure depression
3 or look at that, I think you also need to
4 consider if there is any data on an outcome like
5 anxiety.

6 And then also, some of these other
7 important things like working memory, for
8 instance, maybe impaired long before dementia or
9 mild cognitive impairment begins. So I think
10 that some of those may be useful in the
11 neurocognitive health for 18 years and older
12 individuals as well.

13 CHAIR SCHNEEMAN: Mainly I wanted to
14 be sure if we needed to clarify anything with the
15 USDA staff about where we were that we could do
16 that now. I think, given the time, I think we
17 should plan for the discussion after lunch.

18 But no, I think anything you say now
19 is part of the discussion. So if there were any
20 -- we have two or three minutes.

21 MEMBER MAYER-DAVIS: This is Beth
22 Mayer-Davis. So this is an outcome question,

1 although not neurocognitive or cancer. So just
2 briefly, many of the question sets relate to the
3 outcome of cardiovascular disease. So I'm
4 assuming that it's a question. Is there a
5 definition of what exactly is included in
6 cardiovascular disease, with the interest of
7 making sure that across subgroups we are looking
8 at the same outcomes?

9 CHAIR SCHNEEMAN: That's a good point.
10 We will want to make sure that we are looking at
11 the same outcomes. And that will be a place
12 where I think the staff and the protocols that
13 they are developing will help us with that.

14 Also to be sure that when it comes to
15 biomarkers, that we are looking at the same
16 biomarkers that are validated for the disease.

17 MEMBER VAN HORN: And just to that
18 point, I was wondering about stroke, which
19 clearly would also potentially be considered as
20 neurocognitive issues and whether it is included
21 in cardiovascular or somewhere else.

22 CHAIR SCHNEEMAN: Okay. So I think it

1 would work best if we adjourn for lunch, at this
2 point, and then we are going to reconvene at
3 12:45. And as you can tell, we are trying to be
4 very prompt with our reconvene times.

5 So I hope you enjoy the lunch and we
6 will see you in a bit.

7 (Whereupon, the above-entitled matter
8 went off the record at 11:26 a.m. and resumed at
9 12:45 p.m.)

10 DR. STODY: So welcome back. I hope
11 everybody had a great lunch. Before we get back
12 to the committee's discussion, we did want to
13 just respond to the question that was raised
14 about the outcomes to be considered within some
15 of the outcomes like cardiovascular disease, body
16 weight, type 2 diabetes. Those are also
17 crosscutting outcomes across a number of
18 questions in the subcommittees but the NESR has
19 done a lot of work in those topic areas in the
20 past, so we have more of a foundation.

21 So as Janet noted, the next step is
22 the NESR is pulling together draft protocols to

1 bring to the subcommittees for the subcommittees
2 to respond to. So we kind of already have a base
3 for like cardiovascular disease to bring to you
4 all.

5 For the outcomes like neurocognitive
6 health, as well as cancer, those are ones that we
7 just don't have as much foundational work. So we
8 thought it would be good to have that discussion
9 here today. Now when those protocols come to
10 you, you obviously have the option to revise any
11 of the outcomes but these are ones we just needed
12 a little bit more foundational discussion.

13 CHAIR SCHNEEMAN: And I know some of
14 that information will be posted on the website.
15 So if you could maybe let people know when that
16 would be posted.

17 DR. STOODY: Absolutely. So, thank
18 you.

19 So at dietaryguidelines.gov, we walked
20 through this yesterday and I will talk a little
21 bit more about this in the closing remarks, but
22 there is a section on dietaryguidelines.gov under

1 Work under Way and it is under the review of the
2 Science Section and there is a list of all of the
3 questions, systematic review questions, as well
4 as data analysis, and food pattern modeling
5 questions. Once a month, we will update those.

6 So if there is a protocol that comes
7 to the subcommittee that the subcommittee has
8 discussed, once a month we will do kind of an
9 update so the public can see that draft protocol,
10 where it is. And then in the next month, if
11 there have been revisions, we will update it and
12 note the revisions to that protocol.

13 So the public can follow along in this
14 process, once a month with our monthly updates.

15 CHAIR SCHNEEMAN: Great, thank you.

16 So we are going move then to the
17 discussion of the neurocognitive outcomes and I
18 have asked Dr. Kleinman to lead that discussion.

19 VICE CHAIR KLEINMAN: Thanks, Barbara.

20 So I thought perhaps we could start
21 with the neurocognitive outcomes from the 2020
22 Guidelines, and these are up here now, and begin

1 to sort of look at it in that framework, meaning
2 are these still appropriate for the work that we
3 are going to be doing. Try to fill in the
4 question marks around age. And are there
5 additional ones that we want to add to this or
6 are some of these not appropriate for the current
7 work?

8 So I'd like to turn this over to you
9 for your thoughts on it and we will start with
10 the first one, developmental milestones. I think
11 also that it is important to acknowledge that
12 neurocognitive outcomes are a pretty large set of
13 domains and that they are not easy to measure at
14 all ages, so just keeping that in mind.

15 MEMBER DEWEY: Yes, this is Kay Dewey.

16 For the Birth to Two Years, I'm
17 wondering if we should consider visual acuity as
18 an indicator because it has been measured in a
19 number of studies and it's related to omega-3
20 fatty acid status.

21 MEMBER BAILEY: This is Regan Bailey,
22 just following up on that. I wrote that down and

1 also visual evoked potential, consider them
2 together.

3 VICE CHAIR KLEINMAN: Yes, I had that
4 on my list, too. And we could potentially just
5 put that in retina development or visual function
6 development, I guess, and that will bring all of
7 the ways we measure that, including evoked
8 potentials, as well as the less accurate ones.

9 Okay, other thoughts?

10 The question mark there, birth to
11 question years, so in part I think that relates
12 to the tests that we have available to measure
13 cognitive development and age or stage are
14 mentioned there, as well as the Bailey scores.
15 And they do have definitive time periods. Bailey
16 scores, I think, go up to four and a half, age
17 four and a half. And the age and stage is a
18 little bit longer. I think it is around six
19 years, five and a half to six years.

20 So any thoughts about that? Linda.

21 MEMBER VAN HORN: Not specifically
22 about that but in some of the work we are doing

1 currently with development assets and
2 vulnerabilities around children, and there is
3 some work, I don't know exactly about the scores
4 or the titles of the scores but I know at
5 Northwestern, anyway, there is a strong
6 department that is working on this and it relates
7 to executive function and other behavioral
8 characteristics that are initiated as early as
9 age two. So that is a growing field and that is
10 about all I can say about it.

11 VICE CHAIR KLEINMAN: So I think we
12 would be safe using current measures, ASQ and
13 Bayley scores if we say birth to two years
14 because that is well within the scope of those
15 tests and they are pretty commonly used in the
16 literature.

17 Is there any further thoughts about
18 that?

19 MEMBER DEWEY: This is Kay Dewey
20 again.

21 I just want to make sure that language
22 development is included in people's concept of

1 the developmental indices there because language
2 development during the first two years is a
3 really useful outcome. Do you think that is more
4 under communication?

