

UNITED STATES OF AMERICA
DEPARTMENT OF AGRICULTURE
AND
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIETARY GUIDELINES ADVISORY COMMITTEE
THIRD MEETING

WEDNESDAY, APRIL 29, 2009

The meeting came to order at 1:30 p.m.,
Dr. Linda Van Horn, Chairperson, presiding.

PRESENT:

LINDA V. VAN HORN, PHD, RD, LD	CHAIR
NAOMI K. FUKAGAWA, MD, PHD	VICE CHAIR
CHERYL ACHTERBERG, PHD	MEMBER
LAWRENCE J. APPEL, MD, MPH	MEMBER
ROGER A. CLEMENS, DRPH,	MEMBER
MIRIAM E. NELSON, PHD	MEMBER
SHARON M. NICKOLS-RICHARDSON, PHD	MEMBER
THOMAS A. PEARSON, MD, PHD, RD	MEMBER
RAFAEL PEREZ-ESCAMILLA, PHD	MEMBER
XAVIER PI-SUNYER, MD, MPH	MEMBER
ERIC B. RIMM, SCD	MEMBER
JOANNE L. SLAVIN, PHD, RD	MEMBER
CHRISTINE L. WILLIAMS, MD, MPH	MEMBER

ALSO PRESENT:

CAROLE DAVIS, CO-EXECUTIVE SECRETARY AND
DFO, USDA
KATHRYN McMURRY, CO-EXECUTIVE SECRETARY,
DHHS
RADM PENELOPE SLADE-SAWYER, PT, MSW,
DHHS

TABLE OF CONTENTS

	PAGE
Opening Remarks	3
Expert Presentations	
Adam Drewnowski	12
Frank Sacks	60
Patricia Crawford	102
Michael Hamm	135
Food Safety and Technology	175
Recess	214

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

2 (1:30 p.m.)

3 MS. DAVIS: Ladies and gentlemen,
4 good afternoon from Washington, D.C. Thank
5 you for standing by. I'm Carole Davis, the
6 Designated Federal Officer, and a USDA Co-
7 Executive Secretary to the Dietary Guidance
8 Advisory Committee.

9 I'm speaking on behalf of Dr.
10 Robert Post, who could not be here with us
11 today. Dr. Post is the Acting Executive
12 Director of the Center for Nutrition Policy
13 and Promotion of the United States Department
14 of Agriculture.

15 At this time, I would like to
16 recognize Rear Admiral Penny Slade-Sawyer
17 representing our partnership with the U.S.
18 Department of Health and Human Services in
19 working with the Committee.

20 We want to welcome you to this
21 webinar for the third meeting of the 2010
22 Dietary Guidance Advisory Committee. I would

1 like to give you a few reminders before we get
2 started.

3 This Committee is governed by the
4 Federal Advisory Committee Act or FACA. FACA
5 was established to assure that Advisory
6 Committees provide advice that is relevant,
7 objective, and open to the public, act
8 promptly to complete their work, and comply
9 with reasonable cost controls and
10 recordkeeping requirements.

11 Therefore, each public meeting has
12 been and will continue to be announced in the
13 Federal Register through a public notice.

14 As part of the open and
15 transparent process, the meetings of the full
16 Committee are open for observation by the
17 public. And any deliberations that occur
18 between meetings such as those in topic-
19 specific subcommittees are brought back to the
20 full Committee at a public meeting as you will
21 hear today and tomorrow.

22 During the meeting all public

1 participants will be in a listen-only mode.
2 The public has opportunities to participate in
3 the process by providing written comments to
4 the Committee through our online database at
5 www.dietaryguidelines.gov.

6 In addition to the rules of the
7 FACA, I would like to review some rules of
8 engagement for the Committee. The Dietary
9 Guidelines Advisory Committee members will
10 refer any individuals who contact them
11 personally to solicit information about their
12 work on the Committee to the Dietary
13 Guidelines Management Team.

14 Committee members are not able to
15 give presentations as a member of the
16 Committee about the Committee's work or speak
17 as a representative of the Committee as this
18 would be inconsistent with Advisory Committee
19 operations and would preclude the requirement
20 that the Committee's work is transparent to
21 the public.

22 We are very excited to be

1 broadcasting this message live via the web.
2 This new medium enables us to reach a more
3 varied audience of interested parties. We
4 have individuals from across the nation as
5 well as internationally participating today
6 and tomorrow.

7 I would like to review a few
8 technical points for the public. On your
9 screen, you see some relevant information. If
10 you experience technical difficulties, you may
11 contact WebEx Technical Support toll free at
12 1-866-229-3239. This information was also e-
13 mailed to all registrants as well as was a
14 technical assistance number for our
15 international participants.

16 The event staff here in the room
17 with us will be monitoring an e-mail line, so
18 to speak, where public participants can send
19 notes of any technical difficulties while the
20 meeting proceeds. As you see on the screen,
21 this e-mail address is tech_issue@yahoo.com.
22 So please note that the staff will not respond

1 to these e-mails. It is simply one of several
2 ways we are monitoring the streaming
3 efficiency of the meeting to the public.

4 This presentation is being
5 recorded. It will be available for replay for
6 approximately a year. All registrants will
7 receive information following the meeting
8 about how to access the archive.

9 After the meeting, you can also
10 visit our website, www.dietaryguidelines.gov
11 to request the archive.

12 We value your feedback on this
13 webinar meeting and after the meeting,
14 registrants will receive a follow-up survey.

15 As in that past, a transcript and
16 a written summary of this event will also be
17 posted to our website when available.

18 Because this meeting is being
19 streamed live to the public, I would like to
20 ask that the Committee members clearly state
21 their name before speaking. This is
22 particularly important to facilitate clear

1 deliberations to the public who are following
2 the discussion.

3 With that said, I'd now like to
4 turn the meeting over to the Chair of the
5 Dietary Guidelines Advisory Committee, Dr.
6 Linda Van Horn.

7 CHAIR VAN HORN: Thank you,
8 Carole. And this is Linda Van Horn. And I
9 would like to offer my welcome and thanks for
10 participation to the Committee as well as
11 those who support the Committee. And good
12 afternoon to our public participants who are
13 viewing on the internet today.

14 Since the second meeting of the
15 Dietary Guidelines Advisory Committee in late
16 January, the Committee has met several
17 milestones. Each of the seven topic area
18 subcommittees has prioritized their research
19 questions for scientific review of the
20 literature.

21 We also identified several areas
22 where outside expertise is needed. And we are

1 going to hear from those experts today and
2 tomorrow.

3 Each subcommittee has been
4 diligently working to move their scientific
5 reviews forward by gathering pertinent
6 information and clarifying their review plans.

7 In some areas, literature reviews have
8 already been completed and that information is
9 now being extracted and organized.

10 We will hear an update on the
11 status of their work from each of the seven
12 subcommittees over the course of the next two
13 days. Our Food Safety and Technology
14 Subcommittee will present later today and the
15 remaining six groups tomorrow.

16 We continue to have lively
17 discussions on several cross-cutting issues,
18 which we will cover throughout this meeting as
19 well as during the time that has been set
20 aside at the end of the day tomorrow.

21 To remind the Committee members,
22 because this meeting is open to the public,

1 again, please introduce yourself when you are
2 speaking so people can become familiar with
3 your voices.

4 We're on a very tight timeline
5 today and tomorrow so we're going to do our
6 best to stay on that timeline to be important
7 in assisting the public in following along
8 with this agenda.

9 With that, I'd like to plunge
10 right in to today's agenda. This afternoon,
11 we have the benefit of hearing from four
12 individuals on topics where the Committee felt
13 outside expertise would be highly valuable.
14 And I'd like to pay special thanks to these
15 four presenters who, on relatively short
16 notice, agreed to be here with us today. And
17 we truly appreciate this time and energy.

18 Our first presenter is Dr. Adam
19 Drewnowski. He is a world-renowned leader in
20 innovative research approaches for the
21 prevention and treatment of obesity.

22 He is the Director of the

1 Nutritional Sciences Program at the University
2 of Washington in Seattle and Professor of
3 Epidemiology with an adjunct appointment in
4 medicine and is a joint member of the Fred
5 Hutchinson Cancer Research Center.

6 Dr. Drewnowski is also Director of
7 the Center for Public Health and Nutrition and
8 the Center for Obesity Research.

9 Dr. Drewnowski's current research
10 is focused on the relationship between poverty
11 and obesity and the links between obesity and
12 diabetes rates in vulnerable populations and
13 access to those healthy foods.

14 He has conducted extensive studies
15 on taste function and food preferences in
16 relation to food choices and the overall
17 quality of the diet and has also conducted
18 epidemiological studies on dietary quality
19 both in the United States and abroad.

