Dietary Guidelines Advisory Committee Meeting

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Jefferson Auditorium
1400 Independence Avenue, SW
Washington, D.C.

Meeting Conducted By: Dr. Van Horn

P R O C E E D I N G S

MS. HOUSTON: Good morning.

ALL: Good morning, by all.

MS. HOUSTON: Welcome to the Department of Agriculture. I am Kate Houston, the Deputy Under Secretary for Food, Nutrition, and Consumer Services. It is my pleasure to welcome you today to the first meeting of the 2010 Dietary Guidelines Advisory Committee. Bringing you all together here today marks the official beginning of one of the most important responsibilities that we have in government, and as a nation, to promote the health of Americans and reduce risk for major chronic diseases associated with diet and physical activity. As members of the 2010 Dietary Guidelines Advisory Committee, you represent leading medical and scientific researchers from distinguished universities and scientific institutions across America. We have brought you here today for something much bigger than an academic exercise, however. The Dietary Guidelines for Americans are the foundation for federal food and nutrition policy. Simply put, your work will have real impact on real people. The Dietary

Guidelines are the basis for the school meals programs that serve more than 31 million school children every day. The Guidelines help parents who want to ensure that their children have the nutrition they need to be healthy and strong. They help seniors, who want to live active and productive lives well into their later years. The Dietary Guidelines have been issued jointly by the United States Departments of Agriculture and Health and Human Services every five years since 1980. We have a longstanding partnership and a commitment to our two departments, to ensure that the development of the guidelines are pursued with the highest integrity and can achieve the highest impact on the health of our nation.

With that, it is my distinct pleasure to welcome the Secretary of Agriculture, Ed Schafer.

Secretary Schafer hails from the great state of North Dakota, where he grew up spending summers on his grandfather's wheat and livestock farms. He was elected Governor of North Dakota in 1992. During his eight years in office, he worked to diversify and expand North Dakota's economy, reducing the cost of

government, upgrading the state's schools and communication infrastructure, and advancing agriculture were his top priorities. Secretary Schafer was sworn in here, at the Department, in January of last year. Since then, he has represented the Administration in the final negotiations with Congress over the 2008 Farm Bill, and has begun working on implementing programs that will commit over $300 billion dollars over the next five years, to support America's farmers, ranchers, conservation programs and nutrition. He has also strengthened our food safety system with targeted regulations, and has worked to advance renewable fuels, expand access to foreign markets for America's agricultural producers, and encourage community efforts to fight hunger. Please join me in welcoming the Honorable Ed Schafer.

SECY SCHAFER: Thank you, Kate. Thanks for the kind introduction. It's a great day in America, ladies and gentlemen. It's a great day to gather here in the Jefferson auditorium. Thank you for being with us, and welcome one and all.

Kate, thank you also for leading this opening

session this morning that will begin the very important work of the new Dietary Guidelines Advisory Committee. And also, thank you, Kate, for your continued good work.

I would also like to thank and recognize Under Secretary Nancy Johner, for outstanding work in the Food, Nutrition, and Consumer Services Mission area here, at USDA.

It is my honor to welcome to the Jefferson Auditorium Health and Human Services Director Secretary Mike Leavitt. Thank you, Mike, for being with us. Mike and I served as governors back in the 1990s. Now we have the pleasure of serving the people of the United States of America through the President here today and for a few more months, but also, I mostly appreciate Mike being with us here this morning, because he is a very dear friend. So, thanks once again to Mike for being with us.

The Dietary Guidelines for Americans has been issued jointly by the United States Department of Agriculture and the Department of Health and Human Services every five years since 1980. It is important

work that draws on the respective expertise of both Departments and helps show all Americans the way to build a healthier life. Obesity rates in the United States remain high, and related health problems, like Type 21diabetes, hypertension and heart disease also remain prominent health concerns. In fact, you know, and I find this particularly disturbing, but research indicates that one in three boys and two in five girls born in 2000 will develop diabetes at some point in time in their lives, if we don't develop better health and eating habits in our country. And this is particularly important to me as well, because I have a 13-year-old grandson, who is a Type 1 diabetic, and through good exercise and eating regimens he has been able to keep it in check. But, you know, this is a very disturbing statistic and something that we very much have to start working on; that nutrition and exercise plan.

Our Dietary Guidelines provide a way for the Government to speak with one voice on nutrition and promoting good health. The guidelines are the cornerstone of our federal nutrition policy. They are

the basis of our federal food and nutrition programs, and an invaluable source of science-based nutrition advice for consumers. And they also translate scientific and medical knowledge on what makes up a healthful diet into messages and guidance that can be easily disseminated to the public. The guidelines advise Americans from ages two to 102 about how to make food choices that will promote their health and help reduce their risk of chronic disease. Nutrition and health professionals actively promote the Dietary Guidelines as a way to encourage Americans to focus on their healthful diet; and USDA promotes the Guidelines through many programs that serve Americans, including My Pyramid, which is USDA's interactive on-line guidance system.

Beginning in 1985, the USDA and HHS have appointed a series of Dietary Guidelines Advisory Committees made up of nationally recognized experts on nutrition and health. The new Dietary Guidelines Advisory Committee sitting before us today will determine whether a fresh review of the scientific literature is warranted, and if so, they will recommend revisions needed for the

2010 Dietary Guidelines for Americans. Based on their recommendations, our Departments will work together to update the data and to get the word out to consumers.

You know, I believe that helping Americans eat right and live better is one of the most important things that we do here at the United States Department of Agriculture. And to help assure our efforts there, the very first step to health and well-being, of course, is making sure that our fellow Americans are not fighting a daily battle with hunger. And that is the mission that underpins the Food Stamp Program. That Food Stamp Program I guess has now been renamed the Supplemental Nutrition Assistance Program -- as snappy name out there -- but -- as well, as the National School Lunch and the School Breakfast Programs, we also have a dozen or so other programs that make up this Nation's nutrition safety net. In fact, we feed more people in the United States of America today than the top two fast food companies combined. I think we have reached a situation, as a matter of fact, with our distribution programs where we touch one in five American's lives every year. But, we

also know that the rising food and fuel costs this year have made it harder for our food banks and others to provide for the needy here at home. So, at USDA, we have created what we call the Secretary's Hunger Initiative. I kind of thought we should call it the Schafer Hunger Initiative, but we thought for longevity's sake we would call it the Secretary's Fight Hunger Initiative. But it is focused on hands-on ways to fight hunger at the grass roots level. We have posted a tool kit on the Secretary's page on our website: USDA.gov that tells you how to organize a food drive; start a community garden; find a volunteer opportunity where you live; and many other opportunities on ways to help in your community to help fight hunger. And I encourage you, all of you, to take a look at that webpage: USDA.gov, and the Secretary's page, and think about what you could do in your community to help; because this is an area where all of us can make a difference.

So, after that brief public service announcement, let me return to the business at hand and get this Committee initiated. I am pleased to introduce the

appointed members of the 2010 Dietary Guidelines Advisory Committee. I would like to welcome the Chair of our Committee, Dr. Linda Van Horn. Linda is a Professor and Interim Chair of the Department of Preventive Medicine, at the Feinberg School of Medicine, at Northwest University in Chicago. Linda, thank you.

I am also pleased to introduce our Vice Chair, Dr. Naomi Fukagawa. She is a Professor of Medicine at the University of Vermont in Burlington, Vermont. Thank you, Naomi.

Thank you both for accepting these responsibilities.

Also serving on the Committee, Dr. Cheryl Achterberg, Dean and Professor of the College of Education of Human Ecology, at Ohio State University in Columbus, Ohio. Thank you, Cheryl.

Dr. Larry Apple, Professor of Medicine, at the Johns Hopkins University School of Medicine in Baltimore. Thank you, doctor.

Dr. Roger Clemens, Associate Director of Regulatory Science, at the University of Southern

California School of Pharmacy in Los Angeles.

Dr. Miriam Nelson, Founder and Director of the John Hancock Center for Physical Activity and Nutrition, at Tuft University. Thank you, doctor.

Dr. Shelly Nichols-Richardson, Associate Professor at the Department of Nutritional Sciences, at the Pennsylvania State University, in University Park, Pennsylvania.

Dr. Thomas Pearson, Sr. Associate Dean for Clinical Research and Professor of Medicine at the University of Rochester School of Medicine, in Rochester, New York. Thank you, doctor -- Tom, for being with us.

Dr. Rafael Perez-Escamilla, Professor of Nutrition and Public Health at the University of Connecticut. Thank you.

Gee, I'm feeling kind of light. I don't have a Doctor's Degree here today.

But, Dr. Xavier Pi-Sunyer is with us as well. There he is. Thank you.

Dr. Eric Rim, Associate Professor --

Oh, Dr. Xavier, or Xavier is a Professor of

Medicine at the Columbia University of Physicians and Surgeons, in New York City.

Dr. Eric Rim, Associate Professor of Medicine at the Harvard Medical School, in Boston. Thank you for being with us again.

Dr. Joanne Slavin, Professor in the Department of Food, Science, and Nutrition at the University of Minnesota, in Minneapolis.

Dr. Christine Williams, former Professor of Clinical Pediatrics, at the Columbia University College of Physicians and Surgeons, in New York.

I want to thank you all for volunteering your valuable time and expertise here to assist our Departments, both the USDA and HHS, for helping Americans live healthier lives. We look forward to your independent review of the science and the report that you will be submit to us after your work is done.

It is now my pleasure to ask the Chair and the Vice Chair to come forward and stand with me for administering the oath of office.

Drs. Van Horn and Fukagawa are here with us. Will you please place your left hands on the Bible, and all

of you please raise your right hand and repeat after me -- you as well, right hand up.

(All Members Sworn In).

SECY SCHAFER: I want to again thank you all for your willingness to serve on this very important committee, and I know your work will be instrumental, as we move forward to healthier lives of the people of the United States of America. Thank you one and all.

The Dietary Guidelines supports the President's goals as well, and that I know that both Secretary Leavitt and I share that commitment, in building a healthier nation. And now I will turn the podium back to Deputy Under Secretary Kate Houston.

MS. HOUSTON: Thank you, Secretary Schafer. I am now very pleased to introduce Secretary Mike Leavitt, from the Department of Health and Human Services. Secretary Leavitt directs the Nation's efforts to protect the health of all Americans, and provide essential human services to those in need. He manages one of the largest departments in the federal government, more than 67,000 employees, and a budget that accounts for almost one out of every four federal

dollars.

Under his leadership during the past four years, the Department of Health and Human Services has implemented the Medicare Prescription Drug Benefit, developed health information technology standards, and progressed towards transparency of price and quality in health care.

In addition, HHS has mobilized the Nation's Pandemic Preparedness and Medical Emergency Plans; developed a new strategy for the safety of imported products; and globalized the efforts of the Food and Drug Administration.

USDA and HHS have a long history of collaboration on the Dietary Guidelines, and really a whole host of other activities. We are honored to have the Secretaries of both Departments here together, to welcome the new members of the Dietary Guidelines Advisory Committee. I am very honored to welcome Secretary Leavitt to the stage.

SECY LEAVITT: Thank you very much, Secretary Schafer and members of the Committee. I would like to first begin by noting that we are convening on the day

before Halloween and I do not think there is any irony lost on us about the Dietary Guidelines. Ed mentioned his grandson. My daughter called me last night to report that while she was bathing her three-year-old son they were having a discussion about what he should be for Halloween, and he had originally planned to be a dinosaur, but his mother was proposing that he be pumpkin. As he dried off, he grabbed his cowboy hat and said, I want to be a naked cowboy. I think he has changed his mind since with his mother's help. You know, Ed and I both have grandchildren and I have -- Ed, I had a friend of mine describe for me why it is that grandparents have such a close relationship with their grandchildren, and it's because they have a common enemy. You can think about that one.

The Dietary Guidelines are not about keeping Americans from enjoying Halloween or Thanksgiving, for that matter; but they are a very important cornerstone in our federal nutrition policy, and I would like to suggest that it's more than just nutrition policy. This is a volley for health care reform. Compared to 25 years ago, as the Secretary mentioned, there are

roughly now three times as many overweight children. There is something particularly troubling about so many young Americans being overweight, but the problem is, by no means, limited to children. There is an amazing statistic on obesity in American adults. In 1997, only three states had obesity levels that were over 20 percent. In 2007, just ten years later, 49 states now have obesity rates over 20 percent. So, in 1997, there were only three states which had 20 percent population that was obese; in 2007, there was only one state that didn't have a population that was obese over 20 percent. Now, I would like to claim North Dakota or Utah as being among those, but unfortunately they were -- both fall into the category of over 20 percent. The only holdout I might add is the state of Colorado, which neighbors for both of us. We've got to start getting states to cross the line the other way, and I think that's, in large measure, what this is about. I want to emphasize that that statistic that I just gave you is not the result of some kind of radical reclassification that's been made. In fact, if you look at the CDC website, you will see a color-coded

map, and it actually is timed by year. It looks like election night, as they go from one color to the next. The only problem is here this is a clear victory for obesity, and we've got to change that. It's becoming a serious chronic health problem, and it's leading to a lot of chronic diseases. The types of foods that we eat, as well as the amount of food that we eat is having a profound impact on the health of this country. More and more Americans are suffering from chronic conditions, such as coronary heart disease, strokes, high blood pressure, Type 2 diabetes. The cost of treating chronic conditions is enormous. It makes up 75 percent of the $2 trillion dollars that we spend as a country. I had a startling statistic presented to me yesterday. Among our Medicare population, which makes up more than 40 million Americans, who are seniors or disabled, we have found that there are 23 percent of that population that has multiple chronic diseases; more than five. Of that amount they make up 67 percent of the total expenditures. So, if five percent -- or rather, 23 percent, making it 68 percent -- I might add that these people have 37 doctor appointments every

year, on average, and they have as many as 50 prescriptions a year. This is right at the heart of our health care reform issues. And, as I say, this is not just a -- this is a volley in health care reform that we are launching today. To bring it down to a more personal level, it means that the average American is spending about $10,000 a year, whether directly or through taxes, to treat chronic diseases.

So the work of this Committee and others that will be done in the development of these guidelines is a very important work, and there are changes in American lifestyles in the past 25 years that have resulted in this overweight and the change in diets, and we need to identify them. Eating well and being active is very important; not just to eat well, but we need to be physically fit. Earlier this month, at HHS, through the good work of Penny Royall, who is part of this group, we announced the 2008 Physical Activity Guidelines. We encourage Americans to find something active they can do; something that they are willing to do, and then just to do it. The Guidelines' central message is be active in your own way. Pick an activity

that's easy, fits into your lifestyle and do it at least 10 minutes a day or 10 minutes at a time. More is better, but some is certainly better than none. The Dietary Guidelines will be complimentary to the Physical Activity Guidelines, and they will incorporate aspects of both of them.

Nearly five years ago, when Agriculture and HHS last released the Dietary Guidelines we made three changes to previous versions. We included more comprehensive physical activity recommendations and we focused on making dietary guidelines more evidence-based, and we developed more consumer-friendly ways to communicate the recommendations. Those were clear steps in the right direction. Now these Physical Activity Guidelines go hand-in-hand with a good diet, and the more we can ultimately communicate both of them to the public, the more useful they will be. Those of you who are serving on the Committee are well aware of how challenging it is to get people to change the way they eat; and with that in mind, I would like to make a specific suggestion to you. If you can, I think it would be very useful, if you could identify the two or

three dietary changes that Americans can make immediately that would likely have the greatest benefit to their health. If you could help identify the two or three, those two or three things can make the most difference and it would be very helpful.

Now, I would like to perform my official task here today, which is to make a formal charge to each of you as Committee members. The Dietary Guidelines for Americans provide science-based advice for Americans ages two and older. In order to promote health and to reduce the risk of major chronic diseases through diet and physical activities, the Dietary Guidelines for Americans form the basis of federal nutrition policy, nutrition standards, nutrition programs and nutrition education for the general public that are published jointly by USDA and HHS every five years. The Dietary Guidelines Advisory Committee shall advise the Secretaries of HHS and USDA if revisions to the Dietary Guidelines for Americans of 2005 are warranted on the preponderance of scientific and medical knowledge currently available. The Committee, whose duties are time-limited and solely advisory in nature, will inform

the Secretaries of the Departments if no changes to the Dietary Guidelines of 2005 are warranted. This action will disband the Dietary Guidelines Advisory Council. You would inform the Secretaries of both the Departments if the changes are warranted based on the preponderance of the current scientific and medical knowledge, to determine the issues of change that need to be addressed. They shall also place their primary focus on the review of scientific evidence published since the last Guidelines were deliberated; place their primary emphasis on the development of food-based recommendations; and prepare and submit a report of technical recommendations with rationales to the Secretaries. The Guidelines Advisory Committee's responsibilities do not include translating the recommendations into a policy or a communications document. And, if you are wondering when you are released, you may disband upon the submittal of the Committee's recommendation via report of the Guidelines Advisory Committee on Dietary Guidelines for Americans 2010. Now that concludes your official charge. So may I with that wish you your very -- we wish for your best

work. We express our appreciation for your service and look forward to a collaboration that will produce better health for all Americans. Thank you.

MS. HOUSTON: With that, we are going to have an official picture taken with the two Secretaries and the sworn-in Committee members. So, do we have a staging area for the picture? They are going to come to the front. Okay. Great.

I am now pleased to introduce Dr. Gayle Buchanan, who is USDA's chief scientist and the Under Secretary for our Research, Education, and Economics mission area. This mission area includes four agencies: the Agricultural Research Service; the Cooperative State Research Education and Extension Service; the Economic Research Service; and the National Agricultural Statistic Service. Most of these include research activities that are directly relevant to the development of the Dietary Guidelines for Americans. Dr. Buchanan will describe some of these activities in his presentations this morning. I want to personally thank Dr. Buchanan for his leadership at the Department, and for his partnership with Food Nutrition

Consumer Services, in putting together the Advisory Committee. Thank you, Dr. Buchanan.

DR. BUCHANAN: Well thank you very much for that introduction and it's certainly a pleasure to be here this morning. And I think that having both Secretaries here to share this opening session is a reflection of the importance that both of our Departments hold for this effort, so that, I think, is not lost on any of us.

Well, on behalf of the --

(Discussion off the record).

Well I'll go ahead. On behalf of the Research, Education, Economics Mission Agencies, I would like to also welcome each of the members of the Committee and also express my appreciation for the effort that you make on behalf of our effort, in accomplishing the goals as outlined by the two Secretaries.

I think you know that ensuring that all Americans have access to safe, nutritional foods is the primary part of the mission of the U.S. Department of Agriculture. We carry out this responsibility by administering numerous food assistance and nutrition

programs, such as food stamps, WIC, various child nutrition programs and other areas. The Research, Education, Economics Mission area carries out this mission by both conducting intramural research in human nutrition, as well as economic research related to nutrition, and by supporting nutrition research and education programs. Primarily, the Nation's land grant universities and other universities have nutrition research and efforts.

The REE Mission area includes the Agricultural Research Service, the USDA's primary in-house research agency that conducts research on a broad range of food and agricultural issues, including human nutrition.

The Economic Research Service, which conducts economic research for the USDA and policy makers.

The Cooperative States Research and Education and Extension Service, which will soon become the National Institute for Food and Agriculture, provides extramural research support and extension support funding to the land grant universities and other universities around the country.

(Discussion off the record).

DR. BUCHANAN: I apologize. But anyway, the Cooperative States Research Education Extension Service provides extramural funding for universities, and we have extension offices in every county, almost in every county in the United States, which has a nutrition responsibility, along with all other responsibilities for supporting agricultural interests.

The National Agricultural Statistic Service does not have a direct responsibility in nutrition, but also collects a lot of data information that can be used in support of the nutrition effort.

Moving on to the Agricultural Research Service is a program that provides for intramural research and is somewhat different than other federal agencies engaged in nutrition research. ARS takes a food-based approach to improving with emphasis on the needs of normal healthy adults and children and not the biomedical aspects of food. ARS has the capacity for long-term studies, and has projects based on five-year plans of work. ARS laboratories have state-of-the-science equipment and facilities for human research across the life cycle. We also have multidisciplinary research

approaches and tie nutrition with agriculture research, to improve the American food supply.

The components of ARS Nutrition Research Program includes nutrition monitoring and the food supply; the scientific basis for dietary guidance for health promotion; disease prevention; provision of obesity and related diseases; life stage nutrition and metabolism. I would like to emphasize that ARS also conducts food safety research as a separate program in our research effort; however, food safety cuts across all program areas, including nutrition from farm to table, and I think we all recognize that that's an important part of the food picture.

ARS carries out much of its nutrition research at USDA's six human nutrition research centers around the country. These centers provide research that covers all phases of the life cycle from infancy through old age. ARS celebrated the 30th anniversary of this network of Human Nutrition Research Centers last year. In fact, I am leaving today for a visit to the center that's located down in Houston at the Children's Hospital, in conjunction with Baylor University. Three

of the centers focus on nutritional needs of adults; the Western Human Nutrition Research Center at the University of California Davis; the Grand Forks Human Nutrition Center at Grand Forks, North Dakota; and the Beltsville Human Research Nutrition Center in Beltsville, Maryland. Two of the centers focus on nutritional needs of children: the Children Nutrition Research Center at the Baylor College of Medicine in Houston, where I am going this afternoon; and the Arkansas Children's Nutrition Center at Little Rock, Arkansas. And, the Jean Mayer Human Nutrition Research Center on Aging at Tuft University, Boston, Massachusetts addresses the needs of older Americans.

This year ARS initiated its first full multi-center nutrition study focusing on barriers and facilitative to adhering to the Dietary Guidelines for Americans. They will study this in children and adults at locations near the Human Nutrition Research Centers. Additionally, areas have smaller projects at other locations around the country; several of these address different aspects of human nutrition.

I had the opportunity the first year I was -- the

first month I was in office as Under Secretary for Research, Education, and Economics, of meeting with all of the Directors of the Human Nutrition Research Centers, and I can tell you, I have never seen a more dedicated group of laboratory directors, because they take their work seriously. In fact, they commented we have more ARS laboratories devoted to production of food than we have for nutrition. It should be equal. I said, well that's not quite possible. But, they certainly are a dedicated group of laboratory directors who believe in the work that they are doing.

ARS' role in establishing the Dietary Guidelines for Americans can be summarized as finding out how food nutrition promote health and prevent diseases by conducting research for the scientific basis for dietary guidance. This research accounts for about 70 percent of nutrition research programs. We also are concerned about finding out what foods Americans eat and finding out what's in foods; nutrients and other food components that benefit human health. Certainly all of these are very important parts of the research portfolio of the Agriculture Research Service. In

addition to the in-house nutrition research that USDA carries out and ARS, the USDA funds many more research projects through the Cooperative States Research Education Extension Service, and that's the agency that I mentioned that will be transitioned according to the passed Farm Bill into the National Institute of Food and Agriculture.

We fund programs at the Nation's land grant universities and other universities through competitive programs, and we provide federal extramural research and extension funding primarily to the land grant institutions, but other institutions that have research efforts. The Dietary Guidelines for Americans are an integral part to the work of the CSRES and the Cooperative Extension System, as it relates to human health, food safety, food security, and nutrition. Currently, about 20 active projects directly address the implementation of the Dietary Guidelines.

The largest source of competitive through CSRES is the National Research Initiative. Under the NRI there are two focus areas for nutrition research; health benefits of nutrients and other bioactive food

components; obesity prevention, including development of successful intervention. For fiscal year 2008, CSRES awarded 30 NRI grants totaling $15.9 million dollars related directly to the Dietary Guidelines and its implementation.