5 Oh, receptive and expressive. They
6 are included within the Bayley but just so we are
7 clear that language development is a part of that
8 domain.

9 VICE CHAIR KLEINMAN: Okay, then why
10 don't we go from birth to 18 years and talk about
11 that a little bit?

12 One condition that is very prevalent
13 now is attention deficit disorder. And so I
14 don't know whether that is picked up under
15 executive functioning or whether we need to
16 explicitly ask for that but I wondered about your
17 thoughts.

18 And we could also talk about autism
19 spectrum disorder, since that is also frequently
20 now, rightly or wrongly, tied to nutrition and
21 diet. So I just put that out there for some more
22 conversation.

1 Anybody want to converse?

2 MEMBER DEWEY: I agree with you. I
3 think those domains are really important.

4 There is one listed there called
5 neurological development, which to me is not
6 well-defined. And I would say that what you
7 described could be called neurobehavioral
8 development.

9 I think we should be pretty inclusive
10 on this list.

11 VICE CHAIR KLEINMAN: Yes, it seems
12 like we have good agreement on that. Why don't
13 we recommend that we scratch neurological
14 development? It meant nothing to me, either, and
15 we are so specific about these other domains, I
16 don't think we're going to lose anything by
17 taking that out. But let's be explicit about ASD
18 and ADHD, whether they fall into -- as
19 subcategories underneath neurobehavioral
20 development. We should be able to capture that.
21 Good.

22 And then we move into neurocognitive

1 health 18 years and beyond. So the first thought
2 was that Alzheimer's disease is a sub-type of
3 dementia. And so I think it can be explicit but
4 it ought to be specified under dementia.

5 And I don't know who mentioned stroke
6 but I remember hearing that a little while ago.
7 Oh, Linda. So I think we would want to include
8 all causes of dementia, Alzheimer's disease,
9 stroke, hypertension, and other vascular issues
10 that lead to compromise that way.

11 And someone mentioned working memory
12 earlier. So do we want to put that on there
13 specifically, in addition to dementia, or is
14 there a way that we can describe that so that
15 when they search, that will come up?

16 MEMBER BAZZANO: Well, there are any
17 number of the adult cognitive scales that are
18 used to describe relative cognitive function. So
19 there is -- it's usually some type of combined
20 battery that includes working memory, among
21 others. There is a paper on which ones are the
22 most commonly used tests.

1 I'm just surprised that there is no
2 testing in there but there is testing in the
3 birth to 18 years. That is what I was wondering
4 about because it doesn't get anything
5 subclinical. It only gets you've got dementia,
6 you've got one of these specific things.

7 So is cognitive impairment broad
8 enough to cover those things?

9 MEMBER BAILEY: So this is Regan.

10 Are you suggesting we put in indicator
11 tests, like the Mini-Mental or the Hopkins Verbal
12 Fluency, those types of things?

13 I think if we want to be specific,
14 like we are in the younger age groups, that makes
15 a lot of sense.

16 MEMBER BAZZANO: Yes, and I was
17 confused by the cognitive impairment because
18 there is a specific diagnosis, mild cognitive
19 impairment. So it's not that -- it's not listed
20 as that here and it's also not listed as the
21 test. So I wasn't sure.

22 MEMBER BAILEY: Yes, cognitive

1 function would encompass all of that.

2 VICE CHAIR KLEINMAN: I think
3 cognitive function sounds very good and we could
4 extend that to say cognitive function, as
5 determined by standardized testing. And then
6 perhaps we could add, e.g., and several of those
7 that you've brought up.

8 So can you just tell us a couple so
9 we've got those in the record and then they'll
10 come back to us?

11 MEMBER BAZZANO: The Mini-Mental
12 status that Dr. Bailey mentioned.

13 MEMBER BAILEY: The Hopkins Verbal
14 Fluency. There's the one where you name so many
15 animals.

16 MEMBER BAZZANO: That's the Boston
17 Naming Test I think. There are a wide variety.

18 MEMBER BAILEY: It's ironic that I
19 can't remember them.

20 (Laughter.)

21 VICE CHAIR KLEINMAN: I was going to
22 say I'd comment but I think I flunked the last

1 one.

2 Okay, so I think that's definitely
3 getting --

4 MEMBER BAILEY: Digit Substitution
5 Test, the DSST. I know all the acronyms. The
6 DSST.

7 MEMBER LEIDY: Just a real quick
8 point, we don't list the tests up in the birth to
9 18 years as well. So I'm just wondering, when
10 you look at it, isn't executive function,
11 couldn't that also be down below with
12 neurocognitive health? Because they are actually
13 assessing similar components in terms of working
14 memory, planning, goal-directed behavior and
15 within that, you have a lot of those cognitive
16 performance tests that are within that.

17 VICE CHAIR KLEINMAN: Yes, so maybe
18 that's another place where we would say cognitive
19 functioning in that first bullet, and then there
20 would be a sub-bullet under -- no -- e.g.,
21 academic performance, I.Q., comma, executive
22 functioning and these other domains. So that

1 ought to be, I think, folded into those
2 parentheses.

3 MEMBER LEIDY: Well, I just feel like
4 whatever is in the second one with birth to 18
5 could also be put down with 18 and older to keep
6 it consistent.

7 VICE CHAIR KLEINMAN: Okay.

8 MEMBER LEIDY: Because a lot of those
9 outcomes, the indices you would want to put them
10 in the other one below.

11 VICE CHAIR KLEINMAN: Yes, that makes
12 sense. So let's change both of those.

13 MEMBER LEIDY: Just for consistency,
14 I think.

15 VICE CHAIR KLEINMAN: Yes. Yes, let's
16 change both in both of those categories, birth to
17 18 and then 18-plus. Let's make it cognitive
18 functioning and give some examples of the testing
19 that can be done for that.

20 And then underneath it, expand working
21 memory, executive function, academic performance,
22 I.Q., and et cetera. Great.

1 MEMBER SABATE: Joan Sabate.

2 I have a semantic comment here. I
3 think on the second group is related to the
4 cognitive development. However, in the third
5 one, it is preservation of these. That's why
6 they use the word health.

7 So this is more related I think to the
8 increasing in whatever functions were required
9 and the third one is the preservation.

10 That's why I am saying is cognitive
11 development in the third category probably is not
12 the best semantics because in the third category,
13 it is talking about clinical entities, not the
14 development.

15 VICE CHAIR KLEINMAN: So how would you
16 --

17 MEMBER SABATE: So probably --

18 VICE CHAIR KLEINMAN: Yes.

19 MEMBER SABATE: -- besides the
20 clinical entities, I am making another comment.

21 Probably the most common in the third
22 category is the age-related cognitive decline.

1 So we don't have to wait until a clinical entity
2 appears to see there is a connection. It is the
3 preservation of the condition, whatever it is,
4 that probably is also relevant.

5 VICE CHAIR KLEINMAN: So how would we
6 say that? Instead of cognitive impairment, say
7 preservation of cognitive function or
8 preservation of cognitive health?

