

Transcript

Second Meeting, Part 2 of 2: <https://www.youtube.com/watch?v=rjlk5t6-hHw&t=6725s>

- Sarah Booth: 00:00      That every subcommittee gets as an opportunity to present their work, and we encourage active feedback. So our next committee is Subcommittee 4, and no, we do know how to count. It's just that one, two, and four are all focused on systematic reviews. And then the data analysis and food modeling, which comes under Subcommittee 3, will then come after this one. So with that, I would like to hand over the podium to Cristina to discuss subcommittee number four. Thank you. Take it away, Cristina.
- Cristina Palacios: 00:43      Thank you. So today, I'll be presenting, with Cheryl Anderson, the results of what we have done in the Subcommittee 4, which is strategies for individuals and families related to diet quality and weight management. Can you go back? Okay, so before getting to this Subcommittee 4 work, I wanted to point out that all these questions that we'll be discussing today in protocols are totally new. We had nothing from before. So we've had tons of discussions to really prioritize what will be the strategies that will help the American public take into account what we heard this morning about health equity and what will be the-- it will help other federal programs and what is available. So that's key here. So next slide, please. So I would like to acknowledge our amazing team. And thank you for the very rich conversations that we've had around this topic. And I would also like to acknowledge our amazing support staff who have guided us through the process. You probably are seeing a lot of overlap between the different subcommittees and that has helped quite a bit in terms of making sure we have consistency throughout different protocols and also bringing new key issues to the table. So wanted to point that out.
- Cristina Palacios: 02:26      Okay, so now we're going to be discussing the process that we have used for prioritizing and refining the scientific questions that were provided to us initially. So this is what we were given when we started here. Again, these questions are unique because there are new and also because we had different variety of options to consider for our exposures. So we had two main questions: what is the relationship between timing of eating occasions such as eating breakfast, eating late at night, snacking, intermittent fasting, time-restricted eating, and the different outcomes that we have heard during the morning, so I'm not going to repeat them; and then the next question was related to the relationship between specific food-based strategies during adulthood and this outcome that we have discussed this morning. So again, we had several timing of eating occasions and food-based strategies that we've been discussing and trying to select the best one that are more aligned with the dietary guidelines, taking into consideration the public health concerns that we've gathered through their comments, potential to impact federal programs, avoiding duplication with other guidelines out there, and again, research availability. So the next slide shows what are the scientific questions that we have prioritized so far. We're still in the process.
- Cristina Palacios: 04:03      So the first one is what is the relationship between frequency of meals and/or snacking with three outcomes? So here I want to point out a couple of different things. First, we refined the question of timing of eating to frequency of meals and/or snacking, we thought that this better represents all the different strategies that we're looking at. We had originally two outcomes, the first two outcomes, but based on our discussion, we added the energy intake because we thought that that will help us understand how these interventions, exposures affected the energy consumed by the

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different populations. The second question was in relationship between portion size and this is the first food-based strategy that we prioritized. And we are relating this with growth body composition and risk of obesity and also energy intake. So other strategies that are being explored are home food availability, culture, and traditional foods. We have a lot of discussion around those. And we are going to be also exploring other food-based strategies. So more to come for the next public meeting.

Cristina Palacios: 05:22

So now, we're going to go into details about the protocols that we have drafted so far. So in the next slide, we'll show that we have five protocols to present today. The first, intervention with the three outcomes that I just mentioned and then portion size with the two different outcomes. So let's get to more details. This morning, we heard about the standard inclusion exclusion criteria is the same one that we have been using all morning, so I'm not going to mention those. Next slide. Okay, here we show, for the first question, frequency of meals and/or snacking, how will we define this exposure? Basically, we did not define the exposure. The definitions vary quite a bit across the different studies. So we are looking into breakfast, snacking, and number of eating occasions, but we'll make a list of the definitions based on the studies that we select, because it was very difficult to really close it to our specific definition. So we will have it open to what the different authors think about how they define this exposure intervention. We are not including studies that examine only frequency of intake of a single food, a beverage, or category of foods and/or beverages. So we're looking at timing and frequency of these meals in snacking. Next slide.

Cristina Palacios: 06:59

So this is the PICO table that we have seen this morning for the first question: what is the relationship between frequency of meals and/or snacking and growth, body composition, or risk of obesity? Remember that this is a totally new protocol. Here I'm going to highlight the population that we are including to say that we are from one year old all the way to adults, older adults, and pregnancy and postpartum. I already mentioned the frequency of exposure and the comparator. The outcomes are the same that we heard this morning. And the key confounders, I'll list them the first time, and then you'll see the rest. So we have sex, age, physical activity, race, ethnicity, socioeconomic position, anthropometry at baseline, and then, depending on the age group, smoking, parity, diabetes during pregnancy, hypertensive disorders during pregnancy, and human milk feeding. Again, these are going to be kind of consistent throughout the protocol. So I will not mention those again. Next slide.

Cristina Palacios: 08:01

This was also mentioned earlier this morning in terms of study duration, so we will use very similar to what Deanna and her group presented this morning. So I'm not going to mention it again. It's there. For the second question, what is the relationship between frequency of meals and/or snacking and consuming a dietary pattern that is better aligned with the dietary guidelines? Here, we're going to use the same population, the same intervention, and then the outcome is different, which is diet quality as measured by the Healthy Eating Index. Key confounders are the same. And then the third question which is, what is the relationship between frequency of meals and/or snacking and energy intake? And again, this is a new protocol and the only difference here will be the outcome of energy intake. So I'm going to pause here and see if you have questions, comments, suggestions.

Steven Abrams: 09:05

For the Healthy Eating Index, it says 2005, 2010, and 2015. Will you be able to include the new 2020 and the other one? Because you have age 1 to 19, but that would be argued as the toddler one.

Cristina Palacios: 09:18

We may not be able to capture that because the studies will be probably coming later this year, maybe next year. So we may not be able to capture those studies within our

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search, which will happen sometime during the summer. More coffee? So we'll pass it on now to-- oh, you have [inaudible].

- Unknown: 09:47 With the frequency, were you also thinking about the time of day you're going to capture that information like if it's night or morning?
- Cristina Palacios: 09:53 Yes. Frequency and time. Each eating occasion. So we'll capture eating late at night, snacking late at night. Okay. So now I'll pass it on to Cheryl. Thank you.
- Cheryl Anderson: 10:10 Thank you, Cristina. All right. So I will cover our subcommittees' work on portion size protocols. And there are two of them that I'm going to go over. The first is related to portion size and that's being defined as the amount of food or beverage served at one time in one eating occasion. And I'm also going to cover energy density. And that's defined as the amount of calories or energy in a given weight of food. And keeping in mind that these are going to be related to growth, body composition, and obesity, as well as to energy intake. So I'll start first covering the PICO for growth body composition and risk of obesity. So here, let's focus your attention on the first three columns: population, intervention exposure, and the comparator. We will use the population that goes all the way down to age one. With regards to the definition of portion size, you'll see that it considers energy density, as well as nutrient density, and/or the quality or type of food that's served or consumed. We're also going to be including pre-portioned foods. And then when it comes to the comparator, we have different portion sizes that's served or consumed, keeping in mind, on this screen, that everything on the right side - outcomes; key confounders - you've seen multiple times already.
- Cheryl Anderson: 11:47 With regards to inclusion and exclusion criteria, I just want to highlight here the study duration, which will include those that have intervention lengths that are greater than or equal to 12 weeks. The follow-up duration of greater than or equal to 6 months when it comes to weight loss and when we're dealing with weight maintenance, we have follow-up duration of greater than or equal to 12 months. With our energy intake outcome, we will note that this is going to be whatever the study authors decided that the definition should be. We'll take all comers and then we'll review them closely and figure out how to grade the evidence based on those definitions. Where are my next steps slide? The committee discussion came a little too early. That's okay. We'll go backwards. So there are often moments in this process that will humble a person and also make us appreciate just how much work needs to be done in the field. And I think that comes up most often for this subcommittee when we're talking about home food availability and cultural and traditional foods. And so we have quite a bit of discussion left to do in those spaces but do know that as we think about what strategies the American public needs, and particularly the diversity within the American public, we're going to be giving this quite a bit of thought and we'll update you at our next public meeting.
- Cheryl Anderson: 13:29 We're also going to continue to refine the protocols that we've discussed around frequency of meals and/or snacking with the outcomes, growth body composition, or risk of obesity, consumption of dietary patterns that are better aligned with the DGAs as well as energy intake and the protocols around portion size and these two outcomes: growth body composition, risk of obesity, as well as energy intake. So with that, we'll open up for committee discussion.
- Teresa Fung: 14:02 Can you clarify when it comes to the timing of the meals, are you thinking it from the time-restricted feeding perspective? Thinking about if somebody eats from 6:00 AM to 3:00 PM versus somebody eats from 11:00 AM to 8:00 PM, are you thinking of it from that perspective as well? So I see that the outcome is on obesity and growth. So I've presumed that when it comes with obesity and weight change and I see weight

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loss and weight change is going to be part of it, right? Part of the outcome that you're considering. [Cheater?] weight, regardless of which direction of weight change?

Cristina Palacios: 14:50

Yes. Yes. Yes.

Teresa Fung: 14:53

The time-restricted feeding literature, there's also some that is focused on lipids and blood pressure, as well as glycemic control. And so I was just actually wondering if anybody in any of the committee is considering that or if it's a topic that we decided not to include in this [trial?].

Cristina Palacios: 15:21

Yes. So the frequency of meals and/or snacking doesn't include restrictive eating. It's only looking at the different number of meals, eating patterns that different individuals are using. So separately, within the food-based strategies, we had a long list of interventions that we are looking at. Among those are restrictive eating. And so those we are still reviewing those. Because all of these are new, we are a little bit--

Teresa Fung: 15:56

So it takes a lot of work to refine [crosstalk]--

Cristina Palacios: 15:58

Yes. We're taking more time to look at everything and consider everything. We did prioritize the portion size, home food availability, and cultural foods. But based on some of the discussions that we've had, we may include others that we had less prioritized due to several things that we have discussed that Cheryl also mention about the variability in culture foods, the availability of research. So we may include others down the road. We'll have much more for next meeting.