Another program that I am very fond of and one that I had a very specific involvement in, in the state before I left Georgia, which is Expanded Food Nutrition Program. CSRES manages this program, which operates in all 50 states and six U.S. territories. This program is designed to teach our low income people with the knowledge, skills, and attitudes, and change behavior necessary for a nutritionally sound diet. The program, which has both adult and youth components, also helps people in their personal development and improved nutrition within the entire family. This program is administered through the County program with leadership provided at the state level and the land grant universities in the respective states.

I am also pleased that, in a number of states, this is a cooperative leadership program between the 1890s and 1862 programs, because this is a program that

touches all segments of our society. Power professionals usually live and work in the respective counties and the areas in which these program are administered. It is a very challenging program, because you are working with some of the people that have some of the greatest needs, but I can tell you that the benefits and the effort that people make in making this program successful is very, very impressive. The program reaches young people. It provides nutrition, education in schools and after-school programs through 4-H day camps, residential camps, community centers, neighborhood groups, home gardening workshops, and all other ways in which we can reach people. The Dietary Guidelines for Americans provides a foundation for essentially all of the nutritional educational programs that we administer through the Cooperative States Research Education Extension Service.

The Economic Research Service conducts economic analyses on many aspects of food and agriculture in support of USDA's mission. The ERS has a large intramural research program that focuses on food

consumption, food safety, food security and diet health outcomes. Economic Research Service also publishes in-house peer reviewed articles and also sitting articles for the Journal of Nutrition, Journal of American Dietetic Association, and other journals that are appropriate. The Economic Research Service also conducts studies and evaluations of the Nation's 15 different food and nutrition programs. These programs include food stamps, WIC, child nutrition programs, such as school lunch and breakfast program, et cetera. And these reports really give us the assurance that the money that we are allocating for these programs is going to the right places and doing the right job, and having a definitive analysis by the Economic Research Service is a very important part of accountability of these programs.

This research provides the Administration and Congress, and other program managers, assurance that the food assistance we are providing is reaching the right people and doing the job that we expect.

These are just a few of the examples of the Economic Research Service projects that have examined

important policy-related topics in the area of nutrition, food safety and health. All of these projects result in ERS research reports available on the ERS website and is available to anyone that would like to have them.

I hope I have given you just a very, very brief introduction to the role of the various agencies in the Research, Education, and Economic mission area at the U.S. Department of Agriculture, and about our commitment to the federal nutrition research and support of the Dietary Guidelines for Americans. The USDA is committed to ensuring that all Americans have access to the highest quality, safest and most nutritious food supply anywhere, and REE is committed to providing the best science to support those efforts. I want to once again thank all members of the Dietary Guidelines Committee for your time and effort in helping us improve the nutrition and diets of all Americans. Thank you very much.

MS. HOUSTON: With USDA's distinct honor of being the lead agency for the 2010 Dietary Guidelines, it gives me great pleasure and we have great faith in the

process in the hands of the Center for Nutrition Policy and Promotion, which is part of our mission area in the food, nutrition and consumer services area of USDA.

I am going to turn over the podium to Dr. Robert Post. We are honored to have Dr. Post as the Deputy Director for the Center for Nutrition Policy and Promotion. Dr. Post has done a tremendous job and has shown great leadership in putting together this committee, and I am now going to turn the podium over to him.

I think this is the end of my remarks here. So, in closing, I just want to say again, thank you to the Committee for your willingness to serve in such an honorable capacity. Food is such a basic human need and it sounds so simple on one hand, but on another, it's also a very complex issue. It brings out other issues dealing with personal health and well-being, and issues of academic success and of economic and individual productivity, and even issues of national security. I think we have heard today how incredibly important the Dietary Guidelines can be in an investment of an activity that can make such a profound

effect on reducing health care costs and improving the lives of so many Americans. So, the job before you is a great one and we thank you so much for your service. With that, I will turn it over to Dr. Post, who will continue to be your Master of Ceremonies for the remainder of the day. Thank you very much.

DR. POST: Well, good morning, and thank you, Deputy Under Secretary Houston and also Under Secretary Buchanan, for your remarks this morning. I am very glad to be here and personally welcome you to the first meeting of the 2010 Dietary Guidelines Advisory Committee, and review some important points related to the operations of the Dietary Guidelines Advisory Committee. I suppose there is always one of us rules people in every crowd and I happen to be that person, and I don't take that lightly. With the expertise from Advisory Committees, such as this one, federal officials and the Nation have access to information and advice on a broad range of issues affecting federal policies and programs. The public, in return, is afforded an opportunity to participate actively in the federal government's decision-making process. Federal

advisory committees, such as this one, are governed by the Federal Advisory Committee Act or FACA.

FACA was established by Congress in 1972, to assure that advisory committees provide advice that is relevant, objective and open to the public; act promptly to complete their work; and comply with reasonable cost controls and recordkeeping requirements. Consistent with FACA rules, each public meeting will be announced in the Federal Register through a public notice. As part of the open, transparent process, the meetings of the full committee are open to the public, and any deliberations that occur between meetings, such as those in topic-specific subcommittees, are brought back to the full committee at a public meeting.

The public also has opportunities to participate in the process by providing written comments to the Committee through our on-line public comment database, and that's located at www.dietaryguidelines.gov, as well as they are given the opportunity to present brief oral testimony before the Committee at one public committee meeting. And likely, this will be the second

Dietary Guidelines Advisory Committee meeting. The public can submit written comments for the Committee throughout the time period that the Committee is operating. Generally, however, in order for comments to be handled efficiently for the committee members before a meeting, the Federal Register notices will advise on a date by which comments should be submitted, to be considered for the next Dietary Guidelines Advisory Committee meeting. The public will also have an opportunity to submit comments to the Federal Government, in response to the release of the Committee's Advisory Report.

Now, in addition to these rules of the FACA, I would also like to review some rules of engagement. The Dietary Guidelines Advisory Committee members need to refer any individuals who contact them personally to solicit information about their work on the Committee to the Dietary Guidelines Management Team, and I'll have an opportunity to recognize them a little later on. Committee members have been advised that they should not give presentations as a member of the Committee about the Committee's work, or speak as a

representative of the Committee, as this would be inconsistent with Advisory Committee operations, and would preclude the transparency, the requirement that the Committee's work be transparent to the public.

And lastly, I would also like to thank you for your willingness to serve on this Committee. Its work has critical importance in advising the federal agencies on the best and most current nutrition guidance for all Americans, and I am certainly honored to be part of this process.

And, at this point, I would like to turn the meeting over to the Chair, Dr. Van Horn.

DR. VAN HORN: My task now is, first of all again to welcome everyone on the Committee. It's wonderful to officially have this opportunity to launch, and my job now is just to review the agenda that lay before us.

This morning we'll have several presentations that will provide background on the Dietary Guidelines for Americans. Robert Post, our Deputy Director of the Center for Nutrition Policy and Promotion of USDA will provide a brief historical overview of the Dietary

Guidelines. Brian Wansink, Executive Director of the Center for Nutrition Policy and Promotion will discuss the role of the Dietary Guidelines in nutrition programs and policy within USDA. Penny Royall, Deputy Assistant Secretary for Health for the Office of Disease Prevention and Health Promotion of HHS, will discuss the role of the Dietary Guidelines in health promotion programs and policy within HHS. We will then hear an overview of the state of the American diet based on healthy people 2010 data from Cliff Johnson, Director of the Division of Head and Nutrition Examination Service -- Health and Nutrition Examination Services at the National Center for Health Statistics of HHS, and also healthy eating index data from Patricia Guenther, from the Center for Nutrition Policy and Promotion of USDA. After lunch, Joan Lyon, from the Center for Nutrition Policy and Promotion will discuss the nutrition evidence library followed by two areas of scientific discussion by the Committee; nutrient adequacy and fluid and electrolytes.

Now, Dr. Robert Post, Deputy Director of the Center for Nutrition Policy and Promotion, has some

additional introductions of individuals and will go over some housekeeping items, then we'll be taking a brief break.

DR. POST: I'd like to thank Secretary Schafer and Secretary Leavitt, and the Under Secretary of Research Education and Economics for their participation this morning. And, also I'd like to thank Deputy Under Secretary Houston for leading the opening session.

At this time I'd like to introduce a few other individuals who are critical to the operations of the Committee, and in order to see them I stepped up here to the podium. I'd like to first introduce our Co-Executive Secretaries to the Dietary Guidelines Advisory Committee. Carole Davis is the Director of the Nutrition Guidance and Analysis Division of the Center for Nutrition Policy and Promotion, and is also the designated federal officer for the Dietary Guidelines Advisory Committee. Shanthy Bowman, who is out here, if you'd like to stand -- is a nutritionist at the Beltsville Human Nutrition Research Center of the Agricultural Research Service of USDA. Kathryn McMurry is a Senior Nutrition Advisor at the Office of

Disease Prevention and Health Promotion in the Department of HHS. And, Holly McPeak is a nutrition advisor also in the office of Disease Prevention and Health Promotion at the Department of HHS. There are also other members of the Dietary Guidelines' management team staff and the nutrition evidence library staff, who are instrumental in this process, and I would like for them to stand as well. Obviously, we are -- we take it seriously and devote resources to this.

Well, at this time, I would like to take a moment to talk about a few housekeeping announcements. Just as you need a rules person, you need a housekeeping person as well. And before we take a 15-minute break, let me remind you of some things. Before you forget, please remember to turn off cell phones during the meeting. The badges you received, when entering through security must be worn while in the building, and must be left at security when exiting the building. If you leave the building for any reason, you will need to leave your badge behind and retrieve it at re-entry. You will repeat this process, if you are joining us,

and I hope you will be, for the meeting tomorrow. Audio, videotaping and photographing are not allowed, as they are disruptive to the meeting proceedings. Following the meeting, the meeting Minutes will be posted on the Dietary Guidelines' .gov website. This time I didn't use the www. This is also where you can submit and view public comments. When entering and exiting the building, please use wing 7. Wheelchair accessibility is available at the wing 1 entrance. And perhaps of most importance for a full-day meeting, I am advised that non-government individuals here today should use the restrooms at wings 5 and 6 outside of this auditorium. And, on that note, we will reconvene promptly at 10:00 a.m., according to our schedule. Thank you.

(Whereupon, at 9:40 a.m., a brief recess is taken).

DR. POST: Could I please ask everybody to take your seats? We are almost ready to start. Thank you.

DR. VAN HORN: it's my pleasure to formally welcome Dr. Robert Post. Dr. Post is the Deputy Director of USDA Center for Nutrition Policy and

Promotion. Dr. Post came to the Center with over 26 years of industry, government and academic experience in food and nutrition research, food processing, public health communications and education in food policy. Prior to joining the Center, he led USDA's Labeling Policy Program, where he established the rules on nutrition labeling, and he created and directed the Department's Joint Food Additive Approval Program with the Food and Drug Administration. Dr. Post is also an adjunct faculty member of the Nutrition and Food Science Department at the University of Maryland, and it's my pleasure to introduce Dr. Rob Post.

DR. POST: Thank you. Not only am I a rules person; I am also a perspectives person, and my presentation is intended to provide some perspective in terms of the history of the Dietary Guidelines.

Now, from the start, the Dietary Guidelines for Americans were intended to establish the direction and standards for all government nutrition programs, including research, education, food assistance, labeling, and nutrition promotion. And since 1980, in their first iteration, they have become more

comprehensive, as the science research on which they are based has evolved.

So you might be asking, what are the Dietary Guidelines? They represent federal nutrition policy set by both USDA and HHS that provides science-based advice for Americans two and older, to help promote health and prevent chronic diseases related to diet. The Dietary Guidelines serve as the cornerstone of the federal nutrition policy and education, and advocate that Americans choose a more healthful lifestyle that balances nutrition and physical activity. The Dietary Guidelines provide nutrition policy for federal programs, as we heard this morning; such as the National School Lunch Program, WIC, and the Supplemental Nutrition Assistance program formerly known as food stamps. They are also the core of federal nutrition education initiatives, as we'll hear later; such as My Pyramid, Eat Smart Play Hard, and also the Small Steps Program at HHS. Working jointly, USDA and HHS ensure that messages and materials are consistent throughout the Federal Government, and that the Federal Government speaks with one nutrition voice.

Before the 1970s, public health and nutrition was primarily concerned with preventing deficiencies. As deficiency diseases became less common, it led to a growing recognition of diseases related to dietary excesses.

Some points of interest in time, in 1977, the U.S. Senate Select Committee on Nutrition and Human Needs issued Dietary Goals for the United States. These goals were the focus of controversy among some nutritionists and others concerned with food nutrition and health. And later, in 1979, the American Society for Clinical Nutrition formed a panel to study relationships between dietary practices and health outcomes and the findings were reflected in Healthy People, the Surgeon General's Report on health promotion and disease prevention. Now this early work pointed to the need for national guidelines that were regularly updated and based on the preponderance of current science and medical knowledge.

The Dietary Guidelines were first published in 1980. Section 301 of the National Nutrition Monitoring and Related Research Act of 1990 was promulgated later

by Congress mandating the Secretaries of the USDA and HHS to jointly publish the Dietary Guidelines for Americans at least every five years. Once the Dietary Guidelines Advisory Committee is appointed, it meets to review the science and draft a scientific advisory report, which is submitted to the Secretaries of Health and Human Services and USDA. During the deliberations of the Dietary Guidelines Advisory Committee, the public has opportunities to provide comments through an on-line database and also in person at one of the upcoming meetings. There will be about four or five meetings of the Dietary Guidelines Advisory Committee, plus substantial work conducted between the meetings. The meetings occur over a two-year process, and the Dietary Guidelines Advisory Committee's work is done once they submit their Advisory Report to the Secretaries.

The Advisory Report contains nutrition information for the general public based on current scientific and medical knowledge, and this will be a rather large document, in our view, and the Report that was used to write the Dietary Guidelines Policy was about 350

pages. USDA and HHS use the Advisory Report to establish the Federal Dietary Guidelines Policy.

The Dietary Guidelines for Americans were first issued, or first released in 1980 and revised subsequently in 1985, 1990, 1995, 2000, and of course, 2005, and these are the various printed versions of the policy documents from the past.

I mentioned earlier that the Dietary Guidelines have become more comprehensive over time. The 1995 Dietary Guidelines were the first to include the concept of balancing dietary intake with physical activity to maintain a healthy weight, which was supported by various tools; such as, the Food Guide Pyramid, nutrition facts, and a healthy weight chart.

In 2000, new concepts were addressed. These were the first Dietary Guidelines to expand to 10 guidelines and three focus areas built on the concepts aiming for fitness through balancing intake and physical activity; building a healthy base by consuming enough of certain foods; and choosing foods sensibly in moderation. The areas of food safety and physical activity were new additions to these guidelines.

The current Dietary Guidelines, published in January 2005, expanded to 41 recommendations, and there are nine topic areas, which are listed here, with 23 specific messages for the general public and 18 for special population groups. And in terms of the weight or the volume of the document, the 2005 edition of the policy was about 70 pages in length. And you can see here the focus area is focused on adequate nutrients within calorie needs; weight management; physical activity; food groups to encourage -- the five food groups to encourage; fats -- those that are beneficial and others that might be of concern; carbohydrates; added sugar; sodium and potassium and electrolytes in general; alcoholic beverages; and certainly food safety.

If you wanted a snapshot of the Dietary Guidelines 2005 and the recommended food pattern changes, it's probably easily seen as a matter of recommending changes to food consumption that generally require more of certain things and less of others. So, in this case, more fruits, dark green vegetables, orange vegetables, legumes, whole grains -- make at least half

your grains whole, low fat milk and milk products and physical activity. These are in the more list. And certainly then recommendations related to less intake with regard to saturated fats, trans fats, cholesterol, added sugars, refined grains and sodium.

Now questions in topic areas that Committee decided were in need of review were identified by the previous committee. The revision process to the 2000 Dietary Guidelines was led by Health and Human Services in 2005. There were 13 members on that Dietary Guidelines Advisory Committee; five public meetings were held; and eight sub-committees evaluated data on scientific questions. And, in this area, a systematic review of the literature was used to determine the preponderance of nutrition and medical knowledge to respond to the Committee's specific scientific questions.

The resources on which the 2005 Dietary Guidelines Advisory Committee based its report included these inputs: Institute of Medicine Reports on Dietary Reference Intakes related to macronutrients, electrolytes, antioxidant vitamins and micronutrients;

and also considered was the 2003 International Agency for Research on Cancer Handbook for cancer prevention on fruits and vegetables. And also, making a point that I made previously, other literature was compiled using an evidence-based review approach.

Some other features of the 2005 Dietary Guidelines relate to how they were implemented. A policy guide and a brochure targeted at consumers were developed subsequent to the policy document publication. The process for their development involved an evidence-based review of current science; a 2000 calorie reference diet created consistency between the guidelines and nutrition facts; energy balance and BMI were central themes; and a substantial amount of consumer research was conducted to support the messages for consumer outreach and education.

Sort of one of these snapshots here, you can look at the Dietary Guidelines process graphically. The Guidelines are based on numerous scientific and clinical studies on food, nutrients and physical activity requirements for health promotion and the prevention of chronic diseases. This slide is a

graphic representation of the development of the Guidelines and how they are used for informing consumers.

The left part of the screen shows publications of quantitative nutrient guidelines; dietary reference intakes issued for different nutrients. The DRIs are developed by the Food and Nutrition Board Institute of Medicine, from a comprehensive analysis of available information about nutrient requirements.

The center is the evidence-based report on diet and health developed by the Dietary Guidelines Advisory Committee Report, which I had mentioned before was about 350 pages. This federally-appointed committee of experts reviewed the most current science and provides consensus recommendations, as I mentioned, to the Departments of Health and Human Services and the Secretary of Agriculture. This report is further refined by the Secretaries of HHS and USDA into the Dietary Guidelines for Americans 2005, and that's the document that's about 70 pages. That's in the center of the screen. And that then represents federal food and nutrition policy for the country.

The Guidelines are then used as a basis for developing consumer information, such as consumer brochures for the general public, and I think we have some examples here that are both from USDA and HHS; My Pyramid food guidance system; USDA's more matters program; the -- which is -- I'm sorry, the pyramid is USDA's; more matters by the Centers for Disease Control; milk matters; National Institute of Child Health and Human Development Program in the National Institutes of Health; the DASH eating plan -- NHLBI is responsible in NIH for that; expenditures on children; the cost of raising a child; food plans developed by the Center for Nutrition Policy and Promotion; the Healthy Eating Index; WIC -- the WIC food package; SNAP -- the Supplemental Nutrition Assistance program; and other nutrition education efforts that are just too numerous to count. So, as you can see, there is a great deal of magnification once the policy document is issued, and we'll hear more about that later on this morning.

So, how are these revisions to the Dietary Guidelines made? The process is virtually the same as

that used for each Dietary Guidelines revision cycle, and it's what we will be following for the 2010 Dietary Guidelines process. It is an appointment of the Committee, as I mentioned earlier; the holding four to five public meetings through an open public process; accepting public comments throughout the deliberation period; an advisory board of recommendations will ultimately be developed and presented and presented to the Secretaries of HHS and USDA, and from that then there is a joint development of policy and consumer materials. And HHS and USDA jointly published the Guidelines and consumer information.

In terms of some specifics, as I probably explained already, in terms of the 2010 Dietary Guidelines, a Memorandum of Understanding was the first thing that was created in creating the recognition of the need for the 2010 Dietary Guidelines Advisory Committee. In June, a charter to operate the Committee was signed by both Secretaries. The nominations for the Dietary Guidelines Advisory Committee were made and selections were made over the last few months, and obviously now the first meeting is in progress, and I

have taken a bold step here by saying the rest will be history.

One new feature that we have added is the nutrition evidence library, which will be discussed in more detail this afternoon. And, on that note, it might be worthwhile pointing to the sources of evidence for use by the 2010 Dietary Guidelines Advisory Committee. The nutrition evidence library will be one of many sources the Committee will be able to use, as part of their evidence-based review of the literature, in order for them to determine whether a revision of the Dietary Guidelines will be necessary; and if so, what types of recommendations will lead to their Advisory Committee report. As you can see, the newest evidence-based review is highlighted in light blue, the new 2008 Physical Activity Guidelines, which will be a resource I'm sure for this Dietary Guidelines Advisory Committee.

As you know, with each revision of the Dietary Guidelines, the goal is to produce positive changes in the dietary and physical activity behaviors of Americans, and it starts with the Dietary Guidelines

that are firmly based on the best science available, with the Dietary Guidelines as the foundation promoting dietary changes means developing effective communication and education strategies; testing and retesting materials for target audiences; building strategic alliance across agencies within the federal government; and in terms of public/private relationships, certainly stimulating the opportunity for healthier choices to be available to consumers, and then ultimately helping the media and industry see that the win-win means recognizing the attention and credibility, and the ability to provide a synergistic effect that is greater than what each sector can achieve individually to help consumers.

Something very important to the process for the 2010 Dietary Guidelines, a better way to communicate everything related to the Dietary Guidelines is to make it as transparent a process as possible. And, to make information easy to locate, we created this website: www.dietaryguidelines.gov; and it's going to be updated each time new information is available and it's our way of providing the public and the committee members a one

stop location in meeting all of their dietary guidelines needs.

And, on that note, if the members of the Committee have questions, I'll take them. If the general public has questions, you can always forward them to the Center for Nutrition Policy and Promotion, if you have them. Thank you.

DR. VAN HORN: Thank you, Rob. Next we will have two presentations on putting the Guidelines into action. It's my pleasure to welcome Dr. Brian Wansink. Dr. Wansink was appointed in November of 2007 as the Executive Director for USDA Center for Nutrition Policy and Promotion. He also is the John S. Dyson Professor of Marketing and the Director of the Cornell Food and Brand Lab, in the Department of Applied Economics and Management at Cornell University. He came to CNPP with over 25 years of experience in nutritional science, food psychology, consumer behavior and food marketing. Thank you.

DR. WANSINK: Thank you, very much. Now for this part of the presentation, what we are going to do is we are going to talk about where the rubber meets the

road, in terms of the Dietary Guidelines. Now, the Deputy Assistant Secretary for Health, Penny Royall, and I will be doing this. But, on behalf of both of us, I want to mention some other people. Now for the last two months we have been talking embracing the Committee for all the work that lies ahead and the bumpy road that will be there. That road has been tremendously smoothed out over the last five months by a group of people that are joint from HHS and USDA in setting up this Committee. I want to acknowledge those people, and I would like them to stand just so you can really see who they are. For HHS, Kathryn McMurry please; Holly McPeak; Eve Essery; Shirley Blakely; for the USDA, we've got Carole Davis; Kellie O'Connell -- can you come up, Kellie; Colette Rihani; and then Shanthy Bowman. Please help me give them a hand. Thank you very much. Now I do that not just so the Committee can see the names and faces of the people who have been corresponding with them for the last few months and not just so you can see there is a whole lot of people involved in this, not just the Committee, but so that they also know that their late nights and sleepless

nights sometimes is not being overlooked or unappreciated. Thank you.

Within the past week I had a chance to talk to somebody who was a member of the 2005 Dietary Guidelines, and this person said something very unusual to me. He said, when I started that Committee in 2005, he said, "I was skeptical that anything we would come up with would make a difference." In the same sentence he then said, "...but I was wrong." He went on to say that within three months of the Committee being completed all of a sudden he saw food companies reformulating products; putting whole grains in things that hadn't been whole grains. Within a year there were new fruits and vegetables that you typically didn't find; dark orange, dark green vegetables you can find in grocery stores at a reduce rate. Well that just shows what happened in the marketplace, and that's the tip of the iceberg.

What we are going to talk about now is what happens in these agencies that has a tremendous impact on people. The USDA has seven what's called mission areas. You can see them right here. Now those seven

mission areas, what we do touches five of the seven mission areas. I want to talk about that and that's going to be the basis of my program.