9 MEMBER SABATE: That could be a way to
10 say that.

11 VICE CHAIR KLEINMAN: Okay, I think
12 that's a good point.

13 CHAIR SCHNEEMAN: So I'm wondering if
14 a way to get at your question is you're looking
15 at risk for impairment. I think you're looking
16 at risk for impairment. So you're trying to get
17 ahead of the clinical sign and say are there
18 things that tell me you are now increasing risk
19 for impairment. Is that what you're trying to
20 get at?

21 MEMBER SABATE: I mixed two concepts.
22 I think the cognitive development that was

1 proposed to put here I said the first concept is
2 probably not the best way to do so because on the
3 third paragraph, on the third category, it is not
4 the development. By development is typically
5 associated with growing, increasing. On the
6 third one it is more related to preservation or
7 less deterioration. That's the first, correct.

8 CHAIR SCHNEEMAN: Yes, that's why I
9 was introducing the concept of risk sort of in
10 that third area.

11 MEMBER SABATE: Yes. And in the third
12 area, the typical thing that happens with age is
13 age-related cognitive decline. So the
14 preservation of the condition, assessing the risk
15 of increasing the decline or accelerating the
16 decline is probably the outcome that we try to
17 measure here.

18 CHAIR SCHNEEMAN: Right.

19 VICE CHAIR KLEINMAN: So we actually,
20 perhaps, should just say that, preservation of
21 neurocognitive health as the title of that
22 outcome. And then we can change cognitive

1 impairment to cognitive functioning and do what
2 we talked about with dementia, Alzheimer's and
3 the other causes of dementia at that age.

4 Does that make it better? Okay.

5 All right. So with that, review
6 questions that address neurocognitive-related
7 outcomes, do you want to go through these
8 questions or, now that we have these outcomes
9 specified, should we leave it to each of the
10 working groups to take these outcomes and match
11 them to their categories?

12 And I'm counting the nodding around
13 the table and I think I'm getting consensus. So
14 anybody who disagrees with doing it that way?

15 CHAIR SCHNEEMAN: Yes, and I would
16 like to just double-check with the staff. You
17 can now ask us questions, if something we've said
18 is not clear. So is it clear what we've agreed
19 to? Okay, great.

20 VICE CHAIR KLEINMAN: All right. I
21 hate to say this but I think we've done it. All
22 right. Thank you all.

1 So we are going to move on to cancer.

2 CHAIR SCHNEEMAN: Yes, we can move on
3 to the cancer. And as we heard earlier that
4 these are the four most common cancers. They
5 were what we looked at with the 2015-2020 Dietary
6 Guidelines and they remain the most common.

7 So I think what the staff is asking
8 us: Do we have the right cancers here? Are we
9 missing something? Does something no longer
10 belong on the list? And so that's what we want
11 the input from the committee on.

12 Carol.

13 MEMBER BOUSHEY: This is Carl Boushey.

14 And with the increase in ectopic fat,
15 I was thinking we may want to look at liver and
16 pancreatic cancer.

17 VICE CHAIR KLEINMAN: Yes, I think
18 liver is an excellent idea. That is probably the
19 most directly-related to body composition and
20 body composition is pretty directly related to
21 diet. And so that seems to definitely belong on
22 there.

1 I had raised earlier the relationship
2 of childhood cancers and diet. And I think it
3 was Eve or somebody who mentioned that ALL and
4 human milk or breastfeeding is being looked at in
5 the B to 24.

6 But how about those other cancers that
7 are common in childhood or are the common cancers
8 in childhood, as opposed to these, which are the
9 common cancers in adult years? And I was
10 specifically thinking about leukemias but, in
11 addition, lymphoma, neuroblastoma, bone tumors,
12 osteosarcoma. So could we just group those as
13 the relationship between diet and cancers that
14 are the most common in childhood and leave it at
15 that, so at least there is some work to do on
16 that -- some review to do on that? Okay.

17 All right, so there's consensus for
18 that, too. So, we'll plan on that.

19 CHAIR SCHNEEMAN: And of the four that
20 have been listed, do those stay on the list or is
21 there any sense that we don't need to continue?

22 I think what we heard from Julie

1 earlier is that with prostate cancer I think
2 there was just no evidence. With lung cancer, it
3 was limited evidence. So keep them on?

4 Is anyone thinking -- does anyone
5 think we should take them off the list? Let me
6 ask the question that way.

7 So we've made the list longer.

8 VICE CHAIR KLEINMAN: And again, I
9 think what we don't know is if the literature has
10 come along over the last few years that now
11 perhaps shifts the prostate back or one of them in
12 the other direction. So we probably want to err
13 in gathering more information.

14 Linda.

15 MEMBER VAN HORN: Just one comment
16 about all of this in the sense that, at least
17 from most of the major overviews of cancer
18 literature, at least from my point of view, it so
19 relates to the development of obesity.

20 And so you know I think as we go
21 forward it is possible that we should recognize
22 that it's that connection, regardless of what the

1 diet composition is it's the energy balance
2 issues that really promotes cancer development in
3 so many ways. And so, you know, attempting to
4 try to keep that in the back of our heads as we
5 look at these various dietary factors, you know
6 the energy balance question certainly needs to be
7 included.

8 CHAIR SCHNEEMAN: So that sounds like
9 something that the subcommittee will be wanting
10 to look at. Is there evidence around the energy
11 balance issue related to the cancers that we've
12 identified?

13 MEMBER BOUSHEY: Hi, this is Carol
14 Boushey.

15 And really to lay over that is diet
16 quality you know because you can consume 2,000
17 calories and it can be in high diet quality 2,000
18 calories and it can be the lowest diet quality at
19 2,000 kilocalories. So it is something that we
20 really, I think, need to put into the mix, since
21 that is really our task is dietary guidelines.

22 But I don't want us to lose sight of

1 that as part of this picture that you painted
2 out.

3 MEMBER BAZZANO: Lydia Bazzano.

4 So I do have one question. We were
5 talking about colorectal cancer and then we also
6 are mentioning now liver. Are we thinking that
7 maybe we should consider it as a system, the GI
8 system? I mean like this is just a question.
9 Yes, colorectal is the most common cancer but
10 others also have associations with certain
11 things.

12 VICE CHAIR KLEINMAN: I consider
13 myself a recovering gastroenterologist, so I will
14 -- so I think that if we say it that way, that we
15 lose the emphasis on the ones that most make a
16 difference to the population. And by putting
17 liver in there, we can draw that relationship to
18 obesity because it is one-to-one.

19 And if we do all of G.I. cancers, we
20 bring in heredity cancers. An awful lot of G.I.
21 cancer is due to polyps, which are hereditary, or
22 syndromes and so on. So I think in this case we

1 are probably better off being discrete, but just
2 my thinking about it.

3 MEMBER NOVOTNY: Rachel Novotny.

4 So I guess this gets back I think to
5 Heather's question from earlier that really all
6 of -- most of the outcomes we are going to be
7 looking at have an obesity relationship. And so
8 maybe just to note that in the analysis we will,
9 at some point, consider the role of obesity in
10 the modeling. The details of that I don't know
11 that we need to talk about right now but I would
12 think that that would be true with most of our
13 outcomes.

