

Transcript

Third Meeting Day 2, Part 1: <https://www.youtube.com/watch?v=9xB8vnLwCOM&t=15s>

Janet de Jesus: 00:06

Good morning and welcome to day two of the third meeting of the Dietary Guidelines Advisory Committee. I'm Janet de Jesus, Designated Federal Officer of the Committee. Thank you to the members of the public who presented oral comments yesterday. If you are not able to share oral comments, please submit written comments via [regulations.gov](https://www.regulations.gov). I'm happy to share the members of the committee that will be presenting updates on their work today. Two members, Dr. Talegawkar and Jernigan, will not be in attendance today. We are currently in step three of the dietary guidelines process in which our advisory committee is reviewing scientific evidence for the development of their scientific report. There has been recent interest in the status of the guidelines for alcohol. And we wanted to note that the development of recommendations for the next edition of the Dietary Guidelines has not yet begun, including guidance on alcohol consumption. The topic of alcohol is not being examined by this current committee. Evidence will be reviewed in separate processes, and more information is available on our website on our related projects page on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). The committee has six public meetings. The final meeting, meeting six, will include the committee's presentation on their draft report. And we've asked that the committee submit the report by October 2024. Following the release of their scientific report, HHS and USDA will begin the process to update the dietary guidelines to be published in 2025. And now it is my pleasure to turn it over to our chairs, Dr. Sarah Booth and Angela Odoms-Young.

Angela Odoms-Young:
02:06

Good morning. So we're very excited that the committee is back together to share the progress this meeting two. So we're going to talk a little bit about next steps. The goal of the public meeting is for the subcommittee and the working groups to share updates with the full committee and share progress on the committee's evidence review. So there's new protocols for systematic reviews as well as food pattern modeling that will be presented for committee input. We will also talk about next steps of the committee's evidence review. So the subcommittee structure, as you know, the subcommittees have been working, and then also the Health Equity Cross Cutting Committee Working Group has been working with each of the subcommittees to look at applying a health equity lens between the public meetings. So there's been a lot of progress since meeting two. Subcommittees have developed eight new protocols for food pattern modeling, systematic reviews, as well as evidence scans. And so protocols have also been refined by subcommittees based on full committee input from meeting two, as well as public comments. Additional prioritization of subcommittee reviews may be needed based on final decisions of protocols. So there are three new protocols for food pattern modeling, new conclusion statements for diet and pregnancy and birth through adolescence, three new systematic review protocols.

Angela Odoms-Young:
03:50

So we know the subcommittees have been busy for dietary patterns and specific dietary pattern components across the life stages and new conclusion statement, as well as strategies for individuals and families related to dietary quality and weight management, where we have two new evidence scanned protocols. And so additional prioritization of subcommittee reviews may be needed based on these final decisions of protocols. So the Health Equity Working Group, as I mentioned, has collaborated with subcommittees. And I think this really has been striking work. It's important that

all of the subcommittees have worked closely with the Health Equity Working Group, as was mentioned in the public comments, Just as importance of applying a health equity lens. So the Health Equity Working Group collaborated with the subcommittees to assure that the appropriate factors are considered in the evidence reviews, and we'll talk more about that as we go throughout the meeting, systematic reviews, and food pattern modeling protocols, and identified health equity topics for the report discussion.

Angela Odoms-Young:
05:06

So protocols for systematic reviews and food pattern modeling. As needed the protocols will be refined after today's meeting to reflect the committee's decision and we will be posting those online for public view. It's important to understand and for the public to better understand the appropriate use of how the scientific questions-- appropriate use of systematic reviews, as well as the protocols to answer scientific questions. And draft protocols are expected to be posted on [dietaryguidelines.gov](https://www.dietaryguidelines.gov) and [nass.usda.gov](https://www.nass.usda.gov) by October. Please sign up for updates on the Dietary Guidelines listserv on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). And then if the public has comments, we really welcome those comments on specific protocols that we discuss today. So please submit them after the committee meeting. We welcome those comments. And as I mentioned, they'll be posted about a month or so after the meeting is completed. And so now I'm going to turn it over to the chair, Dr. Booth.

Sarah Booth: 06:23

Thank you, Angela. Great. So to follow up on what Angela mentioned, we really do want to emphasize to the public that we do really appreciate your comments. Yesterday was our first time we had a public comment section. We had 83 speakers. It was on a first come, first serve basis. I know we didn't get to everybody, so if we didn't get to you, please send your written comments. We want to hear from you. And to that end, we have already received approximately 500 written public comments since January. The comments, as Angela said, on the protocols that we're discussing today are really welcome. And keep sending them. We're reading them. We're talking about the comments. We're acknowledging what you have to say. And that public comment period will remain open throughout the committee's work, which will be ending in fall 2024.

Sarah Booth: 07:34

So we're really excited today. The committee is really excited today because we are going to be presenting some great conclusion statements from the systematic reviews. Woohoo. So before these are presented, we just wanted to remind the audience that NESR's methodology was used by the committee. And these methods were very well described in our first meeting. And if you missed the first meeting, don't worry. It is on the NESR's website, which is listed on this slide. So as I said, the team has some graded conclusion statements to present today. And I just want to reinforce, and I want to thank everybody for your hard work. Behind the scenes, every person in this room has been working every week with federal staff on going and synthesizing the evidence and developing conclusion statements, and grading the strength of evidence. Your expertise, your hard work, your passion has been greatly appreciated. Sometimes it feels frustrating, but I think we're going to be proud of what's presented today.

Sarah Booth: 09:02

So just to remind us, the conclusion statement is a summary statement that's carefully constructed and it's based on the evidence reviewed to answer the systematic review question. Grades are assigned to each conclusion statement, and it's based on an assessment of the underlying evidence for five grades of five elements: consistency, precision, risk of bias, directness, and generalizability. We will talk more about generalizability in the Health Equity Working Group report. And these, don't feel the need to read out all the different definitions, but here are the five, the strong, moderate, limited, or grade non-assignable, and the definition of

those grades. So today's agenda, we're going to start off with health equity. To echo Angela's comments, this is an important initiative. We heard a great deal from the public comments, the enthusiasm for this initiative. Angela and I, will be presenting. Our colleague, Sameera, unfortunately, could not make it today. She's a fearless leader of the Health Equity Working Group, so we'll try and do her justice here. Heather Eicher-Miller is going to be reviewing the data analysis. Chris Taylor is going to, then, do food pattern modeling.

Sarah Booth: 10:49

We're going to break. And then we're going to do group two, led by Jennifer Fisher. Then we're going to do group one, the dietary patterns and specific dietary components led by Deanna. Finally, we're going to do group four with Christina. And then we will do a wrap-up at the end. So looking forward to a great meeting today. Thank you very much. Okay. I got to shift. Okay. Bear with me. Okay. Health Equity Working Group, as I mentioned, I will be presenting the slides prepared by Sameera and the staff. And then Angela will lead the discussion, which we're looking forward to a very rich discussion. So I just want to emphasize that we're taking this very seriously. We're walking the walk here. Every member of the Health Equity Working Group is also on a subcommittee. The flip, every subcommittee has representation on the Health Equity Working Group, which means that there is a continual dialogue between the Health Equity Working Group and the individual subcommittees. We also have an amazing federal staff supporting the efforts of this working group. And I just want to say thank you. And I'm going to just sort of indulge and say, can we all clap? Thank you. Okay.

Sarah Booth: 12:42

So we reviewed the definition for the health equity lens in meeting number two. This language is actually posted with the proposed scientific questions on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). And you just go to "learn about the process", and you will find this here. So I just want to emphasize, the focus on health equity in the DGA process is not new, however, there's this renewed sense of urgency, I would say, passion as well, for the importance for this work. So the health equity work that we are doing here as part of this committee is in alignment with other federal efforts with a focus on health equity, including Healthy People 2030 and also other efforts by USDA and HHS. So since meeting two, the Health Equity Working Group has continued to move into how to incorporate health equity into the three approaches that we are taking data analysis, food pattern modeling, and systematic reviews. And specifically, what we're doing is we're providing input for protocols and plans for scientific questions that relate to health equity. We've incorporated health equity considerations into our review of the scientific evidence. And we are already working on an outline for incorporating health equity content into the scientific report.

Sarah Booth: 14:36

So I'm now going to go through how the Health Equity Group will be manifesting in the three approaches, the data analysis, food pattern modeling, and systematic reviews. So we're going to start with data analysis. I'm just going to do a very high-level review because Heather is part of the Health Equity Working Group and also leads the dvvata analysis and I do believe in her presentation, she will be discussing the health equity considerations in more detail. But just as a high-level overview, we are incorporating health equity into each step of the data analysis process, including the identification of data needs, the development of the data analysis plan, and the determination of the analysis and subpopulation variables to request from our federal data analysis. So the trends, the similarities, and the differences among the population's dietary intakes, dietary patterns, and health condition prevalence will be identified. They will be summarized, and they will be synthesized as part of the committee's evidence review. And these will be used to inform conclusions and future recommendations. So there's a lot of data analysis work underway that pertains to the health equity. But I'm just putting this up here to tie to the Health Equity Working

Group, but I'm going to defer to the next presentation when Heather will go into this in greater detail.

Sarah Booth: 16:33

Okay. So now we're going to talk about food pattern modeling. Okay. So we have actually added a new protocol to consider representation when developing nutrient profiles and later for draft food patterns. So under the nutrient profiles, I just want to emphasize when we talk about population subgroups, I'm referring to population subgroups as designated through what we eat in America. So we're developing a plan right now to conduct diet simulations to evaluate draft dietary patterns that consider the wide variety of nutrient-dense foods and beverages that is consumed in a diverse US population. We're tackling variation. We have focused protocol discussions on how to incorporate intake variability considerations across populations, communities, cultural groups. And we're trying to incorporate this variability into the rationale, the analysis, and the future directions for food pattern modeling as dietary intakes, as we all know, can vary by individual, age, life stage, geography, acculturation, as well as, many, many other factors that are too long to list here.

Sarah Booth: 18:15

So we can talk the talk. We need to walk the walk, right? So here's an example of how we're trying to tackle this very, very challenging but exciting initiative in the Health Equity Work Group. So we know that due to the diverse food waste, there's tremendous variation in the use of staple carbohydrate foods across food groups and subgroups. And so, what we are doing is we are doing a hypothetical modification, and I just want to emphasize the hypothetical modification to the grains food group. So what we will do is we will look at if you replace the grains food group with other staple grains, what happens? If you replace some of or all of the grains food groups with, let's say, starchy vegetables or bean, peas and lentils or starchy red and orange vegetable as the main staple carbohydrate food in the 2020 healthy US-style dietary pattern, what are the implications? How do we achieve the nutrient goals? So this is not as-- well, this example has tremendous relevance, because one way that the current child nutrition program regulation accommodates cultural food preferences, product availability, and cost concerns is the Child Nutrition Program is already providing flexibility in schools of some areas to serve vegetables in place of grains in school meals.

Sarah Booth: 20:14

So actually, this example will allow us to evaluate the possibility of incorporating these flexibilities, so vegetables in lieu of the grains, in order to meet the nutrient goals. But also how will this factor into future editions of the dietary guidelines, which really do underpin the federal nutrition policy? Oh, okay. Didn't have that one. Okay. So using the same example, here you have on my plate, you see the grains. And I just want to emphasize, we're not saying we're taking the grains away or that we're putting all these foods such as starchy vegetables, beans, peas and lentils, red and orange vegetables in the grains. What we're saying is these grains, starchy vegetables, bean, peas and lentils, red and orange vegetables, they're already technically defined-- these subgroups are already technically defined in the current USDA dietary patterns. We're just examining how we can customize the current pattern now. So this is where we're going with the health equity. And I know that Chris will be giving us more detail on this example. I probably mangled it. My apologies, Chris. But he will be describing this more when he presents the findings from Subcommittee 3.