Let's start with the Food, Nutrition and Consumer Services. The Food Nutrition Service Program is a $60 billion dollar program. Now, it includes SNAP, which is formerly food stamps, and their -- the guidelines, informed policies and benefit levels. In the school meal programs, the Guidelines help determine nutrition standards and meal pattern requirements. In the WIC Program, they guide the composition of the WIC food packages. In the Commodity Food Distribution Programs, food specifications conform to the Guidelines. And finally, across FNS programs, the Guidelines form the basis for all the nutrition efforts, education efforts we do. Now what I want to do is talk about these programs individually.

Here is what was known as the Food Stamp Program -- the Food Stamp Program, we used to call SNAP, and more than 28 million people receive SNAP benefits every month, and approximately half are children and 90 percent are over the age of 60. The average benefit

per person is $101.50. In April 2007, the USDA announced a version of the Thrifty Food Plan and that's the basis for setting the maximum food stamp allotments. The Thrifty Food Plan is based on the 2005 Dietary Guidelines, and I will be saying more about that in just a few minutes. When it comes to SNAP, we also have new educational materials, and the Guidelines inform all of these. The goal is to help participants make healthy food choices within a limited budget and choose physically active lifestyles consistent with the current Dietary Guidelines for Americans and My Pyramid. And I think also we have translated these into Spanish, and there are over 400 -- 4.5 million pieces that have been developed for this.

For the school meal programs, that's basically what a lot of us know as the hot lunch program and the school breakfast program. Over 30 million school children receive these meals each school day.

And with the SNAP Program, like I said, the theme is called loving your family and feeding their future. It's a comprehensive nutrition program aimed at getting mothers to make the right decisions about what they are

buying, or whoever is going to be buying the food.

The school meal program, like I said, over 30 million people receive meals in the school meal program each day. All school meals must meet the Guideline recommendations, and we have an IOM contract that aligns meal patterns with nutrition standards in the 2005 Dietary Guidelines.

In terms of education materials, what we provide are fact sheets for the new menu planners giving practical tips in sodium, cholesterol and trans fat levels, and show how to use fruits, vegetables, whole grains and dried beans in a way where it is not left on the train; in a way where it actually gets eaten. We are also helping schools move toward the 2005 Dietary Guidelines, and one of the ways that we are doing this at FNS is that we have a healthier U.S. school challenge, which encourages schools to provide more nutritious meals and opportunities for physical activity, but it also awards the schools that are doing a good job with this with either bronze, silver or gold awards based on the Dietary Guidelines.

The WIC Program, over eight million low-income,

pregnant, post-partum and breast-feeding women, infants and children receive WIC food packages each month. Half of all the babies born are born into a WIC household. That's how important this is. WIC food packages -- are aligned with 2005 Dietary Guidelines and the rules issued in December 2007, the participants receive nutritious foods, nutrition counseling and referrals to health and other social services.

The USDA foods -- there is also the Commodity Food Distribution Food Program. Thirty years ago we used to call this Government Cheese, but I know now it's called the Commodity Food Distribution Food Program, and its nutrition assistance to low-income families, emergency feeding programs,Indian Reservations and the elderly. Now the Farm Bill enabled us to -- the USDA to increase fruit, vegetable and whole grain purchases in this Commodity Food Distribution Program, and it compliments ongoing efforts to bring the USDA foods into alignment with the Dietary Guidelines in similar proportions.

Now, we are going to talk about research education and economics, and you heard Dr. Buchanan, he spoke a little bit earlier, this is his agency as the Under

Secretary. The Cooperative State Research Education Extension Service is a mouthful, but we basically know it as the State Extension Service. These provide national leadership for community-based nutrition education programs and it sponsors nutrition-related research. The Dietary Guidelines are used at CREES, or the Extension Service, for strategic planning; for creating research grant opportunities; for delivering all of their educational material messages in evaluating program effectiveness actually using our HEI, our Healthy Eating Index, which Dr. Post mentioned and you'll hear more about today.

The Expanded Food Nutrition Education Program (EFNEP), the Dietary Guidelines are the foundation of all of EFNEP's educational programming. It operates in all 50 states and in six U.S. territories, and reaches a half million low-income families and youth each year, and the education there focuses on dietary recommendations, nutrition practice, food resource management skills, and then food safety.

The Economic Research Service (ERS), those are all a bunch of economists, and they measure food

consumption daily against dietary standards, using the Dietary Guidelines as a standard for a healthy diet. In doing so, they use the ERS Food Availability Data System. You can see a little sample of a map there that shows sort of food is available and how much is actually consumed. And they use these analyses in a lot of food consumption survey data. You might have heard of NHANES -- this is the group.

ARS, Agricultural Research Service, they define the role of food and components in optimizing health by conducting high priority research.

The National Program on Human Nutrition, there are a bunch of things here, but we have just one example, and it's what we eat in America. It monitors the extent of adherence by the American public to the Dietary Guidelines, and here is where the NHANES comes in and is used vigorously.

So, in the USDA we are not going to look at marketing and regulatory programs. The Ag Marketing Service (AMS) administers programs to facilitate efficient fair marketing of U.S. agricultural products. Within that group the Dietary Guidelines are used to

guide decisions on purchasing products for the Federal Nutrition Assistance programs setting specifications for the products that are purchased and overseeing Commodity Board research and promotion programs.

Food Safety -- the Food Safety Inspection Service educates consumers about the importance of safe food handling and how to reduce the risks associated with food-borne illness. That was a tough agency to be with this last year, I think. Implementing the Dietary Guidelines Food Safety recommendations through its many food safety education programs and campaigns, and they do so through Thermie the Thermometer; be Safe; Fight Back; and other programs like this.

Natural resources in the environment -- well, we are actually involved with the U.S. Forest Service. They've got something called Kids in the Woods Program, and what we do -- they implement the Dietary Guidelines by engaging children of all ages in nature-based activities to enrich their lives and promote health through outdoor experiences.

And last, Food Nutrition and Consumer Services, I'm going to talk about -- well, CNPP, the Center for

Nutrition Policy and Promotion. We've got a number of things I'm going to talk about; the first is food plans. The Dietary Guidelines directly influence the food plans. The thrifty food plan is the one that most people are familiar with. It determines the types and quantities of foods needed to obtain a nutritious diet at minimal cost. And the nutritional basis for this food plan and the three others that are low, moderate and liberal, use the dietary reference intakes; the 2005 Dietary Guidelines; My Pyramid food intake recommendations.

The Healthy Eating Index, this is designed to measure compliance of diets with the 2005 Dietary Guidelines for Americans. It's used to monitor the diet quality of the U.S. population and the low income sub-population. Dr. Post mentioned this. You'll hear more about it in detail in a little bit. Now perhaps the most familiar way we implement this is through My Pyramid food guidance system. It's a major implementation tool for the 2005 Dietary Guidelines for Americans, and it's based on the Guidelines of the Dietary Reference Intakes. It provides messages that

consumers can more easily understand and put in practice. You've seen that big blue book in 2005? Yeah, this makes it a lot more clearer. There are interactive tools, materials that translate this guidance into all kinds and amounts -- all kinds of information and the amounts of food you eat each day. Here is what its reach is. Since this was launched back in 2005 by the former Executive Director, Dr. Eric Hentges, it has had over 5.7 billion hits on the website. Now, from what we understand, it's the second most accessed Government website right behind the one that everybody logs onto on April 14. Okay. There are 3.5 million registered users on the tracker. And My Pyramid menu planner, which we just launched back in May, has 750,000 page views every single day. My Pyramid tools and web materials; we have interactive tools, like the tracker, the menu planner and the Blast Off game; we have got sections for pregnant, breast-feeding women, and we just launched at ADA four days ago for parents with preschoolers, which was launched by Patricia Britten, who led up that group. We have printed materials and information for professionals,

and we have Project M.O.M., something that is near and dear to my heart, which has helped us focus our energies on mothers, others and My Pyramid; the people who are the nutritional gate-keepers who make the decisions tonight what their family is going to be eating tonight.

Well one thing that some of my prior research had shown is that people don't make food decisions when they are sitting in front of food, nor do they make food decisions when they are holding a brochure or surfing the web looking for dietary advice. They make them wherever they purchase food; wherever they prepare food; where they work; and where they play. Now if there is a way that we can connect to these people, not communicate at them, but connect with these people, I think we are going to be a lot more effective in changing dietary habits. And we can't do that with the Government, but we can with information multipliers. What I have talked about up until now is just what the USDA does with these things. What we did on January -- rather, on June 10this last year is we started something called Partnering With My Pyramid. What we

did is we challenged companies to think of a way that they can promote the pyramid in a way that's consistent with the Dietary Guidelines, to help their consumers eat better. Now, in just less than four months, here is what we have found; the pyramids showing up on packaging, showing how food fits into the Dietary Guidelines. It's come up in games. You see it now in supermarkets. You see it in display cases, on websites, and we started with 42 companies on January 10 -- or rather, June 10 -- right now we are up to around 70. They are coming up with innovative ways to get the word out wherever people purchase and prepare food; wherever they work; and where they play.

I am tremendously grateful and I am tremendously proud to have had the opportunity not just to work with the people at the CNPP, but to work with the department, the USDA, that I think is the department of the people. It does a lot of things to help people eat better and to be healthier. Thank you.

DR. VAN HORN: It's my pleasure to welcome Rear Admiral Penelope Royall, the Deputy Assistant Secretary for Health and Director of the Office of Disease

Prevention and Health Promotion in the United States Department of Health and Human Services. She is a senior health advisor to the Assistant Secretary for Health and to the Secretary of HHS. Rear Admiral Royall is responsible for strengthening the disease prevention and health promotion priorities of the Department within the collaborative framework of the HHS agencies. RADM. Royall.

RADM. ROYALL: Good morning, everyone. This is a great day for all of us who care about health. We are embarking on the, the next journey that will lead us towards the state of the science in nutrition and health, and I am so excited and I welcome all members of the Committee. I especially want to thank Larry Appel and Xave Pi-Sunyer for signing up again. These two folks helped us with 2005, and they had such a good time that they decided to come back. I also want to especially thank Mim Nelson, who has just finished being on our Advisory Committee for Physical Activity Guidelines, and Mim, here she is to be the bridge between the Physical Activity Guidelines and Dietary Guidelines, so it’s so great to know we are so much fun

in the government that we have people who are willing to come back.

As Dr. Wansink just told you about the many, many programs in USDA that rely on and use the Dietary Guidelines, I wanted to just give you a very brief overview of what happens at the Department of Health and Human Services, and most of the things I am going to mention to you today are consumer guidance that attempt to push the Dietary Guidelines for Americans out to the ground floor where things really happen. Dietary Guidelines are developed -- are used in our food assistance programs, like Meals on Wheels -- you have heard of that for the elderly citizens of America, and the development of national health objectives. Healthy People 2010 is coordinated in the Office of Disease Prevention and Health Promotion, but we couldn't move very far without the National Center for Health Statistics. Cliff Johnson is here to talk to you in just a few minutes about how we are really eating in America. I'm not sure it's great news, but we'll hear from Cliff in just a minute.

The Dietary Guidelines also influenced the

questions in national nutrition monitoring in NHANES. You all are aware, I am sure, of the NHANES survey that is done by the Centers for Disease Control and Prevention of HHS. Dietary Reference Intakes and food fortification policies are all influenced by the documents that are produced by Committees like this.

Similar to USDA, HHS has programs that impact Americans of all ages and from different cultural backgrounds and educational levels. This is tremendously important. You know, when I hear of all the unbelievable things that the Department of Agriculture does to promote good education, and I am very familiar with what we do at HHS. It begs the question, why are we not more successful? I -- there is something that we need to address, and I haven't quite put my finger on it yet, but we make strong efforts, dedicated people all over the country are working on this. I think having Brian Wansink here at CNPP was a stroke of genius, and if I could, I would tie a rope around him and not let him leave. We need all the marketing help we can get to make a difference for the American people.

The first program I am going to mention is one that's a collaboration across the government, including HHS and USDA, and that is the Healthier U.S. Program. We all work together to promote a healthier country, and the initiative is based on the simple idea that individuals can make a difference in their own lives. As a matter of fact, as a clinical psychiatric social worker, I am here to tell you that it all comes down to individual choices. Yes, the environment is important, absolutely, but we cannot guarantee that if you build it they will come. This is about individual people making individual choices to affect the entire population.

The Dietary Reference Intakes calls for a lot of collaboration across the government. The DRIs are a comprehensive set of nutritional references for healthy populations. It's established through a review process overseen by the U.S. Food and Nutrition Board at the Institute of Medicine. The Institute of Medicine, as I think all of you know, is a scientific advisory body to the federal government. The DRIs are considered by the U.S. and the Canadian government in helping develop a

variety of policies and programs to benefit health, and we are very pleased that the Institute of Medicine has recently initiated a study to review Dietary Reference Intakes on vitamin D and calcium. That's been in the news. I know all of you have seen the articles on vitamin D and calcium intake.

Here are lists of HHS agencies. You know we are all about health at the Department of Health and Human Services. The Administration on Aging, listed first, utilizes the Dietary Guidelines in their nutrition services. They are the organization that manage the Meals on Wheels Program. Of course, the Centers for Disease Control and Prevention promote the Dietary Guidelines in Fruits and Veggies, More Matters -- I'm a little behind -- There are some other programs that the CDC pushes. All of this stuff, all of these programs are manned by people who really care about the health of the country. The Weight Management Research to Practice Series is an evidence-based program that the CDC manages. The More Matters replaces the popular Five-A-Day Program that, at one time, was located at the National Institutes of Health and was moved to the

CDC, because the CDC is really the sort of hands and feet of the public for HHS, and we felt that perhaps it would move faster further if it was moved from our esteemed research area of the National Institutes of Health.

The Food and Drug Administration also relies on Dietary Guidelines in their nutrition facts labels. They have programs to educate consumers on this facts label. We know that people want things quick and easy. Sometimes quick and easy is not always the best, and the FDA has made efforts to educate consumers on how to use the nutrition facts label. The Spot the Block Program for tweens and Make your Calories Count is an interactive program that FDA manages. The FDA, as well as the CDC, along with USDA collaborate on food safety. Food safety programs range from general recommendations to recall foods, warnings, advisories, et cetera, and combating food-borne illness is a top priority at the Food and Drug Administration.

The Health Resources and Services Administration launched the Bright Futures Initiative way back in 1990, and that program is still viable, active and

moving forward. The Nutrition Bright Futures Guide is now being revised with HRSA and the American Academy of Pediatrics, and it will continue to be based on the Dietary Guidelines for Americans.

The Indian Health Service -- this is the agency in HHS that serves our Native American populations. Many of you know that these Americans suffer disproportionately from the diseases to which improper nutrition contributes. Their Strength in the Family Circle handouts are based on culturally meaningful images, high impact messages and personal success stories, along with current nutrition science. Honoring the Gift of Children is another IHS program that promotes sound parenting skills using healthy eating and physical activity as examples.

Now, back to the National Institutes of Health. I certainly did not mean to disparage this unbelievable agency when I said that the Fruits and Veggies, More Matters has moved to CDC. Not only is it the premier research institution at HHS, but they do have some programs over there all of course science and evidence-based. One of my favorite is We Can -- Ways to

Enhance Children's Activity and Nutrition, which is an education program for caretakers and parents of children from eight to 13. It is to help this population, which is one of the populations in which overweight and obesity seems to blossom, to keep these kids at a healthy weight.

Portion Distortion -- golly, have you been out to eat lately? It's unbelievable the amount of food that we have put on our plates when we -- when we eat. And we all then begin to become accustomed to that and just eat it all up. We clean our plates. And that was in the day that, as you heard earlier, where nutrition deficiencies were big in this country. Thank God we don't have many nutrition deficiencies now, but we sure do have a problem with overeating.

The DASH Eating Plan out of the National Institutes of Health, along with the USDA - My Pyramid are two examples of eating plans that exemplify the Dietary Guidelines.

In the Office of the Assistant Secretary for Health, where my office lives, the Office on Women's Health has come out with a terrific program called Body

Works. It is an adolescent obesity prevention program that focuses again on parents and role models, and it provides tools for parents to make choices to influence their own family. There are materials in this, although it is from the Office of Women's Health, materials for adolescent boys has been added to this tool kit making it a program for healthy teens and strong families. The Indian Health Service has adopted the Body Works Program and is currently pilot-testing Body Works for Native Americans. Also, there is a Spanish version of the program and these materials will be available soon.

My office, the Office of Disease Prevention and Health Promotion, is involved in various activities across the spectrum for preventing disease and promoting health. We developed consumer materials, such as A Healthier You, and a bilingual booklet -- I think it's on there -- right -- El Camino Hacia Una Vida Saludable -- translated to A Road to a Healthy Life. This is based on Dietary Guidelines for Americans. We are really excited about that. That is available in paper versions, as well as on the Web. We

also promote Dietary Guidelines on our little website, www.healthfinder.gov. We are proud of our little website. It continues to win awards for being, for giving reliable, validated health information, especially for consumers who are not particularly health literate. That's www.healthfinder.gov. www.health.gov is where the Dietary Guidelines can be found, as well as on www.dietaryguidelines.gov, and www.healthierus.gov is another government website that has information on how to stay healthy.

In addition, many of the Healthy People 2010 objectives address nutrition and measure, in some way, our nation's progress towards implementing these recommendations of the Dietary Guidelines. And, Healthy People 2020 is now in the process of being developed, and I feel sure we will continue to address this.

Here again is another shot of the bilingual brochure. This is the title page on www.healthfinder.gov. I wanted to mention that, again, we are focusing on eat healthy on this slide, but the Physical Activity Guidelines were just released October

7, and the first screen that you will come to when you click on www.healthfinder.gov right now is a be active screen. So, there is a quick guide to healthy living on there, again, evidence-based. We have partnered with AHRQ, the Agency for Healthcare Research and Quality, at HHS to present healthy things that individuals can do to promote and protect their own health.

Here is the Physical Activity Guidelines for Americans that was just released a couple of weeks ago. These Guidelines came about -- let me just tell you quickly -- that since 1995, there has been a mention in Dietary Guidelines for Americans of physical activity. The physical activity community was interested in having a more comprehensive physical activity guidelines document that could bring together all of the documents out there that address physical activity. And so, following the example of the Dietary Guidelines for Americans we convened some very smart physical activity scientists, who followed the same process that this Dietary Guidelines process Committee is going to follow. The 2008 Guidelines are the first ever comprehensive Physical Activity Guidelines issued by

the Department of Health and Human Services. They are designed to provide information and guidance on the types and amounts of physical activity that provides substantial health benefits for Americans ages six and over. The important thing to note about the Physical Activity Guidelines, vis-à-vis the Dietary Guidelines, is that these were developed to provide complementary and consistent advice for physical activity. The general guidance ary Guidelines for Americans and the comprehensive advice in the Physical Activity Guidelines on physical activity will, we hope, get more people up and moving. More information about these guidelines will be provided to you, but a few of the main messages are, be active your way. As Secretary Leavitt said earlier, some is better than nothing, and more is better.

I want to thank the Committee again. I want to thank you all in the audience for coming and listening to this august body as they begin their deliberations on the state of the science relating nutrition and health. I want to thank the Committee and emphasize again the importance of your service, and I want to

echo Secretary Leavitt's request that, if you can, it would be useful to have you identify two or three key dietary changes that can make an immediate difference to the American people. As I said earlier, we have programs out the wazoo. It is unbelievable the amount of smart people working to try to get America to eat better and move more, and we've still got a huge, huge issue out there. So, as much as we can, let's see if we can get some simple guidance on two or three main issues to the American people. Thank you all very much.

DR. VAN HORN: Thank you, Penny. That was wonderful. Next on our agenda are two presentations on the state of the American diet. Our first presenter, Mr. Cliff Johnson, is the Director of the Division of Health and Nutrition Examination Surveys at the National Center for Health Statistics, of the Centers of Disease Control and Prevention. His division is responsible for conducting the National Health and Nutrition Examination Survey, a sizable task, I might add. Mr. Johnson has been with the NHANES Program for 36 years this month. Congratulations.

Our second speaker, Dr. Trish Britten, is a nutritionist with the Center for Nutrition Policy and Promotion of USDA. Dr. Britten has been with the USDA for nine years. Her major contributions have included leading the development of the My Pyramid Food Guidance System and conducting the food modeling analyses used in the development of the 2005 Dietary Guidelines.

Mr. Johnson?

MR. JOHNSON: Thank you. To the Committee and everyone, thank you for the opportunity to come and present this morning. I was asked to focus my part of the state of the American diet and public health on the aspects of obesity and physical activity with the next presentation and presentations at a future meeting spending more time on the dietary aspect of this piece.

What I have decided to do as part of this task is to give you some brief overview of some of the sources of data on diet, nutritional status and help; more specifically focusing some on what has been alluded to in some earlier presentations today in some of the information from the Centers for Disease Control and Prevention; and then more specifically, a little

background on NHANES since it has been mentioned at least numerous times this morning, to give you some background that leads into what's being done in this survey and what it has -- information available -- and then show you a few selected slides that gives some findings on overweight and obesity, as well as physical activity, and then conclude with a couple of summary comments.

There are numerous surveys and surveillance systems throughout the federal government that provide information on the state of the American diet and public health, and I might also mention it's not just surveys and surveillance systems, but it's a variety of research activities that are also throughout the various departments, many of which have been alluded to by previous speakers.

Within the Centers for Disease Control and Prevention there are a number of key data systems that provide information related to the state of the American diet and public health. In particular, they are the National Health And Nutrition Examination Survey or NHANES; the National Health Interview Survey;

the Behavioral Risk Factor Surveillance System (BRFSS); and the Youth Risk Behavioral Surveillance System.

Focusing in on the National Health And Nutrition Examination Survey as one of the key parts of this set of data collection systems, NHANES has, in particular, been described as a cornerstone of the Federal Nutritional Monitoring System and a significant source of data that would likely be of use to this Committee. NHANES has its objective, and has always had its objective, to assess the health and nutritional status of adults and children in the United States, and that is accomplished by selecting a representative sample of the U.S. population and conducting interviews and direct physical examinations on these persons selected to participate in the survey.

NHANES has a variety of goals, and I have just selected four to give you an example of some of them today; but, as of -- the goal of the survey includes the produced population-based estimates on various health conditions; the awareness, treatment and control of selected diseases; environmental exposures for the U.S. population; and obviously of interest today,

nutrition status and diet, and diet behaviors.

NHANES has existed for a long time. It actually, next year, will be the 50 anniversary of the very first ever health examination survey conducted by the National Center for Health Statistics. Of course, the nutrition component was significantly expanded in the early 1970s, which led to the acronym and the current survey as we know it today. So that's when that part developed. And during that course of the 1970s, 1980s and 1990s, a variety of cross-sectional periodic surveys were conducted. Beginning in 1999, NHANES became a continuous ongoing survey conducted as two-year cycles, if you will, where we leave the content the same over a two-year time period and we interview and examine approximately 10,000 people each -- over the course of those two years. Currently, we are nearing the end of the collection of the 2007-2008 survey time period. Extensive data from all of the NHANES have been made publicly available for use by the research community.

I want to mention that NHANES is a major collaborative effort across the federal government. On

this slide are many of the -- are the overall many federal agencies, who currently are both supporting scientifically and physically the operation of the NHANES survey. This is truly, as I said, a collaborative effort, and you can see that all of these different organizations would obviously and do have a significant interest and focus, as we have heard from the various presentations today related to the nutritional status and dietary status of the U.S. population.