14 MEMBER DEWEY: Just to respond a
15 little bit to your comment, Ron, in the Beverages
16 Subcommittee, there are several questions about
17 alcohol consumption and certain types of cancer.
18 And I just wonder if stomach or any of the others
19 might be -- I don't know enough about this
20 subject. I just wanted to bring it up that
21 alcohol is highlighted in some of the questions.

22 VICE CHAIR KLEINMAN: And so was a

1 thought toward being more inclusive about G.I.
2 cancer.

3 Yes, I guess in that particular case
4 but I would make it specific for alcohol and G.I.
5 cancers. So I think there to be more focused
6 because we are focusing on one particular toxin
7 or potential toxin. That seems to make a lot of
8 sense to me.

9 So if everyone agrees, then, in the
10 beverage -- under the beverage topic, we would
11 specifically relate alcohol and broaden the
12 category to G.I. cancers and that would include
13 esophageal, stomach, and lower tract cancers.

14 And I was -- when Rachel -- you must
15 have been reading my mind because as Linda was
16 talking, I was thinking exactly the same thing,
17 that obesity really underpins just about every
18 health outcome that we are talking about here.
19 So we want that probably to be a common thread
20 also.

21 And as we're thinking about this
22 developmentally, that's clearly an important area

1 that is going to come up. So perhaps if we're
2 thinking about crosscutting themes, that one
3 ought to be in the background all the time.

4 CHAIR SCHNEEMAN: Do we have other
5 comments from the committee?

6 So let me just -- are you guys good
7 for where we are? Do you have any questions for
8 any of the committee members to how to proceed?

9 Okay, great.

10 MEMBER ARD: I have one.

11 CHAIR SCHNEEMAN: Sure.

12 MEMBER ARD: Jamy Ard.

13 So on these cancer outcomes, I know
14 for everything else we are talking about, risk
15 and sort of incidence for cancer are we also
16 going to be thinking about mortality outcomes
17 related to cancer? Because for example, breast
18 cancer, women who gain weight during treatment
19 have increased risk of mortality and recurrence.
20 So those are some important sort of
21 considerations. It's not just the dietary
22 pattern in the risk of the disease but it may

1 also be -- I mean what we care about a lot for
2 cancer, obviously, is mortality.

3 CHAIR SCHNEEMAN: Right.

4 MEMBER ARD: And so would we include
5 or think about outcomes related to death from
6 cancer?

7 MEMBER TAVERAS: This is Elsie
8 Taveras.

9 Or more generally survivorship and
10 that's actually a very good point. I wonder if
11 that is within the scope. Particularly I think
12 also with pediatric malignancies is that there is
13 an emerging literature on cancer survivorship and
14 diet. So I think that would be good to include,
15 if it is within the scope.

16 CHAIR SCHNEEMAN: I think the one
17 place that we have to be a little cautious of is
18 you know we've heard repeatedly that we are not
19 looking at clinical guidelines. So I appreciate
20 what Jamy was getting at but I would think of
21 mortality from cancer as one of the outcomes that
22 would be picked up through the systematic

1 reviews. But as soon as we start getting into
2 how do you manage a patient with cancer, I think
3 that starts to get into a different question.

4 And we just -- it's not that we can't
5 look at that literature. I think we just have to
6 be careful -- this microphone doesn't like me --
7 we just have to be careful that we don't sort of
8 trip over and start looking at clinical
9 guidelines, clinical practice for treating.

10 MEMBER BOUSHEY: This is Carol
11 Boushey.

12 And just a pragmatic comment exactly
13 to what you were saying. If we were doing
14 systematic reviews, the greatest number of
15 publications would be with mortality and then
16 there is now growing in survival and certainly
17 that would be a path to consider also.

18 MEMBER SABATE: In response to this,
19 I think the survival issue is perhaps outside of
20 the scope of this committee because I think the
21 scope of this committee is still craft dietary
22 guidelines for the general population, not for

1 the disease population, in general, although I
2 mean it could be with some prevalent issues like
3 obesity or hypertension. But I think particular
4 dietary advice I mean for people with a specific
5 disease I think is outside the scope of this
6 committee.

7 CHAIR SCHNEEMAN: Other comments?

8 Again, Julie or Eve, do you have any
9 questions for the committee that you would like
10 to ask? Okay, great.

11 So I think that's -- is that the end
12 of our formal agenda? Wow, okay.

13 So I know Eve has some comments. I'd
14 like to just see if the committee -- and I know
15 people have flights, so we are going to start
16 losing people.

17 So Kay, I'm going to catch you first,
18 before you walk out the door. Just it was very
19 helpful yesterday just to have the committee's
20 perceptions, questions, and comments, not that
21 we're going to get responses to everything right
22 now, but it would be useful if we could do that

1 again.

2 So before we lose everyone, I would
3 like to do that.

4 MEMBER DEWEY: Thank you, Barbara.
5 Kay Dewey.

6 So actually the one point I wanted to
7 raise, I had a very useful lunchtime conversation
8 around some of the practical issues for the B to
9 24 Subcommittee. And as I brought up earlier,
10 there are some questions for the other
11 subcommittees and we want to work closely with
12 those on them.

13 But in particular, on our list of
14 questions in sort of the middle group, there are
15 several outcomes, including body composition and
16 growth, and bone health, and nutrient status but
17 not developmental outcomes. And this has to do
18 with four nutrients: iron, vitamin D, omega-3,
19 and vitamin B-12. And we saw in another
20 subcommittee for the Fats and Seafood that the
21 relationship between various types of dietary
22 fats and neurodevelopmental outcomes was part of

1 that at every stage of the life cycle.

2 So we just wanted to sort of flag
3 that. That's something that is very, very
4 appropriate to one of the areas that we need to
5 also explore.

6 So it's just a general issue that,
7 hopefully, the subcommittees can sort of discuss
8 amongst themselves that maybe some questions will
9 get kind of handled over here and others over
10 there, depending on the life stage that is in
11 question.

12 So that was the main thing I wanted to
13 bring up.

14 MEMBER BAZZANO: Lydia Bazzano. So in
15 terms of the dietary patterns, I did have a
16 question that was related to the questions as
17 listed here. On the Dietary Pattern
18 Subcommittee, the list of dietary patterns
19 includes Mediterranean style, Dietary Approaches
20 to Stop Hypertension, DASH, vegetarian/vegan, low
21 carbohydrate diets, comma, and high-fat diets.
22 And I am wondering if they are separate -- those

1 are two separate things or what kind of high-fat
2 diets are we talking about? That's usually a low
3 carbohydrate diet so I just didn't know if that
4 was two separate things. So I'm just wondering.

5 CHAIR SCHNEEMAN: Yes, so we'll just
6 collect the questions and then we can maybe, as
7 part of the closing, we can have those addressed.

8 MEMBER MATTES: I guess I'd raise two
9 issues or questions to keep in mind. Again, when
10 we talk about patterns, dietary patterns, we've
11 put an emphasis on foods and nutrients but I
12 think we really have to talk about temporal
13 patterns as well. We have eating frequency as
14 one of our big questions and I think we have to
15 integrate across those.