Sarah Booth: 22:03

So the systematic reviews, health equity is being considered throughout the systematic review process, both in how the reviews are conducted and how they are reported. These considerations are built into the NESR systematic review process, and they align with how other organizations have integrated equity in their review process, including the Cochrane methods for considering equity and systematic reviews and the reporting guidelines, PRISMA-E. The NESR staff examined many

resources, and the PRISMA-E and the Cochrane Methods were identified as the key examples of resources identified best for the committee's work. PRISMA-E aligns with the other PRISMA checklists used to evaluate systematic reviews, and the Cochrane Equity states very explicitly that no one review can incorporate all of its advice and advises researchers to choose the more salient aspects to apply, which we are doing. NESR also considered the Campbell Collaboration Equity Guidance for systematic reviews, but these focus more on the social sciences, whereas Cochrane reviews focus more on the health sciences, which is why we're choosing the latter. So in developing our protocols, the protocols and reviews will use gender-exclusive language to the greatest extent possible.

Sarah Booth: 23:48

The Health Equity Working Group has been giving guidance to our subcommittees regarding confounders. Socio-economic position, for example, is the preferred more exclusive terminology that should be used to capture a range of factors such as income, education, occupation, that may be impacting diet, health, relationships. Now, when we talk about race and/or ethnicity, the Health Equity Working Group discussed that race/ethnicity should not be interpreted as a biological construct when considering the diet, health, relationships, but rather, it should be considered as a social construct. So we also participate in extracting data and assessing risk of bias. So we extract descriptive data for health equity-related variables to the greatest extent possible. And we also address health equity-related key contributors and other variables of risk and bias assessment. And then under synthesis of the data, we consider specific population subgroups when we're synthesizing the evidence and developing the conclusion statements. We consistently operationalize and evaluate generalizability when grading the strength of the evidence, which we're going to talk about in the next slide. And then we document the research recommendations to address the gaps. And I can't emphasize how much the scientific report will be a very valuable document when we come to the end of this process to identify the gaps in future directions.

Sarah Booth: 25:43

So I just want to highlight generalizability, because this has been an area we have spent a lot of time in discussion, because one of the challenges is to be consistent across all the subcommittees when we talk about generalizability. So grades are assigned based on evaluation of five elements. Generalizability is just one. But what we're doing is we've provided the subcommittees with guidance for consistent evaluation of generalizability when grading the strength of the evidence. So some of the considerations the subcommittee will make when they evaluate generalizability include whether based on the body of evidence, do you think the results can generalize to the broader population of interest? Are the reported results similar or different in different participant populations? Are the interventions or exposures applicable to the US content-- context? My apologies. And are the outcomes applicable to the US population of interest? Okay. Yeah. Oh, there it is. So-- sorry. Here is what summarizes. I'm sorry this is a very busy slide, but it just conveys all the work we're doing, what we did in the past, what we're doing now, and what we are going to do in the future.

Sarah Booth: 27:40

I will not read these out, but I just want everyone to emphasize that the Health Equity Working Group is very engaged with the subcommittees and the subcommittees with the Health Equity Working Group. And this is a continuous process. It's not something that is a one-time discussion. Next, please. So our next steps is to continue doing all the great work the Health Equity Working Group has done throughout all the steps of the data modeling, the food pattern modeling, and also systematic review approaches as this work evolves. And we're going to continue developing health equity content for the scientific report. So I want to thank everyone in the committee. I also want to thank-- in the Health Equity Working Group. I also want to thank the whole

committee because when we're having discussions, every subcommittee is pausing and saying, "How does this relate to the health equity lens?" There's learning, listening, and really thoughtful discussion. So to the entire committee, I thank you because this is such an important aspect of our committee work. And every single person, whether they're on the working group or not, is fully embracing it. So with that, I'm going to turn over the discussion to my colleague, Angela.

Angela Odoms-Young:
29:15

Thank you so much. So we're going to open it up for a committee discussion and comments on the work of the Health Committee-- Health Equity Subcommittee Working Group. So any questions or comments?

S4: 29:34

I'd just like to applaud the Committee on their work of really integrating equity. This is a major issue as we think about the consistent heterogeneity of the US population, particularly as we look at different factors that the Health Equity Group is really being thoughtful about. I think it's a thankless job since you guys have to work across all four of the subcommittees and being thoughtful about that work. So I want to give my hats off to you and the work that you're doing.

S5: 30:05

Thank you. And thank you to Sameera, who unfortunately cannot be here because she's done a fantastic job.

Deanna Hoelscher:
30:16

One thing I'd just like to emphasize, and you said it, but I think we can only look at studies with the data that they present. And so it's very important to implore researchers to really include some of these factors that we're looking at in their research, both as confounders and then to collect those data.

Angela Odoms-Young:
30:44

Thank you. Excellent point.

Sarah Booth: 30:47

Yeah, and I would just add, Deanna, to the audience, be patient with us because, as Deanna says, we can only work with the data, with the evidence we have. So be patient with us. Thank you for that.

Angela Odoms-Young:
31:12

Anything else?

S7: 31:15

I want to assure the Health Equity Working Group that your work is definitely trickling down into the subcommittee because during our discussions in the subcommittees I am in, we definitely bring out health equity all the time in data interpretation, in analysis, in protocol. So it is definitely permeated through our work.

Angela Odoms-Young:
31:41

Thank you. Okay. So we will move on. Sorry. Food pattern modeling and data analysis. We're going to turn it over to Heather, who is the data analysis subcommittee chair.

Heather Eicher-Miller:
32:05

Thank you so much, Angela. So good morning, everyone. I'm going to be, as Angela mentioned, covering data analysis for the subcommittee three, which is both food pattern modeling and data analysis. So our agenda for this talk is going to be first, we'll talk about our process and roles. Then we're going to talk about our exciting progress since the last meeting. And then we'll be able to feature some examples of analysis that we already have. So that can kind of give you a flavor of what's coming. There's more to come. And then we'll also have some time for discussion and next steps. So first, I'll describe our process and the roles. So this slide will kind of walk us through what the data the analysis process looks like. And firstly, I want to recognize that we do have a very strong team from the Office of Disease Prevention and Health Promotion and the Center for Nutrition Policy and Promotion. They are contributing a team of staff that convene this data analysis team, and they collaborate with us as a committee. So in our work together, they have identified data analysis topics and questions that we've also discussed with them. That's finished. They've also identified

published data analysis and discussed with us additional data needs, and that's also completed.

Heather Eicher-Miller:
34:00

They've developed a plan for data analysis, which we have also had the opportunity to contribute on as well, and that's also done. And then requests have been made for the analysis that we still need. And those have gone out to our respective agencies who will actually be completing that analysis for us. Then we will gather that altogether and draft our summaries and prepare the data supplements. And this part obviously has not been done yet, but our role as a committee will be to help synthesize this evidence and develop conclusions. So then I just really want to recognize the individuals on our data analysis team. Dr. Dana DeSilva and Colleen Cruz have led this and just done so much. Excellent job, thank you so much. And then other members are listed here. And then I also wanted to recognize our collaborators in other agencies who are actually doing this analysis. They're comprised of experts in epidemiology and statistics who are applying best-case methodology to do the data analysis for us. And then finally, I want to recognize the other members of our subcommittee who are listed there. And we can't recognize enough our staff that are supporting all of our efforts here. Thank you again.

Heather Eicher-Miller:
35:52

So the final part of describing our process is reminding you of the questions that we're addressing in data analysis. So those are first covering what are the current intakes of food groups, nutrients, and dietary components in the US. Then we want to pay special attention to those nutrients and components that are of public health concern. They're the ones that the population is under-consuming or over consuming and presenting health risks. Then putting those things back together, we want to consider what the current overall patterns of dietary intake, including foods and beverages, are in the United States. And then, finally, this should all be grounded in what our current prevalences of nutrition-related chronic health conditions are in the US. So next, I'll explain a little bit more of the progress we've made since our last meeting in May. So the first three items in boxes here, I'm going to go into a little bit more detail on in a few upcoming slides. And they are our publication of the federal data analysis plan for the 2025-- and this is on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). The second thing is our evidence scan of what patterns of dietary intake look like during the COVID-19 pandemic. And then also, I'll go into a little more detail on the discussions with the Health Equity Subcommittee to inform our process and our data analysis requests.

Heather Eicher-Miller:
37:51

And then the other additional progress I've already mentioned, but that is just our kind of inventory of what analysis that are up to date we already have, and then recognition of the data we still need that we've made requests for and are going to be putting together. So now I'll describe a little bit more about the plan that we've published on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). So in this data analysis plan, we first give an overview of why we need data analysis as part of our process and the background of that. And then we describe the process in more detail and also how we're doing that, what the data analysis strategies are, the strategies, the methods that are used to actually determine the intakes in the US. And we've identified all of the analysis that will be included. And so you can see all of those things listed there, the published analyses that are currently available, and those that have been requested to date now. Just to also let you know, this process of working on this committee is evolving. And so, we're certainly keeping in touch with the Health Equity Working Group and other subgroups. And so, as things kind of manifest that we want to consider, we may update this protocol and include those things there as well. But we will keep that up to date online for you.

Heather Eicher-Miller:
39:47

So the next thing I want to go into a little more detail in is our evidence scan. So let me remind you from our last meeting, we talked about how we're updating the

guidelines since the last version came out. And during that time period, we had a pandemic. And so, unfortunately, that pandemic impacted our national data collection to let us know what intakes were like in the US. And so we have a break in obtaining that data for those years of the pandemic, which were March 2020 through December 2022. So in order to kind of give us some information, perhaps, about what may have happened to dietary intakes in the US during that time, we took on this-- actually, the data analysis team took on this evidence scan. And this scan used NESR methodology, so it was very rigorous. And trying to find any published literature that would have given us some indication of what dietary intakes looked like during this timeframe. Initially in that process, we identified over 32,000 articles. All of those articles were screened by their title, the abstracts were read and screened, and the full texts also read. At the end of the day, we had 12 articles only that were included out of the initial 32,000.

Heather Eicher-Miller:
41:32

So of those 12 articles, there were five that looked at intake before the pandemic compared to during the timeframe of March 2022, December 2022. And there were six that just looked at intakes during that pandemic timeframe. And then there was one review article. The results of that evidence showed us that the patterns of dietary intake that the population already had from before the pandemic, the intakes of the different food groups, things we need to increase and decrease, etc., there was no indication that they were significantly different during the window of the pandemic. And also similarly, when we looked at the studies that just gave us the dietary pattern information during the pandemic and when we compare that kind of to what we know intakes were like before, we don't see any evidence that that really changed. So although none of these studies were nationally representative, they were all from kind of regional subsamples or other subsamples of the population. They don't give us any evidence to suggest that intake of the things that we need to increase or the things that we need to decrease really changed. So that will all kind of be helpful to us when we are providing context in our report.

Heather Eicher-Miller:
43:21

Moving on then to our work with the Health Equity Subcommittee and the implications of that for our process in data analysis. Just to remind you, the former, 2020 DGA committee had already been looking at four demographics in their collection of data analysis to set the stage for intakes in the US. And those were sex, race and/or ethnicity, socioeconomic status, and age or life stage. We wanted to incorporate more, if we could, and kind of take a more nuanced look at some other factors that we know may be important in dietary intakes in the US. And so there were several additional demographics that are available that we considered. And we worked through each one of these in lengthy discussions to talk about several things, whether these were practical, whether they would give us meaningful results, etc. So some of those were food security, including household, adult, and child food security, the country of birth, health insurance coverage and type, living in urban or rural areas, the social vulnerability index, household food benefits, such as getting SNAP or food stamps or not, getting WIC or not, and using emergency foods, such as food pantries. We also talked about disability status as a factor, acculturation, and length of time in the United States.