One of these collaborations is especially significant. Beginning in 2002, NHANES has served as the vehicle for the collection of the National Dietary Intake Data, known as What We Eat in America, and you have heard it referred to a few times this morning already. At that point in time, What We Eat in America represents, since 2002, the integration or moving, merging together of the two previous primary federal dietary data collection efforts; that is, the former Continuing Survey of Food Intakes by Individuals conducted by USDA/ARS and the NHANES itself conducted by NCHS/CDC within HHS. This collaboration is a

dedicated effort between the staffs of the two Departments to make sure it happens. And, to give you an idea of the flavor of the responsibilities, HHS, through National Center for Health Statistics, is responsible for the sample design and the operation of the survey. USDA, and in particular ARS, is responsible for the dietary methodology used in the survey; all the processing of the dietary data; and the nutrient values of foods through the food composition databases. And jointly, the two departments monitor the data collection and the data quality, and are actively involved in the joint release of this data.

The nutrition component for NHANES is, for the time periods 2003 and 2004, and 2005 and 2006 is very extensive, more so than any previous time period in the history of the survey. Within those four years of the survey, we had 220 overall recalls and all persons interviewed and examined in the survey; a non-quantitative food frequency questionnaire; questions on dietary supplement use; a set of dietary behavior questions; body measurements; physical activity questions and physical activity measures through an

accelerometer; and nutrition biomarkers, all at the same time in the course of this survey. Because much of the NHANES 2005 and 2006 data have become available within the last year, many peer review publications based on this information are just starting to arrive in these various publications. Much more is likely to occur during the next year or so of this Committee's deliberations. And again, the advantage of the integration of the nutrition and dietary component with NHANES health topics also allows for the very extensive ability to link diet, nutrition, physical activity and biomarkers to all of the other health components.

The results that I am presenting today will focus on obesity and physical activity. They represent examples from recent Healthy People progress reviews in the last few months. Time constraints preclude me from showing you all the findings presented at those reviews, so I am just going to give you a few examples from the various slides and data and information that were available at those two particular progress reviews. Additional information, I believe, has been provided to the Committee in their briefing materials.

It's clear that diet, physical activity and overweight/obesity are linked with respect to the energy balance equation and, as shown on this slide, diet is associated with many health conditions and diseases and overall health status. Dietary data, in particular, will be a part of the next presentation and, in addition, at the next meeting, there will be some additional presentations on dietary data from the What We Eat in America/NHANES survey at that time.

The latest 2003-2006 data documents the trend in increased adult obesity for both males and females first demonstrated in NHANES-III. The current percents of persons considered obese -- and again, as we heard alluded to from the Secretaries this morning -- are far greater than the Healthy People target goal of 15 percent. In other words, they are close to 33 percent overall for the U.S. population. The trends in obesity are shown on this slide, just to give you a perspective of the fact that since we have been conducting NHANES in a similar fashion and collecting these direct physical measures ever since the 1959-1960-1962 time period, we have been able to track the prevalence of

overweight, and more specifically, as shown on this slide, obesity ever since that time documenting the significant change that occurred between the end of the 1970s and the NHANES-III 1988-1994 time period and the ongoing continuation of those results from 1988-1994 into the more recent 2003-2006 time period. For children and adolescents, again, as we heard from previous speakers this morning, the picture is very much the same as that observed in adults.

Now turning to physical activity, physical activity data comes from numerous sources of surveys and surveillance systems. The benefits of physical activity and fitness are shown on this slide and documented in great detail in the recently released Physical Activity Guidelines for Americans that RADM Royall just discussed. Using data from the National Health Interview Survey, one of the other data systems I mentioned, this slide shows that there is no significant change in the percent of adults reporting moderate, leisure timed physical activity from the 1977 time period to 2006. Overall, approximately 30 percent of the people met the criteria of regular leisure time

physical activity defined as shown on the note in this slide. The likelihood of selected health problems, as shown on this slide and is shown to be lower for those persons engaged in moderate activity, as defined from the previous slide.

Determining the activity patterns of adults and children using self reports or proxy reports is challenging. In the time period 2003-2006, physical activity in NHANES was measured both by self reports and by accelerometer. The accelerometer allows this to measure the intensity and duration of common activities, such as walking and running, and you can see it was done on a number of the participants in the NHANES survey over this four-year time period, and that this allows us to link to, again, to a number of these other different components that are in the NHANES Survey. Using the accelerometer data from NHANES, Dr. Troiano and colleagues recently published the results shown on this slide. Using recommended levels defined on the left axis of this slide, in terms of recommended levels of physical activity, most gender and age groups, population groups, had fewer than ten percent

meeting this criteria. The one exception was the 6-11-year-old age group. And you might notice, based on this slide and the one I showed a couple of minutes ago, that there seems to be a much smaller number of people meeting the criteria based on the accelerometer than there were based on self report.

As with dietary intake data, there are numerous methodologic challenges or issues associated with the physical activity assessment. Some of them are shown on this slide, and in the interest of time I won't go through each and every one of them. It's clear that there are recall issues, self report versus measured, just as I alluded to a second ago, but even the measured values, regardless of what assessments we are doing; diet, physical activity, nutrition biomarkers also have their methodologic challenges and difficulties monitoring over time. And the accelerometer, in particular, does not measure all aspects of physical activities. So it's still missing certain aspects. What these different methodologic challenges do indicate is that even though we have made progress in terms of having other ways to assess

physical activity, much more remains to be done, and hopefully, a lot of the analysis that will come from this NHANES 2003-2006 time period will increase our knowledge in that area, as well as the ability to link it to diet and other sources of information.

In summary, there is extensive and fairly recent data and publications available on diet, obesity and physical activity, and I believe there is going to be much more showing up in the literature in the next few months to over the next year, since much of the NHANES 2005-2006 data became available over the earlier part of this year, and it will not have made its way through the referee journals and articles quite yet. More is going to be presented by the following speaker related to diet and in the future meetings of this, for this Committee. And so, again, I feel like I had to do this just as a touching the overall issues. There is a lot more information that could be presented. Well, I thank you for your attention.

MS. BRITTEN: While she is -- while Kellie is getting those up, I'll just say that I actually am a substitute today, and I want to give full credit to Dr.

Patricia Guenther, at the Center for Nutrition Policy and Promotion, who led the effort to develop the Healthy Eating Index 2005 and developed this presentation. She is not able to be at this meeting, so I will try to do justice to Patricia's work.

The Healthy Eating Index 2005, by the way, is called that because it is based on the 2005 Dietary Guidelines, even though it did not come out until a later year. You have heard about the science that underlies the Dietary Guidelines, and a large part of it, for the 2005 Dietary Guidelines, was the DRI Reports. And, what we are looking at with the HEI is going from that underlying science to assessing the Guidelines. And so, you have seen this; you have seen that the Dietary Guidelines Advisory Committee Report was based, among other literature, on the DRIs. The policy document was based on that. And then, My Pyramid developed quantitative information about what and how much to eat based on the Dietary Guidelines and also the DRI Reports. The assessment tool to determine how well Americans are following the quantitative recommendations in the Guidelines and in the My Pyramid

food intake patterns is the HEI 2005. I am going to summarize briefly today the components of the HEI 2005; the scoring system; and the results we have to date. And this is because this is new and it's very different from the previous HEI. And further details are coming out this month in the Journal of the American Dietetic Association; the full report on the development of the HEI 2005.

There are 12 components to the HEI. Nine address adequacy and three address moderation; and the adequacy ones are almost all based on food groups, but some are separated into various subgroups because the Guidelines made statements about subgroups; so that, for example, there is a total fruit component; there is also a whole fruit, and whole fruit is defined as everything except fruit juice. For the vegetables, there is a total vegetables. There is also the most underconsumed subgroups as a separate component, which is the dark green, orange and legumes. The same for grains, where we have total grains and whole grains, because the Guidelines say make half your grains whole. Then, the other adequacy components are the milk, yogurt, cheese

group; the meat and beans group; and oils, which are considered part of -- essential for a diet, but are not deemed a food group themselves.

The moderation components, where we have quantitative information, saturated fat, sodium and calories from solid fats, alcohol and added sugar, and I'm going to talk a little bit more about that one later, because that one is brand new. But, we use the term SOFAAS for that, because it's too much of a mouthful to say, so we talk about calories from SOFAAS.

What's really new about HEI 2005 is that it truly attempts to measure the quality of the diet or the mix of foods, and it does it this by using a density approach. That is, it expresses the standards or the recommendations on the per thousand calorie or as a percent of calorie basis, and it allows a single index to be used for the entire population. So, as a measure of diet quality, it specifically does not assess energy balance or physical activity. And, as you just heard from Cliff Johnson, there are other really good measures of both long-term energy balance, would be measuring body mass index or other anthrometric

measures, and also measures of physical activity.

I want to explain the scoring system just a bit. The scoring system, since it's based on a density function, could be consistent across all recommended energy intake levels. And this is an example showing across the 12 different energy intake levels within the My Pyramid Food Guidance System how much total grain is recommended on a per thousand calorie basis. And so, as you see, there is a slight variation, but not a lot. And, the lowest level of any of these was set as the standard for the HEI, and therefore, on per thousand calorie basis, the standard recommendation for total grain intake would be three ounce equivalents per thousand calories. We used a similar approach for all the adequacy nutrients. For those adequacy nutrient components, the maximum points were assigned for diets that met these standards that are based on My Pyramid. If the person ate nothing from that group, they got zero points. For the moderation components, there are science standards for setting the maximum points that are assigned, but there is no natural zero, and so, zero points were assigned at approximately the 85

percentile of all intake. Here is how this happened, for scoring the saturated fat component. This is the distribution of saturated fat intakes. Oh, and by the way, all the data that I am presenting here all comes from NHANES, and was used in the development and in the results that I will present today. It's all NHANES data. So this is, as a percent of calories, saturated fat intakes.

The Dietary Guidelines recommend less than 10 percent of calories from saturated fat; however, there is also the suggestion in both the Dietary Guidelines and in the Dietary Reference Intake that less is better. Therefore, the 10 percent level was set at, to get a score of eight, not 10. The score of 10, which is the highest score, was set at seven percent of calories, and this seven percent standard dovetails nicely with many science recommendations, such as the American Heart Association; the recommendation in the DASH eating pattern; and is also, when you look at how much comes -- how much saturated fat there actually is in the food intake patterns from My Pyramid, it's between seven and eight percent. As I said, the zero

score was set at approximately the 85 percentile, and in this case it was 15 percent of calories.

Similar scoring for sodium, where this is the intake distribution of sodium per thousand calories, by the way, the intake per thousand calories. The adequacy level or the -- I'm sorry -- the -- this is when I get in trouble doing someone else's presentation -- the adequate intakes set by the DRI is a basis for the maximum score, and note that for sodium only two-and-a-half percent of these one-day intakes are at that level or lower. The Dietary Guidelines' recommendation was it to be less than the upper, the UL, the upper limit, and that is 2,300 milligrams, and this is again converted to a density score. And finally, the minimum score, which would be zero, was set at 2,000 milligrams per thousand calories based on the 85 percentile of the intake distribution.

Now I'm going to talk a little bit more about this new concept of calories from SOFAAS. The 2005 Dietary Guidelines Committee created the concept of discretionary calories, which was the difference between total energy requirements and energy consumed

to meet recommended nutrient intakes. Discretionary calories can include all solid fats that are consumed, alcohol and added sugars; however, discretionary calories are not specifically those items. They could be amounts of other foods that are eaten in excess of your needs, so that if your grain intake was in excess of the recommendations, those would be considered discretionary as well. However, in practice, while it's a great concept, it's difficult to operationalize and measure, and so we needed a component that would address over-consumption. Through a lot of work with a large group of members on a working group, the proxy measure of calories from SOFAAS was created. This represents a subset of all discretionary calories, but the analysis suggests that this is a substantial portion of all discretionary calories. And also important, these components -- these food items, the solid fats, added sugars and alcohol, capture the calories that carry the fewest nutrients in the diets.

Both the Institute of Medicine DRI Reports and the Dietary Guidelines point out that recommendations are to be met over time, over the long time; therefore,

usual intakes should be assessed. When only one or two days of data are available, as in the case in NHANES, and individual's usual intake cannot be determined, because of the large day-to-day variation. However, the usual intake of a group can be estimated.

HEI scores are calculated for a group's usual intake by applying the scoring system to the population mean intake, rather than to the individual level intakes. So to determine group mean intake, via the population ratio method, which is shown here. The weighted sum of the population's total intake for, of a food group, for example, is divided by the weighted sum of the population's energy intake. And the scoring system is then applied at the group level, not at the individual level.

Now to the results. This chart summaries HEI adequacy components for the 2003-2004 NHANES, and these are shown to normalize them as a percent of the maximum score. As you can see, the total grain's intake and the meat and beans intake meet the recommended intake standards. They are at 100 percent. All the other adequacy components fall far short. Fruit and

vegetable intakes are insufficient, and the choices made within the groups are not in accordance with recommendations. If you notice, intake of dark green and orange vegetables and legumes, and of whole grains are strikingly low, if you look at the percent of the total score represented there. These are the three moderation components, and they are presented on the same scale; 100 percent would meet for that, meet the maximum score for that. And, of course, with these, a higher score means a lower intake; or conversely, a lower score means a higher intake of these moderation components. The sodium and saturated fat intakes are too high, and calories from SOFAAS are excessive. Note that most of these calories are derived from solid fats and added sugars in about equal proportion with less of them coming from alcohol.

So here is the overall picture of all 12 of the components, and you can see that dietary quality is far from the recommendations of the Dietary Guidelines. The total HEI 2005 score for 2003-2004 is 57.5 percent, an indication that there is much room for improvement in the diet quality of Americans. Thank you.

DR. VAN HORN: As per the charge to the Committee outlined by Secretary Leavitt, our task is to determine if revisions to the 2005 edition of the Dietary Guidelines for Americans are warranted based on the preponderance of the scientific and medical knowledge currently available. If the Committee decides that changes are warranted, we will make and submit our technical recommendations and the rationale for these recommendations in an advisory report to the Secretaries between April and May of 2020. To accomplish this task, the Staff has suggested a timeline and milestones, which you can find in tab #1 of your notebook. Bear with me a moment.

Over the course of our deliberations, we are to gather information, work with federal staff and the Nutrition Evidence Library, to review the science and write our scientific conclusions and recommendations. Over the first few months of our work, we will begin by gathering information, reviewing the evidence base, and identifying topic areas and outside experts with the presentations that can fill our major needs for information.

For the first meeting our milestones include: deciding whether we need to proceed with a review of the science, and if so, finalizing our plans with the evidence-based review; initiating plans for potential review questions that are priorities; and determining the scientific areas for the subcommittees that are needed and who will serve on these subcommittees. After this meeting and before the second meeting, subcommittees will begin to work via conference calls, to begin their evidence-based review of the literature.

For our second meeting, it is targeted I think now for January, I believe, or February. We will, I guess, vote on that. For the first part of this meeting the subcommittee will participate in work sessions and then bring our discussions to the public meeting of the full Dietary Guidelines Advisory Committee. We will also hear expert presentations on those topics where we believe that additional input is needed. A technical update on My Pyramid food intake patterns will be presented at a second meeting. Although it is not our task to update the Pyramid, the USDA wants My Pyramid to reflect the 2010 Dietary Guidelines. We will also

hear presentations on new data on unusual intakes of nutrients and food groups, as well as the Physical Activity Guidelines for Americans, which were recently released by HHS. Our milestones for this meeting will be for our subcommittees to develop objectives for their chapters using the rough outline for their section of the report. In January and February, subcommittees will continue to work via conference calls, to continue our evidence-based review of the literature and begin to draft some initial scientific conclusion statements and rationale, to be presented at the public meetings, and to begin building our report.

The third meeting will be in March. We will again meet to discuss scientific conclusion statements and rationale, and then from April through June of 2009, we will continue our evidence-based review of literature in developing conclusion statements, recommendations and rationale for our chapters. We will also begin drafting technical recommendations and rationale for the report.

The fourth meeting will be in July of 2009. We will continue this process, discussing conclusion

statements and rationales and begin to reach a consensus on conclusions as it is possible. At this point our topic area chapters should be well established and in the process of being refined. From August through October of 2009, we will complete our chapters and our report will begin a semi-final state for our final meeting, which is planned for November of 2009. Our report should be almost final at this point. It will be presented, and we will determine any changes that are needed before we vote to sign off on the report. Minor edits could still be made after this sign-off, if needed.

In the earlier months of 2010, the science writer and the editor will complete many steps that are required for formatting the content into the document that will be the actual report. This includes several steps, such as 508 compliance that is required for this type of document. If any minor changes were needed, I will sign on behalf of the entire Committee, as the report is final, before it is submitted formally to the Secretaries. The report release is planned to be formally submitted to the Secretary of Agriculture and

the Secretary of Health and Human Services between April and May of 2010. Upon the release of the report, our service concludes and the Dietary Guidelines Advisory Committee disbands. Throughout this process, the Dietary Guidelines management team will be supporting the Committee. We also have the services of a science writer -- thank goodness -- who will assist us in creating a cohesive report from the individual chapters we will write. Additional information on staff responsibilities is listed in the notebook, at tab #6.

Regarding scientific areas of discussion, we will address two areas of scientific discussion this afternoon, as you know; the role of nutrient adequacy and life cycle needs; as well as the role of fluid and electrolytes in health. Tomorrow we will discuss energy balance, including physical activity and weight management, as well as the role of carbohydrate and fatty acids on health. We will also discuss ethanol and food safety and technology. The goals of these discussions are to begin to review current scientific knowledge relating to nutrition and health, and

identifying areas of agreement, as well as areas needing further review and discussion. The focus of discussion will emphasize recent scientific advances over the past four to five years in the context of well-established knowledge. For the last Dietary Guidelines meeting the literature was reviewed through June of 2004. Discussion leaders were asked to prepare a 15-20-minute overview of what they considered to be significant advances in knowledge that should be considered by the full committee.

We will now take a break for lunch. The Committee will be meeting in a closed session to address administrative matters. For lunch there is a cafeteria on the floor that is open on the public. Exit the auditorium, go to the right. The cafeteria is between wings 2 and 3. Please be sure to keep your visitor badges on at all times while in the building, and if you leave the building, you will need to leave your badge with the security exit and retrieve at re-entry. Please use the security exit and entrance at wing 7, and we'll reconvene at 1:15. Have a nice lunch.

(Whereupon, at 11:36 a.m., a lunch recess is

taken).

DR. VAN HORN: We'd like to get started. So, if everyone could please take their seats? Welcome back. We are happy to get started with this afternoon's session, and to preface our discussions of the scientific topic areas, we will first hear about a new tool that is a major advancement for evidence-based review, the Nutrition Evidence Library. We will be using this library in our scientific review work.

It is my pleasure to welcome Joan Lyon, from USDA Center for Nutrition Policy and Promotion. Ms. Lyon has been a nutritionist at CNPP for seven years, where she has been instrumental in the development of the Nutrition Evidence Library. She has also worked on both the 2000 and 2005 Dietary Guidelines efforts, and is a retired U.S. Army Lieutenant Colonel, as well as a registered dietitian. Joan.

MS. LYON: Thank you. Good afternoon. It's my pleasure to be here this afternoon to represent the Nutrition Evidence Library team.

Developing evidence-based national and nutrition policy requires a systematic review of published

literature on diet and energy balance, to promote health and reduce chronic disease risks. With over two million articles published annually in nearly biomedical journals, it's important to efficiently identify and evaluate the relevant evidence. My talk this afternoon will present our plan and preparations to support the scientific review aspects of the challenge that you accepted earlier today. Please take a moment to review my agenda.

Over the past two decades the processes used to develop federal guidelines have become more consistent and structured. At the same time advances in technology have continued to improve the efficiency of research and communication tools to support this work. In terms of current expectations for dietary guidelines development efforts, one principle has not changed; it is that guidelines should be based on the preponderance of sound scientific evidence, and generally that means peer-reviewed published research.

The preferred methodology for establishing clinical practice guidelines is evidence-based systematic review. This approach is also becoming the

standard for developing public health guidance. Another expectation was codified in the consolidated Appropriations Act of 2001, which is also known as the Data Quality Act. This law mandates that federal agencies ensure the quality, objectivity, utility and integrity of the information used to form guidance. The final expectation to highlight here is that of leveraging technology, to assist the process of synthesizing and archiving relevant research.

We began the preparations to support you, the 2010 Dietary Guidelines Advisory Committee; shortly after the 2005 Guidelines were released. This included taking steps to build upon lessons learned from the very successful 2005 Advisory Committee process.

We initiated a dialogue with organizations leading in evidence-based medicine in public health. These agencies described the methodologies, technologies and tools that they developed to develop their systematic review processes. As a result, we established a contract with the American Dietetic Association, to develop a robust electronic library portal. We also established an Executive Committee to provide

leadership, and a federal interest group to provide a collaborative forum to help us shape our plan of operations.

This graphic you have seen earlier today, or at least one of them, it depicts the major scientific resources available to the 2005 Advisory Committee and your Committee. Both include published research, evidence-based reports, and the Dietary Intake Reports from the Institute of Medicine. As mentioned earlier, most of the DRIs were published prior to the last Advisory Committee effort, and the fluid and electrolytes report was published about halfway through that process. So, although you will have them available to you as a resource, their relevant content will not be new. The new resource that is available for your use is the focus of this presentation.

The Nutrition Evidence Library is a web-based system and set of tools to support evidence-based scientific review. It will be used to build portfolios of evidence abstracts and overview worksheets related to your key topic areas and research questions. It provides document sharing, tracking and archiving

capabilities, as well as group communication tools to facilitate your subcommittee work. This system also contains a variety of review and reporting features that you can use to view your subcommittee's progress.

Now I am going to switch and start using our name for the Library, which is N-E-L, NEL. NEL's primary purpose is to serve as a resource for you, the 2010 Dietary Guidelines Advisory Committee. In the future NEL will be used to inform federal nutrition policy and program development; to identify research gaps for scientists; and to provide science-based information for nutrition stakeholders and consumers. And, to our audience today, that includes all of you in industry advocacy research and education. Eventually this tool will be available for your use as well.

NEL provides a number of benefits that dovetail nicely with our obligations regarding the Data Quality Act. They include consistency and transparency. NEL provides the methodology to standardize the scientific review process for each topic area and research question, while allowing for the flexibility to address unique aspects of the subcommittee's work. This system

documents each step in the process, which makes it possible to trace or replicate the review. NEL's web-based platform will make it an easily accessible resource for policymakers, stakeholders and consumers. The combination of these features provides us a perpetual foundation that will allow us to continue building the body of evidence for future efforts.

The administration and staff with a role in NEL operations include an Executive Committee, which consists of appointed government staff. Its role is to provide oversight and to ensure quality control measures are in place.

The NEL management team and research librarian are federal staff, who manage the day-to-day NEL operations. They will also work with the Dietary Guidelines management team, to assist your subcommittees in developing and implementing literature search and sort plans, and other duties including the responsibility for training, recruiting and managing evidence abstractors, as well as performing quality checks on the evidence abstracting process.

Our evidence abstractors are national service

volunteers. They are non-government researchers and practitioners. All have an advanced degree and five or more years of experience in a field related to nutrition. Their role is to systematically extract information from published research papers to build evidence worksheets.

The NEL project teams will work in conjunction with the Dietary Guidelines' management team staff to support your subcommittees. There will be one team for each subcommittee; the support from our research librarian and three to six evidence abstractors, depending on the demand of the project.

Here you see a schematic of our proposed evidence-based review process. I'll take you quickly through it highlighting responsibilities along the way. Starting at the top left, first your subcommittees will develop and prioritize research questions for your specific areas of interest. The next step below that is to develop your literature search and sort plan for each question. Generally, we expect that your exclusion and inclusion criteria will be fairly consistent for the whole committee, but there may be some unique aspects

depending on the type of question that you are asking.