20 We are very grateful for your
21 willingness to join us here today. Thank you
22 and please begin.

1 DR. DREWNOWSKI: Thank you.

2 Good afternoon everyone. I want
3 to express my thanks to the Committee for
4 inviting me here to share my thoughts about
5 food, health and incomes. And to present
6 evidence on the economics of food choice
7 behavior in satiety that I hope will help
8 guide your deliberations in the future.

9 I think this is a historic
10 occasion. I think this Committee really has
11 unprecedented power to change the way that
12 Americans think about food, purchase food, and
13 use food to create healthier diets. But with
14 power comes challenges. And this Committee
15 faces also an unprecedented challenge.

16 I think in the past, many
17 committees looked at scientific evidence and
18 tried to point the way to healthiest, most
19 nutritious, most nutrient-dense foods.

20 The economic crisis has really
21 changed all that. There are many people
22 sliding into poverty. There are people trying

1 to make ends meet. There are people who
2 cannot afford many of the foods that are
3 recommended. What are we to do about them?

4 So we need to think not only about
5 nutrient-dense foods. This is a given. We
6 need to think about affordable nutrient-dense
7 foods and how they can be used by all segments
8 of the population to build healthier diets.

9 So I would like to bring a variety
10 of evidence to support my views. But I want
11 to start with full disclosure.

12 My research on food prices has
13 been funded by the U.S. Department of
14 Agriculture.

15 My research on diet quality and
16 diet cost was funded by the National
17 Institutes of Health and by the French
18 government.

19 Research on affordable nutrient-
20 dense foods has been funded by the Nutrient-
21 Rich Foods Coalition.

22 And research on satiety, which I

1 was asked to talk about as well, was funded by
2 a variety of industry sources both national
3 and international, Danone France, Sudzucker
4 Germany, General Mills, and the American
5 Beverage Association and the American Beverage
6 Institute.

7 I am about to answer the
8 Committee's five questions. I took the
9 liberty of rearranging them in the reverse
10 order because the fundamental question really
11 is: Is it possible to improve diet quality
12 while maintaining lower a diet cost?

13 And then I have evidence to show
14 the relation between food prices and diet
15 quality, further evidence to demonstrate links
16 between food costs, poverty, and obesity
17 because it is actually possible to be hungry
18 and overweight. It is not a contradiction in
19 terms.

20 And then I want to deal with the
21 relation between specific macronutrients,
22 sugar and fat, health outcomes, and body

1 weight.

2 And then one question that was
3 asked whether or not sugars, especially in
4 liquid form, contribute to obesity and is the
5 amount or the type of sugar responsible in
6 increasing national obesity rates. So I'll
7 deal with that issue as well.

8 But I want to take the broader
9 picture here. As you obviously realized, food
10 choices are driven by a variety of factors.
11 Yes, we do have taste, cost, and convenience.

12 Any marketer will tell you that. But there
13 are a number of other factors that come in.

14 Some segments of our society are
15 acutely sensitive to the issue of money, time,
16 and access. Simply, some foods are too dear,
17 not accessible, not available in given
18 neighborhoods. What are we to do to change
19 all that?

20 And then I say it with some regret
21 as a public health nutritionist, not enough
22 people have nutrition knowledge concerned with

1 health or let's not forget cooking skills. So
2 nutrition advice and dietary guidelines are a
3 hugely important part of the picture but we
4 need to take other factors, notably incomes
5 and prices and so on, into account.

6 And the various experts presenting
7 here today and coming in tomorrow will address
8 those issues. I'm actually encouraged that
9 the Committee is taking these broader issues
10 into consideration.

11 So this is my logic flow. This is
12 what my research shows. Research shows that
13 energy-dense foods, energy density defined as
14 calories per 100 grams, actually cost less per
15 calorie. They are cheap sources of calories.

16 They may be cheap sources of empty calories -
17 - more about that later -- but they are
18 certainly cheap sources of calories.

19 Such foods may contain added
20 sugars and added fats. Diets composed of such
21 foods are cheaper. It is not too much of a
22 leap to suggest that such diets are not only

1 cheaper but they are preferentially selected
2 by lower income groups who are obese and
3 increasing diabetic and increasing suffering
4 from metabolic syndrome.

5 So you see a connection here
6 between energy density of foods, food prices
7 per calorie, energy cost, the quality of the
8 diet, the type of the diet selected by given
9 consumers. And then, not surprising, poverty
10 and obesity are very closely linked.

11 So to support my viewpoint, I'm
12 going to use data from the U.S. Department of
13 Agriculture. And I actually I commend the
14 USDA for having come up with two datasets,
15 which I have been analyzing for the past year.

16 First of all, I have been using
17 the Food and Nutrition Database for Dietary
18 Studies, which lists nutrient composition of
19 all foods consumed by Americans in the
20 National Health and Nutrition Examination
21 Survey. This is the dataset for what we eat
22 in America, an exhaustive, good quality,

1 nutrient composition dataset from the USDA.

2 And then last year, the Center for
3 Nutrition Policy and Promotion released
4 another dataset of food prices, national food
5 prices from 2001/2002 linked to that dataset.

6 So by linking those two datasets, you can
7 actually start looking at the relation between
8 food quality, nutrient density of foods,
9 nutrient quality of diets, and their costs.
10 And this is what I want to present to you here
11 today.

12 I believe tomorrow Andrea Carlson
13 and Brian Wansink, who are actually at CNPP
14 developing these very data I will talk about
15 will present before you tomorrow.

16 So we have nutrient composition
17 data, which allows us to calculate energy
18 density and energy cost. And then those same
19 data can be used to calculate not only
20 nutrients per calorie but also nutrients per
21 unit cost. So this actually does open the
22 door to nutrient- and price-related research.

1 Now this is a slide which shows
2 you for three food groups, as defined by USDA,
3 the relation between energy density on the
4 vertical axis and energy cost. Now much has
5 been said about energy density of foods. Let
6 me demystify it for you.

7 Energy density of foods is related
8 inversely to the water, water content. Simply
9 put, energy-dense foods are dry. Foods of
10 low-energy density are hydrated. The range
11 goes from water, zero energy density per unit
12 weight to oil, 900 calories per 100 grams with
13 sugar in between.

14 So you have oils, 900 calories per
15 100 grams, spreads and butter, other spreads -
16 - mayonnaise, salad dressings, and so on. And
17 here you have sugars, dry cereals, cooked
18 pasta, and low-energy density but sweetened
19 beverages. Notice on this axis, you have cost
20 per 1,000 calories on algorithmic scale so
21 that each increment equals a tenfold increase
22 in cost.

1 So what you have here is oils and
2 sugar providing you with 1,000 calories for
3 approximately 20 cents or less at retail
4 according to the USDA. And more costly
5 desserts and other sweets over here.

6 But notice how this relation shows
7 you the link between energy density and energy
8 costs. When you start putting in other food
9 groups here, notice that you have lower cost
10 beans and eggs and nuts over here, meat in the
11 center, fish and shellfish over here, and
12 dairy products -- lower energy density yogurt
13 and milk and higher energy density cheeses.

14 You go to the next group of foods
15 and here you have vegetables and fruit.
16 Notice that energy density is lowest for salad
17 greens, mostly water. It goes here to fruit,
18 canned fruit in syrup, dried fruit with higher
19 energy density, white potatoes, fried potatoes
20 over here, higher energy density. But notice
21 again the issue of cost per 1,000 calories.

22 So when you put all food groups

1 together, you see an inverse relation between
2 energy density and energy cost of foods. You
3 can actually present it in a different way.
4 Rather than energy cost dollars per 1,000
5 calories, you can also show how many calories
6 you can get for a dollar.

7 Suppose you go to a supermarket.
8 You have a dollar in your pocket. What is the
9 food that gives you most calories for your
10 dollar? It is going to be obviously something
11 that contains added sugar and added fat. You
12 know it. I know it. There is a relation here
13 that is an inverse relation.

14 This relationship comes out more
15 strongly in the next few slides. The point I
16 want to make here is that we know about this
17 relationship but we usually talk about foods
18 on the left in terms of the added sugars, the
19 high fructose corn syrup, the high glycemic
20 index, the added fats, the trans fatty acids,
21 the energy density, the minimal nutritional
22 value.

1 And in many cases -- not all cases
2 but in many cases -- this is not far from the
3 truth. But we want to bring people over to
4 the right side, towards the fiber, the
5 vitamins, the minerals, the antioxidants, the
6 phytochemicals, all the good stuff. But very
7 often we forget that there is a huge disparity
8 in energy costs in the order of 1,000 percent.

9 So my suggestion is this. First
10 of all, we need to recognize the existence of
11 the cost barrier and somehow include it in our
12 dietary guidelines and recommendations. And
13 then live in the middle.

14 There are many foods here in the
15 center which actually do have high nutrient
16 density and are, in fact, affordable. And
17 foods in the middle include foods from every
18 food group. So, in fact, there are choices to
19 be made within every food group. They do
20 exist.