Heather Eicher-Miller:
45:17

And as I mentioned, throughout these discussions, some important considerations would have been sample size. Even if we have sample size, the generalizability of that sample, who would really be represented there. And then, finally, the impact that we thought those indicators would give us based on the way the data was categorized, etc. So moving on to the next slide. The decisions that we made, the analysis that we prioritized, are, at this point, food security category for the household, getting the household food benefit of SNAP or not, and getting the food benefit of WIC or not. So this is, as I mentioned, an evolving process. And if we are able to incorporate other of

those factors on our list later on, we may have the flexibility to do that. But for right now, these are our prioritizations. And I also just want to mention the caveat that we've requested these, we may not be able to break them down each by all of the four demographics that are also listed there. So we'll have to see what we can do in that area. But we do think that this will be helpful for our ultimate report. Okay, so next, I get to feature and show you some of the examples of the analysis that we're collecting and that we're going to be putting together in the end.

Heather Eicher-Miller:
47:13

So I also want to, again, give a little caveat here that these examples are kind of setting our stage for more to come, but we can't draft any conclusions or really say anything conclusively yet until we're able to look at all of the data together and consider the body of this analysis as a whole. And again, remind everyone that you can see the full list of our requested analysis in the published federal data analysis plan on [dietaryguidelines.gov](https://www.dietaryguidelines.gov). So we're going to start out with the first scientific question that we are to address, and that is showing you some results of data that's included in addressing current intakes of food groups, nutrients, and dietary components. And the examples I'm featuring today are going to be looking at intakes, changes in intakes of food groups, and then mean daily nutrient intakes and usual intakes of nutrients and dietary components compared to the recommendations. As I keep mentioning, we have so many analysis we're doing, and examples of the other analysis that are forthcoming are listed for you on the right of the screen here. So first, we're going to talk about dietary intakes of food groups. And you can see in both of these graphs, we have four food groups that are featured, dairy in blue, vegetables in green, total fruit in orange, and fruit juice in purple.

Heather Eicher-Miller:
49:05

And we have adolescents aged 12 to 19 on the left graph. And we're showing adults 20 years and older on the right graph. We have a rich data source from what we eat in America in the National Health and Nutrition Examination Survey that gives us data. We're able to track these intakes over time. And this is showing 2003, 2004 going up to our most recent data that we have that we're relying heavily on for our work in this committee. And that is from NHANES 2017 and 2018. And then also on the other axis here, we have cup equivalents of these intakes. So we can see looking at these that we do see among adolescents there are decreases in the dairy, vegetables, and fruit juice food groups over time, however, in adults, we only see a decrease for fruit juice. Moving on to look at our other four food groups. These graphs are set up the same way. We have timeframes on the bottom axis and our ounce equivalents shown there of these food groups. So here we have refined grains in brown, nuts, seeds, soy, and legumes in blue, meat, poultry, and seafood in green, and whole grains in gray. And again, adolescents on the left graph and adults on the right.

Heather Eicher-Miller:
50:52

And here we can see that among adolescents and adults, refined grains slightly decreased while whole grains slightly increased over time. Only adults increased nuts, seeds, soy, and legumes. So within our intake of foods, there's nutrients. And nutrients are very important with regard to our relationship with health risk. And so the prior committees have always highlighted nutrients of concern in the population that we need to pay more attention to, we need to really focus on because they are so widely under-consumed. And we will be doing that again in this report. Here, I just want to give you some indication of what's going on with those nutrients of concern in our most recent data analysis. So this is for all ages one and older. We have 44% of that group not meeting the recommendation for calcium, 96% not meeting the recommendation for vitamin D, only 6% meeting those recommendations for dietary fiber, and only 30% meeting recommendations for potassium. So those were all nutrients that we need to get more of. There's also certain nutrients of concern that

we need to get less of. And those are sodium, saturated fat, and added sugars. So unfortunately, our trend is still that we are exceeding the limits of these nutrients.

Heather Eicher-Miller:
52:48

So 89% are exceeding the recommended limit for sodium, which is to get less than 2,300 milligrams a day for ages 14 and older. 80% are exceeding recommended limits for saturated fat, which is to get 10% of total daily energy from fat. 63% are exceeding recommended limits for added sugars. And that recommendation is to get less than 10% of total daily energy from added sugars. I wanted to kind of show you some of the data when we split it apart by various of those demographics that we want to include. And so here, in the next three slides, we're going to take a look at sodium, saturated fat, and added sugars when we break that down by two of those demographics. So those will be poverty level as shown in the graph on the left here for sodium, and race and ethnicity as shown in the graph on the right. And these are giving us some indication of the usual intake of sodium that's above the chronic disease risk reduction level. So we can see there is about a 5% difference. It looks maybe bigger than it is here in this graph, but it's about a 5% range for differences by poverty level and kind of similarly for race, ethnicity. But the take home from both of these, as you can see is that when we break it down by either of these, everyone is really exceeding the limits on sodium.

Heather Eicher-Miller:
54:44

Moving to the next slide, we can look at saturated fats. And we also see here that, again, they are exceeding the limits and the recommendations that we have for saturated fat. Among subpopulations by poverty level, it's a very narrow range of differences here and also by race, ethnicity. We have a little bit more of a spread from about 50% going up to 87% that are exceeding those recommendations. And this is for adults. And then let's also here look at added sugars. We've added sex here as another demographic to look at added sugars by. So we have poverty/income ratio shown in purple on the top, race/ethnicity shown in blue in the middle, and sex in orange on the bottom. And this is our calories, our daily calories from added sugars. You can see it's ranging from about 200 to 300 among these subgroups. And just as a kind of grounder on this, if we were getting less than 10% of our daily calories from added sugars, on a 2,000-calorie diet, it would be less than 200 calories. So now we're going to move into current patterns of food and beverage consumption. So this is kind of thinking about the diet as a whole.

Heather Eicher-Miller:
56:25

And our examples here are going to be drawn from the Healthy Eating Index-2020 scores and changes in Healthy Eating Index scores over time. But we do have these many additional analysis that we'll also be pulling in to answer our questions here. So this may look familiar. This is looking at diet quality using the Healthy Eating Index over time. And to remind you of what these numbers mean, our diet quality score is maximally aligned with the dietary guidelines when it's at 100. So you can see that for the US as a whole here, on the left graph, our scores are being tracked from 2005 to 2006 to most recently 2017, '18. Going from 56, kind of moving around just a slightly bit, and then we're currently at 58. So really, they're not changing very much over time here. Diet quality is poor overall. It's almost half of what we'd like to see it be. When we break that down for our most current scores of 58 over the lifespan, which is shown in the right, it's very interesting to see how these diet quality scores do change over our life. Generally, younger ages two to four have the highest diet quality in the lifespan, somewhat comparable to where we are at the end of our lives at 61. And they do take this kind of big dip in the middle.

Heather Eicher-Miller:
58:20

Unfortunately, adolescents who are, really growing and developing, still, they have the lowest HEI score of the lifespan. So moving on, now we're going to kind of break apart that diet quality score and think about what comprises that. So variety is very important and we get certain nutrients from the various components that are part of

that Healthy Eating Index score, which, as a reminder, was 58. So if we have 100% alignment of each of those components with what's recommended in the dietary guidelines, this is called a radar plot, and we would see that radar plot showing 100% alignment with this orange bar all the way around the outside. When there's less alignment, the scores, that plot will show markings more towards the center of the circle. So when we look at the blue bar on the radar plot, we can see what the actual alignment of these components are with the dietary guidelines recommendations. And I just want to point out a few features here. So this is for the total population ages two years and older, and we do have whole grains as being quite low, not very aligned with our recommendations. Saturated fats are also pretty low. We could also point out fatty acids here and sodium. In contrast, we do have some things to celebrate here. We have seafood and plant proteins in very good alignment and also total protein foods in high alignment.

Heather Eicher-Miller:
01:00:24

Moving on, it's interesting to kind of take a similar look here by race/ethnicity. And again, I'll point out a few things in the radar plot. So you can see each of the different race/ethnic groups represented by different colors. We see that we're maintaining in all of these groups really similar alignment for total protein foods and seafood and plant proteins. Similarly, for fatty acids and dairy, we really don't see much breaking apart by race, ethnicity, and alignment. However, when we look at other components like greens and beans, total vegetables, whole fruits, and total fruits, we see that there's a lot of diversity in alignment with the various meeting the recommendations for those components. Moving on. And then I also want to bring forward here this very exciting work where we actually have applied the newly released Healthy Eating Index Toddlers 2020 scores. And so, kudos to the government teams for just recently publishing this work. And we have it applied to our new data here. So the Healthy Eating Index Toddlers 2020 score is 63. So it's better than for the whole population. And when we look at the radar plot, we can see how that shakes out with regard to alignment of these various components with the recommendations.

Heather Eicher-Miller:
01:02:20

There are some things here that I think are very similar to the other age groups as a whole. I'll just point out whole grains is still low here. Other things, protein foods are relatively high. But then we see some differences for toddlers compared with other age groups. And that could be alignment of total fruits and whole fruits compared with the other age groups. Okay, the last set of data I'm going to show today are the prevalence of nutrition-related chronic health conditions and corresponding measures. And our examples to feature today are obesity, coronary heart disease, diabetes, and colon and rectal cancer. And I like this set because I think some of the major-- they are major chronic diseases in the US and so it gives us the flavor of those things. But we also have these additional analysis that will be forthcoming. So let's consider obesity among children and adolescents. And in the graph on the left, we can see that broken apart for us for boys and girls, in children and adolescents by various age groups. As we might expect, our younger age groups have a lower prevalence of obesity, but this really jumps between the 2 to 5 age group and the 6 to 11 age group: not so much change between that 6 to 11-year span and 12 to 19-year span. On the right, we get to see how these prevalences change all the way from 1963 to '65 up to current 2017, '18.

Heather Eicher-Miller:
01:04:22

And unfortunately, we do see this major upward shift in these prevalence estimates, whereas we were kind of starting at 5% here, and this is moving up to our current data of maxing at 20% or so. Moving on, we have prevalence of coronary heart disease. And this is shown here among adults split apart by sex. We see a slight difference here with males at 6.3% of adults with coronary heart disease and females at 3.6%. When we split apart by age group, again, as we might expect, we see some large increases, especially between kind of middle age going to older ages. So 45 to 65

going to 65 to 74, and then spiking a lot again among the age group that's 75 and older. Moving on, diabetes is also an important health outcome in the US. And in the graph on the left, we see that stratified for us by age. We see some big increases from 18 to 44 to 45 to 65, and then again for older than 65. There's not as much of a difference by sex and a little bit more by race and ethnicity, but not a massive range there, about 14% to 17%.

Heather Eicher-Miller:
01:06:11

And then finally, here we're looking at the incidence of colon and rectal cancer. And again, we have our stratifications by age on the left. Some similar increases like we've seen for the other chronic health outcomes between ages 50 and 64 and ages 65 and older. And then we also can look at this split apart by race, ethnicity. This data is drawn from another source besides the NHANES, so we are able to add in additional race ethnic groups here of non-Hispanic American Indian and Alaskan Native, and also non-Hispanic Asian, and Pacific Islander. And we do see a range in these prevalence estimates from about 30 to almost 50 percent. So now we're at almost time for our discussion but our next steps are that we are still in the process of gathering together all of these analysis, and then, as a subcommittee and committee we will draft our summaries and discuss the results, and then write our report and project future directions. Yeah. I'd like to take any questions.