Now moving over to the top right is the NEL librarian, who will conduct the literature searches and sorts. She and our staff will assist you in sorting the literature to identify the relevant body of evidence for each research question. At that point, the individual articles will be assigned to an abstractor, who will prepare the evidence worksheet. I should also mention that the electronic PDF of each individual article will be available to you, the Committee members, to review as well. Those will be on the portal. As the worksheets are completed, NEL project managers will conduct the quality reviews and extract data fields that you have identified to develop evidence overview tables. Portfolios of evidence worksheets and overview tables will be available to support your scientific review, synthesis and deliberation, and this will be for each research question you identify.

Now to the audience, once the Committee has submitted its report to the Secretaries, which you heard will be sometime in the spring of 2010, we do

plan to publish the NEL content on-line and make it available, accessible via www.nutrition.gov. All of the components that I have mentioned so far will be available with the exception of the electronic PDFs of all the articles, and this is for copyright purposes. So the complete bibliography of the citations that are used to support each question will be available, and you can use those to acquire the papers on your own.

As the Advisory Committee wraps up its work, our plans for expanding NEL include examining literature related to guidelines implementation. Examples are behavior change and successful education strategies and programs.

I mentioned that your subcommittees will develop research questions for your areas of interest. In evidence-based review, researchable public health questions commonly follow a PICO or PICO-D format. P is for population or primary problem. The question usually identifies the most important characteristics of the population. An example in this case would be healthy adults. I is intervention, exposure or procedure. What was the population exposed to? In

this case, let's use whole grains. Notice my barley pin today. C -- or I -- I'm a little confused now -- sorry -- C is comparators, interactions, linkages and effects to be examined. The comparison may be two distinct interventions, or simply the comparison of an outcome with or without the intervention or exposure. Again, in this case, we'll use whole grains and consumption levels. O is for outcome; what is measured, improved or affected. This may be the specific disease risk, biologic function or other health parameters. If the outcome is an intermediate biomarker, it should be relevant to the risk reduction for the general public, and an example here would be the incidence of Type 2 diabetes. So, an example question would be something like, in healthy adults, what is the association between whole grain consumption and the incidence of Type 2 diabetes? And we have D for design and duration. Some PICO models use the study design and duration as separate components of this formula. For complex questions or groups of subquestions, an analytic flowchart or a concept map could be used to visually present the PICO components

and the relationships or associations being examined.

We NEL staff members do have two requests to the Advisory Committee -- of the Advisory Committee; the first is that you prioritize your research questions. We do have limited resources, and so we ask that you identify one to three high priority topics and research questions to focus on initially. The second request is that if you do use an intermediate biomarker, that it should be one that is valid for health promotion or chronic disease reduction in the general public.

This slide lists some of NEL's specific review features that I would like to address in a little bit more detail. The evidence worksheets will provide detailed information on the major findings, methodology and quality of each study abstracted. Overview tables will present key data fields extracted from each worksheet related to a specific research question. These are flexible and can be adapted to include data fields that are unique to the body of evidence that you are examining. Comprehensive bibliographies, I have touched on already. Evidence summaries are one of your tasks. They are brief, narrative overviews that

synthesize the major research findings. Your conclusion statements should provide concise answers for research questions, along with your rationale. We also ask that you address the quality and depth of the evidence supporting the conclusion statements. This will be a useful framework or reference to help policymakers, educators and practitioners understand the evidence.

My initial description mentioned that NEL provides a variety of tools to help you manage and review your project status for your subcommittees. Those include -- oh, somehow I got ahead one -- oh, no, I didn't -- this is just an example of a NEL evidence worksheet. It's only part of it. When you pull it up, once it's completed, you can see it in PDF form. Normally they are somewhere in the neighborhood of three to six pages long. Okay.

This slide lists some of the tools that NEL has to help with committee management. The first is Secure Group Communications. This is similar to e-mail, although the portal will maintain a history and archive the communication and discussion strings, so that you

don't have them clogging up your e-mail, and you can come onto the system at any time to catch up with the discussion string. The second is document sharing and management software, which ensures that each subcommittee member is reviewing the current copy of whatever the draft is that you are working on at the time. There is also real time document drafting capability, so you can work on a document during a conference call; one person types in the changes; clicks the save; everybody hits the refresh button on their screen; and all of a sudden voila, you are looking at the current copy of the document.

And finally, there is a document archiving system that maintains a history of the document, as well as who has edited it, viewed it and downloaded it.

And here you see a sample of our, or a screen shot of a project central home page. In this case this is the home page for our NEL abstractor training.

In summary, NEL will ensure that your scientific review is documented, transparent and reproducible; that reviewer bias is minimized; that each subcommittee's approach is standardized; and that your

review process and information is archived for future DGAC and stakeholder use.

Thank you, and what are your questions?

DR. NELSON: I have a question. I'm not sure this is on, but you can hear me.

MS. LYON: Yes.

DR. NELSON: So one of the -- when we used -- because we had a search for data set that was put together from the CDC --

MS. LYON: Yes.

DR. NELSON: -- one of the big issues, because we could put different -- we could put different search parameters in it, but we were unable to save any of our searches. Will we be able to save in this? Because you know, we would look for just, you know, by gender, but -- and we had, you know, by age, but we could never save any of the searches.

MS. LYON: This is organized a little bit differently than that, in that the papers are specifically linked to the research question that you are asking. There is the capability of searching on key data terms, to identify papers on topics that you

may have a question on that were abstracted for another research question. So there is search capability and I'm not sure --

DR. NELSON: And you can save that search?

MS. LYON: Well, yes, you could certainly pull off the list of citations and worksheets that are identified and keep those. Any other questions?

DR. APPEL: Here. Joan, that's great. Two questions for you.

MS. LYON: Yes.

DR. APPEL: The first question, you said, one to three initial; is that one to three total, or one to three initial questions? And then I have a second question.

MS. LYON: Well, it depends on the depth and the breadth of the work that's required to answer the questions that you ask, so it will vary dramatically, we imagine, between subcommittees. And, as you know, last time we asked some over-arching questions and then it ended up that spun off three or four, you know, sub-questions in some cases, and so we envision having sub-project efforts such as that. So, I know that isn't a

direct answer, but we'll have to see.

DR. APPEL: All right.

MS. LYON: We think for sure that we can answer one to three for each, on average, for each subcommittee. Some of your subcommittees may require a lot less work, and so we envision switching around our personnel to better support the need, in terms of work load that your subcommittees have.

DR. APPEL: This is the second question, having to do with your quality assessment.

MS. LYON: Yes.

DR. APPEL: There is a lot of debate about how to do that and whether its, it should be done. Is this a flexible feature of this, because I think the Committee has to decide how much it wants to do; and if yes, you know, how much, you know, what the format is going to be; is it going to be standardized or customized?

MS. LYON: Yes, indeed. That -- our system is flexible. Right now what we have is a study design and implementation checklist that goes through some very specific objective questions answering them yes, no, or the paper doesn't answer the question. So things about

blinding, various parameters, I guess you'd say, related to study design, bias, those sorts of things. At the end of that, we do have the ability to come up with a quality rating for the paper, which you may or may not choose to use. The validity questions themselves answer many of the questions that you would have, or the checklist itself answers many of the questions that you would have regarding the study design. And this is one aspect perhaps that Dr. Nelson can discuss with all of you about the Physical Activity Guidelines, and as I understand it, they did not directly identify the quality for each individual paper, but more the body of evidence --

DR. NELSON: Or the type of study, how many, the design, was is blinded?

MS. LYON: Those were parts of your format, of your templates.

DR. NELSON: Yeah, they were there.

MS. LYON: Yes.

DR. NELSON: And in the end, I mean, we really -- the abstractors did an okay job, but in the end it was more, I guess we all ended up reading most the papers

anyway, so.

MS. LYON: And I think that's our expectation here. And really, the worksheets are more to assist you in your deliberations, so you have those key data elements related to the study at your fingertips in either the worksheet or the overview table.

DR. PEARSON: I just want to get a better idea of the interaction between the NEL project team during the abstracting process. I mean, my usual experience with this, as a naïve question preparer, is get back 10,000 references, which obviously means I have done something wrong. Is there an opportunity for some back and forth, so we can whittle quickly down? Would this be in a conference call, or is this all done by e-mail, or how does the subcommittee interact with the project team? I'm trying to get an idea of that.

MS. LYON: Yes. What we envision is that you will develop your research question and then a literature search and sort plan to accommodate that. We will assist you in that effort, and then we have a dedicated research librarian, who will be conducting the searches. She -- actually, we are very, very fortunate

that our research librarian not only has a Master's in library science, but also a recent Master's in public health. So, she is very talented and can help with the initial sorts just by title. And then we, the staff, can assist you in doing the secondary sort by abstract, and then in some cases we may need to go to the full paper to determine whether it should be included or excluded. Does that answer your question?

DR. PEARSON: Well just --

MS. LYON: And this would all be with conference calls, and also the system itself has the ability to have a dialogue back and forth in an e-mail sort of tool.

DR. PEARSON: Yeah. I'm just sort of seeing a lot of iteration in front so you don't end up with one of these massive searches that takes you, that you really -- it was really because you really hadn't honed down initially what --

MS. LYON: The question, you mean?

DR. NELSON: I tell you where the Dietary Guidelines -- the bigger problem was things that were missing. It was too -- it was too narrow, so we ended

up having to expand it.

DR. VAN HORN: Could -- we are also being asked to state our name before we speak, so the transcriptionist can tell who is talking. Thank you. Sorry. Go ahead.

MS. LYON: This is definitely an iterative process. We also envision using completed published systematic reviews to help us with hand searches, if necessary, on certain topics. And so, you know, working as a group with all of your minds together and ours, we should be able to identify the majority of the papers relative to the topic, and this is where the audience comes in. They are all interested in these topics as well, and if they think that you are missing something, be assured, they will let you know. Right? Are you awake out there? Any other questions?

DR. VAN HORN: Naomi? Oh, sorry.

MR. CLEMENS: Roger Clemens. Many of us have extensive libraries already built in. Can we share those libraries with your team, so that everyone has access to that information?

MS. LYON: Yes, you can share the libraries with the team, but because we want this system to be, or the

process to be transparent and reproducible, what we need to do is conduct the searches using the search terms that are identified. If there are new search terms, a good example is, the last time around those of us who were involved with carbohydrates and fiber had been conducting searches, and somewhere along the way we realized, well we hadn't done anything with pulses, you know? In the U.S., we don't think about pulses. But the U.K. talks about beans and fiber and carbohydrates, as pulses, and so we had to then do another search to look at that particular search term. So we will be doing those sorts of things. And if there are papers that you have that we don't identify in our process, then certainly we can add that in as a hand search, and it would be identified as such in the list of citations that we include.

DR. VAN HORN: Naomi?

DR. FUKAGAWA: Naomi Fukagawa. So ultimately though the responsibility for assuring the quality of whatever literature you pull up will fall to the subcommittee members, is that true?

MS. LYON: Yes, indeed it does.

DR. FUKAGAWA: Okay.

MS. LYON: We are here to support you.

DR. FUKAGAWA: But you will also have available to us all the ones that you originally skimmed off and brought forth?

MS. LYON: Yes. Yes. We will be keeping up the initial sorts. At this point we have not planned to put that initial citation list of, you know, depending on the question, as Dr. Pearson said, there may be a thousand papers, particularly depending on the search terms that you use, and off the top you may be able to eliminate 500 as just not being relevant. So we will maintain that list, but what we are thinking right now is just to keep that as a word document that we have it in the federal agencies at HHS and CNPP, and you know we can make those available to the public should they need them in the future. But we are not planning to post those lists; only the initial sorts.

DR. VAN HORN: Other questions from the group?

MS. LYON: We will be providing more training for all of you on this system, so this is just a brief overview today, to get you started. Thank you very

much.

DR. VAN HORN: With that, I think we are ready to launch now into our topic area of discussions, and we'll be starting off with nutrient adequacy, and that group is chaired by Dr. Nichols-Richardson, and also includes Drs. Fukagawa, Achterberg, Slavin and Nelson. So, I am not sure how you want to organize your group, but the floor is yours.

DR. NICHOLS-RICHARDSON: Okay. Thank you, Madam Chairman and Madam Vice Chairman. Thank you for this opportunity to talk a little about nutrient adequacy, and in preparing for the first meeting, the 2005 Dietary Guidelines for Americans were reviewed, and it was found that several issues remained relevant in the area of nutrient adequacy or adequate nutrients within calorie needs. Specifically, overweight, obesity, hypertension, hyperlipidemia, cancer and osteoporosis, among other chronic diseases, continue to be major public health concerns, many of which have clear links to overall caloric intake, dietary patterns and specific macronutrients and micronutrients. Although some progress has been made in promoting healthy eating

patterns, several nutrients continue to be shortfall nutrients, while others are regarded as abundance nutrients; meaning that they were in excess of their recommendations.

The United States Department of Agriculture Food and Nutrition Report #FSP08NH, titled Diet Quality of Americans by Food Stamp Participation Status, data from the National Health and Nutrition Examination Survey 1999-2004, which was prepared by Nancy Cole and Mary Kay Fox and published in July 2008, documented that 30 percent of adults not participating in the food stamp program or the SNAP program and 39 percent of adults participating in the food stamp program had inadequate typical daily intake of vitamin C. About 45 percent of adults consumed less than the estimated average requirement for vitamin A; 66 percent of adults consumed magnesium at a level less than the EAR; with 90 percent having vitamin E intakes less than the EAR. For those nutrients with adequate intakes, average usually daily intake of calcium was 88 percent of the AI for all adults and 62 percent of the AI for older adults. Mean intake of potassium was 58 percent of the

adequate intake, and fiber was 53 percent of the adequate intake for all age groups.

Sodium intake consistently exceeded the tolerable upper intake level or the UL for 90 percent of the population, and as in the 2005 Dietary Guidelines Report that reflected nutrient consumption data from the continuing survey of food intake by individuals 1994-1996, shortfall nutrients for adults continue to include calcium, potassium, fiber, magnesium and vitamins A, C and E.

The SNAP Program Report also confirmed that nearly 37 percent of adults consumed an abundance of energy from total dietary fat, with 60 percent of adults consuming excess energy from saturated fat. Approximately 38 percent of total energy was consumed as solid fats, alcoholic beverages and added sugars, or SoFAAS. And using food intake to evaluate diet quality, the average Healthy Eating Index 2005 score for adults participating in the food stamp program was a 51, and you know that the maximum score is 100. For income-eligible, but non-participating food stamp program adults, the HEI 2005 score was 57, and for

higher income, non-food stamp participants, the HEI 2005 score was 59. Older adults fared somewhat better with scores of 63, 68 and 69 in those same respective groups. Healthy Eating Index 2005 areas of concern included a shortfall in total fruit, whole fruit, total vegetables, dark green and orange vegetables and legumes, whole grains and milk intakes, with an abundance of sodium intake and discretionary calories from SoFAAS.

Based on the USDA Food and Nutrition Service Report Number CN08NH, titled Diet Quality of American School Age Children by school lunch program -- or excuse me -- school lunch participation status; data from the National Health and Nutrition Examination Survey 1999-2004, again prepared by Nancy Cole and Mary Kay Fox, and also published in July of 2008, the shortfall nutrients for children, most notably older children, included vitamins C, A and E; phosphorous and magnesium, based on comparisons to the EARs.

For teenage girls, shortfall nutrients also included Pyridoxine, Folate, Zinc and Iron, and based on a comparison to the adequate intakes, dietary

calcium was a shortfall nutrient for children ages nine to 18 years, but not five to eight years. Average potassium and fiber intakes were below the AI for all children, and mean sodium consumption was abundant for all age groups. About 25 percent of school age children had an abundance of total energy from dietary fat, with 85 percent having an abundance of total energy from saturated fat. Approximately 39 percent of average total daily energy intake was comprised of SoFAAS. For all school age children the mean HEI 2005 score was 55 -- again, out of 100. Shortfall component scores, those that were less than 80 percent of the maximum score, included total fruit, whole fruit, total vegetables, dark green and orange vegetables and legumes and whole grains, with an abundance of sodium and discretionary calories from SoFAAS.

So, in summary, shortfall nutrients for school age children continue to include calcium, potassium, fiber, magnesium and vitamin E, with vitamins A and C and phosphorous of potential concern for school age children.

Some special nutrient needs should be considered

for teenage girls. Abundance nutrients include sodium and SoFAAS. It's important to note that these reports were silent for vitamin D and there are various reasons for this, and Dr. Miriam Nelson will address this nutrient in a few moments.

Median recommended intakes for these nutrients within the acceptable macronutrient distribution ranges, or the AMDRs, and total energy allowance will require emphasis of a variety of nutrient-dense foods in the 2010 Dietary Guidelines. Healthy Eating Index 2005 data from aforementioned reports indicate that selection of healthy foods needs attention, and Dr. Joanne Slavin will touch on the area of whole foods, but I do want to interject that nutrition and dietetics professionals, extension agents and specialists are keenly interested in promoting whole foods and dietary approaches to healthy eating that incorporate foods that are environmentally friendly and economically friendly.

At the 2008 Food and Nutrition Conference and Expo held by the American Dietetic Association earlier this week approximately seven educational session, one

excursion and one entire dietetics practice group focused on healthy eating through local foods, sustainable diets, a green environment and economics of food.

The American Association of Family Consumer Science's theme for their 2009 Annual Conference is sustainability, and will include educational sessions for professionals on the integration of food, financial literacy and near and far environments. The 2010 Dietary Guidelines should consider food sustainability and economics when possible. Consideration in this area includes food fortification, biotechnology and nanotechnology and their implications for nutrient adequacy and toxicity and environmental sustainability.

Culturally sensitive food patterns that may or may not include vegetarian choices, milk and milk product substitutions and other contextually relevant eating approaches require examination due to the fact that the demographic profile of the United States has changed, and will continue to have increases in African-American, Hispanic and Asian populations.

The AMDR for dietary protein is five to 20 percent

of total energy for children, aged one to three years; 10 to 30 percent of total energy for children, aged four to 18 years; and 10 to 35 percent of total energy for adults, aged 18+ years. Data from the National Health and Nutrition Examination Survey 1999-2004 indicate that children and adults consume average daily intakes of dietary protein that fall within the AMDR for each age group. Most dietary patterns focus on 15 percent of total energy from dietary protein; however, this macronutrient has received considerable attention in the past five years in several areas, including usefulness of high, meaning the 20 to 35 percent of total energy protein intake range, and dietary approaches to weight maintenance; satiety; prevention of sarcopenia and osteoporosis; risks for osteoporosis and renal stones and plant-based dietary proteins as an approach for healthy eating. Data are somewhat conflicting in each of these areas; thus, dietary protein requires a full evidence-based review of its relation to health promotion and disease prevention prior to specific incorporation into the 2010 Dietary Guidelines. Some research questions include, what is

the role of high dietary protein, meaning that 20 to 35 percent range of total energy and weight management; what is the effect of high dietary protein on satiety; what are the effects of high dietary protein on specific disease processes; and can recommended micronutrient intake be met with a plant-based protein diet pattern?

So, Dr. Naomi Fukagawa will mention red meats as a source of protein and other important nutrients, and at this time, Dr. Fukagawa will comment in the area of nutrient adequacy.

DR. FUKAGAWA: Thank you, Shelly. I hope it's all right for us to be a little informal that way?

DR. VAN HORN: It is.

DR. FUKAGAWA: So my comments will largely focus on the macronutrient protein in two different areas, and my comments really are not related to the percent of calories that are coming from protein, but really more towards the amount and source of dietary protein. So, in that area, I thought there were three questions that we may want to consider through this Committee. And, as many of you know, in the 2005 Dietary

Guidelines, there was very little change in the actual recommendations for what dietary protein intakes should be, but data about the needs of older individuals I think still remain somewhat controversial since old is considered 18+. And I think we all would agree that we do change as the chronological years move on. So therefore I do think that one area we need to revisit is the evidence that, to question whether or not we need to revisit the "requirement of older individuals", especially in the context of chronic diseases, of disease prevention, and/or just purely maintaining general good health of the population.

So then moving beyond protein requirements, a lot of epidemiological data has raised the concern about the possible relationship between red meat and cancer and certain forms of protein and hypertension and cardiovascular disease; while at the same time, as we all know, all protein diets were being promoted and used for a lot of weight loss regimens in the past five years, and there were also mixed reviews about how compliant the population had been in adopting the recommendation that we perhaps shift towards more

plant-based proteins in our diets and to try to minimize the amount that was coming from animal proteins.

So, as I mentioned earlier, I do think that there were a lot of changes that occur with protein requirements over the life span, which is influenced over chronic disease. But one question that I think we should also address would be number two on my slide, is are we willing to discourage the consumption of red meat knowing that it's also a source of other nutrients? And I believe Cheryl will address that, along the lines of that, and as well as the intake of whole foods.

Finally, I do think that we all know from a scientific basis that a high degree of association in epidemiological studies does not imply causality. So we do need very careful evaluation of the data implicating red meat in disease pathogenesis, and as I said, especially since whole foods may provide an important source of other nutrients.

And finally, with respect to our intake of dietary protein, one thing that has obviously become -- that

people have become quite aware of is the fact that peptides released from the digestion of dietary proteins by enzymatic proteolysis or protein breakdown have been shown to have bioactivity and can range anywhere from being opiate-like through being anti-thrombotic, anti-microbial, anti-carcinogenic, also demonstrating growth-promoting properties. And so, therefore, I do think it's very important, in light of the protein intake that we begin to evaluate the value of the bioactive proteins and peptides in our diets.

Now we can move to the next slide. So the next area that I wanted to touch on, which does relate to protein metabolism is that of methyl groups, and for those of you who forgot some of the basic biochemistry, a methyl group is a carbon with three hydrogens attached to it. The availability of methyl groups and this particular nutrient group actually transects multiple areas of our subcommittees that we are dealing with today. The dietary protein is certainly a source of the essential amino acid methionine, which is extremely important in methyl donation to various pathways via S-adenosylmethionine or many of you know

it as SAM, because as you know, SAM or SAM-E has been on the health foods markets for quite a number of years to promote health in a variety of different systems. Moreover, I think the vitamins folate and B-12 identified as being very important in 2005 and earlier play a key role in methionine and methyl group metabolism, and this also leads to choline, which is also recently identified as a potentially required nutrient is also playing an important role in methyl group metabolism. So you may all be wondering, why in the world are methyl groups so important? Well I think one of the things that's come -- that we have learned in the last five years, or since the last group of Dietary Guidelines came out, is that methylation of DNA is a known mechanism for gene regulation. And there are recent reports that have linked methyl group availability in the diet with susceptibility, for example, to increased allergies or allergic airway disease. And I think from the standpoint of public health, it is of interest that the prevalence of childhood asthma and other allergic disorders began to increase after the fortification of foods with folate

that began in the late 1990s. And this is not to say that I am -- that folate supplementation is not good for certain populations, but I just thought that it's timely for us to begin to consider the new data that's available that shows the complex interaction between specific nutrient groups or specific nutrients and general health. And so this ties in well, and I'll segue to Dr. Mim Nelson, who will talk about the complex interactions between folate and cancer, as well as other vitamins.

DR. NELSON: So, am I next? All right. Oh great. Thank you. Thank you very much. Thank you, Naomi.

So, I'm going to talk a little bit about -- and I think what I'm going to bring up is maybe more questions than any answers, at this point in time seeing that I had exactly about an hour-and-a-half to put this together, so. But, I want to look at when we had our initial sort of discussion within our subcommittee about when we look at the 2005 Dietary Guidelines, you know, what seems to be some issues that maybe we should revisit or things that are new based on just new evidence. And so these were two nutrients and

which I think are particularly interesting in terms of changes in the evidence.