Teresa Fung: 16:33

Okay. Great. Thank you.

Unknown: 16:35

I do just want to add a clarifying comment about the timing. So in our prioritization, we sort of set that aside, the very sort of time-restricted eating sort of paradigms. So we were thinking about timing more in terms of the pattern of meals and snacks. So being aware that meals and snacks may be occurring at different times of the day, and sort of pulling that information and being able to look at that, rather than 8:00 to 2:00 or 10:00 to 6:00 or that type of question.

Deirdre Tobias: 17:16

Is food insecurity and some of the questions that come along with those assessments included in the scope? So skipping breakfast as kind of a questionnaire response for the food insecurity assessment. Skipping meals?

Cristina Palacios: 17:30

We did not consider that if I am aware of, I don't know if others remember that discussion, but I don't think we did consider that. Do you mean in terms of a key confounder, or?

Deirdre Tobias: 17:45

No, I mean, as part of the exposure. So it sounds like it's mostly skipping breakfast intentionally. But I'm thinking more on the food insecurity side where some of the questions are assessing along those exact same lines. Like, "Do you skip meals frequently, but usually--" I mean, for different reasons [crosstalk]--

Cheryl Anderson: 18:04

Yes. So I think what you're probably raising for us is the fact that there could be effect modification by status of food insecurity, right?

Deirdre Tobias: 18:13

Yeah, sure. Absolutely, yeah. That would be a good one to look at that.

Angela Odoms-Young:  
18:16

And we've talked about sort of effect modification, whether or not we-- as a means of evaluating third factors that could be responsible for any relationships. And we don't yet have a-- I think we've figured out the confounder strategy for right now. But I don't think we figured out the effect modification strategy or some of these other tools that people might use to deal with third factors. But thanks for bringing that up because I think we could probably make some analysis or if we have enough studies that have mentioned something like that.

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- Deirdre Tobias: 18:54 And for the [NESSA?] team too, it might also have implications for the search terms. I don't know what scope would be included right now, but if those are more questions that might not have a title of skipping breakfast, but missing meals in terms of search strategy.
- Cristina Palacios: 19:15 Okay. In terms of the search strategy, I think we're still working on the search. That's the next part of the protocol refinement, finding those search terms. But I think if it's not-- we have looked at other variables that will be included as just for information, but not for key confounders, not for exposure. So we could add those-- if we find this information, let's just record it. You were going to say something.
- Fatima Cody Stanford: 19:41 Yeah. We are looking at socioeconomic position, which will be probably, highly correlated with food insecurity. And I think they had talked about maybe looking at that in the synthesis, food insecurity, because I know it was brought up during the conversation.
- Chris Taylor: 20:03 Just a quick question about how your discussions were around operationalizing meals and snacks, and how that's presented because somebody has a coffee and a donut in the car on the way to work, and it's breakfast, then they get to work and have breakfast, versus the, "Did I call that first one a snack or did the researchers call the first thing I ate a breakfast?" Or kind of how those discussions went?
- Cristina Palacios: 20:33 So again, we are dependent on how it was presented by the different studies. So we will have to use whatever they define those. So that's why we didn't want to define a similar to the ultra-processed foods question definitions. We didn't define it because of that, because it will depend on how it will be presented. But yes, snacks are very hard to define and I guess, the different researchers will define it differently and we'll have to kind of make a list of all those definitions that they have used. So that will be probably a difficult task to really pinpoint and make sure that everything is the same.
- Christopher Gardner: 21:15 Can I follow up on Teresa's comment there? So the American public is fascinated with intermittent fasting. So I can't remember how often that come up because I'm sorry I missed a lot of brute force meetings because I was teaching, but it's not just time-restricted eating. It's five days a month. It's two days a week. It's things like that. My impression has always been the literature is quite limited and sparse there and adherence is really hard to figure out for some of these. So although the American public is fascinated, my impression, unless I'm wrong, is the literature base isn't there yet.
- Unknown: 21:57 It might be, and some of those definitely much less. For example, certain days you eat certain days you don't eat but that body of literature, it's definitely much more limited. And relatively speaking, the body of literature on timing within the same day, it's a bit more, but I have not done a comprehensive search and so therefore that's why I only have questions about oh, should we include it or should we not include it.
- Cristina Palacios: 22:17 So there was a lot of discussions about all these food-based strategies. And we had maybe 10 or more. So taking into account that this is a limited time, limited resources. We had to prioritize. And there were some that were put more towards the lower end, but we will still revise those based on our recent discussions on lack of data for some of the home-based strategies that we had already prioritized. So we'll have to go back to our list and maybe bring some of those back.
- [silence]
- Cristina Palacios: 23:03 So I wanted to bring back something from the past discussion that we had with Subcommittee 2. And I know that we all have challenges trying to come up with the appropriate key confounders. So in discussing, Jen and I, we were thinking about it a

little bit more. When we're doing research with families with small infants, we have really limited time with them. And so we were kind of going back to adding more key confounders and because you have so much limited time before the infants are not wanting to be there anymore and the parents get restless and everybody gets restless, usually, we limit the type of questionnaires, the type of outcomes that we are looking for. And so I think that's one of the things that we were-- when we were trying to narrow it down to the absolute key confounders that we should include, that's why our key confounders were a little bit shorter just based on the experience of being in a WIC clinic and asking the parents while the child is asking mom to give her a snack, or. There's so many things that happen when you're looking at parents with small infants that usually you really-- and IRB will also look into that and make sure that you are looking at the most important outcomes. So we'll bring back to the table, but I wanted to bring that up because as a researcher doing research in the community, we often experience that. And so we have to be mindful of the things that we can add. And so the literature actually may reflect that too. You want to add it more on that?

Jennifer Orlet Fisher:  
25:00

I mean, you said it beautifully, but I think I really appreciate the discussion that we had after the Subcommittee 2 presentation. You all raised really good and thoughtful points about factors that could potentially be important. And I think we were talking during the break about really the need for maybe a larger conversation about this tension that exists between this very rigorous evidence-based process of how we're looking at associations with kind of conceptual rationales and justifications that we think are quite compelling, and how to balance those in a way that's appropriate. In the case of the literature with kids, all the factors that you all pointed out, I think are critical. And in reality, very few studies assess those things. So as a consequence, we have very little evidence that those things matter in a way that we would put them in as key confounders in the context of this very rigorous review, which is not to say they aren't important. And so I think that is the tension that-- I don't know. I feel like as a committee, it would be great to kind of sort through a bit more.

Deirdre Tobias: 26:23

Can I just make a-- I think this is such an important point and it's cross cutting. And at the end of the day, this assessment of individual studies and how much we believe they're finding to be valid versus have some remaining questions or concerns will be looked across the totality of studies on breakfast and whatever outcome, right? And I think if you have an individual study and it evaluated a handful of covariates, important things may be missed, some other factors. If you're still questioning, is it the diet exposure, per se, or is it something else these participants are also doing? If that doubt's there, then a downgrading, I feel, should be appropriate. And so this key confounder list are: if it didn't adjust for physical activity, if it didn't adjust for race ethnicity or socioeconomic position, would I still want that? And therefore, have a little bit less reliability or validity in its finding because I don't know. There's that remaining doubt. So I think what rises to that level of concern should be what the key confounders are. And obviously, in a randomized trial, you do that by design, all the measured, unmeasured known, unknown, everything. But when it comes to having to measure it in the participant burden and all the considerations, you do have to be selective, and even if you have the data at the time of analysis, you have to be selective often.

Deirdre Tobias: 28:00

But not to say you want some big laundry list that's not achievable, but at the same time, you do want it to reflect what you would consider the most rigorous, even if most of the studies don't quite fit that. It's not that they'll be dropped or excluded, they'll just have a lower ranking or a higher concern of a risk of bias. Right? So when you're looking across literature, maybe there's a subset where they did meet all of these criteria and the findings are actually the same as the ones that omitted some of

the key confounders. That weighs into the kind of evidence at the end, which I think [NESSA?] is probably going to dive into at some point in terms of the certainty and grading, but it's population, it's exposure and outcome specific, so it really comes down to honing in on that for the subject matter.

Cheryl Anderson: 28:54

Yeah. I want to just expand upon where you're going with this, Deirdre, because the magnitude of association that you see between whatever exposure and outcome is on the table for discussion, we could either interpret that as our best estimate of association or once we begin to look at these potentially confounding factors, we then begin to adjust-- often it's downward unless there's reverse confounding, adjust downward the magnitude of association. And so what I am consoled by, in this process, is that we don't lose studies and we don't lose the opportunity to get some signal about what's happening in a body of literature by putting things on a key confounder list, right? We get to see the state of affairs. But I think to the earlier point being made, we do need to have a sense of what is the magnitude of the association, what is the extent of the problem? And I don't think that we can-- I won't use that word because it has a specific meaning. I don't think we can make that assessment properly without having these confounders examined. And so I would encourage all of us to really think about driving the science into a place where we can get to affect sizes and magnitudes of associations that we trust. And that would include driving this thinking of our research community toward getting these additional factors that we know could be distorting the effect that we see between any two variables.

Fatima Cody Stanford:  
30:51

I do want to point out that, depending on the question, some of these are very well established. They have strong evidence, the dietary patterns and cardiovascular disease, for example. The confounders are very well established. But others of these questions, not so much. So I just wanted to remind us that it's going to vary depending on the individual question and the body of literature as Cheryl referred to.

Cristina Palacios: 31:22

And the age group. So as Jen was saying, in infants, we may not find that the evidence for physical activity being important or parental weight, it may be, but for certain age groups, we may have to be more into looking what exactly, really, the literature says. So I think we will go back and maybe go have the exercise of looking by age group, by question which will make sense in terms of the evidence. But thanks for the points. I think that this discussion was very fruitful and helps us with future plans.

Sarah Booth: 32:05

Great. Thank you. I know we went a little off schedule, but I think this was a really important discussion to have because it is, as mentioned, a common cross-cutting theme. So thank you, and I'm sure we're going to be revisiting this topic many times. So last but not least, we have Subcommittee 3, and I do believe we're going to have Heather present the data analysis first, followed by Chris, who's going to talk about food pattern modeling. Take it away, Heather.