Sarah Booth: 01:07:51

First of all, Heather, fantastic work. I mean, this is great. And it's just so exciting to see how, yes, [inaudible]. And it's so wonderful to see the health equity concepts integrated in your presentation. So one of your earlier slides showed some really striking trends in adolescence with declines of intake in multiple food groups. So what I wanted to ask-- and yet what you've shown, is obesity is going up. So do we understand how are these changes in what adolescents are eating, how does that track with changes in energy intakes? And/or do we know what they're now eating? If they're not eating all these food groups what are they substituting with?

Heather Eicher-Miller:
01:08:52

Yeah, those are really great questions. And right now, as I mentioned, we only have a sample of these most current data. So we can't fully see the big picture yet, but we will certainly be looking at energy along-- we'll be able to look at all of the different components and different things included in food that we track. And so, when we get a comprehensive picture, we may be able to understand that a little bit more. But for the data analysis, this is all going to be kind of a cross-sectional look at what intakes are. And we will be able to draw from the systematic reviews and of course, food pattern modeling to kind of put this all together in a better picture for us. Thanks.

Sarah Booth: 01:09:56

Yeah. Yeah.

S4: 01:10:00

So that was my same question. What are the food groups that we are not measuring, to understand what is it that they are eating instead of the foods that you're showing? What's missing from the analysis that we can see anything else?

Heather Eicher-Miller:
01:10:17

So we don't traditionally look at intakes of particular foods in the data analysis. We look at these things kind of at the food group level and at the nutrient level. And we may be able to kind of see where, I don't know, where certain things are increasing, others are decreasing, but we still wouldn't really know that that was a causal link because these are all kind of just a look at what this baseline intake is like.

S4: 01:10:54

But maybe like sugary beverages, I didn't see anything on that. Maybe we need to include something like that.

Heather Eicher-Miller:
01:11:00

We are. Yeah. Yeah. And actually, we don't have all that data. We do have some of it, but there just wasn't enough time to include all of those things in our presentation today, but we are certainly looking at beverage intakes.

Dr. Anderson: 01:11:20 So Heather and the subcommittee, thank you. Actually, really nicely done. And I thought your graphics were quite elegant. And so nice to see that work. I have an impression that I want to share first, which is that the health equity lens here remains so powerful and so promising because when you look at the graphics where the alignment with the HEI would sit everyone on the orange bars, should we have perfect alignment, and then you try to stratify by groups, various demographic groups, and you see those differences. It really is quite striking. And just a reminder of why we're doing this important health equity perspective. Then my question is, we're doing really well with the protein subgroup, and I wonder, is it possible just given the tight link between protein consumption and some of the nutrients of concern for overconsumption, could we look at the food group level at what's coming from plant protein and what's coming from animal protein?

Heather Eicher-Miller: 01:12:30 Thank you for that great comment. First, just to kind of speak to the first thing you mentioned, I agree. I feel like it's really important to always be grounded in looking at this intake data because we can't just assume certain things about certain subgroups. We need to look at the data because you often see things you didn't expect. You think a certain group eats a certain way, but when you look at it, it may not be what you thought. So I think that's really resonating. And then your second point about kind of digging into where different proteins are coming from. We do have in our intake data, the look at the nuts, seeds, and legumes. And I think we can see protein coming from different sources, and we will have that data. So yeah, really good point. And thank you. Yeah.

S10: 01:13:40 First of all, I was very pleased, particularly in addition to what Dr. Anderson said with regards to the health equity in lens. But one of the things that was most striking to me, particularly as someone takes care of patients from twinkle to wrinkle, and I'm borrowing that from Dr. Anderson, is this look at the HEI across the life stages, recognizing that the highest were at the ends of the spectrum. I was surprised to see older adults have a higher HEI than those in the middle. I wasn't really surprised by adolescents. But what is it that we can do to, I think, capture what's being done there and escalate those HEIs and those more vulnerable periods of life, beginning and later portions of life, while also raising the middle groups, which is a lot of us that sit in this room. What are some of your thoughts at the outset?

Heather Eicher-Miller: 01:14:34 Yeah, I think that's kind of a persistent question that should be forefront. I think maybe one thing that's kind of relevant to our work here is just that when we're thinking about-- a lot of our work on the DGA flows out through the government programs and a lot of those programs are targeting very early life up and through adolescence, through being in the public school systems, and then also at the end of the life stage as well. And so those are some of the key times that diet is so important. And yeah, I don't really have any great ideas, [laughter] but I just wanted to emphasize that it's very important what you said.

Chris Taylor: 01:15:31 And I think what's important in anchoring that is these are cross-sectional data, so these aren't changes in people's intakes over time. But we're looking at-- with this older group, these are generational differences. So all the intakes that we're looking at are going to be very different based on the generational context. Thinking about eating out and food sources, everything that kind of goes into that. So we may see higher diet quality, which gets us to greater variety within the amount of calories. But we've addressed many concerns overall about getting enough food in older adults and having potentially lower energy levels for older adults. So eating a better diet quality doesn't always mean eating enough food. And it gets to this back and forth between kind of getting the variety and also the quality and then also the sources of food and the complexity of trying to get this out of all the individual data points is that

you really have to put all the data points together to get to the foods, the beverages, the food groups, the sources, the amounts, the quantities, the contributions and all that, so.

Sarah Booth: 01:16:45

And let's not lose sight of the fact that it's in the 60s, right? The range here is 0 to 100, so.

S12: 01:16:58

Thank you so much. It was such a delightful presentation and a lot of work, so I appreciate the subcommittee, and the staff. I was wondering if you could comment on the use of the HEI-2020 for data that were actually before that recommendation came out, and the trends over time. So we're looking at comparing intake towards the recommendation that came after, because the latest data you have is from 2017 to 2020. And how can we maybe take that into consideration in our interpretation as well?

Heather Eicher-Miller:
01:17:42

So federal staff will have to correct me if I'm wrong on this, but I believe that the HEI may have been created with the 2015 to 2020 guidelines. But I'll let [inaudible] Rebecca answer actually.

Rebecca: 01:18:03

Sure. Each edition of the HEI can be applied to data collected at any given time point, but you have to remember that you are comparing those intakes to a set of standards that reflect the 2015 dietary guidelines or the 2020 dietary guidelines. The HEI-2020 and the HEI-2015 have the exact same scoring standards. So the paper that was published in September describes a complete evaluation of the key recommendations and the dietary patterns, and there weren't any substantive changes that resulted in a change in scoring standards. And so when you're looking at differences across time, even though, in 2005, the Dietary Guidelines for Americans, the 2020 to 2025 edition didn't exist, it's best to hold everyone to the same standards and see how those diets aligned to the same set of standards so that you're comparing apples to apples across those time periods. But we are not implying that in 2005-- or 2005, '06, that individuals at that time were trying to achieve the 2020 dietary guidelines. We're just evaluating their set of intake. Does that help?

Heather Eicher-Miller:
01:19:33

Yeah, thank you.

Angela Odoms-Young:
01:19:39

Thank you so much. Oh, go ahead.

S7: 01:19:40

Oh, yes, that's right. I have two questions. One-- oh, sorry, somebody-- oh, okay. All right. So I have two questions. One is that radio dial that you show of the adults. And the seafood and plant proteins, the mean score was perfect. And yet another side you show that the percent of people who are meeting the fiber recommendation was very low. So within the seafood and plant proteins, there's the legumes, which is fiber powerhouses. And so in that sense, maybe wondering if we look into a little bit deeper to see whether that perfect scores was driven by the seafood versus the legumes and see what we can do to, in future additions of the dietary guidelines, something to help boost the fiber intake for that. So that's question number one. But you have something to--

Heather Eicher-Miller:
01:20:41

Well, just a very astute question and just to remind you also though that the vegetables--

S7: 01:20:49

Is very low [crosstalk] as well. Yeah.

Heather Eicher-Miller:
01:20:49

--are pretty low for health [crosstalk]. So they're contributors as well. Yeah.

- S7: 01:20:55 Yeah. That's right. I just don't know what people are going to look at and say, "Oh, well, yes, our plant protein intake is wonderful." And there might be something deeper to dig into. So that's question number one. Question number two is back to your evidence scan, the diagram that you showed. And the numbers is very-- I'm not surprised by numbers that you started with many, many papers and then eventually ended up with much, much, much fewer. My question is about the ones that got screened out has anything to do with the strength of the methodology. Because during the pandemic, it's so difficult to collect data and to use good dietary assessment methods to collect data. And so, in terms of sample representation-- you did mention that it's not going to be nationally representative. But in terms of where they did the sampling and what dietary assessment method was used, I was just wondering if you could comment a little bit on the ones that got screened out and what was the reason that it got screened out.
- Heather Eicher-Miller:
01:21:59 Yes, great question. I'm looking over at Colleen or Tina to help with it.
- S14: 01:22:05 I can comment a little on the methodology piece. So we did exclude studies that use dietary screeners, so that took out a lot through that. Studies were included that used 24-hour recall, food frequency questionnaires, some of the more rigorous methodologies as recommended. So that was a contributor in terms of methodology.
- S4: 01:22:45 This is back to Sarah's question. I think with that radar plot, again, it's almost like a double negative. You have to think if it's low on refined grains, that means they're consuming more refined grains. So I think with adolescents, you'll probably find more of that. They eat a lot of snacks and that would fall into the refined grains and the added sugars. So some of those foods will be interesting to look at to see if it reflects that. And I think it'll also be interesting for subcommittee four, when they look at eating occasions, to see how that kind of triangulates with the data that's shown.
- S15: 01:23:34 Excellent work, again. And one of the things that was mentioned about the health equity lens, which is really important to see the subgroups and then the discussion that you had around participation, food insecurity being included, participation in the federal programs. But one thing that I think is difficult to overcome that continues to come up is the lack of data on tribal and indigenous communities. And I'm wondering, either in the evidence scan or within the data sources that we do have, do you have any recommendations or thoughts of how more data on indigenous communities could be included in the data analysis work?
- Heather Eicher-Miller:
01:24:26 Yeah, I think this is a persistent question. And one that I unfortunately can't really speak to NHANES very well. But it would be wonderful to get more data from our national surveys that wouldn't be excluding certain groups, that we'd be able to get large enough samples to address some of these needs. And we want to celebrate and lift up the data we have, but keep pushing that there are still needs for this data. So perhaps it's something we can also comment to when we write our report. But yes, we really need that dietary intake data to show for all the groups represented in the US. I don't know if anyone else has anything to add about that.
- S16: 01:25:47 Yeah, this was a fantastic presentation. Seeing all of this descriptive information synthesized is invaluable. And I think we're very lucky that the NHANES and related groups continue to update this because it's so much information. Speaking to the protein group that Cheryl and Teresa also mentioned, I want to understand this better. If that's the one spot where Americans seem to be doing okay in terms of adherence or meeting, then we have to make sure that category is not making us sick. And we see that chronic disease is only increasing. So even though we're doing well, there's probably a way we can do better. So understanding, really, what that total

protein food is comprised of and looking at those trends and those subgroup information, I think, will be really important because if that's a category that is there and people are consuming it as they should, then it seems like an opportunity to really move the needle on a food that is already widely accepted food group. That's it.

S17: 01:27:08

Again, amazing presentation. I just have a couple of minor comments. One's to Deanna. So when you're looking at the radar plots, which are super fun to look at, I think saturated fats, added sugar, sodium, and refined grains are all reverse-coded.

Deanna Hoelscher:
01:27:22

[Yes?].

S17: 01:27:22

Right? And so it'd be nice to break those apart graphically, in a way, instead of thinking, "Oh, they're closer to the--" right? It's not intuitive--

Deanna Hoelscher:
01:27:30

Well, it's showing us alignment, though, with the guideline.