So, the first is sort of defining what I call the dual effect of folate and cancer risks, and I will say just right off the bat that I really want to acknowledge my colleague at Tuft, Joel Mason, who has really been at the forefront of much of this research. He helped me to put these slides together. But, there is definitely -- and I'm sorry I don't have a pointer -- but, on the -- if there is too little folate we know that there is an increase in cancer risk. But, the question is, if there is too much folate, is there also an increase in cancer risk? And, as everybody is very aware, in 1996, we knew that voluntary fortification of folate in the grain supply began and it became mandatory in 1998. Almost all of the grains were started -- were -- by 1997, were already in the United States fortified at 140 micrograms per 100 grams of flour. In Canada, they were exactly one year later, and I'll tell you in a minute -- show you some data that are pretty provocative, or at least ask some questions about what we are doing. So, was it

successful in terms of bringing up serum levels of folate? And the top line here is looking at the increases in serum folate levels in Canada and they really doubled.

The voluntary fortification began in 1996, but the full fortification was in 1998, and you can see that they pretty much doubled here in the United States. We went from 11.4 nanomoles per liter to 26.9, so this was an incredibly effective fortification in terms of blood levels increasing. But some other things happened along the way, and one would think that this evidence would have been available for the 2005, but really, in terms of looking at the effects of the fortification plan, these data weren't available until the last couple of years, in which they have been published. And, what we have here is, on the left axis, is colorectal cancer rates per 100,000, and then it goes from 1985 on up to 2002. And you can see that they were slowly going down with better screening, a lot of it going down, and then right when the voluntary fortification and then the mandatory fortification, you can see that there was a bump in rates, and that's

where fortification came, so there was a real kink in the reduction in colorectal cancer incidents.

What I can show here, which is probably the most important, is you can see the voluntary fortification here. This is excess colorectal cancer incidents per 100,000 population that we have had a bump and it's stayed -- it's about 15 -- in excess of 15,000 excess cancer incidents per year, and it's remained steady since the fortification went into being. This is in the United States.

In Canada, which is great, because we had another natural experiment, it was exactly one year later when all of this happened. And you can see that, back to having curves that are similar, but the excesses are similar number per 100,000. It's around 3,000 excess actual numbers in Canada. So clearly something is going on. I mean, certainly we don't know about, you know, associations don't always mean causality, but something is going on here. I don't have some data, but there is also some hint at -- and Eric may know more about this -- but also with some breast cancer rates that had followed suit with this as well.

Now one might say, is it just because we have better surveillance? And the data here, you can see the four dots. This is from 1993 to 2000. So it covers -- this is looking at endoscopy rates percent. And you can see there was really no excess increase in endoscopy rates. It has been since then, but during the time that these data that I just reported, it wasn't because we were just uncovering more. So, there continues to be compelling observational experimental evidence the inadequate intakes of folate enhanced the risks of colorectal cancer. But, as Naomi said, there seems to probably -- if there are some harboring cancerous or precancerous cells within the colon or the rectum that abundant folate may actually be accelerating the carcinogenesis. So the use of supplemental folate, whether by voluntary supplementation or mandatory fortification, should be undertaken with careful consideration for the potential risks and benefits of each individual. I think we really need to look closely at this, because it has been a bit of a moving target.

Now one thing that is interesting, which I didn't

know, and that is, where we have to exercise a little bit of caution is it looks at -- and I don't have the data here -- but it looks as if the food manufacturers, the millers, were quite concerned that they would actually meet the right level, and so probably most of them, it looks like they may have done two or three times as much fortification as was necessary, and that's actually started to come down a little bit. So it could have been that there really was initially just way to much folate that was -- and we know that neural tube defects have come down, so that's been beneficial. But there are some other issues, and one other issue which I don't have slides for as well is there seems to be -- and it was noted in 2005, some issues with B-12. And in the presence of low B-12 with high folate levels, especially with older adults there may be some accelerated dementia. So that's another issue. So I would say cancers, in general, especially colorectal cancer and breast cancer and potentially dementia, and as Naomi spoke about, potentially maybe some harm with asthma and other respiratory conditions.

So, do we need to modify our present system? I

think that's a big question. Do we need to suggest to adults consuming vitamins, what do we need to suggest to them in terms of vitamin supplements containing folic acid? So, I'd say that's sort of a question that, at some point, we should address.

So now I want to just move right into a totally different nutrient, vitamin D, and the rationale why we may need to want to reconsider -- it was in the 2005, but it was more pushed towards the back, and I think some of that is because we weren't revisiting the DRIs at the time. Right now we are in the thick of -- I mean, there is a whole committee looking at vitamin D and calcium. And so, I hope we can work in parallel maybe with the IOM Report, because I think it's going to be important. We can't ignore vitamin D.

So, without going into a lot of detail, there is additional evidence of vitamin D's benefit on reducing risk of osteoporosis and fractures in older adults; common cancers; type I diabetes; hypertension; and infectious diseases around the immune system, in particular. So, there is more evidence it's not just bones.

These are some data -- there was a very important NIH consensus conference that was in September 2007, and the supplement, American Journal Clinical Nutrition had a full supplement on the proceedings. I have not read every single paper from the supplement. I have sort of pulled out some salient points, but this is looking at different cutoffs. You can see, if you even just look at the left-hand three bars looking at the hatch just below 27.5 nanomoles per liter, the dark black one is under 50 and then the 80, under 80; it looks at the percent by cutoff of individuals. And the consensus now in terms of looking at a lot of the research is that 50 -- there has been a lot of questions about it -- but 50 or above is in the healthier range, and below 50 is where you will definitely be reducing rickets possibly below 50, but it won't be having the full benefits. By sex, you can see this is looking at the 50 nanomoles per liter cutoff, around 30 to -- 25 to 35 percent of men and women have levels that are below the 50 nanomoles per liter. So we are talking about a third of the population that has suboptimal levels, and certainly we

know that people in the north have lower levels than people in the south.

I don't need to go -- this is data from the NHANES. I understand that the newer data will be coming out soon, but this is showing just food intake, in terms of from food and supplements. And you can see, even at -- this is international units per day. I did -- I cut off the children for now. I mean, it's all pretty similar, but it's somewhere in the vicinity of 200 to 300 international units a day in terms of intake, which is already below what the current DRIs are, which will most likely be doubled or tripled in the next iteration.

So some other things to just recognize, and some of this is because the DRIs are done not as frequently, but the American Academy of Pediatrics this month doubled the recommendations for children to 400 international units where it has been 200 with the DRIs; National Osteoporosis Foundation in November a year ago increased for adults from 400 to 800 for under age 50; 800 to 1,000 for adults 50 years of age or older; and as I said before, the proceedings from the

NIH Conference also had a lot of -- while they didn't necessarily come out with what the actual recommendations should be, there was a lot of evidence that we have low serum blood levels and we need to be getting more vitamin D. And it's most likely related to the fact that we really are from a -- anthropologically, from an environmental standpoint, we are getting less sun exposure and there are issues with skin issue, and everybody has gotten that message. They are covering up, putting on sunscreen and staying out of the sun. And then, as I said before, blood levels are low across all age groups, and there is more scientific evidence that there is benefit for numerous health outcomes with higher levels and is currently looked at.

So, the only thing I would say here is I do think especially with vitamin D that we need to be -- I would hope at a future meeting we might ask one of the people from the vitamin D IOM Committee to come and present that we help the -- we work to coordinate those efforts.

MS. McMURRY: Thank you. I'd just like to just

provide a little more background on the IOM study of vitamin D.

DR. NELSON: Yeah.

MS. McMURRY: There have been, as you had said, there was attention, a lot of attention in the 2005 Dietary Guidelines Committee, and as well as there is an interagency and actually intergovernmental federal steering committee on the DRI project, and we have -- it's been a very strong topic of discussion for the last couple of years, and as a result, the U.S. and Canadian governments, as you said, have requested the IOM to convene a 14-member scientific committee to devote a concerted, their concerted attention to this very complex topic area. The complexities have to do with the type of scientific evidence available; the intake information available across the board. Also, to support the committee, and in one primary area of support, the Agency for Health Care Research and Quality is conducting an evidence-based review for both vitamin D and calcium. Their report is expected in June of 2009, and that will be presented primarily to the DRI Committee, but certainly we can share that

information with you as well. And I just would strongly encourage you to, as you said, try to think of a way to try to be complementary in your efforts, but not duplicative in any way.

DR. NELSON: I think that the -- Mim Nelson again -- I think -- I think we need to do that. We would be absolutely delinquent if we don't deal with vitamin D in this report, because it will be, you know then literally we will be way behind the times.

DR. SLAVIN: Oh, thank you. My area of was to follow-up on some of the more of the whole foods, so that's what I am going to talk about.

Diet is really difficult, and that's the thing with nutrient adequacy; when we chance one nutrient, we tend to lose out on another, so it varies greatly day to day. It's very difficult to evaluate. And I think the nutrition in the past we have really taken this reductionist approach to diet, because we want to change something and experiment and see if there is an effect of that change. So we might look at calories or macronutrients, micronutrients, which I call really micromanaging the diet. And most of us, despite what

we say, have a real affinity for one nutrient or one area, so it's hard to look broadly at the whole diet. And that's -- the goal of our subcommittee is to make sure we are not losing sight of the overall diet and chasing our favorite nutrient.

Another area we want to emphasize is just dietary patterns, and this gets into we know that certain dietary patterns are very protective, and we don't know exactly what nutrient or phytochemical or what combination, so the importance of dietary patterns, intake of whole foods, that people do eat whole foods, and that those things bring different things to the diet.

I think eating frequency -- some of the basic things in nutrition, we forget about the snacking. How often people eat get lost in our focus in nutrients. Social aspects of eating -- I have to tell a little story. I went on a sabbatical over in Switzerland. All my students assume it's just because I like to hike and ski and that's true too, but supposedly I said I wanted to learn something, and one of the things we had to do where I was is have an hour for lunch. And we

actually had to check out during that hour and you had to go and eat for an hour for lunch. And just to -- having lived in this world of never taking time to eat and talking to people, it was real experience of the benefits of taking an hour of lunch and having some fellowship with people. So, just that social aspect of eating we want to make sure that we consider that.

I also talk about this idea of making peace with food; that it seems like some much in my dietetics career we have gotten the nutrient or the bad guy of the month, then we just beat him up until we try to kill him, and then we move on to a new enemy. And rather than just seeing that overall food is an important aspect and not completely focusing on one bad guy and then going off in the wrong direction.

This is just a little study about food sources and dietary correlates, and only in controlled feeding studies can you hold fat intake constant vary fiber intake. So when you start looking at real diets, things go -- you know, like at the end of the day you are going to eat 100 percent of your calories from either fats, carbohydrates, protein or alcohol, and

what's the perfect combination? If one goes up the other has to go down, so you know, those things are going to change. And once we change one -- if we decide fat has to go really low then something has to go really high to replace that. We know that certain patterns are protective. There is a lot of data. So plant foods, fruits, vegetables -- but, is it the fat or is it the other things in that. And we know that people that eat lower fat, consumers have higher intakes of things that go together with these plant-based diets, so things like dietary fiber, water soluble vitamins, minerals -- and, if we cut down too much on fat, then we lose things; the flavor in the diet and also fat soluble vitamins. So whenever we make a big change -- I think so often people think that committees are kind of not bold; that we don't do bold things, and being that we are in Washington and it's political, I think sometimes it's good not to make huge changes, because there are things in the diet we don't think about that are really important if we cut out a whole food group.

Okay. People eat food not nutrients, and I always

tell my students if it was only nutrients we would all drink infant formula the rest of our lives. Why get off it? You know, we could live -- we know people have lived on liquid diets in nursing homes for 25 years. We know the nutrients. We can keep you alive, but is it really worth it? So, trying to take what we know about nutrients and make sure that we get those nutrients into you, but then consider all the other things that are important about food. And all the surveys show taste, convenience, familiar, not nutrition, typically are the leading factors when people choose food, and when we lose sight of that, all of our nutrition recommendations are ignored because we forget why people do eat.

There is no question our number one issue, and it will come over again and again is that we have an obesity problem, and if people aren't willing to do more exercise and we can't get that changed much, we are going to have to have them on pretty low calorie diets, and that really brings the importance of nutrient-rich foods to get into the diet. So, fruits, vegetables, grains, legumes, dairy, meat -- so often we

get criticized for our dietary guidance systems. People say, why are these foods in your systems? Because these foods provide a lot of nutrients per K-cal. So, if we decide to take any of those out of our nutrient guidance, we have to think of how we are going to get those same nutrients back in without adding calories.

I also think just overall food costs have to be considered. As somebody that talks about whole grains a lot, one of the big push backs I always get from people is the cost. I mean, if it's twice as much for a whole grain, it better be twice as good for me or I'm not going to do it. So, in cost, so often -- we are going to talk more about proteins, the importance of proteins; that's an expense; fresh fruits and vegetables. It might be great, but if it's too expensive it's not going to happen. The same thing with whole grains. So, just making sure our recommendations fit into what people can actually afford. That's it. That's where the nutrient adequacy subcommittee is at this point.

DR. VAN HORN: Excellent. Are there other

questions or comments from the Committee that -- Larry?

DR. APPEL: Yeah. I have a question about the folate discussion. You know, with cancer I always think of a lag period and almost it was too clean, you know, maybe even overlapping with food fortification and the change in the curve, and you know, I think there are probably other, you know, explanations confounders. The one that came to my mind, you know, and you actually dealt with the surveillance, but there was a tremendous interest in folic acid supplements in the 1990s. I can't tell you when it started, but I suspect it might have even before the food fortification. I guess I'm a bit skeptical when you see a food fortification and then incidence rate at the same time almost overlapping.

DR. NELSON: Well, I think -- this is Mim Nelson -- I actually -- I talked at length with Joel Mason about that exact question, and a couple of things that are interesting is, one is, when you look at the U.S. levels of folic going up and the Canadian, they track really well when the fortification happened. Because there have been a lot of other -- plus, like people

started taking a lot. Unless people started taking a lot more supplements at exactly the same time, the increases in blood levels tracked really well with the fortification. So that's one thing that's interesting.

The prevailing hypothesis, at least with colorectal cancer and potentially with breast cancer, is that these are -- that there are already polyps in the colon that are precancerous, and that what happened was -- and this is at least with animal data, this is the way it works -- when you give a high level of folate and there are polyps, it stimulates the polyps to grow and to become cancerous. So, where the cancer protection has been has been with people not with polyps already in their colon. So, I don't presume to be the national expert in this, but the hypothesis is that it's what it did. Because if you look at -- then the lip rates go back down again, is that it kick-started those individuals who had precancerous polyps. That's the prevailing hypothesis, so.

DR. PEARSON: This is Tom Pearson. I'd like to continue this folate discussion, just a couple points. Number one is, is that the ecologic data that you have

showed I think is very provocative. On the other hand, there are randomized controlled trials of folate, usually particularly in the homocystine and stroke prevention area, which would be a lot less indecisiveness, and probably on an evidence base would hold the answer, particularly compared to the -- if you work with the timeframes you are talking about. So, so the --

DR. NELSON: There are three other -- there are three randomized controlled trials that do show an increased incident with colorectal cancer. One was there was another arm with aspirin, but -- and they all show similar increases and they were large enough trials with people who had precancerous polyps, but were not --

DR. PEARSON: Statistically significant?

DR. NELSON: Yeah. Yeah. But they were -- they were a chosen group that had the polyps to begin with.

DR. PEARSON: The polyps? Yeah, I was thinking more of some of the stroke prevention trials with people with homocystine elevations, which would be a much more.

DR. NELSON: Yeah.

DR. PEARSON: The other -- the other request, as you go into this, one would hope that one didn't get into a competition between the food supplementation and -- for the prevention of birth defects versus some of these issues in the elderly.

DR. NELSON: Yeah.

DR. PEARSON: If you --

DR. NELSON: Well, the colorectal cancer is just elderly, so.

DR. PEARSON: Well, just let me continue.

DR. NELSON: Yeah.

DR. PEARSON: The discussion there would obviously be me talking about some issues in the elderly with perhaps more than one cancer. You would really need a health economist to then equate that to the prevention of a lifelong disability in a youngster. You know birth defects, as you know, is one of the more common --

DR. NELSON: Right. Right.

DR. PEARSON: -- or at least it used to be one of the more common defects leading to disability, years of

life lost of considerable number. The other point to be made there, and the Canadian data is superior to the U.S. -- it's the same data set that you showed -- is obviously the prevention of a number of other congenital defects, among them, cardiac.

DR. NELSON: Yes.

DR. PEARSON: And they have shown, I think a decrease in congenital heart disease at the same time. So, if you are going to have an equation amounting up the number of tumors on one side, you are going to have an equation saving a number of congenitals, and that's going to be a very tricky balancing, unless you can come up with a strategy in which to supplement in child-bearing aged women and not in elderly. The folic supplementation efforts using pills of folate, which was occurring based on liptimology clinical trials before I don't think was successful, particularly in the highest risk groups, which would be your low income groups, in which they are simply not going to be doing that. So that was the public health -- so, I think this is a conundrum that might be sort of outable in a health economics sense.

DR. FUKAGAWA: I just -- this is Naomi Fukagawa. I just wanted to comment on the question about homocyst -- hyperhomocystinemia and cardiovascular stroke. You know folate certainly has reduced the prevalence of hyperhomocystinemia, but I think that the general feeling now is that hyperhomocystinemia is really a marker of the disease pathogenesis and not causal. So, therefore, I think even if we have made improvements, and I'm not being pro or con folate supplementation or removing it, I just think that there is a lot of new information on the block that would be very important for us to consider as to whether or not we continued to fortify at the rates that we are fortifying, or whether or not it should be self selection. And no doubt that the reduction neuro tube defects is a worthy cause and reason to continue, but I am just bringing up these other questions that are occurring; and the question that I brought or the issue I raised with respect to the methylation of DNA is that this is something -- granted it was done in animal studies, but it does appear that these are epigenetic changes that are occurring in DNA which does get passed on to the

progeny. So, therefore, we are potentially impacting future vulnerability of the population. So that's my reason for bringing it up as a consideration.

DR. APPEL: This is a more general question. You have a huge number of nutrients on your plate, you know -- and no pun intended -- but there is -- you know, so -- you know, I'll just throw out one. You didn't talk selenium, and you know there was a trial was stopped recently, and part of the reason they stopped it was they saw adverse trends in diabetes, and there is actually a literature on selenium within actually, not supplemental levels, but dietary levels where it could be bad. So, are you going to sort of -- I'm not sort of picking on selenium, but are you going to just go through every one of these and just say, you know, should we, you know, do it? Is this one of our questions, or how are we going to approach this, because I am worried a little bit about cherry picking.

DR. NELSON: Well, I can just say, to prepare for this meeting, we didn't have a lot of time, as you very much know.

DR. APPEL: Yeah.

DR. NELSON: And I think what we were sort of looking at was where are some sort of big questions that -- I mean, I agree with you completely, that we need -- there needs to be a good look at the risk benefit ratio and everything else with folate, but I hope -- I mean, I think one of our charges with our subcommittee is that we really will do a little bit of a systematic -- maybe not have a million questions for the NEL group, but we will do a systematic look at all the nutrients and then choose the ones that, where the evidence since 2004 is warranted a good evidence-based review. That's what I would hope we do.

DR. NICHOLS-RICHARDSON: It's Sharon Nichols-Richardson. I would just add to that that I think part of just preparing for this meeting was to take a look at the 2005 Dietary Guidelines and then to look at the best information that we had, and those were the reports that came out from NHANES data. Part of I think the issue of looking at the nutrient intake is that the database for nutrients within foods, that some nutrients are not as well characterized in foods as others, and so what we have when we look at the NHANES

data and other data is that we have our best knowledge that we have about what is contained within foods. So, while selenium would be great, and part of the issue with vitamin D is that some of the databases that we did the comparison is just not perfect, so.

DR. NELSON: But -- yeah -- I have another question that sort of similar to that, and that is -- and this might be for the Beltsville Research Center, but is there any evidence -- I just ask the question. I don't have the answer to this. Is there any evidence that in fact the vitamin mineral content of our food supply has diminished at all, because I think that's a really important one that would affect food, you know, whether it's adequate food intake that's there. And, I don't know, with some depleted soil -- you know, I read lots of stuff. I haven't looked at this systematically, but I know the Beltsville sort of their, their database, I don't know how often it is updated, because I don't think we can assume that something that was looked at, how much -- you know, betacarotene is in a carrot or vitamin C is in a whatever -- broccoli -- is the same 15, 20 years ago as

it is now?

DR. POST: If I can -- if I can add, at least an information source, the Center has what it calls the U.S. Food Supplies since 1909.

DR. NELSON: Right.

DR. POST: And we can definitely look at the -- in terms of the best NHANES and other data available where we are on certain nutrients that you might be interested in, and certainly work with ARS.

DR. NELSON: Because I do wonder if there has been a serial change in the nutrient richness of our fruits, vegetables and grains, and even meats, et cetera. Pork, fish -- I don't know.

DR. RIMM: Yeah. This is Eric Rimm. I am sure some of it has -- some of it is due to just changes in processing methods. Some of it is due to, you know, fish farming. You have over time fed fish slightly different things and then gone back to what they did originally, so that it's not just the micronutrients, it's also the N-3 fatty acids and other things. So, I am sure that as they processed whole grains differently that they took some things out and put some things

back, so.

DR. NELSON: Yeah.

DR. SLAVIN: This is Joanne Slavin. There are differences with nutrients. Selenium is notorious, you know, linked to the soil, so that varies a lot. Other nutrients really don't vary that much. And one of my students did an organic versus a conventional comparison, and a lot of times conventional agriculture you have higher nutrient cultures than you do in organic just because they are put on top of it. So it's not - a lot of times it's not what people think, the answer they are expecting, of what's been published. And there has actually been quite a bit published in that area.

DR. NELSON: So I wonder, as a committee -- I mean, we are in discussion aren't we, within this sort of segment?

DR. VAN HORN: Yes.

DR. NELSON: I wonder, as a committee, how we should address any of that, because I think that falls within our subcommittee and it might be worth having somebody come in and give us -- someone that really

works in this from Beltsville or somewhere else in some future meeting, or we can certainly look at it, but --

DR. ACHTERBERG: This Cheryl Achterberg. To go along with that, thinking about the globalization of the food supply, I am not aware of whether we have a database that would indicate what proportion of our diet now, the American diet now is derived from imported foods. And if we are going to be thinking about agricultural practices and how that affects nutrients in foods, we have to think about that as well, and I am not aware of a data set that has that info.

DR. POST: Yeah. Since Cheryl -- this is Rob Post -- was looking at me, I will respond. I am not sure that we can make that distinction at this point either, at least in our involvement in the Center, but we can certainly look at the data sources and see if there is that kind of status. I am sure there is data on it. If I can add one more point? Country of origin labeling isn't fully in place and unified globally yet, so that might be one way.

DR. VAN HORN: Larry, and then Tom.

DR. APPEL: Yeah. I wanted to follow up on a -- there seems to be a recurring theme here about patterns. I had an interesting conversation with Tom last night. He said, you know, there are no heart attacks in Grenada, okay? And should we consider questions that are a little bit out of the box, like what, you know, what dietary patterns in which countries are associated with longevity and what are the common characteristics of those, as a different type of question that we might ask to get at some of these, you know, broader issues. You know, we tend to look at within country, but you know the greatest contrasts and exposures are often across countries, and you know, it's a little bit different and it's not going to be randomized trials, but I think they can be very informative.