Heather Eicher-Miller:  
32:43

Thank you very much. So I'm here to introduce our Subcommittee 3: Food Pattern Modeling and Data Analysis. And before I really get into it, I really want to thank and acknowledge, especially, the government staff that have been supporting our committee all throughout this. Their education to us on this process has just been-- they've been so patient and just really helping us learn this stuff along the way, so we really appreciate that. And then I also want to thank all of our members who have stayed extremely engaged throughout the whole process of catching up on all the details of these different pieces of the process. So now, I'll go ahead and just remind everyone that the three approaches that we've been covering today in our meeting are the systematic reviews, which we've spent the entire time up to now talking about, which is really critical to help us understand the links between health

outcomes and diet. Another approach that we integrate with the systematic reviews is the data analysis. And we can kind of think of that as the baseline of what we're eating and what our health outcomes in the United States look like. And then we have the food pattern modeling, which is the third approach that helps us really test out the kind of recommendations that we're making.

Heather Eicher-Miller:  
34:35

So I'm just going to share briefly about the data analysis approach and what we've been doing, how we've been progressing with that. So we could define data analysis as a collection of analyses that uses national datasets to describe the current health and dietary intakes of Americans. And so again, like I mentioned, this helps us see where we are. We have to know that before we can think about how we change to get to where we want to be with our diet and our health. And so having these set of analyses across the population help us really make the dietary guidelines practical, relevant, achievable, and actionable. So comprising the data analysis, the questions that we're going to be addressing are, first, what are the current patterns of food and beverage intake, and we can think about that as addressing dietary quality. So thinking about the Healthy Eating Index and how we, as a population, are meeting the goals for the dietary guidelines there. Thinking about the variety.

Heather Eicher-Miller:  
36:07

The second question would be kind of delving into the components of diet a little further, thinking about how well we're meeting current intakes of food groups. And then the nutrients that are within those foods, how we're doing there and other dietary components that we know are important. And then the third piece, the third question, is addressing when we think about those intakes, perhaps of the components of the food groups and of the nutrients, how we're doing needing the recommendations. So are we under consuming those? Are we over-consuming certain things within our diet that ultimately lead to poor health outcomes? And then finally, to put this all into context, we need to understand what those health outcomes in the US population are that we are trying to prevent. And again, just as a reminder with the dietary guidelines, we're directing that towards the chronic outcomes that are the main killers of Americans and that are the biggest, most serious health problems in the US. So in the analysis, we first have to understand our baselines there and update that.

Heather Eicher-Miller:  
37:43

So moving on, we will use several federal data sources for completing these analyses. The first source is coming from the National Health and Nutrition Examination Survey. And we're very fortunate to have such a survey. It's an ongoing population-level survey that can be made representative of the US population and that assesses diet. And this component is called What We Eat in America. And there's additional databases that support this. So we have the USDA Food and Nutrient Database for Dietary Studies, which is a food composition database. So for every food that's reported in the population, we have the nutrient composition and other dietary components that are parts of that food in that database. The second database there is the USDA Food Patterns Equivalents Database, which breaks down every food into its components. For example, those components that are within the Healthy Eating Index. So the vegetable group, the fruit group, etc. This database supports us understanding and being able to do that.

Heather Eicher-Miller:  
39:20

And then the third of those databases is What We Eat in America Food Categories. And this is the systematic categorization of foods into their different food groups, food subcategories, etc. So all these pieces are needed for us to utilize that NHANES data and be able to make national-level estimates of diet. Other sources that we're going to be drawing from are the National Health Interview Survey; the Surveillance, Epidemiology, and End Results; the National Vital Statistics System; and the National



Immunization Surveys. And these will also help support us understanding the health outcomes in the US at a national level.

Heather Eicher-Miller:  
40:18

Okay. So moving on, our progress in data analysis so far has been to start thinking about the analyses that are going to be completed. We will be using the NHANES 2017 data that we have available to us as the most updated data. So we'll be, again, updating all of these surveys. I mean, updating all of this data analysis from our last DGA. And then we will be considering incorporating additional variables to the analysis as has already been mentioned by the health equity subgroup before. So we're thinking about all of those different confounders or other kinds of variables that we may want to stratify our analysis by. We'll be working on a formal data analysis plan, so that's forthcoming. And we're also considering looking for dietary intake data during the COVID-19 pandemic. And then finally, we really are-- this is a work-in-progress. We haven't spent quite as much time on the data analysis working up to now because of the more pressing needs of working through the food pattern modeling protocols. So we will be just bringing you more on data analysis in some of our next meetings. So at this point, I will go ahead and turn it over to Chris.

Chris Taylor: 42:17

All right. Excellent. So I am now going to make the transition into something completely different. We are into food pattern modeling and we're now kind of-- we've gone into the [NESSA?] reviews and really kind of evaluating what is our current science around behaviors and outcomes and how do we then kind of track that from our evidence-based approach. But now, this is where we translate these recommendations, these food patterns. We keep talking about the different dietary patterns and the foods that we promote in moderation. And how does this translate into not only eating a diverse diet, but also eating a diverse diet with nutritional adequacy in mind? And I think that becomes a big difference between looking at various intakes that might be specific to various health outcomes. But the lens that we're looking at food pattern modeling, is how do we promote a diversity of food intakes while also meeting the nutrient intakes from the DRIs? So this food pattern modeling is our way to really kind of get down to that looking at a whole dietary pattern and how does that translate into those actual nutrient needs per se. Next slide.

Chris Taylor: 43:52

So what we're going to do is go through a couple of different segments of the work that we've done. So the first part that we did was to go through and actually refine the scientific questions as all the other subcommittees have had to do. We had our series of scientific questions that we then had to tweak and refine based on the data that we have available from the NHANES, What We Eat in America database. And then we had to create our prioritization on what specific questions we were going to address and in what order. What this doesn't say is we're not changing what foods count. For food group intakes, we're not changing the FNDDS or the FPED database. But what we're doing is we're utilizing this data to help us really kind of understand what are the implications of kind of looking at what foods make up what food groups, how much would we recommend within each one of these dietary patterns, and then what's that resultant nutrient intake that we get from that? When you say I have vegetables, what does vegetables really kind of make up as far as what Americans are eating? So this is the proposed scientific question that was posed to us for and was sent out for public comment. And it was, should the US dietary patterns be modified?

Chris Taylor: 45:28

And this is then being informed by the systematic reviews that are happening, the data analysis that Heather mentioned, and then other food pattern modeling analyses that will kind of walk through these various steps. But at the same time, it's also being informed by population norms. Looking at different cultural foodways, looking at different potential limitations like lactose intolerance that we talked about this

morning. So how do we then incorporate those changes into making dietary recommendations through food pattern modeling, and what are the implications of changes that we make within that? So the changes that we may see may be increasing or decreasing particular food groups or subgroups. It might be recategorization of some foods into different food or subgroups. We'll talk about those. And subsequent changes to the calorie levels. So one of the comments that we had this morning was about the change in the energy DRI that came out recently. So how do we implement that when we look at standards for height and weight of the data within NHANES and how does that then translate into the caloric levels that we would model to ensure that individuals across varying life stages can meet those nutrient needs based on those caloric levels?

Chris Taylor: 47:03

So the work that we're doing is really based in kind of two big phases. One of them is how we're really looking at what the dietary patterns are. So would we revise any of these particular patterns to address these varying questions that we'll talk about? And then testing how those quantities might need to be changed to meet nutrient intake recommendations. And then the second question was, again, one of those things that was mentioned this morning. This is new to the committee where now we can do the simulated diets that allow us to say, "If we put this into place, how does this change the outcome?" How do we then take a hundred different ways that we could assess what somebody might eat, and what are the implications that we get on those nutrient outcomes? As well as if we make changes in those dietary patterns at the beginning, does that shift the number of calories, ultimately, that would be needed for a foundational diet that then provides more latitude within the meeting energy needs? Next slide. So our first protocol is how we're going to be looking at, should foods and beverages with lower nutrient density-- so those that fit within a particular food category, but by their nature, have higher added sugars, saturated fat, and sodium. Should those items contribute to the item clusters, representative foods, and therefore be included as part of the food group? Or would we remove those and tighten the nutrient composition that comes from those and the caloric contribution? So that'll be the protocol that we'll be talking about today. Next slide, please.

Chris Taylor: 48:58

So following up on that then, the basis of the dietary patterns, this was our prioritization process, in terms of what steps were-- which of the sub-items were we going to review. And what are the different types of food groups, what types of potential substitutions, modifications, or particular dietary patterns, might have an impact on nutrient adequacy? So I think it's important to think about, just fundamental to the food pattern modeling process, is that we're trying to get to the nutritional adequacy of the diet and following the pattern. So we have a lot of studies that are focused on various patterns towards one outcome, weight management, diabetes, whatever that may be. But the primary lens that we're looking at for food pattern modeling is that nutritional adequacy. So it's really then focused on that component. And historically, our foods have been grouped together into their food groups based on essentially their source origin: animal products, dairy, vegetables, fruit, grains-- from the source that they come from, but then also the nutritional composition. So foods within a food category are going to have a very similar nutrient composition. And every dietary change is Newtonian. So every time you take something out, it becomes just as important what you take out is what you put back in.

Chris Taylor: 50:39

So this food pattern modeling allows us to look across all of these different questions that we were trying to assess and were posed. And how well can we make adjustments to address different cultural foodways, different concerns within diverse communities, but also still maintain that end point of getting nutritional adequacy? So as was brought up this morning, ultra-processed foods was one of the proposed

areas, especially around public comment and came forward not only as part of the questions, but a lot of support and public comment. But as was mentioned this morning, there were a couple of challenges that we had between taking the current level of science that we have in this kind of emerging field. What's the operational definition that we can take and to be able to put in so that we can identify a food, a composition, and the nutrient profile, and overlay that within the NHANES database, which may not be able to adequately capture the nuances that happen within how we define ultra processed foods. Because if there's only one recipe for a particular type of food, in some cases, if it's defined as homemade, it's not considered ultra processed, but if it was purchased that way, then definitions may view the same food differently.