S17: 01:27:34

[crosstalk]? Yeah.

Deanna Hoelscher:
01:27:35

The scoring isn't really represented, the plots are more about their alignment with the recommendation.

S17: 01:27:44

It would be kind of nice maybe to group those, because they're all-- and actually it makes me think, fatty acids, I'd like to learn more about fatty acids. I don't really know how that one fits. Minor comment for seafood and plant proteins, odd combination. But I'm guessing that Americans eat very little seafood, so it's really mostly plant proteins, right? We don't eat much fish, do we?

Chris Taylor: 01:28:09

Except the recommendation is eight ounces based on a per week. So as you adjust that eight ounces per week from the previous recommendation, it makes a smaller threshold to get over in comparison. So it adds some context to the values that we get.

S17: 01:28:30

Great. And I just love how non-Hispanic Asians are crushing it for greens and beans.

?: 01:28:37

That and whole fruits.

S17: 01:28:39

Yeah, lessons to be learned. Great breakdown. Thank you very much.

Angela Odoms-Young:
01:28:50

Are there any more questions for Heather? If not, let's do a round of applause. Great. We have now food pattern modeling with Chris Taylor. Take it away, Chris.

Chris Taylor: 01:29:15

Excellent. Thank you. And I feel like this is a great kind of segue from-- it identifies what a lot of our current consumption patterns are, our trends over time. It also identifies where you capture some data at the food group level. There are foods underneath those that contribute to those food group levels. And at the same time, there are combination foods that basically get disaggregated into-- when you eat a combination dish, it's going to contribute to the protein foods, may contribute to the dairy, may contribute to the grains. So combination foods then get disaggregated and put into these graphics. So the selections that we make around here get to our quantities, but also the selections within drive what that nutritional composition is of the overall dietary pattern, and not just the food groups, or the total nutrients at the end. And so getting down to those levels of the foods within the food groups really kind of gets to this crux of the food pattern modeling analysis.

Chris Taylor: 01:30:21

So I feel like this is really a nice, kind of, transition of where are we, what are the current consumptions of different food groups, what are the potential modifications we might make, and then how do those nutrients then shift? Because the earlier

questions of, what are they eating instead? All the dietary changes are Newtonian. So when you take something out, you got to put something else back in and they-- today will be looking at what happens when we make modifications and substitutions and then being able to track that at a nutrient level-- committee for their-- learning everything that's between my ears on all this NHANES data and the FNDDS and FPEN data that we have. And the structure of all this that really helps us understand what these food patterns are, how the groups are different from the-- foods that are different from the nutrients. And an amazing staff that has been supporting us, once again-- that have really helped us decode because we're getting into a lot of very innovative questions that have come up from public comment. Some of these were addressed yesterday. Some of them have been through our, what, 500 public comments around increasing flexibilities. So how we can navigate this space to make this work. Make sure I get to my [inaudible].

Chris Taylor: 01:32:04

Okay. So where are we and where are we going? So this kind of gives you a map of how our work is progressing. So during the second meeting, we had presented protocol one, which was really around developing nutrient profiles and refining the nutrient profile to not include foods and development in the nutrient profile of lower nutrient density. So we walked through a lot of the different scenarios of the ways that we would identify those. And we're trying to create a title for this that would help us understand and kind of more easily portray what that new nutrient profile would look like. Because the prior approach included all foods into the development of the nutrient profiles that would then be used for all the analyses after. So we discussed those. The committee has been working through that process. A lot of very interesting, a lot of very difficult conversations in implementing it. But we're in that process. But also part of our conversation has really been with the health equity lens around-- because in our protocol one, it basically said we can examine this by race, ethnicity differences, income differences, etc. But there may be differences in foods consumed within each group that might change the proportions of what the different subgroups may look like. And these were conversations we had during the second committee meeting where different foods within different subgroups may be consumed more than others.

Chris Taylor: 01:33:59

So the proportion could reflect differently within different population subgroups. And as Heather very graciously mentioned, what we have are the what we eat in America data from NHANES that allow us to explore these on a fairly large scale as far as dietary intake data is concerned. So we have the opportunity to explore these within the population subgroups that we have represented within NHANES. So it gives us a lens to start this conversation. So the way that we're progressing is that we can develop the nutrient or the basis nutrient profile across the entire data set and then we create and we're going to present today basically the population subgroups protocol that will allow us to then see the implications, the changes in the nutrient profiles, if there are, based on the population subgroups, if we take that basis plan and carry it forward. So it gives us a chance, one, to develop the new refined protocol, but then to look and see if that nutrient profile would be different if we did it within the population subgroups that we have available within what we eat in America. So as we put those two together, the revised nutrient profile and examine for differences within population subgroups, we can then synthesize the results to determine what we would do at our next step of these food group modifications. So partially, it's evaluating the food groups in this step two. What are they contributing? What happens if they're removed? And what are the potential changes that happen if you shift subgroups or increase flexibilities within these groups?

Chris Taylor: 01:35:57

So our second set of-- and the protocols that we're going to talk about today are highlighted protein foods and looking at increasing flexibilities in protein foods, dairy

and fortified soy alternatives, and staple carbohydrate foods, which Sarah has mentioned earlier. So the protocols that we're going to talk about today are the first three that we've developed to work our way through this prioritized list. And we also wanted to then-- we modified our approach, which I'll go back here, for food group and subgroup quantity modifications. Instead of bucketing those altogether, we've made the decision to basically add two new protocols to the list to have a vegetables assessment and have a fruits assessment so that we can see across all these individual food groups basically that are represented on my plate. What happens when we look at the nutrient contribution based on the representative foods, changing their quantities, and what those implications are for those nutrient estimates that we get in our plans? So once we work forward from this information, a lot of our conversation really kind of fell on this population subgroups piece. Is it a before or is it an after? Do we identify potential considerations prior? Do we [inaudible] population subgroups if we make these changes? But what we've been able to do is we're going to test the patterns within the population subgroups at the beginning to see if we need to carry them forward.

Chris Taylor: 01:37:53

It gives us insights as we look at the different potential changes for protein foods, for dairy and soy alternatives, what types of staple carbohydrate foods we may want to make sure we're including. So as we conduct the center set, we can be informed by our step one. And then at step three, we can synthesize the evidence across all these different food group changes, potential changes, modifications, see it within the lens and the implications within population subgroups, and then use that to kind of draft dietary patterns, but help us inform the diet simulations because those diet simulations, as we mentioned before, are the opportunity to now say, "If you eat these foods to fill these patterns, it gives us much more flexibility to test lots of different ways that people may make selections beyond even some of the population subgroups that we have are kind of limited to with what we eat in America." So we're able to explore these from an empirical standpoint kind of in our step one and step two. But step three really allows us to be more creative and more representative in the different ways that the diets may be consumed through the simulation step. So what we're going to go through today, I'm going to walk through the new profile development. So our protocol for the What We Eat in America population subgroups.

Chris Taylor: 01:39:39

I'm going to talk through the three protocols that we have for protein foods, for dairy and fortified soy alternatives, and staple carbohydrates, which I think these all really kind of anchor and address many concerns of conversations we've had this morning, public comments we had yesterday, really around how we're addressing flexibilities within the groups and what those nutritional implications would be when we calculate nutrient profiles. And then we'll talk about next steps. Where are we going next with our remaining protocols? So our new protocol is the nutrient profiles for What We Eat in America subgroups. So our question is, what are the difference in nutrient profiles when calculated using dietary intakes using population subgroups? So as I mentioned, we'll be able to use the population subgroups that are publicly available within What We Eat in America, the NHANES data sets, anchored within our FNDDS and FPED databases. And looking at these, to give you a little bit kind of more detailed picture, this is what our pathway. Our first step will be to create that basis profile that looks at our protocol, one steps that we presented last time. And then our analysis will then be conducted using what's the base nutrient profile based on the total population, which has everyone's intakes contributing from a nationally representative standpoint.

Chris Taylor: 01:41:26

But then being able to calculate the nutrient profiles by race, by ethnicity, by poverty level, and by age and see if we have different nutrient profiles that emerge based on the foods, the contribution of the different types of foods within the food groups to

create those nutrient profiles. So it gives us a chance to empirically test for differences, evaluate those differences, and determine what steps we'll use to move forward. If we don't see differences, we may move forward with a total population and then see how those play out as we continue with the next set of protocols. But if we do identify nutrient differences, we can carry that forward to develop nutrient profiles specific for population subgroups. So this allows us to truly investigate and systematically evaluate this, where I think protocol one, it was a little bit more of, "We can look at it this way." But this gives us far more of a structure to address some of this lens.

Chris Taylor: 01:42:46

So the new protocols that we're going to walk through today, I have the three new protocols that we have been working through and they all have a whole host of different modifications, subgroup shifts, and things like that, which try not to get so far down into the weeds, but really kind of look at the types of changes and shifts that we are looking at within either quantities of how much are recommended within the plans, the subgroups of the different types of foods that may be used more or less. A lot of our comments were addressing around different food choices within the food groups. And then how do those translate into the nutrient profiles based on those representative foods? So we're going to talk about protein foods and dairy and fortified soy alternatives and then staple carbohydrate foods. So the protocols that we'll present today will be listed up on dietaryguidelines.gov for public comment. So I'm going to walk through the details of our specific objectives within each of these, and then we'll take questions.

Chris Taylor: 01:44:17

So the way we're going to walk through is to look at the rationale behind the potential changes and tests to these different food group compositions. Look at some key definitions that will be pertinent to the analysis. Talk about our analysis questions and then the summary of the analyses as to what they're going to help us uncover with this kind of systematic and methodological approach to the others. So for protein foods, as our first group, we've had a lot of conversation in our groups, looking at a lot of the data that we have across the various groups that Heather and the whole data analysis team has put together. Looking at the various sources of the protein foods group that make up the food group of protein foods, which is different than dietary protein. We get dietary protein from a multitude of food sources, but the protein foods are combined together because of the similar nutrient contribution, which we'll see across all the different food groups, pulled together because of the similar nutrients that they provide. So we have the meat, poultry, and eggs. We have the seafood group, which we've talked a little bit about. You have the nuts, seeds and soy products and then beans, peas and lentils. So as you look at the previous recommendations and how these are carrying forward, we are providing various sources of protein foods within the way that the plans are set up.

Chris Taylor: 01:46:15

And one of the things that we'll be testing from our questions coming forward are different ways of getting them from more plant-based-- or more animal-based approaches and what do those nutrient differences look like. So animal or plant sources may be modified because of individual's needs, such as allergies, budgetary considerations, cultural or religious norms. So there'll be lots of reasons why certain individuals will choose different options within these. Certain dietary patterns have been linked to red and processed meats, including all-cause mortality and certain chronic diseases. So what we're doing is going in to be able to explore these more thoroughly and identify what are the implications of making shifts within each one of these categories. And this allows us to look at them a little bit more broadly and increase the flexibilities. And what are the implications of increasing the flexibilities within the plants? So our main questions here are what are the implications for nutrient intakes when modifying the protein food group or subgroup quantities in the

healthy US style pattern or the healthy vegetarian style? And the second question, what are the implications for nutrient intakes when the proportions of animal-based protein foods are reduced and the proportion of plant-based protein subgroups are increased? So for kind of a level setting, these are the current US-style healthy patterns and the breakdowns of the protein food subgroups based on the prior analyses, the prior group's work.