21 This is actually brought out
22 better on the next slide if you like log/log

1 plots. This one shows you a nice linear
2 relation between energy density on the log
3 scale and energy cost, also on the log scale.

4 Notice that yes, there is an overall inverse
5 relationship, which means energy-dense foods
6 on the whole are less expensive.

7 But if you look here in the
8 center, you can see that for any one level of
9 cost, you can go from high energy sweets to
10 low energy vegetables and fruits and dairy
11 products. At the same level of energy
12 density, you can go from less expensive foods
13 to more expensive foods. So there is really
14 plenty of choice within each food group. And
15 there are ways of pointing to and identifying
16 the affordable nutrient-dense foods within
17 each food category and food group. It does
18 not have to be all or nothing. And changing
19 the public's behaviors from over here to over
20 here.

21 A couple more things, all those
22 foods are not necessarily equally frequently

1 consumed. They are not all equally
2 acceptable. Some of them need to be cooked.
3 Some of them may require preparation. Some
4 are not part of the mainstream American diet.

5 All of those connections need to be made in
6 order to help people use these foods to create
7 and construct healthy diets.

8 So let me now move from foods to
9 diets because as I said before, some of these
10 foods are used to construct lower cost energy-
11 dense diets. And here what I want to show you
12 are some data from France, which actually
13 illustrate the point that low cost diets are
14 likely to be both energy rich and nutrient
15 poor.

16 What we did here was to take mean
17 French national food prices, attach them to
18 dietary intake data from 2,000 French adults,
19 calculate the cost of the diet at the
20 individual level, and then split the
21 population into equal quartiles.

22 So here we essentially followed

1 the same procedures as the epidemiologists do.

2 Just think of the cost of the diet as an
3 index of monetary exposure. This is not what
4 people paid for the diet. This is what the
5 diet intrinsically cost.

6 And once you start doing that, you
7 come across something quite interesting.
8 These are the diets -- let me just go back
9 here -- which cost four-and-a-half Euros per
10 day, five Euros per day, six Euros per day,
11 seven-and-a-half Euros per day. And this is
12 the cost per ten megajoules.

13 We go from lower cost diet --
14 here's a reference diet -- least cost diet --
15 to the highest cost diet. The highest cost
16 diets are nutrient rich. They do have lower
17 energy density. And you eat less. So you pay
18 more to eat less or you pay less to eat more.

19 But what you are paying less to eat more of
20 are going to be the added sugars and the added
21 fats.

22 And so the French study was just

1 replicated in two studies conducted in the
2 U.S., one in California, one in Seattle. The
3 California study was published last month in
4 the American Journal of Clinical Nutrition.
5 The Seattle study is getting published in a
6 few days in the Journal of the American
7 Dietetic Association. These French data were
8 essentially replicated.

9 The diets over here do have more
10 added fat and added sugar and saturated fat.
11 They are, in fact, cheaper and they are
12 consumed with people by lower education and
13 lower means.

14 But my studies are based on
15 relatively few people -- there are better data
16 that illustrate this issue. Economic
17 pressures drive consumer food choices towards
18 cheaper, more energy dense foods. And let's
19 not forget sweetened beverages.

20 Added sugars and fats do provide
21 more calories per dollar. Lost cost, energy-
22 dense diets naturally lead to overeating and

1 weight gain. So paradoxically, spending less
2 may mean eating more.

3 And the Committee has the question
4 about adherence to dietary guidelines. Diet
5 quality is, in fact, measured through
6 adherence of dietary guidelines.

7 The measures of diet quality, we
8 measure diet quality in terms of adherence of
9 dietary guidelines. Think of the healthy
10 eating index. That's what it measures.

11 So here this is our model which
12 was published a while back in a paper co-
13 authored with Steve Specter. We're saying
14 that as food costs go up or if food spending
15 diminishes, consumers or healthy Americans do
16 not want to eat less. They don't want to be
17 hungry.

18 So as a result, what they do is to
19 buy cheaper foods to get you the same number
20 of calories. So that immediately forces them
21 towards more energy-dense foods which provide
22 calories at a lower cost. But it also forces

1 them towards less nutrient-rich foods.

2 So in the end, they end up
3 consuming sugars and fats, higher energy-
4 density diets. And actually with higher
5 energy-density diets it is easy to overeat.
6 So rather than eat less, they end up eating
7 more. But those are, in fact, cheaper, empty
8 calories.

9 So the question then becomes what
10 can we do about it and how can we intervene?
11 This is the critical issue. And few people
12 have data showing that lower quality diets are
13 consumed by lower income groups. The best
14 data on this topic actually do not come from
15 my laboratory or from my center. They come
16 from Tom Frieden, the Health Commissioner for
17 the City of New York.

18 The New York City Community Health
19 Survey surveys approximately 10,000 people
20 regarding their diets and health. And so what
21 I have here are data from this study published
22 in the Journal of Urban Health. They studied

1 asked about frequent consumption of soda
2 defined as consumption of at least one serving
3 -- 12 ounce serving -- of soda per day.

4 And what we have here is fairly
5 instructive. Notice that consumption --
6 frequent consumption of soda in New York City
7 was linked to being male, young, minority --
8 Puerto Rican, Mexican, U.S.-born African
9 American. Consumption of soda was linked to
10 poverty, high poverty, low poverty, to low
11 education, high prevalence of TV watching and
12 yes, it was linked to obesity.

13 But the socioeconomic gradient is,
14 in fact, stupendous. So adjusting for
15 demographics, frequent soda consumption was
16 associated with TV viewing and less physical
17 activity. Adjusting for demographics and
18 behaviors, frequent soda consumption was
19 associated with higher BMI for women but not
20 for men.

21 But what was interesting here is
22 that the demographics of soda consumption,

1 demographics of obesity or the location of
2 obesity and those of poverty were, in fact,
3 identical.

4 So now I want to show you
5 something unusual because no one really has
6 data of specific consumption by geographic
7 location. I suspect the industry does that
8 but I have not seen it myself.

9 So here is now prevalence of
10 frequent soda consumption in New York City by
11 New York City boroughs by geographic location.

12 What you see, obviously, is that highest
13 prevalence of frequent soda consumption was in
14 East Harlem, Harlem, Morningside Heights,
15 Brooklyn, and Bedford-Stuyvesant. These are
16 the areas of deprivation and poverty.

17 These were, of course, areas of
18 highest obesity prevalence, as indicated by
19 the same study. Again, you see Harlem, South
20 Bronx, Bedford-Stuyvesant, and parts of
21 Brooklyn and Queens. So you have geographic
22 location of soda consumption, poverty, and

1 obesity.

2 And I just have maps of Manhattan
3 showing you poverty distribution of Manhattan
4 in relation to obesity. Take a look at data
5 from an earlier New York City Department of
6 Health and Human Hygiene dataset.

7 What you see here is that the
8 prevalence of obesity quadruples the moment
9 you cross 96th Street. So going from the
10 Upper Eastside, prevalence of obesity at seven
11 percent to East Harlem, obesity prevalence
12 quadruples.

13 There is a direct relation between
14 obesity and poverty, percent of families below
15 poverty and obesity rates over here. And then
16 when you come to diabetes, you see a relation
17 that is even stronger. Diabetes rates
18 increase sevenfold by going from the Upper
19 Eastside to Harlem.

20 And the relation here is extremely
21 strong just from Manhattan. R is ².87. So as
22 a result, you see a complete continuity

1 between consumption of a specific diet,
2 poverty, and obesity.

3 And Manhattan and New York City
4 are not exceptions. I have similar data now
5 for Seattle, where we're now able to plot
6 rates of obesity, diabetes, and metabolic
7 syndrome by census tract. And the social
8 disparities are immense.

9 So let me now move to the logic on
10 how we're thinking about those things because
11 it seems to me that in trying to link specific
12 macronutrients or specific foods to ill health
13 outcomes, to ill health and adverse health
14 outcomes, we are forgetting the important
15 contribution of poverty, social disparities,
16 unemployment, lack of health insurance, under-
17 served neighborhoods. All of those things are
18 part of the picture and part of the package.

19 It actually reminds me some years
20 ago USDA came under attack from Doug Besharov
21 on the pages of Washington Post because he
22 accused the USDA of fattening the poor. You

1 may remember that.

2 The argument was kind of strange.

3 The argument was that poor people receive
4 food assistance. Poor people are obese.
5 Therefore, food assistance must have made them
6 obese.

7 Now I, of course, disagree with
8 that but I'm thinking to some extent, we're
9 following similar logic. We're saying okay,
10 poor people do buy energy-dense diets. Yes,
11 they do. They do drink low cost sweetened
12 beverages. Yes, they do. They are obese.
13 Yes, they are.