DR. PEARSON: I was -- this is Tom Pearson. I will agree with Larry, that you have listed a large number of issues and, Shelly, with your review here, obviously identified a number of shortfall issues. I guess one of the questions is, how are you going to prioritize those? I mean, are you just going to kind

of toss them out there, or can we relate those to some sort of a public health outcome? Because otherwise, this is an enormous target list that I think might not be the best advice to HHS and the Department of Agriculture in terms of which ones that we really need to work on. So I just throw that out as a challenge that I think, as you pick from these, even with the evidence you have of shortfall areas, you know which ones of those you -- and how are you going to prioritize those?

DR. NICHOLS-RICHARDSDON: Well, that's an excellent question and I am open to suggestion and recommendation for how our subcommittee does that, and I think that will probably be a large part of our initial discussions. And I think that some of the discussion too, because the Dietary Guidelines do inform national school lunch and breakfast programs, and they do inform WIC program, and they do inform some of these other programs, that if we can look at what is it that perhaps those programs need to be able to deliver the best nutrient supply through what they are doing, that may be one approach. And I guess, you

know, to go back to what Joanne commented on, that the nutrients are within those foods and if we are missing the mark based on our Healthy Eating Index information; if we are missing the mark from a whole foods total food, total diet dietary approach perspective, then the nutrients within those maybe don't matter as much. So, if we can address some of the big picture, dietary patterns, whole foods, food approach, that that may be one of the first avenues too, so. But I am open to each and every suggestion for how to tackle all of the different nutrients.

DR. SLAVIN: All right. This is Joanne Slavin again. I'd like to follow-up on that, because you know it's really -- we would like people to do the dietary patterns that we have already recommended; therein they would get nutrients. Well, if they don't do the dietary patterns then they don't get these nutrients; do we put the nutrients in the food? I mean, you can see -- and if you look at the list of nutrients that are there, the ones that are biggest, like fiber is half, magnesium -- it's not different from what we usually see in nutrition studies. There are certain

nutrients that right now people don't, on surveys, don't get enough of. So, how do we -- can we make food recommendations to get people to those, or do we think of other ways to get it in the diet? It really does open the door for, is there a need, like the folic acid, to supplement certain nutrients if we are making no progress in getting them into the diet, you know, population?

DR. NELSON: This is Mim Nelson. One question I have for just maybe an overall question -- it sort of gets a little bit what you were asking is -- it seems to me that one of our charges tonight is sort of to defer to the Chair and the Vice Chair, but if there are nutrients in which, that were identified in here were the same issues -- I mean, it's like -- I am thinking of calcium for example; we still don't get enough calcium. I don't know that I have seen a lot of evidence that it should be, at the moment, until IOM does more, that it's going to be, you know, radically changed, at least, I'm fairly up on the calcium. It seems to me that, as a committee, in terms of prioritizing, we don't necessarily need to spend a lot

of time on things that are identical, pretty much the same here. That would be my bias, because we have a lot of other things. It may be, as you said, Joanne and Shelly, that it might be that we have to figure out a different way to, if there is evidence, to present the data or to discuss how you actually get people to get more, you know, fruits and vegetables or calcium-rich foods. It may be a different framework in how we present it, but the data for a lot -- I'm not going to say the majority, because I don't want to say that at this point now, but for a lot of the nutrients in this subgroup, it seems to me the issues are the same. We still have a gap; nothing has changed. I mean, there are a few more studies that sort of make me have more confidence in it, but it's sort of the same. I think that we should spend more time on identifying those nutrients where things are quite different, or we need to frame how we tell people how to it differently. But, I defer to you in terms of what our charge is as a committee.

DR. VAN HORN: Right. Well, I think you all have done a fabulous job with the discussion at this point

and -- oh --

DR. WANSINK: This is Brian Wansink. We would like to make a point and circle back to the provocative comment that Larry had about looking at some of these out of the box methods and possibly coming up with answers. While I think that's a tremendous hypothesis generation tool, we want to stay focused on what the published science says about these things. What that can do though, it can direct us to scientific studies that have been conducted in areas we might not have examined, but we always want to stay focused on the science. I appreciate that comment though.

DR. APPEL: Well, the science is ecologic studies. If you document, you know, that the country with the highest number of centenarians and you can document their, aspects of their diet that are also, you know, linked -- let's say Okinawa with 85 percent carbs, almost all vegetables, less fruit, then you know, that reinforces what we are doing. It's a different form of that, but it's still evidence.

DR. VAN HORN: Well, and I think that also introduces the topic of healthy aging and the fact that

we now have the capacity, because of some of these long-term epidemiologic studies that have been going on for 20 or 30 years, to actually look at those associations longer term, which we have not had prior. So I do think -- I would agree completely that the science is available and we should take a look at it, because it hasn't been, you know, viewed prior to this.

The other comment that I would just throw out, because I haven't, I don't think, heard anyone mention it, is the whole notion of bio availability of various nutrients and, you know, this whole concept of certain nutrients perhaps being more available even in a smaller quantity when the background diet is mostly plant-based. You know there are certain studies, and I think -- I always find these just fascinating to demonstrate that a vegan, you know, absorbs more iron from vegetarian-based sources than a non, you know, than an omnivorous person because they simply have less access to it. And that's just one example. But, the point being that if we are going to be advocating a diet that enhances general good health, you know, what is the composition of that that really optimizes the

absorption of all the nutrients regardless, you know, of what level they are because the background diet is something that sustains that level of absorption. And I haven't seen that really raised in previous discussions, but it might be worth doing, because I think it's available now, and it probably hasn't been prior. Yeah.

DR. POST: This is Rob Post. I just wanted to follow-up on the comment of I guess Brian's in the follow-up. The countries are so different in terms of their food availability and lifestyles, so I am sort of pointing to a need to consider the kinds of studies that we look at to base Dietary Guidelines for Americans and consider that in the discussion, and that there may be some disparities that make these not necessarily totally applicable at the end of the day.

DR. FUKAGAWA: But we do -- this is Naomi Fukagawa -- do have to consider that our country is much more diverse and that perhaps not considering the cultural differences that may exist and patterns may be why we appear, by surveys, missing the mark. And so I think, you know, we do live in a much more global world now

with a lot more communication, so I think it's very hard to know who do we define as American. I mean, you know?

DR. VAN HORN: Good point. Good point.

DR. NELSON: Also, I have one other comment.

DR. VAN HORN: Yes.

DR. NELSON: It gets to both Joanne and also I think, Brian, you brought this up, or maybe it was you, Rob -- that I think one thing that is possibly also different is that the more -- you said it, but I just -- I think it's important to reiterate it, that the more -- I don't want to use a bad word here -- but the more processed snack foods, crappy foods, whatever you want to say and however you define that, that we bring into our diet, the more calories we are getting and the fewer nutrients we are getting. And so I think one thing that hasn't been dealt with has been the decreasing of the sort of negative aspects of the diet that goes maybe even beyond the Healthy Eating Index because we are so sedentary that we need to make every bit of food that we eat count in terms of these nutrients, otherwise we are going to have to just rely

on functional foods and supplements. And so, I think the positives and emphasizing even more the negatives may be important from this and maybe the energy balance, but these two committees in particular.

DR. VAN HORN: Go ahead.

DR. CLEMENS: Roger Clemens. It's really interesting to note that much of the food industry has actually taken the Dietary Guidelines to heart, and to your excellent comment, Linda, there regarding the bio availability, we know that a number of foods have been fortified with certain salts, such as calcium salts, and those salts have been demonstrated to be quite bio available. I think it's quite encouraging, in an effort to meet these apparent deficits in the various nutrients and identified by this illustrious group that the industry has responded in a very positive way, in an effort to meet those nutrient deficits we see in a number of population groups.

DR. VAN HORN: Go ahead.

DR. PREZ-ESCAMILA: Rafael Perez-Escamilla. And the comment I want to make is regarding the importance of making the recommendations that actually people can

implement. And when it comes to your subcommittee and the whole issue of, for example, fresh fruits and vegetables, and fish and so on, the issue of access to those foods by a large segment of the population is one that is of a lot of importance. And, communities may not have access for two reasons; physically, you know, the places where they buy their foods may not have the healthy foods we are recommending; and also the price and the cost. And I know that these issues have been brought up by Joanne and Cheryl. So, what I think is also very important is to keep in mind that the local food systems play a very important role in determining access to, for people to implement their recommendations that we are going to make. And, as part of our deliberations and discussions, I think it's important to try to gain a better understanding of how different food systems work in the country at different levels.

DR. ACHTERBERG: Cheryl Achterberg. To add to this discussion, this is coming from a different perspective, a different slant, but again, if we want our recommendations to be followed by the general

public, I think we have to consider that perhaps the way we group foods or structure this advice may -- based on -- based on science, based on taxonomies, based on botany hundreds and hundreds of years old, that might not make sense, in terms of the dietary guidance we give, particularly as it relates to vegetables. For example, tomatoes, what are we going to do with that poor tomato? Is it a fruit; is it a vegetable? It's an other right now. There are things that we do when we give food advice structuring things that might not make sense in practice, so I am going to invite the Committee to get out of that box too and think perhaps there are other ways to sort this. Not that there is a pile of scientific studies to do this by, but the science we are using may not be relevant at all to the problem in hand.

DR. VAN HORN: All right. Well, that was a very -- dare I say it -- fruitful discussion. Sorry -- just couldn't help it. But, having said that, I think we should take a five-minute stretch break before we launch into the electrolyte discussions. So, just literally five minutes, just stand up, stretch, and

we'll let the next group get ready.

(Whereupon, at 2:54 p.m., a brief recess is taken).

DR. VAN HORN: Okay. While we are waiting for Dr. Appel, who is the Chair of this next group that will review fluid and electrolytes, I really neglected, for the purposes of the rest of the group out there, to mention that these committees were assigned to review, as is probably obvious from the nature of the presentations that were just made, but just to summarize everything briefly, we were charged with reviewing what is the established science in the area; what are the recent scientific advances; where is there consensus in the science; what issues need further discussion or further evaluation of the science; what issues need additional expertise, guest speakers, et cetera; what issues require additional information, such as, again, consumption data, as we were just discussing; and how does this relate to the Government's federal policy recommendations in the 2005 Guidelines for Americans. So, the nature of the discussion that you are hearing, and again, I would

like to just compliment the first group and how amazing they were in putting together so much information in such a really short amount of time, so I think everything that you are hearing represents true expertise, because if they were able to pull that together in such a heartbeat, then it clearly indicates that they have it in their back pocket. So, without that, certainly Dr. Appel has the same in terms of electrolyte questioning.

DR. APPEL: Can people hear me? All right good. Because I had some problems with the microphone earlier.

Okay. So we are going to talk about food and electrolytes, and one thing I want to point out is that, in the 2005 Dietary Guidelines, it really was water and electrolytes, you know, and I think one of the issues that we have to decide is like where do these types of fluids fit in. You know, if we do sugar sweetened beverages, does that go under carbs; does that go under energy balance; or does it go under fluid and electrolytes? So, in terms of an outline of what I am going to cover, I'll review the 2005 Guidelines

research questions and conclusions, and then our key research recommendations, and then prepare, in preparation for these, the current Guidelines, review some new evidence and new emphases, potential new questions and potential guest speakers.

So, as we discussed earlier, we are responsible for the Blue Report, and so I'll mention the conclusions and recommendations. There actually was a little bit of migration between the Blue Report and the Dietary Guidelines for Americans, the 2005 document on the right. The sodium guideline was less than 2,300 without qualification. The Blue Report, and on the report on the right, it was actually qualified further, 2,300, except if you are middle-aged or older, are hypertensive or African-American, in which case you should have goal of 1,500.

So, there has been a detention here as to what, you know, how much in terms of sort of background material to provide, to provide a context for the recommendations, so I just -- I took the liberty of having a little bit of background before the questions and conclusions. So, in terms of adverse effects of

salt intake, there is a -- I would call it an established relationship between excess salt intake and blood pressure, and there is a variety of evidence to support that. And it used to be that this would, that its relation, salt's relationship with CVD was just indirect evidence that you had salt with blood pressure, and then separate evidence of blood pressure with CVD and stroke. But, there now have been a few trials -- not too many -- all pointing in the direction of salts, a reduced salt intake leading reductions in CVDs and stroke.

Then, in terms of a probable relationship, which you didn't cover in the last report, which would be an interesting question, but it's not as big a public health problem as gastric cancer -- and there is actually excellent ecologic evidence relating intakes, higher intakes of sodium with gastric cancer, and then I forget the actual name of that international report on cancer, but it was listed as a probable relationship. Suggestive relationship of high salt intake with osteoporosis and increased left ventricular mass -- interesting, but I am not sure if it were

sufficient to guide policy; and then hypothesized relationship that as salt intake increases, so does fluid intake, and that fluid intake has calories in it that it could lead to overweight, obesity, and there is actually some data on that. But this is my hierarchy, and you know, we might want to revisit some of these, and particularly the latter given the obesity epidemic.

So, you know, I think everybody realizes that cardiovascular disease, stroke and heart disease are the leading cause of death worldwide, and of that, in terms of underlying factors causing death, when there has been a partitioning of the causes, raised blood pressure is really right up there at the top, and so it deserves a lot of emphasis from this committee as a chronic disease, even though we don't have a subcommittee that focused explicitly on blood pressure. I guess that's somewhat subsumed under electrolytes and fluids, although nutrient adequacies is probably covered as well.

So, in terms of where we stand in terms of the blood pressure distribution, 42 percent normal; about a third pre-hypertensive; and about just under 30 percent

hypertensive, but that ignores what happens with aging and basically, as we age, blood pressure rises insidiously to the point where almost everybody has it by the time they reach their 70s, and 90 percent of individuals will develop hypertension in their lifetime.

So, here is a summary of evidence relating salt intake to blood pressure. There is epidemiologic evidence, ecologic studies, as well as cohort studies. The best studies are actually across populations, not within populations, because you have greater exposure. And also, there are differences, quality differences, depending on how well sodium is measured, and it's a very nasty variable to measure well in epidemiologic studies. Really, you should do 24-hour urinary sodium excretions to do it right, and a lot of studies don't have that.

Migration studies, all genetic defects that have been associated with hypertension actually impact the kidney and its ability to excrete salt, a lot of animal studies. We have clinical trials in children, and I'll show you some recently published data about 10 trials.

I think there could be better trials, but on average, there is a small but significant reduction in blood pressure. One trial in infants; adults greater than 50 trials; and then there are population interventions in northern Japan, Portuguese villages as well.

So this is just one trial-sodium trial, which document that as you reduce sodium intake from a higher level, in this case, 3,300, to a lower level, 1,500, you get really a large reduction in systolic blood pressure. I'll note that the higher level is still not the average in the United States and that individuals, particularly middle-aged men, they are up in there averaging around 4,500 or so, so getting down -- I mean, this -- we are not showing data here that represents the potential benefit given the current intake. Now, in this case the controlled diet was a diet typical of what many Americans eat, and then there is the DASH diet, which is not typical of what many Americans eat, less than 5 percent of the population, but this is a nutrient-rich diet, dietary pattern, but you still see blood pressure reduction, in this case, 3 millimeters of mercury systolic, which have public

health benefit.

So, in terms of research questions that we considered in 2005, as I said, we talked about fluids, as well as the electrolytes, so what amount of fluid is recommended for our health? And so, this was the summary statement. The combination of thirst in usual drinking behavior, especially the consumption of fluids with meals is sufficient to maintain normal hydration. And I actually want to -- I still remember a comments -- piece of news -- it is not normal, but usual, and we've got to be really careful with what we -- with our terminology that -- directly, I should footnote that or give you a reference for that. Second, healthy individuals who have routine access to fluids and who are not exposed to heat, stress consume adequate water to meet their needs. We know there is no such condition as chronic dehydration. And, three, purposeful drinking is warranted for individuals who are exposed to heat stress or perform sustained vigorous activity don't interestingly have the chronic disease outcome on this. So we felt at least in the IOM panel that there really were not, you know, enough

evidence. But, I think one could potentially revisit kidney stones and one could potentially revisit bladder cancer as two possible outcomes. I am unaware of any trials in this area.

So, the second research question, what are the health -- what are the effects of salt, sodium, chloride intake on health, and the first conclusion was that the relationship between salt, sodium chloride intake and blood pressure is directly progressive without an apparent threshold; hence individuals should reduce their salt intake as much as possible.

In view of the currently high levels of salt intake, a daily sodium intake of less than 2,300 milligrams is recommended. So there is -- this is actually -- the nuance to this is that some of our conclusions were nuanced on the current supply, I mean, the current intakes, you know? And, if you were actually at 2,300, maybe going down to 1,500 would be great, but you know, you have to be practical, as people have pointed out in our earlier discussion. So, more individuals will benefit from further reductions in salt intake, including hypertensive individuals,

black and middle-aged and older individuals, and I think that was the basis for the subsequent decision to lower the 2,300 milligrams to 1,500 milligrams.

And lastly, individuals who currently increase their consumption of potassium, because a diet rich in potassium blunts the effects of salt on blood pressure.

So this is the question about potassium; what are the effects of potassium intake on health? Diets rich in potassium can lower blood pressure and lessen the adverse effects of salt on blood pressure. Interestingly, it may reduce the reduce the risk of developing kidney stones and possibly decrease bone loss, which I think is really very interesting, and I am aware of, that there is interest in potentially doing a large trial without outcomes, such as bone mineral density, but as far as I know, there is no trial that has been done since 2005 with bone loss, and I think this is particularly important given some of the Women's Health Initiative (WHI) results on calcium

Secondly, in view of the health benefits of potassium and its relatively low intake, at least 4,700 milligrams are recommended, and blacks are especially

likely to benefit from an increased intake in potassium.

So, in terms of research recommendations, I'll just go through what we listed. I would sort have the caveat that I think that as this Committee moves forward, we should also keep on cataloging my experience on these committees, and dietary guidelines is no exception, is that this is done last without as much consensus building, and you know, if we want to put our teeth into some research recommendations that actually lead to research being done to informed guidelines, we probably should spend a little bit more time on this than just leaving it to the last meeting.

But anyways, this is what we recommended; investigate the implications on the intake of bottled water, on fluoride intake and on health outcomes, because evidently bottled water has -- it doesn't have fluoride; compare the effects of foods and beverages that contain added sugars and those that naturally contain sugar on body adiposity and other indicators of health. It might be a turf battle among subcommittees to take that one on. I don't know. Investigate the

role of increased total fluid intake as a means for preventing chronic diseases.

So, research recommendations related to sodium and potassium; conduct trials that assesses the effect of salt intake on a clinical outcomes other than blood pressure -- and there actually has been some data on this; conduct trials that test whether increased potassium intake or potassium-risk foods increase bone mineral density -- I don't think those trials have been done -- and conduct those response trials that test the main and interactive effects on sodium and potassium intake on blood pressure and other clinically relevant outcomes -- and I don't think that's been done.

So that's from 2005. Now, in terms of 2010, what we might think about, given some new evidence and new emphases that are percolating in our professional societies, first of all, new evidence. The blood pressure status of Americans is getting worse, not better. Secondly, evidence of reduced -- of the benefit of reducing salt and increasing potassium on CVD events, we have some trial evidence. And, I think there is increasing concern about blood pressure in

children; that we are actually seeing some pretty adverse trends already, and I think this could be one of the more important research questions or emphases we have in our report. So, in terms of the population trends for blood pressure or hypertension, these are data in adults between two of the NHANES surveys. What you see is, in older age individuals, in three age groups, if you look at the figure on the left, you do see hypertension prevalence going up, and it seems to be occurring in all, in each of the major race ethnicity groups studied in NHANES.

I also wanted to point out some compilation evidence that I put together and was published earlier this year, and that has to do with an age-related rise in blood pressure in children. And, what you see here is a plot by age of mean blood pressure in children, and what's striking is that the average age-related rise in blood pressure is roughly at least two, but maybe up to three times as fast as in adults. In adults it's roughly .6 millimeters of mercury per year, and in boys it's 1.9 and girls 1.5 millimeters of mercury. And what I have put simultaneously on the

right are average levels in middle-aged, Yanomami Indians, who have a low sodium population where there is no age-related rise in blood pressure. So, among Yanomami men, their average systolic blood pressure is 101, which corresponds to a mean blood pressure in U.S. boys at age 11. And correspondingly, for women, the average blood pressure in Yanomami women is 91, which maps out to an average blood pressure in girls at age six. So the genesis of the blood pressure epidemic, even though we have been focusing on middle or older-aged individuals is really early age and I think should be an emphasis of what we do in terms of preventing chronic disease starting pretty early.

Blood pressure trends are actually going worse in the United States. This is data from Paul Muntner, published in 2004. Basically blood pressure is going up partially accounted for by weight. By the way, in terms of the pathophysiology, there is reason to believe that insulin resistance may raise blood pressure, but also I think you need to realize that when individuals are consuming more food, they are consuming more sodium, okay, at the same time. So we

need to acknowledge that as a possibility or a contributor of these adverse changes.

A meta-analysis was done by MacGregor two years ago. The evidence is pretty diffuse in terms of the type of trials that were done, but on average, one millimeter, you know, mercury reduction systolic and diastolic from reducing sodium.

Now, in terms of clinical outcomes, there are three studies, one of which was available to us. It was the TONE study. I participated in this, and this had 639 elderly hypertensive individuals. There was a behavioral intervention, and there was a non-significant trend towards a reduced risk of 21 percent of CVD events, a composite of events over 2.3 years. The year after the Dietary Guidelines were published, there was a clinical trial done in Taiwan veterans -- that was in 2006 -- and it was substitution of usual salt with a low sodium, high potassium salt, and there was a statistically significant 41 percent reduced risk of CVD mortality over 2.6 years. And then quite importantly, the trial of hypertension prevention follow-up study in 2007 -- this was a study that

enrolled over -- actually two studies that together enrolled over 3,000 pre-hypertensive individuals. The outcome of that study during the initial phases was just prevalence of hypertension, but Nancy Cooke followed these people long-term over the course of 10 to 15 years, and there was average -- or there was a net relative risk reduction of 30 percent, statistically significant, and that's demonstrated on this panel here.

So, in terms of potential new research questions, I'll list a few here. And again, I -- you know, when I am tired at night or hallucinating when I run, I come up with these questions. By no means is it comprehensive, but these are the ones that came, that I thought about when I was anoxic.

So, what dietary factors influence blood pressure in children and young adults, you know, are they the same ones? I suspect yes. What is the evidence?

Should the target for sodium intake be reduced from 2,300 milligrams to 1,500 milligrams? One could make this argument just on the basis the population itself, middle-aged and older-aged individuals, blacks

and individuals with hypertension, according to verbal reports from people who are going to publish soon, is somewhere between 50 and 60 percent of the population.

What are the current dietary sources of sodium? I think this is actually an interesting question. We actually don't have -- I would like to actually see some of this data from NHANES. You know, I think we might be having -- seeing some benefit in terms of reduced salt content in certain luncheon meats and maybe in certain other products, like soups. I know that many companies have made, you know, sizeable reductions. But, we also might be having a flip side. I was, the other day, I was talking with a staff member and basically, you know, we might be getting more salt through our chickens that are now injected with brine, and so that the source of the actual, you know, where we are getting it might have shifted, and I don't know if there is good data on this.

Other potential questions -- we did not address this in 2005; what are the effects of certain beverages, coffee and tea, on the CVD and its risk factors? I know, Tom, you have been interested in

this. You know, we have to decide whether this is an important enough topic to address. What are the effects of sugar-sweetened beverages, beverages with artificial sweeteners and water on weight in children and adults, which I think is a topic that we will address, and probably other people have thought about?

In terms of potential speakers, I thought that Steve Daniels would be very good on blood pressure in children; in terms of weight-effective beverages, Barry Popkin and Caballero; and in terms of sodium recommendations, Frank Sachs.