Chris Taylor: 01:48:16

So we do have a combination of plant, seafood, animal sources as part of the plan currently. So one of the things we'll be assessing is how do these currently work? And then what happens as-- in the second question, what happens as we reduce animal sources and increase plant-based sources? These are our hypothetical transitions within, but a few important definitions just to kind of be aware as we move forward; animal-based plant protein sources are defined as originating from animal sources, count towards a protein group. Plant-based source is defined as those from plants beans, peas, lentils, nuts, seeds, and soy products. Soy products, what different foods contribute to the soy products. And also, just trying to create a definition around pescatarian diet. There are lots of different definitions and ways that people will eat more plant-based. Plant-based may not always equal vegetarian or vegan. So trying to create somewhat of a standard definition for pescatarian, as a dictionary definition that includes fish but no other meat products. So this will be the approach that we'll use in testing kind of a more pescatarian approach. So the first objective within the protein foods is to really understand the current nutritional composition of the food group and what it is within the patterns.

Chris Taylor: 01:50:13

So what are the current protein food sources? How do those match up based on taking the current food group-- which let me just jump back for a second so we can just level set with seven-ounce equivalents of meat, poultry in the dietary pattern for 8,000 calories-- or 800 calories, 8000 calories is probably more for marathon training. But the 2,000 calories for a weekly intake of 26 ounces per week. How do we then identify what foods and the proportion of foods that are being consumed and the nutrient profiles from those? And then how does that nutritional contribution of that food group from this compare to current intakes? So it allows us to kind of level set to say, "Of the foods that were reported in 2017, 2018, what is the nutritional composition of that nutrient profile compared to current intakes?" So it kind of allows us to level set at the very beginning for what the food group is contributing. And then our objective two will then be this basically assessment of what happens when you incrementally reduce the food group by one-half ounce or one-ounce equivalent in protein foods and basically track the differences of what happens within the nutrient profile. So as you take the current plan out as it exists and reduce it by one-half ounce, incrementally, you can track the changes in the nutrient profile that comes from the dietary pattern.

Chris Taylor: 01:52:15

So then we can look to see what those hypothetical reductions may do to various nutrient intakes. So it allows us to really systematically look at if we're going to take out or reduce protein food intakes, what are the nutrient implications for those steps? For objective three, this is where we're going to test this hypothetical of reducing animal-based protein foods and increasing plant-based protein foods in their quantities. So what happens if you make the shift to consume less meat, poultry, eggs, and seafood and increase plant-based protein are beans, peas, lentils, nuts, seeds, and soy products. So what happens as we make shifts to decrease the amount of animal protein food sources and increase the amount of plant-based protein sources and be able to track those on the actual nutrient intake implications for these hypothetical shifts, okay? Objective four is to do much the same as objective three, reducing animal-based proteins and increasing plant-based proteins, but maintaining

the seafood recommendation. The prior dietary guidelines had specific recommendations around seafood intakes.

Chris Taylor: 01:53:51

So there was evidence for seafood and cardiovascular disease risk, and recommendations made around that. So in this case, this will be testing, reducing animal products, but maintaining the seafood recommendation, and increasing the plant-based contributions, and then being able to track those changes. So this gets a little bit more to, more of a pescatarian type tracking that from the intakes. And then our fifth objective was to look at a little bit more-- or a little bit more nuance within the different types of protein food sources. So looking at potentially, maintaining eggs and seafood within the dietary pattern, or using seafood and nuts, seeds, soy, beans, peas, and lentils as protein sources: so really looking at the different types of combinations of what the different food sources would be for protein foods, and then determining what types of changes will we see in the nutrient intake profiles based on changing these quantities and the contributions of the foods to the protein group.

Chris Taylor: 01:55:34

So the second protocol that we're presenting, that we've developed is the dairy and fortified soy alternatives modification. So our rationale that the dairy and fortified soil alternatives come from a variety of food choices: fat-free, low-fat fluid milk, dry, evaporated cow's milk, lactose-free, lactose-reduced, fortified soy beverages, and fortified soy yogurt based on the previous guidelines. Those were included. This includes buttermilk, yogurt, kefir, dairy desserts, cheeses, fortified soy beverages, and yogurt. But it does not include currently non-dairy alternatives in the plan. And if we kind of think back to the market change that's happened since the last dietary guidelines, we've seen a lot more products. And thinking about the way-- even be able to attract these within NHANES, it has to be pervasive enough within the population to be consumed regularly enough to then kind of come onto the radar to be able to be tracked. So as new products emerge and as new formulations happen, etc., being able to keep tabs on what some of these other alternatives may be, you may not capture enough consumption within this. But now we're starting to see many of these non-dairy alternatives on the shelf now that wouldn't have been in our 2017, 2018. So we're looking at what some of these potential modifications might be within the food group itself.

Chris Taylor: 01:57:29

Systematic reviews of linked healthy dietary patterns, which include low-fat dairy, as a component to reducing risk for certain cardiovascular diseases. As a whole, again, the food groups are put together based on the nutritional composition. So they're contributing calcium, potassium, and vitamin D, nutrients of public health concern. As we have seen already, we have lower than recommended intake levels for dairy foods and soy beverages from our ATI data. As we've heard, it also contributes major food allergies from cow's milk and soy, but also lactose intolerance or other intolerances. So we're looking at ways-- what are the nutritional implications for the nutrient profile if we make modifications for various sources of dairy or dairy alternatives within the dietary pattern? So a few key definitions, non-dairy alternatives, basically the host of products, foods and beverages that may be marketed to the public as milk, yogurt, cheese alternatives from plant-based sources. And fortification is an important aspect for us to consider for both the dairy protocol as well as the staple carbohydrates that we'll talk about next. In terms of when vitamins or minerals are added to foods to either replace what may be lost or in comparison to other products for similarity.

Chris Taylor: 01:59:23

So our analysis will have to consider the amounts of nutrients that may be added to foods, either for comparability or for other public health needs as we talked about [fully?]. So looking at our current pattern for dairy and fortified soy alternatives, we're looking at two cups per day for the 1,000 calorie level. We did not model under 1,600

calories for children, were not modeled in the previous guidelines. For adults, they did not model under 1,600 calories. But for adults in the 2,000 and 3,000 calorie level, the total recommendation for all fortified and soy alternatives was three cups per day, cup equivalents per day. So the question that we're looking at-- the two questions that we're looking at here are, what are the implications for nutrient intakes when modifying food group quantities and modifying the quantity proposed in the plan? And then what are the nutrient-- what are the implications for nutrient intakes when dairy foods and beverage sources are replaced with non-dairy alternatives?

[silence]

Chris Taylor: 02:01:02

So our total for our population that we're assessing within this, these will be done for the ages two years and older. The 2020 guidelines developed patterns for 12 to 23 months and address those for very specific life stage recommendations, nutrient needs, addressing growth and development, a whole multitude of considerations in terms of fat recommendations, calories, nutrient needs, etc. So we're not going to make modifications within that as well. The American Academy of Pediatrics has not recommended exclusive consumption of non-dairy alternatives in place of dairy milk within this age group and only recommended when medically indicated to meet specific dietary patterns for ages 1 through 5. So we'll be focused on ages two years and older for our life stage. The analyses that we'll conduct, we have basically seven objectives that we're going to test as we move forward with these. Our first objective, much like the protein foods, is what is the current consumption? What is the nutrient composition based on our food pattern modeling status to develop the pattern based on proportional contribution of foods? And how does this compare to current intakes for dairy?

Chris Taylor: 02:02:45

Our second objective, following the similar recommendation or similar process, to incrementally reduce dairy intakes to see what happens to the nutrient profiles and the estimated nutrient intakes as we incrementally reduce quarter cup equivalents for the 1,000, 1,200, and 1,400 calorie levels because of the smaller recommendation. And at half-cup equivalent increments for the 1,600 to 3,200 calorie levels to track what happens with the nutrient profiles as we reduce. And ultimately, objective three would be elimination of the dairy and fortified soy alternatives group within the profile. So objective two will be to incrementally decrease the quantity, and objective three will then be to look at the pattern and the nutrient profiles with the hypothetical removal of dairy from the pattern itself. So we'll be able to track as it's reduced, what are the nutritional implications for those estimates.

Chris Taylor: 02:03:59

Okay. So then, objective four is something that we did not have subgroups within the dairy and fortified soy alternatives previously. They were listed as dairy and fortified soy alternatives, but we're going to draft subgroups and model their proportions for milk, which would be dairy and fortified soy milks, cheese, and then yogurt and dairy and fortified soy alternatives to really explore what are the composition of the different subgroups within dairy. What are the nutrient profiles within each of those subgroups? Develop basically new subgroups and then evaluate the nutritional-- or the nutrient intake implications if we modified those hypothetical proportions. If it came all from milk, so dairy or fortified soy milks, if it came from cheese, if it came from yogurt, what would the nutrient profiles look like differently if we modified those hypothetical proportions to the group? So this would be really exploring something new that we haven't done before.

Chris Taylor: 02:05:27

And then objective five is going to be a little bit more a little less on what we have available because FNDDS at this time is then going to be limited to the foods that were available during the time that the data were collected, looking at shifts. So we're

going to have-- looking at the variety of non-dairy alternatives that may have existed in FNDDS based on the time of data. But how can we explore what is the nutrient profile of different products of non-dairy alternatives? So it becomes more of a scan of existing information. We have an unbelievable resource within USDA's Food Data Central and the addition of the branded products database that gives us access to more information, but also isn't the full 64 nutrient profile that we would get from an analytic framework. So it has some opportunities, it has some challenges, but it really allows us to get in and look a little bit more at the differences of the products that may be on the shelf to understand how alternative dairy sources that are available, what's the composition, the fortification level, fortified versus unfortified? Are they sweetened? Are they unsweetened? So look at those, how those compare to dairy foods and that composition. So it gives us a much better opportunity to really understand and explore what those products may be.

Chris Taylor: 02:07:15

And then once we have a better understanding of what that profile will look like of a bigger kind of scope of non-dairy alternatives, we can model the proportions of non-dairy alternatives to dairy sources and again, evaluate those nutrient implications for the hypothetical replacement of dairy foods with non-dairy alternatives and do this for non-dairy milk, cheese, and yogurt. And then our last step, and this was something that did come up in public comments yesterday, and it's an element that we've discussed in various aspects of how we move forward with this, is that when plain milk is consumed and if whole milk is consumed, it isn't eliminated from the diet. But the way that whole milk would then be represented within the food pattern modeling approach would be for the nutrient-dense version and limiting saturated fat, added sugar, and sodium. So a skim milk would be used in its place. So when we're modeling dairy consumption, we're modeling it for how it would be matched to the dietary guidelines for minimizing saturated fat intakes.

Chris Taylor: 02:08:54

So what we've talked about is what if we made modifications to the representative food to use instead of using skim milk for milk that we used a reduced fat milk, or 1% or 2%. So being able to look at what is being used as a representative food. For cheeses, it would go down to a non-fat cheese that would be lower in sodium. So what are the potential modifications that we can make to the representative food that would get us a little closer to what may be hypothetically normal consumption of some of the foods and products that are more widely available? And then how does this translate into the differences in nutrient profiles that we get? Okay. Deep breath. Okay. And now to our final protocol, the staple carbohydrate foods. And this is one that Sarah alluded to at the very beginning. We had a lot of public comment around. Not all populations eat grains. Some get basically staple carbohydrates from other sources besides grains. We're seeing some policy implications around what types of substitutions may be made within this group.