14 Did a specific macronutrient make
15 them obese? Or was it really something else?

16 And there are two possibilities. The
17 Committee wanted me to address the issue of
18 satiety. One theory is that liquid sugars
19 fail to promote satiety. My theory is more
20 economic and more addressed in the next slide.

21 Take a look at this. This is in
22 the paper that was circulated in the

1 epidemiologic reviews. Notice that the foods
2 or the beverages on the top have become in the
3 popular mind associated with obesity. Cola,
4 sweetened drinks, caloric drinks, and so
5 on.

6 The beverages on the bottom, the
7 100 percent fruit juices, the freshly squeezed
8 fruit juices have been associated with good
9 health. And in some cases, Slimfast -- this
10 is the original Slimfast formula and the
11 current one, they have been associated with
12 weight loss.

13 The eye-opening thing is that the
14 amount of sugar is exactly the same. The
15 price of sugar isn't. The economic access
16 isn't. The amount of sugar is exactly the
17 same.

18 So my thought is to not forget the
19 issues of economics, the price of various
20 foods, the limitations of who buys what foods
21 and beverages and why, and what the
22 combination of those factors has on their

1 health.

2 So let me just digress here for a
3 minute to answer specifically the question on
4 satiety because the alternative mechanism
5 suggested by a number of people has been that
6 liquid beverages promote excess calorie intake
7 because they have no satiating power. And the
8 human body is incapable of proceeding liquid
9 calories.

10 So here, all of us who work in
11 this field use the same type of a research
12 design. This is the well-known preload study
13 design. What generally happens is that
14 subjects -- these are experimental studies
15 done in the laboratory -- come into the
16 laboratory, consume a solid or a liquid
17 preload. And then they are given a meal
18 immediately afterwards or maybe two hours
19 later.

20 The size of the meal presented
21 immediately afterwards is a measure of
22 satiation. The size of the meal presented two

1 or three hours later is a measure of satiety.

2 In rare cases, subjects go home and record
3 what else they ate during the rest of the day.

4 And if we're looking at satiety,
5 we're also measuring appetitive behavior, in
6 other words hunger and fullness and these are
7 to eat and thirst at 20-minute intervals until
8 the next meal.

9 Now I think it is probably fair to
10 say that the issue is unresolved. Studies
11 conducted by Harry Kissileff at Columbia
12 showed about 20 years ago that soups, liquids,
13 were more satiating than solids.

14 Sometimes I kind of feel those
15 studies were underappreciated and not
16 sufficiently credited at the time. They are
17 classic studies on satiety and how to measure
18 satiety.

19 Then about 15 years later, there
20 came out reports that solids, jelly beans,
21 were more satiating than sugared liquids cola
22 so that complete compensation was observed

1 following ingestion of jelly beans and no
2 compensation whatever was observed after
3 drinking soda.

4 Since that time, this same lab,
5 the Dr. Mattes' Lab at Purdue, came out with
6 some other studies on watermelon juice versus
7 solid watermelon, solid apples versus apple
8 juice. And the results were somewhat
9 inconclusive.

10 In some cases there was an effect
11 on intake but no effect on hunger rating. In
12 other cases, there was an effect on hunger
13 rating and no effect on intake. And then the
14 difference between the solids and the liquids
15 was no longer seemingly zero versus 100
16 percent. It was more like six versus 24
17 percent compensation, which is really not the
18 same thing.

19 So I just want to show you very
20 briefly two of our own studies where we
21 compared cola and cookies. The thing to
22 notice here is that calories are exactly the

1 same -- 300 calories. Volume is vastly
2 different -- 87 grams, 700 milliliters, mostly
3 sugar. The cookies were fat free so there is
4 no fat. Small amounts of fiber and protein
5 over here but nothing very much.

6 And then we'll look at hunger,
7 satiety, and thirst profiles. And an
8 exceptional finding here, cola did suppress
9 thirst, cookies did not.

10 But this just goes to show that
11 the scales worked. Subjects were correctly
12 recording their thirst.

13 And so it gives us confidence that
14 when we come to fullness and hunger, the same
15 subjects, the same condition, the same scales,
16 are telling us correctly that there was
17 absolutely no difference in satiety between
18 the liquid cola and the solid cookies. Both
19 spoiled appetite if given just before lunch.

20 The next study we did on this
21 topic compared cola, juice, and milk. The
22 advantage here is that all those beverages

1 have the same energy density and provide the
2 same number of calories per 100 grams. We
3 usually give a lunch to our subjects.

4 And let me just show you here, the
5 bottom line is there was no difference
6 whatsoever between the three caloric
7 beverages. Soda, juice, and milk, one percent
8 milk, suppressed hunger and promoted fullness
9 to the exact same extent.

10 But, of course, notice that
11 subjects were sensitive to the calories in
12 caloric liquids as opposed to just plain
13 sparkling water with no calories. So the
14 human body's desire to eat is actually
15 sensitive to calories provided in solid or in
16 liquid form.

17 We have now found similar results
18 with liquid yogurts which contain more protein
19 and there may be a higher satiating impact of
20 yogurts. Our subjects are clearly capable of
21 perceiving the calories in yogurt.

22 But -- and this is where more

1 research does need to be done -- none of those
2 beverages led to any suppression at lunch.
3 Our subjects came in, ate as they always do.
4 So that at the end of the day, a caloric
5 beverage plus lunch led to more total calories
6 than lunch and plain water.

7 But there was no difference
8 between the different kinds of beverages. And
9 no difference between the cola, the orange
10 juice, and the milk.

11 So let me now move on to this
12 other issue, trying to bring back the
13 economics, the macronutrients, and the food
14 choices together in a kind of cohesive way and
15 in a way that may be useful to you.

16 And here I want to say -- take a
17 step back and say well, if we accept that
18 there is this confound between the consumption
19 of cheap macronutrients, inexpensive
20 macronutrients, added sugar and added fat,
21 poverty, and ill health, will limiting access
22 to those, by itself, automatically lead to

1 healthier diets?

2 Or should we take a more direct
3 approach and try instead to identify foods
4 that are nutrient dense, affordable,
5 accessible, and let's not forget appealing?
6 So do we approach things by removing and
7 limiting? Or do we approach our task by
8 pointing to appropriate options?

9 And so here I have some recent
10 data which is about to be submitted for
11 publication from Victor Fulgoni, my colleague
12 who has been working on looking at the quality
13 of diet of participants in the National Health
14 and Nutrition Examination Survey from two
15 standpoints.

16 What we did here was to create an
17 avoidance index based on the diet content of
18 added fat -- no, of added sugar, saturated
19 fat, and sodium. We called it an index or a
20 score based on nutrients to limit. And then
21 we used the nutrient density approach which
22 was more mixed. We're using nutrients to

1 encourage and nutrients to limit, both.

2 So what I want to show you here is
3 the type of diets that -- I want to show you
4 how the two types of scores discriminate
5 between the quality of the diets of
6 participants in the NHANES study.

7 We calculated mean scores for each
8 person and the participants were split into
9 five equal groups based on their scores. So
10 here let me just take you through the first
11 slide.

12 This score is based on avoidance.
13 It does have the added sugar and the
14 saturated fat and sodium.

15 So the bottom quintile, these are
16 the people who had least added sugar, least
17 saturated fat, and least sodium in their diet.

18 And these are people who have the most. And
19 this is the score based on nutrient density of
20 foods, which includes nutrients to encourage
21 and nutrients to limit.

22 So a score which is low in sugar,

1 low in saturated fat, is higher in vitamin C
2 intakes but not by much, which means that
3 limiting problematic nutrients does not, by
4 default, necessarily lead to healthier diets.

5 On the other hand, the other
6 approach does reliably discriminate between
7 diets which are low in vitamin C and those
8 that are high in vitamin C.

9 And here we have the same picture
10 for vitamin A. Again, better discrimination
11 in terms of diet quality and adherence to
12 dietary guidelines. We see the same thing for
13 calcium intakes, the better step-wise
14 approach, again reflecting better compliance
15 with dietary guidelines and higher diet
16 quality.

17 The same thing appears for food
18 groups. Notice again that diets which are
19 lowest in saturated fat and lowest in added
20 sugar are not necessarily that much higher in
21 vegetables. This score does a better job.

22 And then here we have fruit

1 consumption. Those scores do a nice job. And
2 what's interesting here, moving past no
3 consumption is that the total energy
4 consumption is actually lower for the most
5 nutrient-dense diets.

6 So this is interesting because
7 that confirms the French data and it also
8 confirms the data from Seattle and from
9 California. The more nutrient dense a diet is
10 actually the less you eat.

11 So let me just kind of start
12 wrapping here. Going here from energy density
13 to nutrient density, we can focus our dietary
14 guidelines and dietary advice on nutrient-
15 dense foods.