Chris Taylor: 52:20

So some of the challenges that we have in operationalizing that into the data and the definitions that are used meant that, for us, we felt that it was too early to try and tackle this before we had the systematic review from [NESSA?] from the Subcommittee 1. So it is an emerging area, but we felt that we weren't going to be able to make those decisions to how to [actionally?] put that into the data to be able to get to the outcomes that we were looking for. The next question was food group and subgroup modifications. And this is one of those areas where we can look to the cultural food waste coming from the health equity, coming from the [NESSA?] reviews around food pattern modeling or dietary patterns. And are there ways that we can make modifications to the different servings per se of each different kind of food and to add additional flexibility within the dietary patterns themselves? The third one that came forward was around staple carbohydrate sources, which may vary considerably, especially among diverse populations in different cultural foodways that may use less grain-based foods, but may use starchy vegetables in this same manner. So what are the ways that we could look at staple carbohydrate foods as the foundation and be a little bit broader in that definition beyond refined grains and whole grains? And then what does that do to the nutritional implications if we were to shift some of those foods around to have more variability in their role?

Chris Taylor: 54:15

Protein foods, this is another one of the areas where we've had a lot of public comments and a lot of work that's come forward from previous DGA committees. But a focus between plant-based and promoting plant-based sources of protein intakes which gets to varying degrees and reasons behind making protein food choices. So being able to go in and identify what are the implications of plant-based sources and variability within the sources of protein foods and what types of implications do those have? And then finally, just kind of as we go down the list, it's looking at ways of-- or individuals that may not be able to consume certain foods or choose not to consume certain foods. So for example, dairy is an important source for some key nutrients. But the global prevalence of lactose intolerance and lactose maldigestion means that for some individuals, it is not a viable choice within the diet. So how do we then identify patterns that can overcome those who either choose not to consume dairy or animal products, and what are the implications if we were to build a profile on meeting the nutrient adequacy?

Chris Taylor: 55:53

And then finally, low-carbohydrate diets was another area, as we talked before, that has had a lot of public comment. And we've added this one to the end because we're hoping to have the DRI digestible carbohydrate review that's coming forward from the presentation we had this morning from Dr. Stoodly to give us a better handle on what those definitions of low carbohydrate may be, so we have something just specifically operationalized. And then to be able to look at, for those who choose a low-carbohydrate intake, whatever the threshold may be, what are the nutritional

implications on being able to spread the calories out across other food categories, and what those resultant nutrient intakes would be? Next slide.

Chris Taylor: 56:53

Okay. So then onto our phase two. Once we identify all of these different, essentially, potential ways to explore kind of diversifying and revising our dietary patterns that we have, we'll be taking a lot of notes as we go through protocol one that will then influence how we work through with protocol eight. Because the previous committee indicated that there are certain foods in the American diet that aren't associated with a particular dietary pattern based on saturated fat, added sugar, and sodium composition. So generally, they haven't been included in some of the food patterns themselves, but they're a part of the American diet. So now, if we look at refining that nutrient profile and looking at that for foods with higher nutrient density, then what implications does that have in kind of opening the door in including these foods that have been generally excluded at this point into the dietary pattern? Next slide.

Chris Taylor: 58:20

And then finally, the simulated diets. This is the new approach that's coming forward, as was mentioned this morning. And this is really kind of the fun playground to get to see what happens. Where we can take a food with a pattern that says have three vegetables in a day and they can simulate all kinds of different vegetable choices and then determine, when you put all these, basically, days of food intakes together, what are those resultant nutrient adequacy profiles if you were to eat a variety of foods within the categories, and how does it play out into an actionable strategy? So I will take a quick, deep breath here and ask if we have any questions on our process going forward before I start melting minds. Yes, Christopher.

Christopher Gardner:  
59:24

Yeah, I was really blown away with how impressive this all was yesterday, but it just occurred to me that I didn't hear how nutrient adequacy was going to be operationalized. Is that coming in the slides? Okay, I'll stop and I'll hold.

Sarah Booth: 59:39

Yeah. Thank you, Chris. That was really helpful. And I'm just looking back at your slide on how you prioritize the analyses, and I loved seeing the rationale for them. However, it did raise a question around staple carbohydrate foods. There's a rationale here-- and by you, I mean, the royal you. There's a rationale here for testing flexibilities related to sources of carbohydrates with cultural relevance. And I wonder about other analysis topics and particularly, before we go on to the fun playground, the thought process around cultural relevance and really working within analysis topics to make sure that we're testing and flexing around a variety of cultural approaches.

Chris Taylor: 01:00:38

Yeah. So the staple foods was also one of the elements that came forward from program staff from the reviews in that aspect around creating that particular profile. The other categories underneath were more specific to, I'd say, food categories. But the other part that kind of fits into this, which is kind of the next step, is part of this is based on the dietary intakes from NHANES to get a broader representation of food group or individuals' intakes with the same limitations that we talked about in the first meeting around what some of those-- some of the subgroups that may or may not be included or included in a larger aspect. But also the simulations becomes a way to really then dig specifically into some of those cultural foodways, use those patterns to or use those foods as a way to build that and see how that carries forward. So kind of the litmus test of how well does it translate into looking at different cultural food waste and translating out.

Sarah Booth: 01:02:08

So thank you. I just want to make sure I'm coming to the right place in my head here. So for example, I could imagine there being some cultural relevance to dairy category consumption, right, biological and otherwise. So are you saying that that would be

included in the activities that you do around the analysis of dairy, or will it be mostly done through the analysis of staple carbohydrate foods?

Chris Taylor: 01:02:41

I will say, yes and no. And I think partially because the next step will help start to kind of disentangle the components of how we get through the foods themselves. Because, as Heather mentioned, we have the What We Eat in America food categories that say this is a milk and dairy, this is a fluid milk, this is an apple, a banana. When we get into all the-- it classifies the foods that are reported into categories. But what I'm going to talk about next gets the-- we're deconstructing the foods now and getting down to the fundamental elements. And then using what people typically consume from NHANES as a way to set that distribution. So I think the next step will help to address that. We have some limitations around the diversity that we have within the NHANES data itself, but we're getting down to not just the sandwich, but what's in it. And I think that will be one of the ways that we can help address some of those. And then we can carry forward with some of the simulated diets to help address how well those play out when you create, say, a menu for those foods and intakes.

Angela Odoms-Young:  
01:04:20

Before, as you mentioned, there was a healthy vegetarian sort of pattern that was considered. But I noticed that the committee included vegan in the protocol but not vegetarian. So can you talk a little bit more about that?

Chris Taylor: 01:04:38

Yeah. We were building off of the previous healthy vegetarian dietary pattern. And the work that we're doing for protocol one is just going to be based on the healthy US style so that we have one place of testing. The healthy vegetarian style from the previous committee had a lot of special considerations on different ways of incorporating and defining vegetarian, but there were a lot of public comments that were going all the way to the level of more of a vegan style or no animal product. So we're going to build from that and take that to the-- to the final.

Heather Eicher-Miller:  
01:05:25

And I could add too, that's a great question. And with our consideration of the protein group, we will be able to test out some of those things. And with a lot of those that we listed, there is a continuum of different, more or less, of those things that we can try out, and that's what we'll be doing.

Jennifer Orlet Fisher:  
01:05:52

This is a very general question. First of all, the work is really exciting. It's great to hear about it. It's more of a kind of higher-level conceptual question. Do you think that modeling and simulation has potential for looking at equity issues around affordability of and access to helpful eating, right? In terms of flexibility around cost, if you all had any discussions around that?

Chris Taylor: 01:06:19

Had a lot of discussions around that. There's only so many things, but I also I'm thinking, especially with the data analysis, there are steps to address how these play off looking at what makes up the food groups. So there's a lot of insights to be gained from it. But it's the finite amount of time to be able to answer all of the questions, but, yes.

Heather Eicher-Miller:  
01:06:54

But yeah, we have talked about that exact issue. And it's important. And we're trying to-- thank you for that. We're trying to capture all of these important aspects of thinking about the foods that people can eat and that they have access to and are able to include in their diets.

Chris Taylor: 01:07:19

If you could hear the gears wearing in my head as we have the conversations every time it'd probably be deafening. So this is where I think this work is really exciting and actionable and has so many application strategies not only from just looking at the nutritional side, but all the implications around the foods that it contains and such. So with that, my next thing that I'm going to do is to kind of walk through our draft

protocol and in doing that, our draft protocol one is around not including foods with lower nutrient density with relation to saturated fat, added sugar, and sodium. But to get there, you kind of have to get the whole process, so I'm going to walk through it from the food pattern modeling approach of how do we get from foods and intakes, down to items to foods that represent that, to a pattern, and then back to nutritional adequacy? Yes. So we probably should have measured VO2 max from everyone at the beginning of our-- or at the beginning of our first meeting and up the steep learning hill after going through this. And for somebody who does a lot of work focused on these data, it's still becomes that mind-bending stretch for me. So I'm going to try and kind of help distill down what we're doing, how we're getting there, and how it's different than just, say, data analysis and looking at nutrient intakes. And then how does that then translate back into us being able to test out these food group intakes?

Chris Taylor: 01:09:17

Okay. So as I mentioned, protocol one, the question was should foods and beverages with lower nutrient density - so those with high or added sugars, saturated fat, and sodium - contribute to the item clusters? So the grouping of foods, representative foods, and then therefore the nutrient profiles that are within each of the subgroups. And the approach that we're using is to look at the NHANES dietary data because it is creating an approach to meet people where they are and not saying, "These are our most nutrient-dense fruits and vegetables that we think people should be eating." I can tell you the consumption of brussel sprouts is a little lower than other vegetables in NHANES. But if we're talking about cruciferous vegetables, there's going to be a whole host of things that show up. So it isn't on a way to create, quote unquote, the "ideal distribution" of those fruits and vegetables and whole grains and whatever else within each one of the items, but it's an approach to meet people where they are based on the data that we have of consumption. Let's go to the next slide.