Chris Taylor: 02:10:24

So the way the current dietary pattern exists is that the grains exist as breads, rice, pasta, and tortillas. But we're considering what would be the nutrient implications if staple carbohydrate foods or kind of the basis included starchy vegetables, beans, peas, and lentils, or red and orange starchy vegetables like winter squash or sweet potatoes might be more reflective of the staple carbohydrate sources that different groups may use that don't particularly consume grains. So it allows us to expand to, not only for those that may avoid gluten for allergies and gastrointestinal sensitivity, but also for different cultural foodways and how different communities may consume carbohydrates from a different source. Whole grain and vegetable intakes, as we've seen, have remained below recommended levels, and systematic reviews, again, have anchored these behaviors to lower risk of chronic disease, fortified and rich refined grains, as well as whole grains. So how do these all play forward, and what do the potential modifications do for the nutrient composition of the group if we were to

make this hypothetical change? So it would increase flexibilities within this staple carbohydrate approach, but we'd have to look at this from an empirical standpoint to see what are those-- or those nutritional implications may be.

Chris Taylor: 02:12:19

So our definitions, staple carbohydrate foods for the purpose of these analyses then would be foods that contribute to the grains group, starchy vegetables, beans, peas, and lentils subgroup and the starchy vegetables within the red, orange, and vegetable subgroup. So looking at sources that commonly-- they're maybe commonly consumed as staple carbohydrates. Again, our fortification addressing, especially of consideration within this, are the refined grains and increasing folate-- or adding folate to address neural-tube defects, as mentioned earlier in our data analysis presentation. But the implication-- us being able to assess the implications of replacing fortified grains with other food sources to be able to identify what the different nutrient compositions may be of making these hypothetical modifications. So currently, the way that our healthy US-style dietary pattern is composed for a 2,000 calorie diet is six ounces of grains, three, basically split half your grains as whole grains, addressing this fiber-related question but also addressing fortification and the delivery of folate for neural-tube defects. And then our vegetable recommendations within the vegetable subgroups on different weekly recommendations to look at the variety of fruits and vegetables.

Chris Taylor: 02:14:05

So we've heard eating a variety of colors and food sources within this. So our first question, what are the implications when modifying the quantities of the grain group within the healthy style pattern, which is going to be those first three lines looking at the quantity of those six ounces daily within the 2,000 calorie pattern? And then the second question is looking at those vegetable sources, starchy, beans, peas, and lentils, and red and orange vegetables to count towards the staple carbohydrate as staple carbohydrate foods in combination with or in lieu of grains. So quickly, this just kind of gives a snapshot idea to see the way foods may contribute to-- various food sources may contribute to grains, looking at a list of whole grains, a list of refined grains, but then also the starchy vegetables, beans, peas, and lentils, and red and orange vegetables that could then contribute to the starchy or the-- sorry, keep saying starchy, the other staple carbohydrate foods. So it really gives us a way of looking at the different ways that we can increase flexibilities within the staple carbohydrate foods sources. So on the right-hand side for beans, peas, and lentils, basically those that are bolded would be the ones, starchy vegetables. All the starchy vegetables would count. The beans, peas, and lentils. Beans, peas, and lentils.

Chris Taylor: 02:15:53

But then the particular starchy, there is not a subcategory currently for starchy, red and orange vegetables. So within the red and orange vegetables subgroup, the tomatoes are going to be a higher contributor within the proportional contribution. But this allows us to really identify the starchy red and orange vegetables that are being consumed as a staple carbohydrate in subgroups. Okay. So five objectives within our staple carbohydrate analyses. And first is to look at the nutritional composition of the food group within the pattern based on the current proportional contributions. Comparing that to food group or current intakes and then also looking at nutritional composition of specific individual grains and allowing us to explore a little bit more around food sources, refined grains, whole grains, etc. So this allows us to understand the current composition of the pattern and the foods that are contributing. The second objective will then be hypothetical modifications. Looking at these from current nutrient composition, sorry, of the current grains group, the starchy vegetables, beans, peas, and lentils subgroups, and then understanding the nutritional composition, the nutrient profiles, for starchy red and orange vegetables.

Chris Taylor: 02:17:50

So first, we need to understand the current composition of the grains group and be able to assess the nutrient profile. But then to be able to assess the nutrient profile for grains compared to starchy vegetables, compared to starchy red and orange, to see what potential nutrient differences may exist. For objective three, analysis to understand the nutritional contribution of the food group. So to incrementally reduce the grains group and evaluate those nutrient profiles. So as we reduce by either one-quarter or one-half-ounce equivalents within the plans and assess the nutrient patterns that we see. As you reduce grain consumption, what will we see in those simulations for the nutrient? What are the nutrient intake implications? Okay. So this will be done for both refined and whole grains and grains. And then we look at hypothetical substitutions of what happens if we reduce refined grains and increase with starchy vegetables? What happens if we reduce whole grains and increase starchy vegetables? The same, what happens if we reduce refined grains and increase beans, peas, and lentils in their place?

Chris Taylor: 02:19:34

So a stepwise progression to look at each of the different potential modifications of starchy vegetables, beans, peas, and lentils, starchy red and orange, putting all of those starchy together. And then what happens if we incrementally increased all of those sources and reduce the grain intakes? So increased by a quarter or a half cup equivalent and seeing the changes increasing a quarter to a half cup equivalent of the substitutions for a half to one ounce equivalent reduction in the grain intakes. Okay. And then overall, if we reduced all grains, so before it was, was it refined or was it whole? And in this case, what happens if we reduce all grains with the proportionality of both refined and whole grains? In this half-as-whole scenario, if you reduce maintaining that half of the whole grains-- or half of the grains are whole grains and increasing the other food sources, and then being able to monitor changes in the nutrient estimates that we get from the pattern, based on the composition of these groups.

Chris Taylor: 02:21:01

So our next steps, once we get past this work, again, we're going to come back. We're developing that basis food pattern now, working through that process. We're proposing this population subgroups protocol, as well as the protein foods, the dairy-fortified soil alternatives, and the staple carbohydrate foods within the context of the information. So we have to complete step one before we can then move on to these step two sets of analyses. So once we've got those nutrient profiles established in step one, we'll use that to carry forward, but also be able to consider any subgroup considerations that we need to carry forward within the step two analyses to bring that lens to the data. And then the plan will then be to present the remaining protocols at the meeting in January that will round out our work so that we can complete those protocols, identify what any potential nutrient implications are for the various shifts that then help us inform the recommendations we make for diet simulations.

[silence]

Chris Taylor: 02:22:38

I know there are questions.

Sarah Booth: 02:22:42

Chris, thank you for walking it through. Sometimes I know it's painful to list all the permutations. But I think by listing all the permutations of what you're doing, you're really focusing on flexibility and acknowledging there are many foods in our food system, and dietary patterns, by necessity, have to honor that flexibility. This is a very hypothetical question. I don't want to-- I don't want to suggest we unravel nomenclature. But as I'm sitting here listening to what you were proposing, where do you think we as a committee can improve on our use of nomenclature? Just your staple carbohydrates example for you've got grains, you've got starchy vegetables,

you've got bean, lentils. These are not intuitive to me when I see a grain. And I'm wondering how we can improve on our use of nomenclature because I think certainly listening to the public comments yesterday, I think a lot of the work we're doing, people don't recognize because we may not be introducing a precision in our nomenclature. Maybe we're too precise. Maybe we need to use different nomenclature. Thank you again for a great presentation.

Chris Taylor: 02:24:14

I think we could spend the rest of the day talking about what that means. And I think there's a couple different aspects to the way to answer your question. One of them is with the staple carbohydrates, we have the grains group that is kind of the first set of analyses. And it's the, "If you take my plate and you look at grains, what happens with the nutritional implications of reduction, elimination, shifting the quantities that are there?" And you've got grains and vegetables that are basically half the plate. And if you're using those as staple carbohydrates, not saying that they're no longer vegetables or they're only staple carbohydrates, but what happens with the flexibilities of using those in that case? And we can look at it from the quantities perspective. We can look at the food sources, but we also have to look at it from the nutrient recommendations. Because if we make recommendations to change what people are eating, we're doing it in a way that's also nutritionally adequate and not just different. So our empirical lens for this is to be able to make these shifts. But I also think it's really important to carry forward this idea that the representative foods that we're using within this modeling exercise. We're looking at all the different places where somebody consumes, let's just say, dairy. And we had comments around dairy as a leading source of saturated fat in the diet. But we're modeling dairy from recommendations from the dietary guidelines of reducing saturated fat. So choosing low saturated fat dairy.

Chris Taylor: 02:26:05

So as we're looking at all these food pattern modeling analyses, we're looking at them in terms of the lens of, if you follow these patterns and follow the dietary guidelines as we've written them, reducing saturated fat, minimizing saturated fat, added sugar, sodium, getting diversity, plant-based, which we see. We have a lot of plant-based recommendations that we've looked at. How do we then incorporate these and what are the nutrient profiles that we get if we follow the dietary guidelines? Which becomes very different than, what are the current intakes that we see that Heather just summarized for us, and it shows the gap between what the recommendations are and the current consumption levels. So it's our ways of helping make those types of recommendations to get to providing more flexibilities, but making them in an informed manner.

Angela Odoms-Young:
02:27:08

Chris, can I just make one clarification? That was a beautiful-- thank you very much. This committee does not write the guidelines, we review the evidence. Just wanted to make that point. Thank you very much.

Sarah Booth: 02:27:24

Yeah, thank you. What a beautiful process, so kudos to the staff and the subcommittee. I'm really enthusiastic about our ability to look at subgroups and your process through that and have that health equity lens. I was wondering if you could comment on-- can we do subgroup of subgroups. I know we're getting into the weeds, but for example, from the different racial ethnicity within that, could we look at the poverty and kind of layer those? Is the data available yet or do we need to make recommendations for that?

Chris Taylor: 02:28:04

So the pattern level, we're creating the pattern basically to the calorie level that would then be applied to different groups, the age and life stage or the life stage groups, etc. We get into a little bit-- this is kind of one of the things that Heather was addressing is when you look at the data that you have, there's essentially

oversampling of target populations to increase the representation and quantity within groups or within NHANES. So I'll just say if you did it, it's not a nationally representative sample, but it's an oversampled group that then is adjusted to be nationally representative. Otherwise, if you have a group that makes up 15% of the population, 10,000 people, you have 1,500, just 750 males and 750 females.

Chris Taylor: 02:29:03

So as you start parsing down into taking this subgroup and making it male and female and adult and child, you go from, "We have 10,000 people, and that's a lot of people to have dietary data." But when you start parsing them down into their smaller and smaller groups, I always kind of describe it as if you're shooting archery at 50 yards away and you're one degree off, you don't miss the bullseye by that much. But if you're trying to shoot at 1,000 yards and you're one degree off, your variability that you're capturing in this becomes far greater. So we're trying to be as responsible as we can by making assessments on the data from kind of enough population size that you feel more comfortable with the data. And as we start getting down into smaller and smaller groups, it makes that more difficult, because you're getting down into smaller sample sizes to be making basically population-based assessments on very small subgroups of the population that have been assessed.

S17: 02:30:15

I'm just a [gog?]. I'm so impressed. Subcommittee Three, thank you for stepping down from your faculty positions to volunteer full-time for the next five years. And really, actually, the way to address that is you have this unbelievable staff behind you that's going to do this partners. So kudos. Woo! That was so systematic and so clear. I have four quick questions, and I don't want to say them all and have you answer them. And if any of them take a long time, go on to somebody else and stop me. One, I'm really curious in the first part, beans, peas, lentils, nuts, seeds, and soy products. Beans, peas, and lentils include soy, but not soy products. Why did soy products get moved to beans, peas, and lentils? Why aren't soy products with the other legumes? Any clarification there? Seemed like an odd grouping to me. Aren't they more like legumes than they are nuts and seeds?

S14: 02:31:22

[laughter] Thinking about how to frame it. The soy products are contextually consumed more like a replacement for some of the other protein foods in that group. Beans, peas, and lentils technically refers to the pea that has been removed from the pod, dried in the pod, removed, and then rehydrated for cooking. So they're different kind of from that scientific perspective, but contextually in the representative sample of the US population, beans, peas, and lentils are often consumed more contextually like a vegetable, although we note that they can be represented as a protein food as well. So they're separated in that way.