16 Nutrient density provides a better
17 approximation of diet quality and extra
18 calories that people consume than, in fact,
19 scores or indices or advice based on saturated
20 fat, sugar, and salt. The avoidance approach
21 has been telling people what not to eat.

22 What I'm suggesting is that we

1 rephrase our approach and actually focus on
2 constructing affordable, healthier diets. We
3 cannot assume that limiting access to any one
4 nutrient, complicated as it is by incomes,
5 cost, poverty, and so on, will result in
6 healthier diets.

7 What we need to do is to show the
8 public the way to identify affordable,
9 accessible, nutrient-rich foods. So, yes,
10 going back to my initial fundamental question,
11 yes, it is possible to improve diet quality
12 while maintaining or reducing diet costs but
13 only if we help the public identify
14 affordable, accessible, appealing foods within
15 each food group. And also tell them what to
16 do with it.

17 I cannot overemphasize the
18 importance of nutrition education and cooking
19 skills. To some extent, it does come down to
20 access, money, knowledge, and time.

21 And limiting low-cost foods may
22 not necessarily give us the answer that we

1 seek. Rather promoting affordable choices is
2 where we want to go.

3 So thank you for your attention.
4 I'll be very happy to answer the Committee's
5 questions.

6 CHAIR VAN HORN: Thank you very
7 much for that excellent presentation. Thank
8 you very much. This is Linda Van Horn
9 speaking.

10 We have about ten minutes. If it
11 is all right, we'll just open the floor to
12 questions from the Committee members.

13 Mim, you look like you have a
14 question.

15 MEMBER NELSON: This is Mim
16 Nelson. Thanks, Adam, very much.

17 I guess two questions. First is
18 I'm thinking of, you know, your graph with the
19 cost per 1,000 calories. And that, you know,
20 green leafy vegetables get a really bad score
21 there.

22 But is that the -- I'm not

1 questioning -- I think that -- I completely
2 buy into your argument. But when we think of
3 something like green, leafy vegetables, we may
4 not want to be eating a thousand calories of
5 them. That we're only going to get 100
6 calories of them or 50. That, you know, the
7 cost of the 50 calories of a green, leafy
8 vegetable is actually not that -- maybe that
9 expensive.

10 So is that something that should
11 enter --

12 DR. DREWNOWSKI: Yes.

13 MEMBER NELSON: -- that's sort of
14 the first --

15 DR. DREWNOWSKI: Of course. You
16 are a step ahead of me because we're now
17 joining the nutrient composition data and the
18 food price data to actual diets of
19 participants in the National Health and
20 Nutrition Examination Survey.

21 MEMBER NELSON: And then you can
22 look more at that.

1 DR. DREWNOWSKI: Then we can look
2 at --

3 MEMBER NELSON: Got it. Right.

4 DR. DREWNOWSKI: Exactly. The
5 diets with higher consumption of different
6 types of vegetables and fruit and look
7 specifically at their costs.

8 MEMBER NELSON: Right.

9 DR. DREWNOWSKI: We're in the
10 process of doing that. And I believe USDA is
11 also in the process of joining those two
12 datasets together for similar type research.

13 MEMBER NELSON: Okay. So --
14 thanks, that's great.

15 The next one is more a sort of --
16 I don't know -- we've been talking a lot in
17 our committee about the effect of the
18 environment in its fullest sort of range.

19 And thinking about the data in New
20 York that you presented and with sodas -- and
21 I'm not saying I'm an advocate of sodas
22 necessarily but is it -- how -- if there are

1 so many factors that go into what foods are in
2 those environments that are beyond sort of the
3 personal choice of, you know, I want a soda
4 versus I want something else.

5 And so how influential is poverty
6 or low income versus literally, you know, the
7 schools are different in that part because,
8 you know, the parents have advocated to get
9 the soda machines out of the other schools.
10 So availability becomes an issue.

11 And so is it that simplistic to
12 think of it from an economic point of view
13 versus there are so many other factors of what
14 foods are in those neighborhoods?

15 DR. DREWNOWSKI: That's an
16 excellent question. It's not simplistic at
17 all. It is very, very complex.

18 Environment has much to do with it
19 for a number of reasons from the purchasing
20 power of the neighborhood to the type of foods
21 which are stocked in a given neighborhood, to
22 access and transportation, to the quality of

1 schools, and so on.

2 And this is for this reason that
3 our Center for Public Health and Nutrition in
4 Seattle is very closely working with urban
5 planners, urban designers, economists,
6 transportation specialists who have taken
7 things out of nutrition and epidemiology,
8 really moving into public health and policy.

9 But what you are really
10 fundamentally saying is that these choices are
11 beyond any individual control.

12 MEMBER NELSON: Right. It's not
13 about personal choice.

14 DR. DREWNOWSKI: It's not about
15 personal choice.

16 MEMBER NELSON: Right.

17 DR. DREWNOWSKI: We're completely
18 together on that. And I would actually go
19 further and say to some extent, some segments
20 of our society actually have no choice or very
21 limited choice. And what can we do to make
22 sure that they do, indeed, have access to --

1 MEMBER NELSON: Right.

2 DR. DREWNOWSKI: -- nutrient-rich
3 foods. How can we do that? Because merely
4 suggesting ``have leafy greens`` may not do it.

5 MEMBER NELSON: Right.

6 DR. DREWNOWSKI: We need to be
7 much more subtle and nuanced about that and
8 say this is the way really to go step by step,
9 taking into account preferences, culture,
10 access, cost, transportation. All of those
11 things are hugely important.

12 MEMBER NELSON: So it may be that
13 the cost issue is more related to just the
14 fact that they live in those environments
15 versus that they have limited income
16 themselves? I mean if they had limited income
17 and they lived down, you know, in the 50s
18 midtown, maybe the -- if they, for some --

19 DR. DREWNOWSKI: Did you say that
20 people with limited incomes who live on Park
21 Avenue --

22 MEMBER NELSON: No, but I'm just

1 saying that -- I mean I'm using a hypothetical
2 example but if that person with limited income
3 actually lived in a different neighborhood,
4 their food intake might be quite different.

5 DR. DREWNOWSKI: They would have
6 access to better foods, which --

7 MEMBER NELSON: Yes.

8 DR. DREWNOWSKI: -- means they
9 would have physical access in --

10 MEMBER NELSON: Yes.

11 DR. DREWNOWSKI: -- terms of
12 proximity. What we're doing right now in
13 Seattle is trying to distinguish between
14 physical access and economic access --

15 MEMBER NELSON: Yes.

16 DR. DREWNOWSKI: -- because you
17 may be living next door to Whole Foods --

18 MEMBER NELSON: Right.

19 DR. DREWNOWSKI: -- or to another
20 --

21 MEMBER NELSON: Yes.

22 DR. DREWNOWSKI: -- excellent

1 store but it doesn't really help you if you
2 can't afford to walk through the door. And
3 many people can, some people cannot. Again,
4 what to do.

5 So it is a question of
6 differential access. I agree with that. I
7 think it is an issue for agricultural
8 economists and the issue of what food supply
9 system --

10 MEMBER NELSON: Yes.

11 DR. DREWNOWSKI: -- to assure
12 access to healthy foods.

13 MEMBER NELSON: Right.

14 DR. DREWNOWSKI: I think it is a
15 very important issue.

16 CHAIR VAN HORN: Thank you.

17 I think Larry has a question. And
18 then Eric.

19 MEMBER APPEL: Yes, this is Larry
20 Appel. Great presentation.

21 I want to follow up on that access
22 issue. Janet King, who led the Committee five

1 years ago, commented that, you know, they set
2 up, you know, farmers markets in Berkeley, you
3 know. And so there was access. But there was
4 very limited uptake.

5 I live or I work across the street
6 from a market that has the best food in the
7 world as well as the worst food in the world
8 and so there is access. But I see very stark
9 differentials.

10 So I'd like to have you comment
11 more about this access issue because I
12 actually think that that might be perhaps
13 overblown as a solution to this problem.

14 DR. DREWNOWSKI: Now thank you for
15 the question. My specific bias here is that I
16 believe in assuring economic access. I think
17 we've all talked about physical access and
18 proximity. Physical proximity to either fast
19 foods or supermarkets will determine your
20 health.

21 I really don't think so. I really
22 think that economic access and being able to

1 walk through the door really is what matters.

2 I really do think that in Seattle, for
3 example, we do not have food deserts. And
4 there are supermarkets serving both low income
5 groups and upper income groups.

6 And they buy different foods just
7 like you say, because they have access to
8 different -- it is a differential economic
9 access.

10 But let me again emphasize the
11 notion of knowledge, money, and time. My
12 belief is that you can eat well if you have
13 some combination of knowledge, money, and
14 time.

15 If you have knowledge and time,
16 you can do with less money. So nutrition
17 education and cooking skills will get you by.