Chris Taylor: 01:10:35

So what are we doing, why are we doing it, and how will we know when we get there? This is the \$1 million question. So the nutrient profiles that we have that have carried forward from the previous DGA committee represent the nutrient intakes of all foods that went into a food category. So every type of vegetable, every type of fruit, every type of grain, every type of meat. There are some foods, as I mentioned before, that don't have a particular food category or don't contribute specifically. Like alcohol doesn't have an item cluster that then carries forward. And then the concerns were about should all these foods that are higher in saturated fat, added sugar, and sodium of foods that we're promoting to limit, should they contribute to the item clusters and to the nutrient profile because they represent something slightly different than the profile of nutrient-dense foods?

Chris Taylor: 01:11:52

So the current approach includes all of the foods within the nutrient profiles. And public comments from the prior committee have then suggested maybe a revised nutrient profile that only uses higher nutrient-dense foods that are then lower in saturated fat, added sugar, and sodium to create the nutrient profile. That creates a kind of tighter story line around what makes up each different food group. And then it then creates a different total number of calories that will be needed within each of those-- within each of those dietary patterns. So to have broader selections of foods within each one of these categories. So we're going to test the model by taking out the foods that are of lower nutrient density, recreate the nutrient profile, and then compare, does it really make a difference in kind of the density of the nutrients within the foods that are consumed, and does that create more energy difference between the energy within the profile and what you would get from following that with the nutrient-dense version. Okay.

Chris Taylor: 01:13:21

So a set of key definitions that we wanted to kind of start out with-- but then I'm going to walk through the process itself so that we can actually understand what all

these words mean. One of the summer jobs that I had during college, they handed me the manual of everything that you had to read. And then afterwards, you went, "Oh, that's what they meant by that," because you just read a whole bunch of definitions. And once you see them in play, you're like, "Okay, that makes sense." So the nutrient profiles then become the, what is the estimated nutrient intake we would expect from a particular food group. So we say vegetables. What will we expect the vitamins, the minerals, the carbohydrates, the fiber, the protein, etc., to be coming from when you say vegetable, representing the diverse number or types of vegetables that we have. So the item clusters become the way that we then identify the particular foods that make up that category. So within vegetables, we're going to have carrots, we're going to have celery, we're going to have onions, we're going to have-- the list goes on. But the item clusters then take us down to those foods that make up the group. And then the nutrient-dense representative foods become what is, essentially, the most nutrient-dense version that is an equivalent to the food that is consumed or reported as consumed. So for example, whole milk would have a nutrient-dense representative food of skimmed milk. So it is the most nutrient dense version but also limiting added sugars, sodium and saturated fat.

Chris Taylor: 01:15:19

So next slide. So we all saw this slide during the first meeting, and this is representing the dietary intakes that we get from What We Eat in America. And somebody says, "I had food one, I had food two, and I had food three." So in this example, our lightning bolts would be the whole grain. So somebody, the person or the food on the left was a whole grain bread toasted with various things on top. Peanut butter and apple slices and honey and whatever might be that they put on. The second one might be a peanut butter and jelly sandwich, where they have whole bread, they have peanut butter and they have jelly. So our squares represent peanut butter that show up on the first food and the second food. And the third food just might be toasted whole wheat bread. So the food itself now is the individual food. So then what we're doing is we're going across all the foods that are reported and taking the ingredient items and separating them out. So then that whole wheat bread is then going to be linked to a particular whole wheat bread that represents the nutrient-dense version. And then we've got our squares, we have our Ls, each one of them, then the foods get disaggregated from the recipe down into the actual consumption of the representative foods. Okay, next slide.

Chris Taylor: 01:17:10

So what does that mean when we start to disentangle these and creating new nutrient profiles based on revising the foods that go in? So here in this case, our nutrient profiles of how would we represent red and orange vegetables. These are all the item clusters that represent red and orange vegetables. And as you are probably not surprised, tomatoes comprise, what, about three-quarters of the red and orange vegetables from consumption, but it's also cooked carrots, raw carrots, red chili peppers. So all of these individual food items make up this subgroup of red and orange vegetables. So we're creating a nutrient profile that represents all of these foods into a single number. Kind of represent that point estimate of red and orange vegetables. Next slide, please.

Chris Taylor: 01:18:15

So how do we get there? Well, we don't eat piles of ingredients. We eat foods as foods. So when we capture data in NHANES, each one of these foods is linked specifically to an eight-digit FNDDS food code. And if you're following along at home, it's 41603010. That's lentil soup. But what that means is, in What We Eat in America food categories, it's going to be categorized as soup mixed dishes. But we don't really create nutrient profiles for soup mixed dishes. But what we're looking at now is, based on the recipe for lentil soup, it includes lentils, cooked carrots, cooked tomatoes, celery, cooked onions, oil, and then broth, which broth doesn't connect to a food category of water. So we don't have a kind of water and liquid group or

subgroup. So the lentils are then going to get associated with beans, peas, and lentils. The cooked carrots and the cooked tomato will be representative of red and orange vegetables. So we're taking apart the recipes of the foods that people report and taking them down to the individual foods that go in there. So go to the next slide, please.

Chris Taylor: 01:19:47

So when we take somebody with a varied dietary intake, lentil soup is going to have carrots as part of the recipe. Vegetable lasagna are going to have carrots as part of the recipe. Carrot cake is going to have carrots as part of the recipe. Vegetable soup. And we could come up with a very fancy social media glazed carrots title for making glazed carrots, but glazed carrots cooked are going to provide carrots. So then what we're doing is we're taking out the carrots that show up across every one of these individual foods and making that cooked carrots item cluster. So now we're able to track the consumption of cooked carrots and these item clusters across all of these different foods that people are consuming. So it's the what's in the food that you eat and not just what food do you eat. So we get down to the item cluster level, and then when we get down there, we say, "The representative food is steamed carrots." So that's the most nutrient dense version while limiting added sugar and saturated fat and sodium to represent cooked carrots. Now there are, I think it was 400 item clusters. And in FNDDS, cooked carrots shows up in about 250 different foods. So we're looking at 250 different food intakes when we're actually extracting out carrots. So we're taking all of those carrot containing foods, bringing it down, and then identifying the nutritional composition of red and orange vegetables based on all these places where cooked carrots shows up.

Chris Taylor: 01:21:45

Okay. So next slide. So coming back to the definitions, the item clusters now become what are the little individual buckets of food items that we're using to create a nutrient profile because now if I ask, "What's the nutritional composition of cooked carrots?" you can say, "I could figure that out based on all these different preparation styles." Next slide, please. But our nutrient-dense representative food now says, let's assume that whenever we see cooked carrots within a recipe, let's use the nutrient profile for steamed carrots. So now, we're able to take all of these food intakes, take the consumption of cooked carrots, and now, we can go back through and identify of all those red and orange vegetables that we saw. And we've taken all the carrots out. We've taken all the tomatoes, raw out from a sandwich from a salad, from all the different places where that might be. The cooked tomatoes and all the places where they are. Now, we can get the proportion. So 44% of all the red and orange vegetables that are reported are coming in a form of a cooked tomato. So now, the nutritional composition of tomatoes, 44% of that lycopene is going to get added to, what we would say, a red and orange vegetable is. Cooked carrots consume much less. So only 9% of the carbohydrate from the cooked carrots is going to be used to create that carbohydrate estimate. So our nutrient profiles are weighted by how much of these individual foods are consumed. So we're getting down to the ingredient level.

Chris Taylor: 01:23:46

So next slide, please. So what that ultimately means is you take that big wheel, you weight calories by the proportion, you weight protein. And this gives us the picture that says, for red and orange vegetables, based on the representative food within that, and the proportionality, this is the nutrient profile that we would get. It's like, "Okay, this is great. So why do we need this and what will we use it for?" Okay, so next slide, please. Here are healthy US-style dietary patterns. So I've got my glasses on and I can still read. The red and orange vegetables for 700 calories, we're looking for the 12 to 23 months. We've got one serving of that food group. So our nutrient profile for testing out these different food patterns that when I have two servings, I'm going to double that nutrient composition that comes from those item clusters that



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we put together to create this. So we're taking all the food, we're taking apart the ingredients, we're putting them in their buckets, we're looking at the proportionality, trying not to throw water everywhere, then establishing what that nutritional profile is, and then coming back to if we then do this and follow this pattern, this is what the nutrients would be at that caloric level.

Chris Taylor: 01:25:34

And then within those age groups, so if we take a 19-year-old, we're going to have DRIs for the 19-year-old based on age, sex, and activity level. And we'll have these ranges of calories that we can fit that. And for somebody who has an estimated energy need of 2,000 calories, this is how many of those, but based on the age and sex, we would then also know the DRI, and we can then get to the stage of, "Does this actually meet nutrient adequacy?" Okay. I said, "Hold on." So I'm going to stop here because this is how we make the transition from, "What the heck are we going to do," to, "What are we going to do with this?" Cristina [inaudible]. Oh, no. No. This is another time for questions to get clarification on this.

Cristina Palacios:  
01:26:31

So I do have a couple of questions. First, it seems like all this is already done because we see it in the dietary guidelines. So now, you're going to be modeling for the different types of diets? Or things have changed over time?

Chris Taylor: 01:26:46

So it'll now be done with the 2017/2018 dietary data. That is our most recent complete version of NHANES dietary data because there was this thing called the COVID-19 pandemic that-- the data is collected in two-year cycles so 17/18. So the 19/20 kind of had that thing happen, which then meant there was a disruption in the data collection which then meant 19/20 was no longer a nationally representative sample. So we have to rely on 2017/2018 data that is our most complete nationally representative data, but that's going to be newer data than we had from the previous committee. But the caveat is it's also 2017/2018 data so some of these trendy dietary patterns that we might see now aren't going to show up in 2017/2018. So this is a-- it's an opportunity with an amazing dataset, but limited by the historical perspective of what happens for us being limited to 2017/2018.

Cristina Palacios:  
01:28:04

My other question is related to spices and herbs. I know that many cultural foodways will have those included and so I didn't hear anything about that. Are you considering those?