S17: 02:32:13

Okay. Just curious. Thanks for that.

S14: 02:32:16

It could go differently.

S17: 02:32:19

Okay, another one. Slide 94 had these two interesting sets of proteins. You don't have to go there if you want. I'll tell you what it was. You said we'll do eggs, seafood, bean, peas and lentils, nuts, seeds, and soy products versus a second set that was identical except for eggs. So is the question really pescatarian with or without eggs? I didn't hear you say it that way, but I was trying to catch up in my brain.

Chris Taylor: 02:32:46

We're trying to get as many combinations as possible. So I think this is also when we get into so many layers of this, these things that we're talking about here help us make sure that we're revising and capturing those, or do we need to have like one more step that has that versus?

S17: 02:33:07

I mean, if you did all those permutations, that would take you even longer. But I thought that was actually the simpler question. It wasn't framed that way, but that's

what you were asking, it looked like. Okay, another. So slide 102, I think this is the one. You are going to reduce and eliminate different levels of dairy and fortified soy and look at some of the other ones. Is there going to be analysis of dairy without the fortified soy for people who are lactose intolerant? Because that would be their-- not only do they have the alternative dairy, but they have fortified soy. So I didn't see that in any of the slides. I don't want to add to everything you did. Does that make sense? I thought that was a very practical--

Chris Taylor: 02:33:50

So eliminating dairy, but maintaining fortified soy products.

S17: 02:33:56

Yeah.

Chris Taylor: 02:33:56

Okay. Yeah. Wait. If we don't have it, I think that's one thing to consider. Yeah.

S17: 02:34:01

I mean, very specifically for populations lactose intolerant.

Chris Taylor: 02:34:04

Yeah.

S17: 02:34:07

So Rebecca, does that make sense? You're sort of frowning, scrunching up. And maybe it was already in there and I missed it. I'm just trying to keep track.

Rebecca: 02:34:14

So fortified soy, I think the rationale that the committee discussed or the subcommittee discussed was that fortified soy products already count. So we don't need to check to see if they could count, we're looking for additional flexibilities to see if other non-dairy alternatives could potentially fit into the category.

S17: 02:34:34

I'm going to suggest you reconsider that for people who are lactose intolerant because that is an alternative for them. I see it's approved and included in that group, and maybe I'm not fully understanding. So I'm willing to pass for now. I'll just toss it out there. Lastly, on grains, you have such an amazing list of grains. I think I got this from an analysis in a paper that I published recently. I looked at USDA data. I think it was summarizing the protein content of grains. And a little footnote said, we basically used wheat because 95% of the grain intake in the US is wheat. Does that sound about right? Doesn't matter. Anyway, I just think that's amazing that we just do wheat. So I really liked that you're substituting the grains for different things. But how about within grains? Corn counts as a grain. And I saw on one of your slides, corn would be considered raw sweet. It was very specific. Corn, raw sweet.

Dr. Anderson: 02:35:34

Corn itself would be count like corn on the cob type corn, would be counted as a vegetable, like corn meal, to use like corn tortillas, would be--

S17: 02:35:41

Yes, that was where I was going with that. So for cultural purposes, tamales made with corn masa, and yeah, tortillas, corn tortillas versus wheat tortillas. A lot of Americans eat wheat tortillas. Okay, so anyway, it'd be interesting to substitute culturally, corn as a grain within the grain group. It'd be interesting. My last question is for Sarah. Is it tomato or tomato nomenclature or nomenclature? I say nomenclature, but I think nomenclature is probably more preferred.

Sarah Booth: 02:36:17

We're a very diverse group.

S17: 02:36:21

Thanks for letting me comment. Just amazing. I'm so impressed. Thank you.

Angela Odoms-Young:
02:36:30

Great. I mean, this is excellent in the comments that we have gotten around the cultural diets to look at changing the staple grains. I was curious because I wasn't sure I have a complete understanding about when everything is held consistent. So with these different permutations that happen, for example with the dairy, the idea is that where dairy is included, then the foods are substituted, is it also thinking that the other parts of the diet may shift when it comes to the nutrients? And so I was curious about that when-- is it like different puzzle pieces that you're putting together, or is it

one of these adaptations is held and everything else is held consistent? Or are you looking at other shifts as well as this happens?

Chris Taylor: 02:37:28

All of the protocols will basically be done in isolation with everything else staying the same. Because if you start changing too many knobs all at once, you just end up with a mess of changes that you don't particularly-- but what it allows us to do is look at each one of the individual groups and the recommendations of where it's at now compared to what happens if you change it. Because one of the questions that we-- do the patterns need to change, in any way in terms of the quantities recommended. So you can say-- actually if we went down to here, you'd still meet these nutrients. And this is how much would happen. But if you eliminate it, you eliminate this food group. Now you identify what the potential nutrient gaps would be. Or if you make substitutions, which then tells you if you turn this knob down, you got to turn this up. So now the latter part around the total assessment is going to be working with the whole equalizer instead of just one band.

?: 02:38:35

[inaudible].

S17: 02:38:36

That's super helpful. Yeah.

S14: 02:38:39

So yeah, thank you for summarizing all the work that the subcommittee has been doing, Chris. And this is for anyone on the subcommittee, not to you, specifically. Could you just talk a little bit more explicitly about how during the food pattern modeling analysis, we will be doing anything different than has been done in the past to ensure the consideration of foods that are more culturally relevant for various parts of the population from different parts of the world or of America, particularly, tribal communities and communities that have been traditionally not necessarily well-represented in our processes.

Chris Taylor: 02:39:23

The analysis will be able to be done with what we have from what we eat in America food categories-- or what we eat in America data from NHANES and based on the population subgroups that exists within the data itself. So we will be constrained by that. But our new protocol that allows us to look at different representation of proportions of foods, as that step after protocol one, allows us to go into the middle part, from a, "Do we need unique nutrient profiles that we test within those population subgroups? Or does the same carry forward?" So initially it was total population when everybody eats, creates a profile. Our second population subgroup analysis allows us to say, if you calculate the nutrient profile based on individuals within this group that we have data, then will that carry forward? So it's our first step to be able to make these kinds of changes. And with what's happening in the center, there's a lot of work to increase flexibilities around what's in those patterns more than just what are people currently consuming around grains and what happens if you remove them. We're getting into different questions that say, what happens if you expand flexibilities within staple carbohydrates versus only the grains group? So I think that kind of hits at two different areas of question.

Sarah Booth: 02:41:03

I think Rebecca might also be able to add a bit of a perspective.

Rebecca: 02:41:09

Yeah. Adding to what Chris said, I think we can kind of sum up a lot of the differences and focus on addressing variation in dietary intake. So Sarah talked earlier about how we're thinking about representation at different points in the process. So that's one issue. And then adding to what Chris said would be the simulations, where some of those individual foods might be modeled as options for achieving the proposed pattern goals different ways. And so I think we're addressing that variation for different ways that people might be represented in this work across the pattern, but

just adding that approach of simulations at the end is certainly brand new for our process.

Deanna Hoelscher:
02:42:13

Yeah. So this is fantastic. Just loved seeing all of that. But I had a question for y'all about the outcome, like the nutrient intake implications. How much are you going to go into that? Is it going to be nutrients only of public health interest? Is it going to go into saturated-- there's a lot of outcomes I guess, is what I'm saying. So how are y'all thinking of presenting that?

Chris Taylor: 02:42:45

It'll be across the full-- and as we've discussed, it'll be across the full list of nutrients. But what we're able to do is, and of course my mind immediately starts to, what are all the spreadsheets going to look like and the ability to track. But as you go down through, you can then start to identify where, do you do we see cut points? Do we see drops in? Do we see getting across certain thresholds? So when you start removing at this level, where do you get down to a point where you start to see nutrients eliminated, nutrients drop at considerable levels? And of course, my techie brain is going all excited about the ways of-- it's going to be a massive amount of data, but it's going to be an ability to really see at a nutrient estimate level what's happening when you make these changes. Because we can make suggested changes, but you have to translate that down into nutritional adequacy. And it allows us to see that in real life, real life from our hypothetical situations based on those nutrient profiles.

S10: 02:43:53

I had just one comment based on Cheryl's point. But also, every time you talk, I think meal-based. It's like my mind goes back to meal-based, and where would things be substituted and not substituted? I know we don't want to get into that right now. And I know it's-- and when you put up my plate, my mind just went to meal-based substitutions and where, thinking about breakfast and contrast, prepared breakfast in contrast to foods that are-- or pre-prepared breakfast in contrast to dishes that are prepared when it comes to fortification. But I know that that, in a sense, is included in the analysis when you replace-- because mixed dishes, correct, are split. So yeah, it's like I have to-- just trying to as you're talking, I'm thinking mixed dishes, breakfast, it just-- but it's all sort of disaggregated essentially to where dairy is in prepared dishes, as well as when dairy or certain things like a staple carbohydrates are consumed alone or in groupings. Is that correct?

Chris Taylor: 02:45:13

That is my playground.

S10: 02:45:15

Okay, hey, I wanted to--

Chris Taylor: 02:45:16

So once again, kind of just going back to all the things that Heather presented, you get all the different pieces. We didn't get anything into nutrient sources across meals or snacks or anything like that. So the further you get down to the behaviors, it just gets into all the different systematic review pieces we're going to be talking about that it's really a whole body of evidence. This is one way to examine what happens when you tweak the groups. But how does that play out in all these different analyses that I'm going to get to sit back and listen this afternoon?

S10: 02:45:50

I think the second thing that I just want to say really quickly about the grains and the substitutes that you included a diversity of types. And I know that there are certain places where we have data limitations, but also when it comes to traditional food ways, like indigenous food ways or African-American food ways, native Hawaiian food ways. I'm just thinking in the places when you are including those, what is your source of information on those traditional food ways? Because I think you did a really nice-- that was a great table, which I'm assuming has a source that's rooted in traditional food ways, because although we have data limitations in one area, I wonder, can we

include some information, particularly with indigenous food ways or certain types of food ways that get included in that process?

Chris Taylor: 02:46:51

That list basically went through all the foods that we had available from an FNDDS. So if you hypothetically bring in a food that isn't reported as consumed, your tracking of it from a proportionality won't show up. So we're constrained by the foods that exist within and the database but again, to choose Rebecca's point, our opportunity to do this within the simulations allows us to really expand that list, the nutritional composition, all that to get to a much broader picture. So we're kind of constrained with what we have to be able to test based on the foods reported and how they're disaggregated but then that last step really allows us to kind of blow the doors off and say, "What about?"

S17: 02:47:45

One more quickie for nomenclature or nomenclature. Legumes. I didn't hear legumes mentioned at all. Peanuts are legumes, right? They're not nuts. I wonder what this group-- this could be to anybody. Legumes drives me nuts. I didn't hear the word pulses. I see beans, peas, and lentils. So there's even horrifically-- I don't think there's consensus on beans, peas, and lentils versus legumes versus including pulses in the list. Has that come up as a challenge or not or discussion for another day? It's really a complicated category.

Sarah Booth: 02:48:20

We have an explanation of that shift in language in the previous edition of the guidelines.

Angela Odoms-Young:
02:48:29

Any more questions for Chris? Chris, great discussion. We are going to take a break now because we have three subcommittees presenting on systematic reviews, all very exciting. I think this morning laid the foundation for the discussions this afternoon. We have 45 minutes, so let's meet at 12-- what 35, 12:40, 12:35, 12:35. It's going to be a busy day. So let's enjoy lunch, stretch, do your thing. Thank you, everybody.