18 If you have time and money, you have no
19 problem.

20 But a number of people in our
21 society are zero for three. And that's a
22 problem. What can we do? And how can we then

1 make sure that they do not fall outside of our
2 recommendations and guidelines. We want to
3 include everybody. How do we do that?

4 So knowledge, money, and time.
5 And dietary guidelines do provide the
6 knowledge, the information. They don't
7 provide the money. But that can be taken care
8 of through other ways.

9 CHAIR VAN HORN: Eric, did you
10 have a question?

11 MEMBER RIMM: Yes, this is Eric
12 Rimm.

13 I was going to add something very
14 similar to Larry because I thought I had heard
15 anecdotally or seen pilot studies where they
16 tried to make fruits and vegetables
17 essentially free through a food stamp program.

18 DR. DREWNOWSKI: Yes.

19 MEMBER RIMM: And people still
20 didn't access them. And it's sort of what
21 Larry is saying. And I guess it ties into
22 what I thought you were implying initially is

1 that people buy soda because they need cheap
2 calories. Or soda was your example. But I
3 think it may be a lot more than that.

4 I mean you started to say that.
5 But I'm hoping we don't walk away from here
6 saying the only reason people buy soda is
7 because they have to and they need cheap
8 calories. It seems like it is much --

9 DR. DREWNOWSKI: Well --

10 MEMBER RIMM: -- much more
11 complicated than that.

12 DR. DREWNOWSKI: Of course.

13 MEMBER RIMM: And if you give
14 people free spinach and you give people --
15 even if you may teach them how to use it or
16 give them food stamps or access to it, that
17 there still is a differentiation of what
18 people desire based on culture or based on
19 access to television, based on all sorts of
20 other cultural exposures.

21 DR. DREWNOWSKI: There are, of
22 course, issues of food preference and taste.

1 And let's face it, some of the energy-dense
2 foods do taste good. I can't deny that. Yes,
3 they do.

4 And I want to say that the USDA
5 pilot program for schools providing free
6 vegetables and fruit was actually, by all
7 accounts, a great success at least in the
8 state of Washington.

9 And now the new WIC program is
10 allowing certain amount of fresh vegetables
11 and fruit as part of the WIC package. And
12 we'll see what success that has. So yes,
13 there are programs. And I wouldn't be
14 pessimistic. They do have some degree of
15 success.

16 But in some cases, it really is
17 the knowledge and cooking skills. People get
18 their kale but they don't necessarily know
19 what to do with it. And other foods become
20 cheaper, tastier, more available.

21 MEMBER RIMM: Are those data
22 published yet? The success of some of those

1 programs?

2 DR. DREWNOWSKI: I have not seen
3 those. I have seen one report from USDA about
4 this topic. I think it is time to publish
5 those. The evaluations are very important.

6 MEMBER RIMM: I think that would
7 be very important.

8 CHAIR VAN HORN: Thank you so
9 much.

10 We're going to need to move on to
11 our next speaker.

12 DR. DREWNOWSKI: Thank you.

13 CHAIR VAN HORN: But that was an
14 excellent presentation. And so that we don't
15 burst the eardrums of people listening in, we
16 will not applaud. But please accept our
17 gratitude.

18 It's my pleasure to introduce our
19 next speaker, Dr. Frank Sacks. Dr. Sacks is
20 Professor of Cardiovascular Disease Prevention
21 in the Department of Nutrition at Harvard
22 School of Public Health.

1 He is a Senior Attending Physician
2 at Brigham and Women's Hospital and Professor
3 of Medicine at Harvard Medical School.

4 Dr. Sacks is involved in research
5 and public policy in nutrition, cholesterol
6 disorders, hypertension, and cardiovascular
7 disease.

8 He is the Chair of two NHLBI-
9 sponsored trials, the POUNDS LOST trial that
10 we'll hear about today and the OmniCarb Trial.

11 He is a member of the new NHLBI
12 Clinical Guidelines for Cardiovascular Risk
13 Reduction first expert panel.

14 And it is my pleasure to introduce
15 Dr. Frank Sacks who will tell us more about
16 POUNDS LOST.

17 DR. SACKS: Okay. Thank you,
18 Linda.

19 I appreciate the opportunity to be
20 here. And to share with you some new findings
21 on dietary macronutrients and weight loss, and
22 to just cover some previous trials, an

1 overview of the state of the macronutrients
2 weight loss topic, discuss the behavioral
3 components of success in weight loss.

4 And then I was asked, at the end
5 to discuss the issue of sodium and
6 particularly the dose effect of sodium on
7 blood pressure and issues relating to what the
8 appropriate target would be for sodium intake.

9 So I am going to go through some
10 of these slides very fast. So I guess I'm
11 told that we have an absolute limit on time.
12 So excuse me for some of that.

13 All right. So first I'm going to
14 discuss low-fat diets, the background to that.

15 Now the longtime paradigm is that low fat,
16 high carbohydrate diets will promote weight
17 loss or prevent weight gain for a variety of
18 metabolic reasons.

19 Now that paradigm has been called
20 into question but I do think there is some
21 validity to it. For example, vegetarians eat
22 low fat but lots of -- but the carbohydrate-

1 rich foods are full of vegetables, whole
2 grains, and so forth.

3 And they are much -- they lose
4 weight. And there is no question this kind of
5 diet can promote weight loss even if you
6 aren't even trying to lose weight because this
7 population was not trying to lose weight.
8 They just lost weight. And so that paradigm
9 can work in certain, you know, with a certain
10 type of high carbohydrate, low fat diet.

11 The same sort of thing in coronary
12 patients in San Francisco, remarkable
13 sustained weight loss, 22-pound difference
14 against the control group. Again, very low
15 fat, high carbohydrate vegetarian diet full of
16 foods that I suppose are very nutrient-rich
17 but also very rich in fiber.

18 And the carbohydrate is low
19 glycemic index for a lot of the carbohydrate-
20 rich foods. So in certain selected
21 populations, I think this paradigm works very
22 well.

1 Now in the larger population or
2 when you just select from the general
3 population, it doesn't necessarily work so
4 well. So here is also a strict vegetarian,
5 vegan study, by Neal Bernand in that group.

6 And they randomized patients to a
7 vegan group or a standard low fat group for
8 weight loss, gave some of them support, a lot
9 of sustained support and contact, encouraged
10 them to be on the diet, and the vegan group
11 lost a little more weight than the standard
12 low fat group did, but only if they were given
13 sustained support.

14 So I just want to make that point
15 that certainly in these researchers' hands,
16 the vegan group did a bit better than the
17 standard low fat group. However, the second
18 dimension of these results are that without
19 any support, neither group did well at all.
20 So that support is extremely important.

21 So now let's move to the opposite
22 type of diet, a low carbohydrate diet. And

1 we've had a lot of different studies. And you
2 can see a pattern where in the first few
3 months, the low carb -- Atkins -- this is an
4 Atkins diet, the low carb Atkins diet promotes
5 weight loss but then that weight is regained
6 faster than a conventional low fat diet. And
7 at the end, there was no significant
8 difference at the 12-month point.

9 Okay, another study, similar,
10 rapid weight gain of the Atkins diet, regain
11 from six to 12 months such that at the end,
12 there was no difference in weight loss between
13 the Atkins and the conventional diet.

14 In fact, if you carry out those
15 trajectories, you would imagine that in
16 another few months there would be really no
17 difference between groups. And they might
18 even cross over and give an opposite result.

19 So very important to continue
20 these studies until we can get some sense of
21 the long-term results.

22 Now here, comparison of four

1 diets. The Atkins diet is the bottom line
2 compared to three other types of diets,
3 including its opposite diet, the Ornish high
4 carbohydrate, low fat diet. Again, as you
5 see, there's rapid weight loss in the Atkins
6 diet. More regain.

7 And at the end of that study,
8 there was no significant difference, according
9 to the author's original protocol, between
10 these different diets.

11 Okay, so now how about yet another
12 type of diet, a Mediterranean high fat diet.
13 All right. This is a study that I did with
14 Kathy McManus. And wanted to see whether
15 people could lose weight on a high fat
16 Mediterranean-style diet. And indeed they
17 did.

18 Compared to a low fat diet, weight
19 loss was the same at six months. Pretty much
20 the same at 12 months. But at 18 months, the
21 Mediterranean group sustained the weight loss
22 whereas the other group regained a lot of the

1 weight.

2 Now also adherence at 18 months
3 was much better and participation was much
4 better in the Mediterranean group. And here's
5 a result that other weight loss trials have
6 found that it is good to stay in these
7 programs.

8 The drop outs, regardless of
9 whether they were on low fat or Mediterranean,
10 had a gain of nine pounds over 18 months.
11 Those staying in the program, regardless of
12 whether it was low fat or Mediterranean, lost
13 11 pounds. So, again, participation seems to
14 be very, very important in these studies.