So, I'll end with a comment. This is an observation from 2005. So the question is, how big is our task on the committee? So, at the end of the committee, I actually measured all of the paper -- I am a bit anal compulsive at times. I saved all the paper I got, and it turns out that that paper weighed 109 pounds; it was 60 inches tall; and if you calculate the BMI, its 21. And so, our task is normal-sized , not huge.

DR. VAN HORN: That was reassuring. Thank you.

DR. APPEL: No, it's not. Can we open this up for

discussion? Christine, yes?

DR. WILLIAMS: Christine Williams. I just wanted to echo my concerns about high blood pressure trends in children. In addition to the study by Muntner that you summarized, there was also a study in circulation last year by a Dennis Athem, and they found that high blood pressure and pre-high blood pressure in children and adolescents actually decreased between 1963 and 1988, but then an increase was seen between 1988 and 1999. An ethnic and gender gap appeared in 1988 for pre-high blood pressure, and in 1999 for high blood pressure, especially non-Hispanic blacks and Mexican Americans with a greater prevalence of high blood pressure and pre-high blood pressure than non-Hispanic whites. And males had a greater a prevalence than females. Pre-high blood pressure increased by 2.23 percent and high blood pressure by one percent between 1988 and 1999, and obesity increases more so abdominally than general partially explain the rise in high blood pressure.

We also did a study in preschool children, published in 2004, where we studied almost 1,000 preschoolers between the ages of three to five, and we

found that overweight preschoolers at this young age had three times the risk of having elevated systolic blood pressure than non-obese preschoolers. We then followed up these children to ages seven and eight, and the overweight children whose weight normalized had a much less increase in systolic blood pressure over time compared with the children who gain weight rapidly. I think it's especially of concern when you look at the facility for potassium intake in the most recent NHANES study, because in children from ages two through 19, the really haven't changed much. And the unfortunate thing is that the majority of children are above the upper limit for sodium and do not meet the requirements for potassium. So I think especially in the new Dietary Guidelines we need to emphasize perhaps more strongly the need to meet those guidelines for sodium and potassium, and especially to work on energy balance.

DR. APPEL: Yeah. The question to me -- yeah, I think we can -- I mean, I think we need to deal with blood pressure as an issue, but I think more broadly primordial prevention of cardiovascular disease in

children. And I know that, in terms of reports, I have heard that there is an NHLBI Committee that's going to have, that evidently has compiled evidence and we might not want to re-invent the wheel if they have already done this, and I understand this report might come out in April or May of this year. And if, you know, if we can, you know, be somehow linked to that it might help us.

DR. WILLIAMS: I think Steve Daniels would be excellent, or perhaps Ray Allen Caby from NHLBI could do that.

DR. APPEL: I'm sorry. Who was the second?

DR. WILLIAMS: Ray Allen Caby, Dr. Caby, who coordinates that committee.

DR. NELSON: Well I just -- the question about coffee and tea I think is an interesting one possibly more with tea than with coffee. I don't know. I mean, I think that there is some more evidence around some benefit, and I think it may be worth at least doing a cursory look at some of the literature.

DR. APPEL: Yeah. I think -- you know, I don't know enough about this to make the call and I think

this actually gets at a process issue, which is, like when we have a little bit of a signal, how much of a, you know, how much of a review of the literature do we do and how do we do this? You know, it might be that, you know, we have -- we save our, you know, Joan Lyons and her teams for the, you know, for those, you know, the final questions, but then we have this larger group where we decide to make a decision about, that we have to do something else, you know, and what that looks like, we have to decide.

DR. RIMM: Yeah. I think that -- this is Eric Rimm -- I think that, as an epidemiologist who has been on coffee papers for the last 20 years, I don't think it's necessarily that new of something to study coffee in cardiovascular disease, because you will find here are 50 papers and literature, and there have been formal analyses, and I don't necessarily know what the direct -- what we would write into the Dietary Guidelines saying that people should drink coffee or should not drink coffee. I think maybe, if there are more subtle issues related to tea and blood pressure, because tea consumption maybe has changed more, but

some of your other questions -- maybe just because you were running too hard when you did the coffee one -- but I think coffee sort of has been kicking around for a long time and we'll find that there is a lot of literature on it, and I'm just not sure what the --

DR. APPEL: Direction?

DR. RIMM: We may find it's good among diabetics, but I am still not sure if we change it, make a dietary guideline based on that.

DR. APPEL: yeah. But that issue about the coffee and diabetes, I know that your group has been interested in that and there might even be a trial on that, but we might just say we don't -- we are not going to talk about it at this time, because you know, there is better evidence coming down the pike.

DR. PEREZ-ESCAMILLA: Can I put also on the second one, on that; is it related to coffee and tea? Okay. Just very quickly, Rafael Perez-Escamilla, from the consumer's perspective, I believe people out there will be extremely interested on learning about what we know about coffee and tea and cardiovascular disease, because you know, people drink them and they often ask

about it.

DR. PEARSON: Let me just comment on that. We have published on this area in the past, and which has a very interesting historical perspective. I will agree with Eric, I'm not sure in the last ten years where there has been anything elucidative. There are some very large studies, which were complicated by the methods of brewing. I think some of the mechanisms through terpines being released, particularly by high extraction, in fact it looked like there was a lipid connection, and in fact the kinds of coffees that do that, the Norwegian coffees; the Turkish coffees; and other coffees in fact look like they have had a relationship with cardiovascular disease. In the United States, the early studies, including one that we did dating back to the 1950s and 1960s, showed a relationship which has not been replicated since, but some of us believe has to do with the coffee brewing methods, and the fact that the terpines stick onto coffee filters. And so, I think because we view it out of interest and perhaps the Guidelines hasn't done it before, but I'll side with Eric that I don't think

there has been anything.

Now on the tea side, I think there are more interesting things there because of other mechanisms, and I think there are quite a number of studies with anti-platelet effects and a variety of other mechanisms, pharmacologic mechanisms, bio-flavinoids and other compounds, particularly in the green tea line, which would support them having a cardioprotective effect, and in that instance, with a neutral coffee versus a protective tea, you might have some trade-off if you are going to, if you are like in Rochester, New York freezing to death most of the time and want a hot beverage, there may be a choice there. But I think there really hasn't been a large number. I think 50 is probably an underestimate, Eric, when you take in the international data on this area on coffee.

DR. CLEMENS: I'd like to remind us -- this is Roger Clemens -- I'd like to remind us of (1), as the pick-up of what Shelly said earlier today; that no nutrient stands alone, and we might, in 1924, just a few years ago, that the United States fortified the salt in the United States with what?

DR. PEARSON: Iodine.

DR. CLEMENS: Iodine. That technology has not changed. If you look at the World Food Program sponsored by WHO, that particular program is encouraging increased sodium chloride content in the diet because of the iodine delivery, and that iodine delivery is helping children to improve the cognitive performance and neurological development. In this country, maybe that isn't the issue, and internationally, the CDC is sponsoring and supporting this kind of a program by WHO, and it would be interesting then, in fact, if one side of the government is telling them to reduce sodium and the other side of the government says increase your sodium?

DR. APPEL: Yeah. But I think that, you know, we have to look at where there is, where there are public health problems, and I think your point is well taken. In certain parts of the world this is a huge issue.

DR. CLEMENS: Yes.

DR. APPEL: And then you -- and, you know, you actually, you know, that could be, you know, you are going to support that. In the United States it's not

an issue, and in part because iodine comes from, you know, we don't have these iodine-deficient regions anymore. And the other thing is that, in terms of sodium -- and we had this discussion in 2005 -- the sodium that's put into our foods, the processed form, there is no iodine in that, you know, or very little, so that's really contributing to solving a problem for which we don't have right now. So I think that probably is not going to drive our decision-making.

DR. CLEMENS: One of the things that we might want to consider, the fact if we increase our exercise -- Larry, you and I run a little bit, and I think our blood pressure is relatively low. And so, if we decrease the obesity and improve the exercise performance, in particular, for our young people that affects in the blood pressure we see elevated they will actually decrease.

DR. VAN HORN: All right. Other discussion on fluids or electrolytes?

DR. FUKAGAWA: Well, I --

DR. VAN HORN: Go ahead.

DR. FUKAGAWA: Sorry. This is Naomi Fukagawa. I

would like to also bring up the point though with respect to this -- we are discussing added salt or sodium chloride, but one of the major things that at least I thought I learned in early nutrition was that your ability to maintain positive protein or nitrogen balance is also related to a certain amount of sodium in your diet; that it's very difficult to utilize some of the amino acids to create the proteins without adequate salt or sodium. So, you know, we can suggest a reduction in the excess intake, but I don't think should get to the point where we might suggest being too low.

DR. CLEMENS: Naomi -- this is Rog again -- I would like to also comment on that excellent remark of yours. If you recall, in the 1970s -- some of us were around then -- there was a movement on hypertension and sodium chloride, and as a result of that, on the infant side there was a big movement to reduce the sodium chloride. Well they removed the sodium, but also chloride went with it and it developed very serious issues, if you recall in Tennessee. And if informative that promulgated the regulations in 1980 of the

Proponent Act, we want to be sure that as we reduce the sodium -- if we decide to do that --

DR. FUKAGAWA: Right.

DR. CLEMENS: -- that it doesn't have other ramifications.

DR. APPEL: Yeah. But I think you need to realize that that was absence of chloride. It was --

DR. CLEMENS: Yes.

DR. APPEL: Yeah. It really wasn't, you know, reduced intake --

DR. CLEMENS: Just all that?

DR. APPEL: Yeah, yeah. I mean, the issue about, you know, protein, I think we could investigate.

DR. FUKAGAWA: Right.

DR. APPEL: But, you know, I think when you look -- I mean, I didn't go over, you know, where the population is now. I mean, most --

DR. FUKAGAWA: Yes.

DR. APPEL: I mean, we are so high, you know, that the problems that you allude to are presumably are at lower intakes, but you know we can investigate that to make sure. But, I mean, average intakes in middle-aged

men who are runners is probably around 4,500, you know?

DR. FUKAGAWA: But I do think your point of needing to know the dietary sources of sodium is extremely important.

DR. APPEL: It could be shifting, and we don't really know that.

DR. FUKAGWA: Right.

DR. CLEMNS: Yes.

DR. FUKAGAWA: But we also know that protein intake will help with the diuretic effect in the kidneys, so you know, again it's another sort of balance of things. And I think our efforts are really to try to come to a moderate group of recommendations rather than making too drastic a change, I think.

DR. VAN HORN: Sam?

DR. PI-SUNYER: I just want to comment -- this is Pi-Sunyer -- I just wanted to comment on your other question about beverages.

DR. APPEL: Yeah.

DR. PI-SUNYER: And I think that there is a lot of new data on that, and certainly one of the subcommittees, whether its energy balance or

carbohydrates or yours really needs to look at sugar-sweetened beverages and artificial sweetener beverages and its effect on weight, not only in children, but also in adults.

DR. APPEL: Yeah.

DR. PI-SUNYER: So, I think this is a key question that we really do need to take up and, but I think over five years there is significant more data than there was in 2005.

DR. SLAVIN: Yes. Joanne Slavin. It's in my section for the beverages, the sugars, so I have covered that. But I think, to have some speakers, and there has been a lot of things done, it's kind of confusing, so it's a huge topic though.

Food form -- how do we deliver food, whether it's solid or liquid and how does that vary the physiological factor?

DR. VAN HORN: Right. Go ahead.

DR. PEARSON: Well, as a member of this subcommittee, I had a couple of things that I'd like to perhaps add for consideration to Larry's list. And one of them really deals with the implementation of sodium

restriction policies. I think the history of that has been recorded, in that there have been several efforts by industry to do this leading me to a marketplace, which really wasn't supporting of selling those, requiring the companies to go back to higher sodium products, because the low sodium ones didn't sell so very well. I'm not saying that that's not the way we want to go, but I think what we should understand a little bit better is the whole development of salt taste, and I think particularly relative to children. And so one of the issues of a really, everybody buy in sodium reduction policy, may be actually the development of a generation which you could then do better at the marketplace with low sodium products rather than the, really the craving of sodium that really would destroy the things you would want to have more publicly available. You know, 90 percent of the population -- according to the data that was shown previously -- exceed the sodium goals, so you really are not even close at suggesting that this really is a widespread issue of implementation; that we can make all the recommendations, in terms of the milligrams we

want, but we are not getting the 2,300, so why should be recommend 1,500? So we really need to get upstream and understand why these are being rejected, or even if you give somebody a low sodium product, they just take the salt shaker and add to it. So, I would think it would be within our bailiwick to understand some of the behavioral issues on this particular issue. I think there are some studies, although they may not be so recent, but I think it's probably -- and I think it probably focuses on childhood; not only are there some worrisome data issues showing in terms of the blood pressure going up in childhood, but I think one of the issues is how much of tracking is due, on a behavioral basis, rather than on a physiologic, genetic basis. And this could have essentially identifying those individuals, which are really are not on the trajectory with their blood pressure, but on the trajectory with their sodium intake. And so I think -- I think that's one area that we could add to the literature.

I think the second issue of the implementation is how well have we implemented the guidelines from 2005, and particularly relative to the 1,500 target for high

risk groups. So how well have the African-Americans and patients with congestive heart failure and hypertension done, and I think there may be some discouraging news there, but it also will tell us perhaps something about implementing the Guidelines this next time around, and I think it would -- I think it would be useful to have those data, if in fact they have been looked at.

Just a couple of other things, the -- I think we shouldn't forget about some of the other cadence, particularly the diabetic ones. I don't know -- is calcium and magnesium the bailiwick of this, or some other group?

DR. APPEL: I think that's --

DR. NICHOLS-RICHARDSON: That was my question too, is where do you see fortified beverages, functional food-type beverages? Do you see that in the nutrient adequacy group, or do you see that in the beverage group? How do you handle that?

DR. PEARSON: Those electrolytes, the last time they worked.

DR. APPEAL: Yeah. That -- I mean, that's --

well, this is one of the problems we had in 2005, you know? Because you can really, you know, you can put these questions in different, in different subgroups. I mean, the issue is nutrient adequacy, which is what, you know, calcium and magnesium are. I mean that was actually in the nutrient adequacy group. We didn't deal with that. I mean, there can be migration, you know, in 2010, you know, to equalize work loads and stuff like that. But, you know, I hadn't been thinking about calcium and magnesium in my group. I think we'd also want to make sure we have the right expertise, and I am not sure that -- you know, I think if we do some switching, we might have to rearrange some of the committees.

DR. NELSON: So, I have a question for you. This is Mim Nelson. Regarding the relative benefits of potassium alone versus fruits and vegetables as a deliverer of potassium, and -- because we talked about wanting to increase potassium.

DR. APPEL: Right.

DR. NELSON: And one of the worries I get, if we focus just on potassium, we are going to get all the

food manufacturers just adding tons of potassium, and there may be other issues that we are not aware of. And so I -- but I don't know this literature all that well, but I just -- the relative different contributions of fruits and vegetables, or you know, fruits is --

DR. APPEL: Yeah.

DR. NELSON: -- versus just potassium.

DR. APPEL: Okay. That's a great question. I think, just to again go back to 2005, I think if you look at the rationale, you know, why we are recommending large amounts of fruits and vegetables, it actually was because of the potassium guideline, okay? Because we didn't really -- we didn't -- I mean there is some epidemiologic data dealing with fruits and vegetables and stroke that we reviewed, which is good. It was like about nine out of 10 studies at that time showed that increased fruits and vegetables were associated were reduced stroke. And there wasn't that much with CHD at that point. There has been an amended analysis since then. So that fruit and vegetable recommendation was driven not as much by cancer, as it

was to get your potassium up, okay?

DR. NELSON: Good.

DR. APPEL: In terms of its effect and are there other nutrients, I guess I would go back to one of my own studies, the DASH clinical trial. There was a third arm, you know, a fruit and vegetable arm, and then there was a third arm, the DASH diet. We got half of your blood pressure effect with fruit and vegetable and the half, and the further reduction of blood pressure going from the fruit and vegetable to the DASH diet.

DR. NELSON: Yes.

DR. APPEL: So there is something, you know, something, probably some other things besides, you know, potassium that are contributing to the blood pressure reduction in this broad panel of nutrients, and we probably won't be able to figure it out. So, you know. Yeah folate, that's right.

DR. CLEMENS: Rog -- I appreciate your comment, Tom, about the century characteristics of sodium and sodium chloride, and to think back on what you said, Mim, is that a factor? You just can't arbitrarily add

potassium chloride to a product. It is extremely bitter. So we have to leave some of the salts. If you recall, after the 2005 and before that we tried to replace sodium chloride with potassium chloride salts and it was a dismal failure, because our palates said this is not good for us. It is very bitter, so we have to look at other alternatives.

DR. APPEL: But there are -- I am listing -- you know, potassium citrate, potassium bicarbonate --

DR. CLEMENS: Moderately different indeed.

DR. APPEL: Yeah. So I think, you know, that also gets closer to the form of potassium that's in fruits and vegetables. And so, you know, I think that you can really not make the case for potassium chloride, both based on sort of that part -- actually primarily because of the reason you said, but there is also a good physiologic basis for doing, for thinking about potassium citrate because, or bicarbonate because that's what, you know, if there is a benefit on osteoporosis and kidney stones, it might be related to the accompanying anion.

DR. VAN HORN: Tom.

DR. PEARSON: There has been some recent prevalence estimates relative to chronic renal disease that I think were surprisingly high. Is this an issue with, also a vote against potassium supplement, where you'd have a potential for actually getting people into trouble?

DR. APPEL: Well, you know, the issue of potassium in renal disease is pretty tricky, okay? And certainly when people are close to renal failure, research into potassium is important. But actually, you know, there is a body of evidence that if people, you know the potassium could protect the kidney, so it's one of those sort of interactions with level of kidney function where it might be good for you, at some point, and then bad for you at another point, and where that flip occurs is not known, you know? And that's something actually we are investigating ourselves.

DR. PEARSON: Yeah. It may be something we should look into.

DR. APPEL: Yeah. The only thing is, and I guess this succumbs to some issues we have to decide, you know where -- you know, I would hate for us to focus on

very important clinical populations, those with advanced kidney function, you know, which I think is probably beyond the bailiwick of what we were asked to do.

DR. VAN HORN: I just would like to add a couple of comments to that though, Larry.

DR. APPEL: Yeah.

DR. VAN HORN: For one thing, I think you know some of the beauty of the DASH diet and the subsequent premier diet, and you know all the diets that are sort of focused on that approach, to me was the fact that even normal tensive individuals lowered their blood pressure with a diet like that. And so our guidelines I think also will be expected to tell people what to eat. And so the idea of telling people to eat more fruits and vegetables as a source of these nutrients represents not only the nutrient, but the company they keep, and you know, the enhancement of let's say, again, this background diet that we are, you know, presenting as a way to go ahead with this, as opposed to a functional food with one nutrient that's increased that thereby could leave room for other adverse intake

of foods that we probably wouldn't recommend. That's one thing. The other thing, I just have to comment, because this whole discussion regarding sodium sensitivity in terms of flavor and acquired taste is very near and dear to my heart, because my doctoral research was exactly on that subject, in a cross-over design with high school kids in an in-dwelling situation, and finding that after only four weeks of being exposed to a diet that was lower in sodium -- and I'm not talking extreme; I'm simply talking lower in the sodium that they were eating -- they could not return to the same level of sodium intake they had at baseline. It was terrible in terms of the study design, because it, you know, put people at a lower level for the second phase, but the learning principle behind that was phenomenal in that even in such a short time, kids prevented from eating that much sodium and increased in the fruits and vegetables couldn't return to that higher sodium intake, because it was distasteful after that. So, I think there is again this whole issue of learning preferences of foods and flavor that, you know, is a whole area of research that

I know, you know, is emerging, but something that we might want to take a look at.

The other last thing I'll point out is, I don't think we have ever been in a situation as we are now where we have so much sodium in the presence of rising sugar intake, and you know the combination of more sugar, more salt and whether or not that has any real impact on our taste preferences and choice of foods, and/or physiologic outcomes, you know, might be something we'd want to consider as well. Just a thought. Yeah, Eric.

DR. RIMM: Very good. I don't remember where we came in the last time, but are we going to revisit anything with milk, or is milk a little bit also as a calcium source?

DR. APPEL: That was dealt with in nutrient adequacy. It's funny, you know, this -- I, in terms of like how things got covered, it was -- we didn't say, like have a subcommittee on dairy; we didn't have a subcommittee on meats. You know, we really sort of -- you know, there really weren't even specific questions related, you know, to meats, and that may be, you know,

under some of the protein discussions, but we actually have to, you know, figure out how we are going to, you know, partition some questions that we really actually haven't come up with because it wasn't under the original set of subcommittees from last year or from five years ago. So, I mean, I didn't cover dairy, and I don't know if intrinsically nutrient adequacy would have, but that's the closest, you know -- it was the -- I think it was saved under the calcium recommendation, if I remember correctly?

DR. PEARSON: It was under nutrient adequacy.

DR. NICHOLS-RICHARDSON: It was under nutrient adequacy.

DR. APPEL: Yeah.

DR. NICHOLS-RICHARDSON: It covered that as part of the DASH diet and the eating plans with the Healthy Index.

DR. APPEL: Yeah.

DR. RIMM: Right.

DR. SLAVIN: But what about if it's blood pressure related, does it go into your group then?

DR. APPEL: Well, you know, mine is fluid and

electrolytes. I don't mind to be dealing with blood pressure issues. It's near and dear to my heart, on blood pressure, but you know that's -- you know, I can certainly -- you know, I mean, for calcium though there really is not a good story, and you know, magnesium either. So, they are not going to drive decisions on -- blood pressure effects are minimal and really would not drive decisions.

DR. SLAVIN: But back to low-fat dairy within DASH?

DR. APPEL: Again, the DASH actually happened at the very end when it appeared that the diet met all of the DRIs, and as well as had health effects just happened to be DASH, okay? So we actually went through a lot of a building process, and then we, at the end we also had documentation, well here is the DASH diet, but you know, this is with the nutrient profile of that diet and it just happened it coincided very nicely, you know, and it has biological effects as well as the nutrient profile we were looking for. So that became a vehicle to, for, for this committee, or for the last committee, to say, yeah, you can -- here is a diet we

have -- it's been described. We have a lot of materials on it. You know, it's a winner here. But we really did not work from the DASH diet during the process. You can correct me if I'm wrong, Xavier, but that's what I sort of sense, it was just sort of at the last meeting or so, I said, yeah, it works out.

DR. VAN HORN: Much as I love this conversation and the discussion is going really well, unfortunately, we have to be out of here in about three minutes. So, Mim, do you have one final comment you want to make?

DR. NELSON: I don't think that we have -- because a nutrient or a food group is related to a certain disease, that doesn't really dictate I think where it needs to be. I think, because all the nutrients affect many different chronic conditions. So, I just -- I wouldn't worry about it. I think that, you know, the calcium vitamin, or rather, the calcium and magnesium and dairy worked well on our committee for now. If there is a reason to move it in the nutrient adequacy, I just think -- there are so many instances in which they go all over, so.

DR. NICHOLS-RICHARDSON: Nutrient adequacy will

have a BMI of about 30 by the time we are done.

DR. NELSON: Yeah, right. There you go.

DR. VAN HORN: I'd like to thank the Committee and everyone in the audience, and everyone for being here today for this wonderful discussion and a great launch to this new Guideline Committee. And we'll resume tomorrow morning at 8:30. Thank you.

(Wherein, the meeting was concluded at 3:55 p.m.).

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I, NATALIA KORNILOVA, the officer before whom the foregoing was taken, do hereby certify that the following was taken by me by audio recording and thereafter reduced to typewriting under my direction; that said transcript is a true record of the recording taken by me; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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