Chris Taylor: 01:28:18

They don't contribute to an item cluster. There isn't an item cluster for spices. But from a nutrient perspective and a quantity of consumption perspective, we're already looking at kind of a level of noise around what the estimates are from food intakes and nutrient databases to be able to get to precisely what people eat. But they aren't included from that aspect because of the nutrient composition that we're looking at and the quantity of consumption in terms of how it plays within the total nutrients within the day. So it's not going to have-- they're going to have less of an impact on calorie intake and could have an impact on sodium intake. But we're looking at these without those components as the foods and then the diversity and the implementation is where these kinds of things like spices come into play.

Heather Eicher-Miller:  
01:29:27

Well, and I think it would also be in FNDDS as part of the composition of that food. Those would already be-- if that was part of the ingredients, part of the composition of a certain food, it would already be in the database.

Cristina Palacios:  
01:29:45

But maybe that did not take into account traditional and cultural foods. Maybe the way that lentil soup is done in different cultural groups will have very different in terms of ingredients so that's where I was going.

Heather Eicher-Miller:  
01:30:05

That could be true. Yeah. And it would kind of just be a limitation of what we have.

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- Chris Taylor: 01:30:13      Yeah. So just from a lentil soup example, the recipe has fresh parsley, which is 7.5 grams of the 1947 grams within the total recipe. Because I pulled that up earlier, and [inaudible].
- Cristina Palacios:  
01:30:29      Which may be very different from a lentil soup from Mexico, which will probably not have parsley, but cilantro. Or from another country or another culture.
- Chris Taylor: 01:30:39      Yeah, which gets back to our limitation of what we have as a point estimate representation of foods being reported. So, Christopher.
- Christopher Gardner:  
01:30:49      Yeah, it seems like you need to model hallucinogenic mushrooms so you can get around the mind bending impact of all this. So I hope mushrooms come first. When you get to your added salt, or your saturated fat, and sodium, part of it seemed dichotomous. Their source is up. There must be some cut point. Have you already operationalized the cut point of trying to do that?
- Chris Taylor: 01:31:13      Stay tuned for coming slides.
- Christopher Gardner:  
01:31:15      Oh, sorry.
- Chris Taylor: 01:31:16      Yeah.
- Deirdre Tobias:  
01:31:20      Just a quick comment. I don't know how many herbs and spices contribute to DRI. So if there's shifts in that, but it doesn't impact the goal of what does this do to the DRI, then maybe it's below that radar anyway.
- Chris Taylor: 01:31:41      Oh, sorry. Go ahead.
- Angela Odoms-Young:  
01:31:45      I just had a quick question because actually, that was my question about how are you defining? Because you talk about adequacy, but not excess, essentially, like [inaudible] or how do you look at that. But I think you're going to talk about that. So I'm looking forward to that. But I had a separate question about-- so I see yams are 3% of what's consumed if I'm understanding that correctly. But that's going to vary. Kind of to Cristina's perspective, that may vary across cultural groups, subpopulations. How are you taking that into consideration?
- Chris Taylor: 01:32:24      Well, the first part of that is that, based on the current consumption patterns making the nutrient profile, it's contributing based on meeting people where they are right now. But I also feel like, one, when we get to some of the staple grains analyses, where we start to look at other places where individuals may not consume grains, but may consume potato, sweet potatoes. So some of those other cultural foodways, it gives us an opportunity to shift where those are. And then in the simulated diets, it allows us to see how that plays out in actually having that be like the representative vegetables and such, so. Yeah.
- Fatima Cody Stanford:  
01:33:12      And just tell me if you're thinking about this correct. She used yams. And I think she's saying, if you have candied yams and the way that's prepared, that being maybe different than yams prepared in a different way. Is that what you're saying?
- Chris Taylor: 01:33:25      I was thinking more about so if you're looking at the entire US population, you are going to see 3% of yams. If you're looking at subpopulations, you may see 20% of yams. So I guess I'm thinking about in those subpopulations because you're considering that when you do the profiles, you're putting 3% of that, in a sense, as weighted if I'm understanding correctly. So I think the weighting becomes representative of the entire US population, not the subgroups. So I guess have you thought about considering some variability? That could get big really quickly. But I think it's something maybe to think about, and I know there's been other processes

that try to look at this type of thing when it comes to fruits and vegetables versus trade in all fruits and vegetables as compared to grains. But I think to Fatima's [inaudible] preparation. And I think that was Cristina's point as well, matters. So I think the weighting and the preparation becomes-- but my point was really around the weighting. But I think the preparation also is important.

Chris Taylor: 01:34:38

Yeah. Well, and in the preparation, you mentioned candied yams that might be cooked differently. The representative food would then be yams. So in this case, it isn't taking candied yams out because it would be in higher added sugar food but it would then be representing yams as yams cooked and not the caloric and added sugar value of yams. Because if you were to say, "All right, we're not going to let you eat yams because of the calories that come from that," if you're going to look at it from that fitting into the pattern kind of thing, you're losing those nutrients. So we're presenting the nutrient-dense version with the representative food so that you can capture the food within that food pattern and then the choices that we make around food preparation and that then fit into the making food choices within the energy recommendations.

Heather Eicher-Miller:  
01:35:42

Yeah. All right, go ahead.

Cheryl Anderson:  
01:35:45

No, Chris, so that actually gets to a question that I have. Are the food choices derived or are they user-determined?

Chris Taylor: 01:35:54

The data that we're using is based on reported NHANES data. So it's from food composition data, nationally representative food composition data. So that's where it's going to-- so this is that tug and pull between the opportunities we have with a large amount of data, and in fact it was about 7,400 food codes, if I remember correctly, of what's being represented in terms of the 2017 FNDDS. So you've got this wide scope of foods, but it is still limited by all these things that we've discussed around the inclusion, the representation, the diversity of the sample. So it gives us a starting point. And these are definitely one of the areas where we've had these conversations around being able to. But I think even taking these food patterns and then using them in data analysis to be able to identify these areas where we might see differences in health equity around food insecurity around income and addressing many of these different concerns. But in creating the kind of broader US-style healthy eating plan, it's based on the larger national data but knowing that it has these limitations.

Angela Odoms-Young:  
01:37:30

And then this is something for the committee to consider, but I understand you can't do protein food. You can't trade off staple foods and do fruits and vegetables. But fruits and vegetables, which I didn't think before, may be interesting to look at varied-- when you pick those foods and do that nutrient composite, I guess, it might be called, to look at variability there to see. And that might also help with the inclusion. It might just be interesting to take a look at.

Chris Taylor: 01:38:03

Yeah. Once again, these are where my mind is worrying of all the things. And then the staff tell me, "We can only do so much." So yes, these are the grey-- these are the grey-- I think it's the getting to the boots on the ground, but also being able to look at the diversity of foods within these categories. So it's then creating the nutrient profile within each one of the individual groups away from the individual food that's being consumed with the components. And then how does this create that foundational nutrient level data?

Heather Eicher-Miller:  
01:38:47

I'll just say one more thing to that. We think it's really important to test out different cultural foodways. And think about not just the entire population, but breaking apart

by subpopulation and seeing what the most frequently consumed foods are there and perhaps modeling some of those things. So it's a really important piece for us to still keep thinking about. Thank you.

Angela Odoms-Young:  
01:39:16

And I'll be [inaudible] sorry. Regional too, it also may play a role [inaudible].

Chris Taylor: 01:39:28

Okay. Next slide, please. All right, so the actual protocol, now that you know what I'm talking about, or at least I hope so. So our protocol that we developed first was the should foods and beverages with lower nutrient density, those with added sugar, saturated fat, and sodium, contribute to the item clusters, representative foods, and therefore the nutrient profiles. So taking a look at the foods and the item clusters that exist, and should we create a revised pattern that removes the lower nutrient-dense foods and only focuses on the higher nutrient-dense foods. So next slide, please. So our analytic framework, we're going to be looking at the dietary intake data from NHANES for, basically, one year of age and older. And we have separate dietary patterns for 12 to 23 months and two years and older. Next slide, please. An overview of, basically, all the different questions that we'll have for food pattern modeling is to identify the energy levels for individuals that we have the dietary intake for. And so creating an energy level for their particular patterns, identifying the nutritional goals of that pattern. So on the healthy style that we just looked at, it had representations from each of the different food groups across MyPlate and the quantities from that. So establishing the food groupings and the food group amounts, and then determining the amount of energy and nutrients that then comprise the foods within those food groups and subgroups.

Chris Taylor: 01:41:29

So we just went through the example of red and orange vegetables. But if we were modeling, and in this case, foods with higher added sugar and saturated fat and sodium, the carrot cake is probably going to be one of the foods that-- or the contribution of carrots to the added sugar composition within the food, might be one of those foods that would not be carried forward as a food with higher energy or nutrient density. So then evaluating the nutrient levels within the pattern, and then seeing how it performs in terms of nutritional adequacy and looking at the nutrient profiles that come from that, and then revising. The first gut reaction gives you a starting point, but not an answer. So the processes that we'll walk through here for step one are the kind of four steps that we've conceptualized so far but it's one of those things you don't know until you start working with the data to see how they'll really manifest. So the next slide, please.

Chris Taylor: 01:42:48

So the data sources we'll be using, the What We Eat in America 2017/2018 dietary data from FNDDS, FPED, the National Nutrient Database for Standard Reference, because when the food codes are separated into ingredients, some of them are FNDDS codes and some of them are SR foods. So we'll have the nutrient database behind that. But then at the top level, the foods that are recorded, if somebody says they had a pizza, then it's going to be flagged as a food code that is specific to pizza, and then be under that food category. So we can look at it from the food level, but also the ingredient level. Our nutritional goals based on the DRIs and the dietary guidelines. And then our energy levels from the updated DRIs as well as the height and weight population norm data from NHANES. Next slide, please. Okay. So in our overarching framework for question or for protocol one, is really about identifying foods and beverages that are lower in nutrient density to create the nutrient profile. So we're looking at what are the potential strategies that we identify lower nutrient density foods that we would exclude? And so if you take out foods that are higher in energy and lower in nutrient density, the energy associated with those item clusters is

going to go down. So you're going to get more nutrients for the same amount of energy. So next slide, please.