16 The other is I fully endorse the idea
17 of having obesity as sort of a covariate in
18 everything that we do but does that raise then
19 the question of should we be thinking about
20 macronutrients, specifically, in each of these
21 roles or is it just obesity?

22 CHAIR SCHNEEMAN: We're going to go

1 around. You'll get another turn.

2 MEMBER NOVOTNY: I'm Rachel Novotny.

3 The thing I've been thinking most
4 about is in most of the questions, as phrased,
5 combine -- well, let me back up.

6 Coming from the perspective of not
7 having the birth to 24 months in the Dietary
8 Guidelines, I think we've been very food-focused,
9 which is the main point. But going now to the B
10 to 24 age group, most of the questions treat
11 breastfeeding and formula feeding equivalently.
12 And I think it's going to be really important
13 that we find some ways to look separately at the
14 outcomes that involve breastfeeding separate from
15 those of formula feeding.

16 I think NHANES has them combined so
17 that probably won't be our source. We'll
18 probably need to look to other literature. But I
19 think it is a really critical piece of what this
20 next phase should include.

21 MEMBER VAN HORN: And I would go along
22 with Rick and what I said earlier. I do think

1 prevention of obesity is a key factor for
2 everything that we're discussing and really does
3 need to be infiltrated across all of these
4 questions, as far as a number one public health
5 benefit that would be derived by, potentially in
6 regard to what Carol was saying, a higher quality
7 diet and regardless of exactly what the
8 macronutrient composition is, since we all are
9 aware that the emphasis on healthy fats are good
10 for you and all of that, I think there is huge
11 confusion out there in regard to low fat, high
12 fat, carbs, whatever. And so to try to be able
13 to distinguish exactly what is being recommended
14 and why I think would be valuable.

15 I also think the only other comment I
16 would make based on what Rachel was just saying
17 is the opportunity also to look at pregnant women
18 and breastmilk quality and their diet
19 relationships does also introduce another whole
20 new topic area that is under-studied and if there
21 are data out there that would help to promote a
22 type of diet during pregnancy that is in fact

1 beneficial for childhood/infant development, I
2 think this would be a wonderful time to start
3 that search.

4 MEMBER TAVERAS: So Elsie Taveras.

5 Linda asked one of the questions I
6 had, which was really the question of looking at
7 dietary. So we, under the Pregnancy and
8 Lactation Subcommittee, there are a number of
9 questions on dietary patterns consumed during
10 pregnancy with pregnancy outcomes but not with
11 infant outcomes. And that is something that
12 Linda just mentioned, which I think would be
13 important to expand a bit on some of the infant
14 outcomes of pregnancy dietary patterns.

15 I had two other questions and they
16 relate to a potential expansion of what we are --
17 what is under each of the subcommittees which
18 could be answered later. One of my questions was
19 under the Subcommittee of Frequency of Eating.
20 And I wondered if timing of eating -- and I think
21 the question came up yesterday of kind of
22 circadian-aligned or circadian-misaligned timing

1 of eating is going to be addressed there. And
2 again, I don't need an answer now but I thought
3 that timing, in particular, in addition to
4 frequency might be important.

5 And then the other question I had
6 under the Birth to 24 Months Subcommittee was a
7 question about complementary feeding. And again,
8 the questions relate to the relationship between
9 complementary feeding and a number of outcomes
10 but I wondered how much we are going to drill
11 down to the questions about composition and
12 sequencing of introduction of different foods.
13 It does expand quite a bit that section of the
14 subcommittee's questions but something also that
15 I was wondering as I looked at the complementary
16 feeding questions.

17 VICE CHAIR KLEINMAN: Just on the
18 complementary foods, it just reminded me that the
19 definition that, was it Julie -- yes -- mentioned
20 where you expand all across childhood up to age
21 18 -- did I misunderstand? You didn't. Two
22 years, okay. Because it is much more narrowly

1 understood and in fact it is really only in that
2 first -- second six months of life or second
3 eight months of life that typically we talk about
4 complementary feeding. And it is really intended
5 as a complement to the single food that an infant
6 starts off on and then the diet broadens.

7 So if it was up to me, I would
8 probably restrict it down to let's say ages four
9 months to one year for complementary feeding and
10 then not think about it after that.

11 Thank you.

12 MEMBER SNETSELAAR: This is kind of a
13 logistics question. We've kind of brought up a
14 variety of concepts that are related to
15 crosscutting issues. And I just want to be sure
16 that, as a committee chair, I keep that in mind
17 and I'm sure the wonderful people I will be
18 working with will help me with that but several
19 have been brought up and I know they can relate
20 to the subcommittee that I am a part of.

21 So just making sure maybe there is a
22 mechanism in place for that.

1 MEMBER SABATE: I have a question for
2 consideration.

3 In several dietary guidelines of other
4 countries, they are now seriously considering the
5 issues of sustainability. I know a little bit
6 what happened five years ago. Nevertheless, as
7 you know, I mean food consumption is a measure
8 driver of the food system and the food system has
9 an impact not only on the health of the
10 population but the health of the planet. And it
11 is necessary a healthy planet to continue
12 producing food.

13 So given the relevance of this issue,
14 I wonder if, despite what happened five years
15 ago, I mean if you, as a scientist, consider that
16 that is relevant, I mean to at least put on the
17 table and give some consideration, despite the
18 outcome that may happen in two years.

19 But I say, as a scientist, I mean I
20 think we have the responsibility to think
21 seriously about this issue and probably again try
22 to incorporate into our recommendations.

1 CHAIR SCHNEEMAN: We're going to keep
2 going. And things that we can comment on, we
3 will, but others -- many of the topics being
4 raised I think go into thinking about how we
5 structure the work.

6 MEMBER DAVIS: This is Teresa Davis.

7 So under the Birth to 24 Months group,
8 we have looking at the relationship between
9 specific nutrients from supplements and bone
10 health and looking at the relationship between
11 complementary feeding and bone health because we
12 are well aware the importance of building bone
13 during early life. So basically, we can stave
14 off osteoporosis and osteopenia later in life but
15 I think we need to also remember that building
16 muscle in early life is important in staving off
17 sarcopenia.

18 So I think you know we need to keep
19 that in mind, particularly when we are looking at
20 body composition. And so when we look at body
21 composition, we think of lean mass, and fat mass,
22 and so forth but it is not only just lean mass

1 but the function of the lean mass, the muscle as
2 well.

3 MEMBER LEIDY: This is Heather Leidy.

4 The same thing. I just wanted to
5 reiterate that and I think that when we're
6 thinking about sarcopenia or the progression or
7 the prevention of muscle health, what that looks
8 like, whether it is functionality or even the
9 quality of the muscle. We get that with body
10 composition from a total lean mass but it doesn't
11 mean that the quality of the muscle is healthy.

12 And so I think, if it is possible
13 within our realm of looking at that, because it
14 is body composition is across the board but you
15 don't really see -- we see bone health but we
16 don't see that with muscle health, which is a
17 critical component.