15 Very recently yet another study
16 compared three diets. The lower curve here is
17 the Atkins diet. And, again, just like the
18 previous studies, you see rapid weight gain at
19 about six months. But then rapid regain.

20 So that at the end of the study,
21 at two years, you see an absolutely similar
22 weight loss in two very different diets, the

1 Atkins diet and the Mediterranean diet,
2 somewhat superior to a low fat diet. There
3 were more dropouts in the Atkins diet so that
4 is an interesting result.

5 Okay, so how do we interpret this
6 big collection of findings? Well, one, the
7 certainly divergent results that each diet
8 type in the hands of some investigators showed
9 the superiority of other types.

10 There is no obvious pattern of
11 results across this collection of studies.
12 And with the Atkins diet, superiority in the
13 first few months was often not sustained by
14 one to two years. In fact, in no study was
15 there truly a statistically significant
16 difference between Atkins and the comparator
17 studies that went out to a year.

18 All right. So what were some
19 limitations in some of these studies? Here is
20 a whole host of limitations that were
21 discussed and written about by colleagues.
22 But I'll say I think what is very important to

1 say I think lack of information on adherence
2 is one of the most important problems in some
3 of these studies. If you don't know what
4 their participants were eating, you really
5 don't know if the recommended diet did
6 anything. Or whether it was some other aspect
7 of the program.

8 A large percentage of dropouts,
9 some had 50 percent dropouts. So it's no
10 longer a valid randomized trial if you lose
11 half the participants. It becomes something
12 else, some other kind of research design like
13 observational.

14 And, very important: novelty of
15 one of the diets, media attention. It is
16 marketing. There are certain biases that can
17 enter into a trial that may not be so well
18 intended and may not be perceived. And I've
19 had that happen with a study I did on the
20 Mediterranean diet some time ago. There were
21 subtle biases that fit in so that I do think
22 that regardless of a researcher's good

1 intentions, sometimes equipoise is not
2 achieved in weight loss trials. And sometimes
3 that leads to a result that's, you know, in
4 line with the researchers' hypotheses, but it
5 may not be a generalized result.

6 All of these considerations lead
7 us to propose to the National Heart, Lung, and
8 Blood Institution a trial that we call the
9 POUNDS LOST trial. And that was done at
10 Harvard and also done at Pennington. And
11 George Bray was my partner in doing this study
12 along with a very, very terrific group of
13 researchers at both institutions.

14 So we randomized 811 people to
15 four diets. So I'd like to describe this
16 trial in some detail and give you a sense of,
17 I think, where we're at with the macronutrient
18 hypothesis and what future directions might
19 be.

20 So two of these diets were low in
21 fat, 20 percent, and two of the diets were
22 high in fat, 40 percent. So there were 400

1 people in low fat and 400 in high fat.

2 Now within those categories of
3 fat, half of them were taught a diet that is
4 15 percent protein. Half of them, 25 percent
5 protein. And then if you look at the
6 carbohydrate content, embedded in this design
7 is a dose response study of carbohydrates from
8 65 percent down to 35 percent of calories.

9 Now in designing these diets, we
10 designed them with similar foods but in
11 different proportions. And no diet was a
12 control diet. No diet was considered a bad
13 diet. All diets were done -- were composed
14 with healthful guidelines such as those of the
15 American Heart Association's guidelines.

16 So if we look at the comparisons
17 then, this is a factorial study, about 400 per
18 group, dietary fat level, 20 versus 40,
19 dietary protein 15 versus 25. Carbohydrate,
20 65 down to 35 with a linear dose effect
21 hypothesized.

22 All right. Now I'd like to

1 describe in some detail what the program is
2 for weight loss -- the macronutrient targets
3 with a paramount teaching objective. We
4 wanted participants to hit the macronutrient
5 targets.

6 So we specified menus for two week
7 cycles for each group. They knew they were
8 going to do this. We showed them examples
9 coming in.

10 We gave them motivational,
11 psychological questionnaires, and so forth --
12 really wanted people who were fully informed
13 about what they were getting into, knew what
14 it was about, and were motivated. And we had
15 behavioral psychologists like Don Williamson
16 devise that.

17 Participants were taught to follow
18 meal plans exactly. Energy reduction bills
19 750 kilocal, doubly-labeled water showed that
20 it was about 300 to 400 calorie reduction
21 achieved at six months.

22 Okay, physical activity goal, 90

1 minutes per week, same technique and intensity
2 was used in all groups. And this is what we
3 did -- a lot -- to keep these people in.

4 We had group sessions three out of
5 every four weeks for six months then two out
6 of four weeks for the remainder. Individual
7 counseling sessions every eight weeks for two
8 years. The Pennington people devised a web-
9 based system for participants to record diet
10 and exercise and obtain rapid feedback daily
11 about whether they reached their macronutrient
12 or calorie goals.

13 Contact among the groups were
14 avoided. And it is very important to say that
15 the investigators taught the staff and the
16 staff taught the participants that each diet
17 had an equal chance of success in line with
18 divergent results of previous studies that I
19 have summarized. And the goal was trial-wide
20 equipoise.

21 And I think we did achieve that in
22 a sense. The investigators had different

1 opinions about which diet would work best.
2 And we really were committed to this concept
3 of equipoise.

4 The baseline characteristics then
5 of the study, 800 were randomized, 645
6 completed the study; that is, provided a body
7 weight at the end, 80 percent. And that's
8 truly the best we could do.

9 It is very difficult to bring
10 patients back for weight measurements when
11 they were unhappy with their weight loss.
12 That's basically the reason. It's a very
13 different kind of study than other kinds of
14 nutritional studies.

15 We had 64 percent women and 27
16 were in the overweight category, 73 percent in
17 the obese category.

18 Okay, so here was the primary
19 trial outcomes. So pre-specified primary
20 outcome, change in weight from time zero to
21 two years, all randomized participants, the 20
22 percent that did not come in for a body weight

1 measurement, we imputed their data using Tom
2 Wadden's approach.

3 So, this is it. There's two
4 years. Absolutely no difference based on
5 protein, fat, or carbohydrate.

6 Now the completers, the 80
7 percent, showed the same type of result. The
8 average weight loss was about four kilograms
9 at two years across all of the groups and diet
10 comparisons.

11 Okay, now this graph shows the
12 six, 12, 18, and 24 month results for each of
13 the four dietary types. So you can see, for
14 example, at the six-month point, you see four
15 symbols. And these represent the four diets.

16 You really don't need to know
17 which is which because it is quite obvious
18 that there's absolutely no difference in
19 weight loss. The average weight loss is about
20 six kilograms at six months.

21 The adherence was very good at six
22 months. There were 93 percent that came back

1 for measurements at six months. So we feel
2 this is a very solid result for a six-month
3 time point.

4 And then there was -- that was
5 sustained to 12 months, so we didn't see any
6 regain from six to 12 months like other
7 studies generally did, I think because we had
8 a sustained program. But then they had some
9 regain from 12 to 24 months similar in all the
10 groups.

11 These are the same data for
12 completers. Again, very clearly at six months
13 no difference, and no significant differences
14 here whatsoever.

15 Now waist circumference, we know
16 where fat is is a relevant factor for
17 metabolic abnormalities. So waist
18 circumference was our secondary outcome. You
19 can see weight loss -- I mean loss of waist
20 circumference at six months, absolutely
21 identical across all four groups.

22 Reduction in waist line continued

1 to 12 months, no difference among groups. And
2 there was a small amount of regain of waist
3 circumference -- less than regain of total
4 body weight.

5 We've done some body composition
6 analyses. It looks like abdominal fat did not
7 return quite as much as fat in other
8 locations. That's very interesting. We'll
9 have a report on that sometime in the future.

10 Now cut points for weight loss,
11 whether it is a five percent weight loss or a
12 ten percent or greater or 20 kilograms or
13 greater, you can see there is really no
14 difference at all across any of these groups.

15 Very interestingly, even though on
16 average most patients gained weight after six
17 months or after a year, about a quarter of the
18 participants continued to lose weight after
19 six months.

20 That was a very successful group -
21 - lost 9.3 kilograms with no difference across
22 the diets. So there are people who will

1 continue to lose weight and get a very, very
2 good result at two years. We shouldn't give
3 up in that regard.

4 There are a number of theories and
5 evidence about different macronutrients and
6 satiety and satisfaction and food craving and
7 whatnot and our behavioral psychologists at
8 Pennington are experts in this, they included
9 a number of standard questionnaires in this
10 study relating to food craving and dietary
11 restraint and so forth.

12 There were absolutely no
13 differences by diet group at six months or at
14 24 months, to their great surprise. You know
15 whatever that data early on about satiety,
16 very good experiments, they just didn't seem
17 to carry through in this study to the six
18 month point or to the two year point.