Chris Taylor: 01:44:40

So we're going to test this within the healthy US-style dietary pattern. And these are the steps that we've discussed. We had asked the staff to kind of do a scan of what are the different approaches that various groups have used to identify foods that get excluded from creating the nutrient profiles. The previous edition used all foods and all foods contributed to creating the nutrient profile. So if you have a higher consumption of food that is a more energy-dense version, the calories associated with that food category are going to go up. So the steps that we've identified that we'll use to test this kind of step-wise progression of creating this revised nutrient profile, excluding foods and beverages based on What We Eat in America food categories for companion item clusters that are typically higher in energy and lower in nutrient density. So things like baked goods were one of the areas where we've had discussions around the nutrient composition. The next step will then be to identify foods and beverages with a-- when we need to define a proportion of the total ingredients that contribute to a total food or subgroup. So you might have items that are a part of an ingredient, a part of something, but don't fully represent the food itself. It's kind of in as a small ingredient, as a part.

Chris Taylor: 01:46:36

The third step, excluding item clusters with a nutrient-dense representative food that wouldn't be a practical nutrient-dense alternative for the food and how we might identify how well the item clusters-- could you make the food out of the item cluster that was being selected? So how well do the foods actually represent? And then the final step, excluding item clusters when representative food is an outlier within all of the other foods within an item cluster based on their maybe sugar, saturated fat, or sodium intake, just based on composition or the processing preparation that it takes to create the food itself. So what that means then is we'll have to go through that four-step process, come back to the drawing board, see how well they're working, generate the updated nutrient profiles based on excluding foods of lower nutrient density, and then testing how well that compares to the existing nutrient profiles with using the healthy US-style dietary pattern. So how do we then take those profiles that we generated on the slide with the table differently to the US-style dietary pattern compared to the nutrient profiles that we have from the previous approach where all foods are included?

Chris Taylor: 01:48:14

Which then means we might have to take step one or identify particular foods and then evaluate how that creates a nutrient profile, and what are the implications of that. Is it having a large effect, a small effect? Is it having no effect? Is it having effects that we weren't anticipating and then how do we-- try to use as much of a scientific and empirical basis, but also what we've seen is there's not a real solid empirical basis for a lot of the different ways foods have been excluded. So how do we make these decisions in an empirical, scientific, but non-biased way? And then implement it and see what kind of implications it has. And then work our way down through to see if we're actually creating a new dietary profile. Or does it matter? So our next steps-- so that's protocol one. Which has been learned food pattern-modeling, and then figure out a conceptual framework that others haven't quite done yet. So then protocols two through nine will be our next big step, for just developing the protocols for our next meeting and then once we get the public comments and be able to address the conversations we've had here, start creating the nutrient profiles and see how they carry out, so.

Christopher Gardner:  
01:50:08

That is again, mind-bending. I think nutrient density is a little like pornography. We know it when we see it, but it's really hard to define. So you said DRIs. EARs or RDAs? And are you waiting for the nutrients of greatest concern? Are you just trying to hit all

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the vitamins and minerals? I heard you say lycopene, not a vitamin, not a mineral, right? So the term nutrient adequacy seems key to operationalizing this. So I didn't hear it in your talk. How have you operationalized it? And I'd be happy to contribute because I love this topic if it's not operationalized already.

Chris Taylor: 01:50:49

So this is going to be one of those where I'm going to have to go to the staff because I'm getting to that absolute--

Heather Eicher-Miller:  
01:50:56

It's all good. We operationalize nutrient adequacy using the RDA, not the EAR because they're intended to be implemented at an individual level so we take the conservative approach and use the RDA.

Christopher Gardner:  
01:51:09

Okay, but the sum set of them, right? So does everybody have to hit the RDA for all the nutrients which likely means that some level, some vitamin, you're going to just hit the RDA. Some of you are going to have double, some of you are going to have triple. Could you weight them for the nutrients of greatest concern that have already been identified, or are you just taking them across the board?

Heather Eicher-Miller:  
01:51:33

We're looking across the board. And for the most part, it's at least 85% of the RDA for anything that might fall short.

Christopher Gardner:  
01:51:42

Oh, 85%.

Heather Eicher-Miller:  
01:51:44

I think it's 85%. 85, 90. I'll double-check that, but.

Christopher Gardner:  
01:51:48

Okay, but would you consider weighting them [crosstalk]--?

Heather Eicher-Miller:  
01:51:50

It's an interesting concept, but we haven't. It's a conversation that could be had.

Christopher Gardner:  
01:51:52

--of the greatest concern. Let me just toss that out for consideration.

Jennifer Orlet Fisher:  
01:52:05

This is another kind of more conceptual question, I think, because I fell off the learning curve, so my VO2 max, and it was like that in this case, but. So can you say a bit more about the conceptual approach to running your modeling with and without the low nutrient-dense foods? I'm thinking about your point about meeting population where they're at. We know that there are certain nutrients that are over-consumed related to health outcomes that we're concerned about. And so I'm wondering how your question is different than asking what the tolerance of these various patterns are to some of those foods in terms of the likelihood of achieving adequacy. It's probably a different question, but I'm wondering just how you're thinking about it.

Chris Taylor: 01:52:52

The comments about particular foods came forward both from public comments and also from the previous committee in terms of what foods represent a refined grain. And just to take one example, we've looked at desserts and those items as one of those food categories that might be a place where we start. The nutrient composition, the added sugar, saturated fat, and nutrient composition of a brownie and energy will be different than a slice of white bread or a roll. And if you have foods that have a very different energy density and nutrient density, and if those foods are consumed more frequently, it's driving up that energy profile for that food. So now, when you want to assign the calories for the number of grains, if we keep the number of grains where they are, and we use all foods, you're using up a lot of your calorie

needs for the day based on the nutrient profile that includes more energy-dense less nutrient-dense foods.

Chris Taylor: 01:54:14

So the comments coming forward were should we be really be counting the calories from brownies as a grain. And a lot of the comments that came forward from the public were around, well, should we be using those and counting those that way? We're not redefining what FPED counts as a grain versus not. But what we're doing is saying, "Would we use that as the nutrient-dense version of the food?" Or would we have more calories in protocol eight that says, "If you meet the nutrient-dense versions, this is what the caloric level would be." And then in meeting that, it creates more opportunities for choice within the food groups themselves. Is that answering your question, or?

Cheryl Anderson:  
01:55:08

Yeah. I have a related question because I think this does get back to the representativeness of what we end up modeling out, right? Because I think ultimately, as I see it, our endgame is to try to put forward a food patterns modeling output that is useful to all Americans. And so what I'm grappling with is, how do we best ensure that what we end up choosing as the most nutrient-dense approach is actually not driven by highest consumption and reporting versus just by having a diverse amount of things to choose from. So for example, you could have something that's incredibly nutrient dense that might apply to certain subpopulations in America, but because the reporting isn't driven by those subpopulations in America, it doesn't emerge as something that you might likely want to put forward, so.

Chris Taylor: 01:56:14

Yeah. And again, it gets back to the limitations of the data that we have. But at the same time, within the food, the item clusters and the food categories that we're looking at, the nutrients within red and orange vegetables are going to be very similar. They'll be weighted based on some of the more commonly reported foods in NHANES. But we are also looking at a very similar nutrient profile within each one of the subgroups and the total groups. But it will be especially based on the design of NHANES and the data that we have, the representative nature of the data are collected to oversample African-American, Mexican-American, other Hispanic, and Asian-American. And we've already had the conversation, that Asian-American is Asian-American. So it helps in that question but it doesn't solve that question, and that's where I think it's going to be really important for the insights that we'll have for making those recommendations for simulated diets to put that into play, and actually then be able to test. If we then use yams as the vegetable, or if we're using yams as the grain, starch, staple carbohydrate, as opposed to the vegetable, then those are the places where we'll really be able to answer those kinds of questions. But we are still limited by the data that we have. It's an amazing dataset that we have but we know that it has limitations, so.

Valarie Blue Bird  
Jernigan: 01:58:09

Dr. Taylor. Sorry. Back behind you all. I was just thinking, for the 2020 Dietary Guidelines Advisory Committee, one of their primary interests was around life stages. And so they did look at nutrient profiles at different stages of life. So looked at subpopulation data by life stage. And I wonder if it's something that could be discussed to look at nutrient profiles by different subpopulations within the NHANES adata. So that might be something that could be explored. Also, the simulated diets, I feel like there's more to come. It's just been one protocol discussed here but I think what you're getting at with your last comments or several questions, that I think, we'll get at this cultural foods, including the simulated diet activities. So I think this has all been good. The staff has been ping-pong back and forth about thoughts to kind of bring to the next subcommittee conversation to kind of react to this. So just wanted to reflect on that-- 2020 could have had-- did some subpopulation analyses. I don't know

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whether-- and it will be-- it is NHANES, so what those broader categories are, but it might be helpful in the conversation.

Sarah Booth: 01:59:27

Any other comments? Yes.

Cristina Palacios:  
01:59:31

I had a comment. I had a question. This is for Heather. One of your slides-- in terms of federal data sources, you have listed a bunch of data sources. Are any of those considering or reporting on infants, toddlers?

Heather Eicher-Miller:  
01:59:56

Yes, we do have that information. [laughter]

Cristina Palacios:  
02:00:00

Okay. Because I think in our first public meeting, we were discussing the possibility, I don't know if that was-- if we reach out to WIC to see if we can get some of the data from WIC in terms of-- I know that they have limited data, but they do have data that they collect throughout all the WIC clinics. So I know that there was some effort to see if we can get some data, but.

Heather Eicher-Miller:  
02:00:31

Thank you, Cristina. Yeah, we will discuss that further. But yeah, thank you.