18 And then another comment to what Rick
19 had said, too, in terms of you know a lot of
20 these different areas there are some
21 macronutrient questions that could be teased out
22 very easily, whether it is with beverages or

1 eating frequency. And I don't know if the
2 committee has the ability to do that. It is a
3 direct sub-question around the global question.
4 If that is the case, though, I guess my question
5 is, is that something that the committee as a
6 whole within each subcommittee would want to
7 tackle because it is -- I think the concern that
8 I have is that if we do it in, for example,
9 beverages as an example, that's maybe well and
10 good but then if it's not translated then across
11 the other topics, it's going to seem awkward that
12 maybe one topic is talking about macronutrients
13 and the other ones aren't.

14 So I just don't know if that is a
15 discussion for the committee in terms of if we
16 think it is relevant within some of these to
17 focus on macronutrients, to have that
18 conversation. I know for beverages or eating
19 frequency, some of those components may end up
20 driving that. So whether that ends up going in
21 the systematic review or not, I think it's a
22 relevant topic.

1 Just a concern.

2 MEMBER STANG: Jamie Stang.

3 One comment about lactation I think.

4 I know we are going to be looking at quantity and
5 quality -- or quantity and composition of human
6 milk but making sure that we have a consistent
7 way of capturing mixed feeding and intensity of
8 lactation because the literature can be a mess
9 and we need to make sure that we do that
10 thoughtfully.

11 And then a question that I apologize
12 for not bringing up earlier but it just occurred
13 to me, we didn't discuss cancer recurrence. And
14 I know that there is kind of that fine line
15 between the disease state and not but whether or
16 not that is something that we would want to
17 consider within our cancer questions.

18 MEMBER BOUSHEY: Carol Boushey.

19 And I don't really have a lot to add.
20 I've really appreciated the comments up to this
21 point and I'm sure the others will be really
22 great, too. But I want to respond to Rick's

1 comment. He brought up this idea of frequency of
2 eating and he said I hope that's temporal
3 patterns, too. And then we also heard timing of
4 eating.

5 And maybe I missed the memo but that's
6 what I thought frequency of eating was. And I'm
7 on that committee. So I will work to make sure
8 that is blended in there. Thank you.

9 MEMBER BAILEY: Regan Bailey.

10 Just building on that, one of the
11 things that I wrote down specific for that
12 committee is what is an eating occasion. So it
13 is very difficult to define what is a snack, what
14 is a meal. In NHANES, it is participant-defined
15 but in other trials, it may be different. So we
16 will need to standardize the language in working
17 under that topic area.

18 And I think it's great that we talked
19 about the important influence of obesity as a
20 crosscutting issue across a lot of these
21 committees but there are other factors like blood
22 pressure, physical activity, educational

1 attainment that will greatly influence
2 neurocognitive questions that we have. So we
3 might want to also consider those within that
4 lens, as well.

5 MEMBER ARD: Jamy Ard.

6 So I'm going to sort of pick up on the
7 obesity thing a little bit and ask or talk out
8 loud about the idea of framing it more from an
9 energy balance standpoint and having a unifying
10 sort of approach across the subcommittees in
11 terms of dietary patterns or various exposures in
12 the context of an energy balance in being able to
13 think about obesity is the consequence of energy
14 and balance.

15 And so if we look at a dietary pattern
16 in that state versus someone who may be consuming
17 the same dietary pattern but in an excess calorie
18 state, that may have different implications. And
19 so in our literature, we need to be able to
20 clearly help people understand that have a
21 consistent framework across the groups because
22 those macronutrient profiles and so forth will --

1 the implications of that will vary based on
2 energy balance state.

3 MEMBER MAYER-DAVIS: It's Beth Mayer-
4 Davis.

5 So just picking up on this a little
6 bit, I actually do think it's really important if
7 we could think through our overall approach
8 relative to obesity because obesity is actually a
9 mediator with regard to diet and not all of the
10 other outcomes we are speaking of but many of
11 them -- most of them.

12 So I'm imagining and you know when you
13 think about this from a public health perspective
14 and the percent of the population, including
15 young children, adolescents throughout the life
16 cycle -- let me stop short. Dealing with
17 sarcopenia is another issue. But this is such a
18 major public health problem and it has been for
19 so long and I'm thinking that if we can think
20 about this overall frame not six months from now,
21 but whenever we are thinking about writing, but
22 sooner than that because it might help our

1 thinking in terms of coherence, both within and
2 across the subcommittees.

3 And I have a -- this is much less
4 interesting but you know as a practical issue, I
5 just don't know if today we are going to do a
6 little bit of conversation about logistics and
7 what sort of the process, the expectations, you
8 know how do we move forward in terms of
9 subcommittees getting activated and you know that
10 kind of stuff. We're going to do that later?
11 Okay.

12 CHAIR SCHNEEMAN: I think Eve will
13 speak to that.

14 MEMBER MAYER-DAVIS: She'll give us
15 marching orders?

16 CHAIR SCHNEEMAN: Yes.

17 MEMBER MAYER-DAVIS: Good. Okay.

18 MEMBER HEYMSFIELD: Steve Heymsfield.
19 I had a few questions.

20 One is I am chair of the Frequency of
21 Eating group and has there been something on that
22 written already? Are we building on something or

1 is this a new topic?

2 You might be able to answer that. No.
3 Okay, so it's starting from zero. Okay. All
4 right.

5 And a few other minor things. To the
6 extent that the food patterns are evaluated using
7 new cutting-edge techniques like artificial
8 intelligence, deep learning, I think all of those
9 techniques are coming online very fast and I was
10 just wondering to the extent they will be used
11 moving forward.

12 And I was wondering about the
13 boundaries of our evaluations. Do we include
14 antibiotics in foods, hormones, chemical
15 disrupters, and things like that that often
16 travel with food?

17 CHAIR SCHNEEMAN: I mean I think those
18 are good clarifying questions.

19 MEMBER HEYMSFIELD: Yes, and ultra-
20 processed food versus and so on. All of those
21 questions I think are very topical.

22 CHAIR SCHNEEMAN: Yes.

1 VICE CHAIR KLEINMAN: So I will throw
2 in one last minute grenade here, a small one, and
3 ask another crosscutting issue that is very
4 important in public health is food insecurity and
5 it crosscuts this issue of time of eating,
6 frequency of eating, quality of diet, significant
7 health consequences of it, behavioral as well as
8 physical. And so I don't know whether I'm
9 pushing for systematic reviews on this but I know
10 that the least I think that we should do is to
11 make sure that that appears in our discussion as
12 often as we can. And it's not in an effort to
13 balance the discussion about obesity. It's
14 really in addition to this issue of obesity so
15 that it doesn't get lost.

16 CHAIR SCHNEEMAN: Great. Well, these
17 are excellent issues to have brought forward.
18 And I think some of them will be addressed as the
19 work groups start putting their work together and
20 start working with the staff but we will be able
21 to sort out how do these various things fit in or
22 cut across the work groups.