Sarah Booth: 02:00:43

I love that interaction. Any other questions or comments? So thank you for all your thoughtful presentations, discussions. I feel really badly having my back to all of you. I know he's going to be angry-- the gentleman is going to be angry because I'm moving away from the mic. But thank you very much. And like we did last time, we would just like to go around the room and have each of you just make one comment, just one impression that's come out of this great public meeting. And just before we start, I just want to let everybody know that I believe that every subcommittee and working group has taken many, many notes, and our team behind us, our valuable team, I know, have been taking notes. And I think every subcommittee and working group benefited from the rich discussion today, and we'll use these comments to further refine their protocols, but also, I think, when they move forward with their task at hand. And I also want to, in advance, thank all of you for all the work you are going to do between today and our next public meeting in September. I know sometimes it feels like we spend more time together than we do with our families. It's really, really appreciated. So I just wanted to do a heartfelt thanks there. But then I thought we could go around. And I'm going to change the order, and I think we should start with Sameera today.

Sameera Talegawkar:  
02:02:48

No, I was really excited to see what all the other working groups on the subcommittees have been working on. It was really interesting to see all of the protocols. I guess, mostly I'm looking forward to the simulated pattern modeling because that seems to be-- yeah, that's the one that I'm most interested in personally. So yeah, looking forward to working on that with the subcommittee. So thank you.

Sarah Booth: 02:03:16

Valarie?

Valarie Blue Bird  
Jernigan: 02:03:18

Thank you. I would just like to say thank you to Sameera for summarizing the work of our health equity working group so well. And I felt really proud of all that we have accomplished. So thank you.

Unknown: 02:03:37

I'll keep on the same theme. I'm really inspired for this version where [inaudible] considering health equity and I thought you did a wonderful job at presenting where we're going with that. And it's inspiring that we can put that work in place for the next iteration.



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- Jennifer Orlet Fisher:  
02:04:00 And all of the same, Sameera. And I am sad that I've been sitting here since the presentation thinking about how in the world we can make progress on this issue of important influences where we don't have evidence necessarily of key confounding, but something is really conceptually compelling. And so I'm excited about going back to Subcommittee 2 and trying to think collectively about that.
- Steven Abrams:  
02:04:31 Well, I'm excited to see us take a look at feeding styles, patterns, and the like, in one to two-year-olds, which is an area that's rarely looked at. But I think [inaudible] also I'll point out how absolutely little we know about feeding babies between 6 months and 24 months. And I think once we really get into that the understanding what we have will be quite interesting.
- Cristina Palacios:  
02:04:54 Well, I feel overwhelmed but humble of all the things that we've learned and all the experiences and learning from everyone. So hopefully by the time I get home, I'm less overwhelmed.
- Fatima Cody Stanford:  
02:05:10 I'm excited about all the new directions that are being proposed with this Dietary Guidelines Committee. I just think it's really going to add and push the dietary guidelines further. And so it's just exciting to see these new systematic reviews and some of the other work that's being done.
- Unknown: 02:05:35 I was really excited to hear about what the other working groups are doing because we haven't had a report from them since February, I guess. And it's really astonishing the amount of work that I think has been accomplished already since February. And I just can't even imagine where we're going to go from here. It's going to be amazing.
- Cheryl Anderson:  
02:05:58 Yeah. I'm struck by inclusion. Inclusion of some really important changes and evolutions with how the process is going and what's on the table within this process and also a deep appreciation for how much work we have yet to do in the entire field of nutrition. It's leaving me hopeful about what the next generation will be able to tackle for us.
- Christopher Gardner:  
02:06:26 Incredible community, incredible support staff as I look across health equity and protein and UPF and saturated fat. I can tell we are headed toward more beans.
- Deirdre Tobias:  
02:06:41 Not really sure how to follow that. I just continue to be incredibly impressed by the depth of this committee. And I hope Americans appreciate in some way what so many of you bring to this table. I think also the health equity charge, it feels really genuine. Initially, I couldn't really conceptualize how it would play a role at the end of the day. I was afraid it might just look more like an afterthought, but it actually really feels like a real part of all of the conversations and the considerations. And I think the synthesis piece at the end, when we come back with all the evidence, will be really daunting. But I'm excited to see what it brings. And I don't know if we're going towards beans per se. But, all right.
- Heather Eicher-Miller:  
02:07:50 I also really appreciated hearing about working group two and three since I'm not a part of that. And I really appreciated, Chris, your explanation that you gave us because that was really, really helpful for me. But I also agree about the health equity lens. When we left, I didn't know what it was going to look like. And I'm part of that working group which has been wonderful and great. And I love the conversations. But I was really struck by-- because I know not everybody's in that group, how well that has-- you can see it in all of the subcommittees, which is wonderful and nice. Okay. So I'm not sure I'm going to add anything necessarily new to this. But yeah, I actually have been incredibly impressed and echo all the things about the diversity and the considerations of diversity and equity. And it's been really exciting to hear what everybody else has been working on during this time. And I can say that I'm actually

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very motivated to get back into committee work and now go on to these next steps, which I think are going to be even more daunting, but also quite exciting.

Teresa Fung: 02:08:56

I am very struck all the deliberations just from hearing the presentations and the discussions. I can feel the-- I can sense the deep and detailed deliberations that has gone behind it to bring us to today on what is being presented. And I'm also very thankful for the staff because in the last few months when we meet and every time we say, "Can we try this? How about we calculate this? How about we add this?" And the staff is basically saying, "Yeah, sure. We're looking into it." And so we thank you for being so helpful and supportive of our work here. And it's really a huge team effort in here. So thank you.

Unknown: 02:09:38

I think with each iteration of the dietary guidelines, we have this amazing opportunity. And it makes me grateful for other colleagues who have made this work that we're now able to consolidate and use to update what we've done, what we can do. And there are limitations, but I think that's spurring us to go farther in the next time. And just echoing other things everyone have said, I really appreciate the commitment to diversity and equity, and also thinking about those with food insecurity, nutrition security issues, and how we can make our process kind of raise all boats, I guess, as we go forward.

Chris Taylor: 02:10:34

I'm just really glad Christopher has moved from mushrooms to beans. So that's our first major accomplishment of the meeting today. And so I'll cheat, I have two. I have, one, just listening to the expertise around the table that brings, not only the scientific rigor and the understanding of the data that we need to answer these questions - because it's only as solid as the evidence that we have. And the stronger the science, the stronger the recommendations that we have - but we've got the minds here that understand the implications of data decisions and design decisions. But also the implementation side because we can design great, randomized trials that have no life applicability. And we're looking at these from both sides. And everyone is saying, "Yes." But I also appreciate the staff that tell us, "No." So here's to Rebecca who keeps me in line. Meghan keeps me in line. Joe keeps me in line. We could really do the-- and we have to set guide rails, so they're always willing to say, "Yes," and tell us no when they need to.

Unknown: 02:11:53

I'm thankful for the opportunity to be here amongst great minds that bring together knowledge, wisdom [inaudible] as we tackle these really important issues, particularly surrounding the most prevalent chronic disease in human history, obesity, the chronic relapsing, remitting disease that affects disproportionately racial and ethnic minority communities and our focus on diversity, equity, inclusion, belonging. My charge to all of us, as we continue this work, is that we strive to do our work so well that no person living, no person dead, and no person yet to be born can do it any better because we are doing this for the American people. Thank you.

Edward Giovannucci:  
02:12:35

It's my bad luck to speak after someone who's so articulate. And I agree. I was going to say that. But I will echo it. It's really an honor to be with this fabulous group. I'm learning so much. My brain is full and overflowing. The staff has been incredible, and they're so organized and always know what we have to do, or what to discuss. And I mean, it was great to have this meeting because we've gone through all these Zoom meetings and doing important work, but it's kind of nice to see this all starting to come together. I still feel like there's so many moving parts and things to consider the data, the quality, to how we look at the data, the questions, the equity issues. So I really look forward and look forward to the final product. I'll also mention that I was happy to see lycopene mentioned. It's one of my favorite, not nutrients, but phytochemicals, but anyway, thank you.

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Angela Odoms-Young:  
02:13:53 I really don't have anything to add. I think the only addition that I would make is really kudos to Janet and Eve. Yeah, I would add that [inaudible] and just a wonderful committee and look forward to work to come.

Sarah Booth: 02:14:13 Go team 2025 DGAC. Janet, do you mind? Are we closing them? Oh, no, we're not closing it yet. Janet has a few housekeeping items.

Janet de Jesus:  
02:14:41 I'm going to cover some next steps in the committee's process. Congrats to the committee for completing meeting two. So I'm following the lead of Eve. She did this in the last round, so after each meeting, we put a check mark. So congrats. There's been so much important work that has gone into preparing all of your subcommittee and working group progress for this meeting. And I'm so appreciative of your tremendous effort to date. As alluded by some of you, it will only get more exciting when the evidence is available and the synthesis happens and the modeling activities begin. I mean, it's a lot of work, but it's going to be a lot of fun. So much fun to come. Next slide. So next steps, the draft protocols that were presented today will be refined a bit based on committee feedback. They will be posted on DG dot gov later this month. Public comments, of course, are welcome. They are appreciated by the end of June so the committee can get them as soon as possible and consider them in updating their protocols. Our sub-committees and working groups will continue conducting their evidence reviews and meeting three is September 13th. This will include an oral comment opportunity. More details will be available on how to register for your opportunity to provide oral comments. And registration for the meeting will open at least 15 days prior. Next slide.

Janet de Jesus:  
02:16:16 To our wonderful committee, thank you for your dedication to this important work so far on your subcommittees and working groups in prioritizing questions, developing protocols. I know it was a heavy lift. We appreciate your expertise that you've shared and your thoughtfulness along the way. I can speak on behalf of staff, I've already learned so much from you. Thank you for sharing your wisdom. It is a wonderful partnership collaborating with you. Thanks to our wonderful staff, you are so appreciative. Reiterating and thanks to Joanne from [NESSA?] and congratulations to her retirement. Yeah. Joanne. [laughter] She's in the backroom. I also want to acknowledge two detailees that we've had at ODPHP over the last several months: Joe [inaudible], Irwin from IHS, and Carolyn Chung from FDA. Our ODPHP team is small, but mighty. So we sought detailees from HHS to help us. And we're so appreciative of your time jumping in and learning and supporting us in this critical moment in kicking off the committee's work. And finally, yeah. [laughter] And finally, thanks to the public for your continued participation and engagement. And with that, I will adjourn meeting two. Thank you.

[silence]