1 But I think some of them we can ask
2 Eve and maybe Julie to help clarify. So why
3 don't you all -- and Janet, yes?

4 And I was trying to identify things
5 that I thought could be questions clarified in
6 this format. I think I've captured a lot of the
7 issues, if I can read my own handwriting. You
8 know for example, one of the questions was about
9 how do we interpret the question on low
10 carbohydrate/high-fat diets. I mean that is a
11 simple question about the question itself. How
12 are we interpreting that?

13 MS. DE JESUS: I think, in general, we
14 are looking at any dietary pattern evidence that
15 is available. So I mean low carbohydrate could
16 be high-fat or some people do higher proteins.
17 So there is really different variations. So we
18 are kind of open to whatever different types of
19 macronutrient patterns that are found.

20 CHAIR SCHNEEMAN: Well and maybe while
21 you are there, you could address the questions
22 that kind of came up about looking at the

1 macronutrients versus the foods and how you see
2 that playing out in the various questions.

3 MS. DE JESUS: Right. So I think that
4 will, again, come in the dietary pattern
5 evidence, so where the evidence is available on
6 those outcomes. We will definitely take a look.

7 CHAIR SCHNEEMAN: Okay, great.

8 And I think there were some questions
9 about infant outcomes in looking at pregnant
10 women. So is that something we can address now,
11 as far as --

12 MS. DE JESUS: Sure. Let me see.

13 So I believe there was a question on
14 -- there was on a milk composition, which is in
15 here, on the mother's diet and breast milk
16 composition.

17 And what was the other infant outcome?

18 CHAIR SCHNEEMAN: Yes, the other one
19 was it seemed like a lot of the outcomes were for
20 pregnancy and you were asking what about infant
21 outcomes based on dietary intake during
22 pregnancy.

1 MS. DE JESUS: So we have -- yes, I
2 mean we're welcome to add, if we don't have the
3 outcomes that you are looking for. We do have
4 birth weight, gestational age, sex but we can
5 work on this in the protocol stage, definitely,
6 because we know that is an important output.

7 CHAIR SCHNEEMAN: Okay. And then
8 there was a question about the time period that
9 was selected for the complementary feeding --

10 MS. DE JESUS: Right.

11 CHAIR SCHNEEMAN: -- going all the way
12 to two years.

13 MS. DE JESUS: Right.

14 CHAIR SCHNEEMAN: So is that something
15 that you want the subcommittee to look at, that
16 time period?

17 MS. DE JESUS: Yes, and I think the
18 thought was that some women nurse past 12 months,
19 so there's not really a -- and I know some go
20 past 24 months as well. But definitely, the
21 subcommittee can take that on if they want to
22 refine it.

1 CHAIR SCHNEEMAN: Okay, great.

2 And we had the question about
3 introducing new topics, such as sustainability,
4 that aren't part of the topics and questions.
5 And I don't know whether, Janet, you want to
6 address that or Eve, do you want to address that?

7 MS. DE JESUS: Yes, it's similar to
8 what we've said before. You know we've kind of
9 laid out the major topics but if there is
10 something that you would like to address in the
11 report, the committee is welcome to do that.

12 CHAIR SCHNEEMAN: Right but it might
13 be that we've identified something as important
14 for the future --

15 MS. DE JESUS: Right. Right.

16 CHAIR SCHNEEMAN: -- or something that
17 we would like the Secretaries to consider.

18 MS. DE JESUS: Absolutely.

19 CHAIR SCHNEEMAN: Okay.

20 DR. STODY: Yes and just to add, the
21 committee is asked to limit its review of the
22 evidence to the topics and questions that were

1 identified by the departments that had the public
2 and federal agency input. So the systematic
3 review support, the Food Pattern Modeling, all of
4 those pieces, limiting the review of evidence to
5 those topics and questions.

6 But yes, to your point, is there, what
7 we've discussed before, you know places in the
8 report to speak to things that are also important
9 to consider.

10 CHAIR SCHNEEMAN: Right.

11 DR. STODY: That other topics can be
12 relevant there.

13 CHAIR SCHNEEMAN: Okay and certainly
14 within this committee, I don't think we have the
15 expertise directly but that's another thing we
16 can think about.

17 I think the cancer recurrence, that
18 might be, again, we have to be careful to not dip
19 into clinical guidelines and clinical practice.

20 And then Steve asked a set of very
21 focused questions right at the end and we know
22 frequency of eating is new. What about

1 techniques, newer techniques around food
2 patterns? And what about some of the other
3 factors that show up in foods? How should we be
4 thinking about those issues?

5 MS. DE JESUS: So I think there was --
6 so whatever is available in the evidence, as far
7 as I think the techniques for measuring food
8 intake, I mean if that is a technique that is
9 used in the evidence you know, definitely.

10 MEMBER HEYMSFIELD: I was thinking
11 more of the analysis methods --

12 MS. DE JESUS: The analysis, yes.

13 MEMBER HEYMSFIELD: -- like deep
14 learning, artificial intelligence is coming
15 online very, very fast.

16 MS. DE JESUS: Right. Now that's
17 extremely interesting. That's probably on the
18 like the methodology side, which would be outside
19 the scope but very interesting. And you know
20 happy to -- you can touch on it in the report --

21 MEMBER HEYMSFIELD: Yes.

22 MS. DE JESUS: -- and research gaps or

1 you can list it there.

2 CHAIR SCHNEEMAN: So are there some
3 other questions that I didn't bring up that you
4 all captured in your notes that you thought we
5 could address at this level?

6 DR. OBBAGY: I heard a number of
7 people mention factors that are going to be
8 important confounders, mediators, moderators,
9 covariates, that sort of thing, and certainly
10 part of our systematic review process will be to
11 have a very thorough discussion up front about
12 all of those different factors, many of which
13 you've mentioned here, and others that we need to
14 really take into consideration as we start to dig
15 into the evidence and really evaluate it.

16 So all of those kinds of things that
17 got mentioned I think are very important to the
18 process.

19 CHAIR SCHNEEMAN: And we didn't
20 address the last question about some of these
21 other factors in foods, such as antibiotics, what
22 all did you list?

1 MEMBER HEYMSFIELD: Chemical
2 disruptors, hormones.

3 CHAIR SCHNEEMAN: Yes.

4 MS. DE JESUS: That's probably out of
5 scope but I mean for the systematic review.

6 CHAIR SCHNEEMAN: Yes, I think in
7 general, those are food safety issues --

8 MS. DE JESUS: Yes.

9 CHAIR SCHNEEMAN: -- which --

10 MS. DE JESUS: Out of our lane.

11 CHAIR SCHNEEMAN: Yes.

12 MS. DE JESUS: Yes.

13 CHAIR SCHNEEMAN: We're going to have
14 a robust other items in the report.

15 MS. DE JESUS: It's going to be big.

16 CHAIR SCHNEEMAN: So were there any
17 other items that you had identified that we -- I
18 think some of these will have to be addressed as
19 the subcommittee looks at the protocol and begins
20 to refine that but some that I thought we could
21 deal with here, we might as well.

22 DR. STODY: I will add one final

1 comment to Dr. Bazzano's question about the types
2 of dietary patterns. I think the intent -- when
3 you see the protocols, you'll see that the
4 systematic review protocol, it casts a wide net.
5 And we found in doing reviews over time that the
6 labels are really tricky, you know if it's low
7 carb or high fat. I mean what does that really
8 mean? And so in those reviews it's often you are
9 getting into the foods and beverages, or the
10 macronutrient composition, or those different
11 elements.

12 So I think it's we listed a list of
13 potential dietary patterns to consider but I
14 think it's casting a wide net, and then looking
15 at the evidence base to identify those that are
16 the relevant ones to include. And yes, it is the
17 labels. I mean it is hard to define just with
18 the label of the pattern.

19 So I think that will kind of flesh out
20 more, once you see the protocol.

21 CHAIR SCHNEEMAN: Great. Thank you
22 all for addressing those questions.

1 So Eve, I will turn it back to you for
2 the wrap-up.

3 DR. STODY: Excellent. Okay, so
4 thank you. I want to start off by just again
5 saying thank you to the committee. When we
6 wrapped up yesterday, a colleague of mine said I
7 hope they come back. So thank you for coming
8 back.

9 (Laughter.)

10 DR. STODY: I know that we've made a
11 big ask. It is -- you know this is a lot of
12 work. And several of you have been here before
13 or your colleagues have told you it's a lot of
14 work. So we just want to thank you again.

15 I hope that you've seen, over the
16 course of the last two days, that you are not on
17 this alone. You know you have a lot of support
18 who can help you and help you to accomplish your
19 goals.

20 In terms of immediate next steps, each
21 of the subcommittees has specific subcommittee
22 staff who will assist you in literally logistics,

1 you know getting calls on the books and things
2 like that.

3 If you haven't met your respective --
4 the staff are going to meet their respective
5 subcommittee chairs. If that hasn't happened
6 yet, let's do that after the meeting, just touch
7 base to make sure you have that connection.

8 So immediately we would like to begin
9 those subcommittee discussions. So our staff
10 will help you to set up -- work with you, the
11 subcommittee chair, and then subsequently, the
12 subcommittee members to set up those calls and
13 help with logistics. And we'll just get the ball
14 rolling pretty immediately.

15 And as has been discussed, what will
16 happen is a discussion around the questions that
17 are identified for each of the subcommittees.
18 One of the things that will happen, I think it
19 will kind of vary, but bringing up former
20 systematic reviews that have been done by the
21 Nutrition Evidence Systematic Review Team that
22 relate to these topics and questions, and also

1 bringing forward draft protocols.

2 And so those protocols will be brought
3 to the subcommittees to refine, review, adapt,
4 but you will start with something. It is not a
5 blank protocol. We will provide something that
6 you then react to, and refine, and make the
7 subcommittee's. So that will be -- those are
8 kind of the immediate next steps.

9 Now, thanks everyone for being here.
10 Meeting 1 is done. We have four more public
11 meetings and I presented these yesterday but if
12 you weren't able to be here, these are the dates
13 for the remaining four meetings and we hope that
14 you can schedule and plan to be there.

15 The next meeting is in July and we
16 hope to see you there. That will have an
17 opportunity for oral comments to the committee
18 and there will be more information about that, as
19 we get closer to that meeting. And again, the
20 second and the fourth meetings will have that
21 opportunity for public comment -- oral public
22 comment to the committee.

1 Registration for those meetings,
2 again, will be announced at our website and then
3 through our LISTSERV.

4 And just one final note, again for
5 those who were not here yesterday, the fifth
6 meeting we have scheduled for March. We have
7 asked for the committees to submit its report in
8 May. So that last meeting is really the
9 discussion bringing all the final deliberations,
10 findings to that last meeting but there is some
11 time after that to finish the report and submit
12 it in May.

13 Okay, so as the subcommittees conduct
14 their work, so from now until July, there will be
15 the opportunity for the public to follow along.

16 As we've noted now several times,
17 dietaryguidelines.gov is a great go-to source for
18 information on what's happening in the process.
19 Two key pieces there is that there will be
20 monthly updates around the subcommittees' work.
21 So there will be brief subcommittee updates,
22 giving you an update on what has been happening

1 over the course of the month. And that will also
2 be the time that we will update the protocols for
3 the different scientific questions.

4 So again, if you go to
5 dietaryguidelines.gov, the way to follow that is
6 to go to Work Under Way and then to the Review of
7 Science Section within that. And here you can
8 see the link for the topics and questions to be
9 examined by the committee. And that's where we
10 see that list of questions.

11 And you can follow along, see which
12 ones are still to come. If there is not
13 something there, it just hasn't been addressed by
14 the subcommittee -- the committee yet.

15 And then developing the plan,
16 implementing the plan, and having a draft
17 conclusion.

18 And again, we encourage you to follow
19 along and stay engaged. There is at the bottom
20 of dietaryguidelines.gov a link to sign up for
21 our LISTSERV and that is a great way. We
22 definitely will continue to send out

1 notifications as to what is happening and so that
2 you can follow along.

3 Now in addition to thanking the
4 committee, I do want to acknowledge that there
5 are a lot of staff involved in helping to make
6 this happen.

7 You've heard a number of these
8 individuals identified supporting the review of
9 the evidence phase. So we have a Systematic
10 Review Team. We have teams devoted to food
11 pattern modeling and data analysis. There are
12 also a lot of other people engaged who will be
13 helping you with public comments, who help with
14 the website, who kind of help with the other
15 elements that are involved in the committee's
16 work. And we just want to give a huge thank you.

17 Part of that also includes making
18 meetings like this happen. And you know, we
19 don't have meeting planners. We have
20 nutritionists who become meeting planners. And
21 so I do want to just give a quick shout out to
22 Colette Rihane and Jean Altman, who really did

1 led up the logistics for making this meeting
2 happen.

3 So overall, just thank you and these
4 are people who have helped us to get to this
5 point, people who are going to help us to get to
6 the next meeting, and beyond. So just thanks for
7 that.

8 And again, just acknowledging that
9 there is really -- this is something that both
10 departments, USDA and HHS -- you know, it is very
11 important. And we appreciate your time and the
12 dedication of the staff as well.

13 So with that, unless there are any
14 final questions or comments --

15 CHAIR SCHNEEMAN: I would just make a
16 comment that yes, I like having that tick-off on
17 the first meeting and I do want to express my
18 appreciation to the committee members for being
19 here, for raising questions, for bringing forward
20 issues so that we can, in fact, do our work and
21 make sure we come to the point where we are
22 making recommendations that are useful to the

1 government.

2 And a big thank you to the staff. I
3 think they've made our time very easy and really
4 facilitated this process. So, thank you very
5 much. Thank you for the presentations and thank
6 you for everything to put it all together.

7 VICE CHAIR KLEINMAN: Ditto.

8 DR. STODY: Well thank you. And
9 thanks to everyone who joined both in-person and
10 online.

11 And again, we will have meeting
12 materials posted in the next couple of weeks and
13 we look forward to seeing you in July.

14 Thank you.

15 (Whereupon, the above-entitled matter
16 went off the record at 1:57 p.m.)

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Advisory Committee Meeting

Before: USDA

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