19 Now just speaking about adherence,
20 the Danziger study compared these four diets
21 from Atkins out to Ornish and this is self-
22 reported adherence levels. And you see they

1 started fairly high but by six months, self-
2 reported adherence decreased dramatically.

3 And it was the same in all four of
4 the groups -- no particular diet type promoted
5 adherence in this particular population-based
6 study. And that's what we found in our own
7 study as well.

8 This is what really did have a --
9 seemed to have a lot to do with the weight
10 loss result and that's group session
11 attendance. And here on the X axis, we have
12 number of sessions attended, and the Y axis,
13 weight change in kilograms at two years. And
14 you can see participants, on average, lost 0.2
15 kilograms per session attended over two years.

16 That's the -- and -- but you
17 notice that there is a huge difference across
18 -- there's a huge difference among people. We
19 had people who attended sessions and lost 30
20 kilograms. We had patients who attended most
21 of the sessions and actually gained a few
22 kilograms.

1 Then we had patients who came to
2 the first couple of sessions and then left.
3 And never came back except at two years. Most
4 of those patients didn't do so well. But a
5 few of them did extremely well. Just didn't
6 need us. So I'm very interested in these
7 kinds of individual variables -- differences
8 in participation and weight loss.

9 Now what I just described to you
10 for the total group is exactly the same in all
11 four of the diet groups. Other studies have
12 showed that sustained interaction with
13 something -- with the research team had a lot
14 to do with weight loss.

15 This looked at Weight Watchers.
16 It's certainly better than two dietitian
17 consultations to have a sustained program.
18 Internet behavioral e-counseling also is
19 successful. The Premier study follow-up
20 shows, again, it was very important to have
21 sustained interaction.

22 Now I'd like to mention adherence

1 to the macronutrient goals because we found
2 that over time, patients that are participants
3 tended to converge on their pre -- their pre-
4 study macronutrient goals or macronutrient
5 intakes.

6 For example, the low fat diet that
7 had its target of 65 percent -- and that's
8 what participants did very early on -- but by
9 six months, their carb intake decreased closer
10 to what they usually ate. And the low carb,
11 35 percent, increased as well. Kind of they
12 converged toward what their population average
13 is. And by two years, convergence on it
14 occurred further.

15 So it seems to me that ambitious
16 macronutrient goals in a population-based
17 study are not achievable even though weight
18 loss is achievable. And they will --
19 participants will gravitate to their usual
20 intake over time.

21 Even at two years, there was a
22 difference here. And this is not unique to

1 our study. In all previous studies, this kind
2 of phenomenon has been found.

3 Okay, finally with regard to the
4 study, there were some dietary differences on
5 risk factors. For example, the low fat diets
6 had -- their LDL levels went down more -- not
7 that much -- six percent compared to one
8 percent in the higher fat group.

9 But in the higher carb, low fat
10 groups, insulin did not go down as much, HDL
11 did not go up as much. So if you look at this
12 total risk factor picture, you'd say well,
13 maybe it is a tie between everything. But in
14 people who have dyslipidemia, may have some
15 insulin resistance, perhaps the highest carb
16 diet is not the best choice even though it did
17 just as well for weight loss.

18 So in summary then, reduced
19 calorie diets achieve similar weight loss
20 after two years regardless of macronutrient
21 emphasis, that satisfaction, satiety, and
22 cravings were similar, average weight loss

1 nine pounds by intention to treat, and two
2 inches of waist circumference. And overall,
3 all groups had favorable changes in risk
4 factors.

5 So how do we translate the
6 findings? Well, successful diets for weight
7 loss can emphasize a large range of
8 macronutrient intakes. And these diets are
9 made with foods that reduce risk of
10 cardiovascular disease. Risk factors
11 improved. Low fat may not be the best for
12 metabolic syndrome or diabetes.

13 Ongoing counseling sessions, very
14 important to achieve and maintain weight loss
15 no matter what group they are in and that
16 successful diets for weight loss, I think, can
17 be tailored to individual patient's personal
18 and cultural preferences to achieve long-term
19 success.

20 And maybe that's really the key to
21 go after in the future rather than pushing
22 people to eat a particular amount of carb or

1 protein or whatnot.

2 So, thank you for that, for paying
3 attention to that. And now I'm going to
4 briefly go over some aspects of the sodium
5 hypertension thing from mostly data from the
6 DASH sodium study.

7 Okay, so prior to DASH sodium,
8 McGregor did a double blind sodium study.
9 It's a beautiful study in moderate
10 hypertensives. And what he showed is that
11 going from 200 millimoles to 100 millimoles
12 reduced blood pressure the same as going from
13 100 to 50. And that really suggested a lot of
14 linear effect or an intensification on a
15 linear scale of the sodium-blood pressure
16 relation.

17 So in the DASH sodium study, we
18 wanted to do this on a much larger scale, more
19 population applicable. We then looked at 150
20 millimole to 100 to 50 or 3.5 of sodium, 2.3
21 grams or 1.2 grams of sodium. So those were
22 the ranges that we tested in 412 people.

1 And here is the effect of sodium
2 reduction in the control diet that is
3 basically a typical U.S. diet. And you see
4 this intensification of blood pressure
5 reduction as sodium is reduced down to 50 or
6 60 millimoles.

7 That also happened in the DASH
8 diet to somewhat of a lesser extent but sodium
9 reduction did effect the DASH diet.

10 Now here's a really clinically
11 important population, you know these are
12 patients over the age of 45 and mildly
13 hypertensive. And you see a real accentuation
14 of blood pressure lowering at low sodium.

15 So at the top bar, it's the sodium
16 reduction in the control diet. It goes down
17 2.1 -- blood pressure reduction, 2.1 from high
18 to medium and six from medium to low. Low
19 being proximately a one and a half gram goal
20 that you're looking at. And in the DASH diet,
21 same sort of thing. An accentuation of blood
22 pressure reduction when you go from medium to

1 low down to around 1500.

2 Okay, now let's look at some
3 subgroups here. So this is African-Americans,
4 hypertensive and normotensive. And non-
5 African-Americans. And this is the sodium
6 change from 150 millimoles to 100. That's the
7 upper row. And the middle row from 100 to 50.

8 And here you can see that 50-
9 millimole difference, from 100 to 50, it
10 produces at least double the blood pressure
11 reduction in African-American hypertensives
12 and normotensives, non-African-American
13 hypertensives and about the same in non-
14 African-American normotensives. So a lot of
15 rationale for going down to the lower level or
16 at least trying to.

17 Okay, now there's an age
18 interaction also. There's a big effect of
19 sodium reduction in middle age and beyond.
20 So, okay, the red bars are blood pressure
21 reductions of sodium reduction with the
22 control diet. Okay, this is 23 to 41, middle

1 age, middle age, older.

2 You see blood pressure -- sodium
3 is reducing blood pressure in the lower red
4 bars more and more as people get older. And
5 with the DASH diet, that would be in the
6 orange bars, you see the same sort of thing.
7 You see an accentuation of the effect in
8 patients, people who are in their 40s and 50s
9 and beyond.

10 So how do I sum this up? Well,
11 certainly evidence from the DASH sodium study
12 agrees with other evidence that there is an
13 accentuation of blood pressure lowering in the
14 1,500 milligram to 2,500 milligram range
15 compared to 2,500 to 3,000 or 3,500.

16 Most population groups are
17 responsive. It is about 70 percent of the
18 U.S. population would be in this responsive
19 group; that is over the age of 45, anybody,
20 African-American, any age, mild hypertensives,
21 any age, and this whole age thing, well, you
22 know, people under the age of 40 or 45

1 hopefully will at some point become more than
2 the age of 40 or 45 and become responsive to
3 sodium. So there is a potential for sodium
4 down to 1,500 milligrams to affect basically
5 everybody or everybody's potential.

6 So thank you very much for your
7 attention. I'd be happy to take questions.

8 CHAIR VAN HORN: Thank you very
9 much. We have about ten minutes. I'm going
10 to take executive privilege and ask just one
11 quick question in terms of what you've
12 presented in both cases. Certainly the
13 compelling data recognizing that 70 percent of
14 the population could be responsive, are there
15 any downsides that you can think of for
16 reducing the recommended level to somewhere
17 around 1,500 milligrams?

18 DR. SACKS: I am not aware of any
19 downside. There are long-term studies, long-
20 term follow-up of sodium reduction trials
21 showing benefit to cardiovascular events after
22 they showed benefit to blood pressure without

1 any adverse effects identified.

2 So, no -- and then, of course,
3 there is a global natural experiment going on
4 because different locales around the world eat
5 different sodium levels. So nothing bad has
6 come up in that regard.

7 CHAIR VAN HORN: The other quick
8 question, then we'll open up to everyone else,
9 relates to the POUNDS LOST study and
10 everything that you so eloquently described as
11 far as choosing -- making it possible for
12 people to choose their approach. And with
13 ongoing support, which seems to be the key
14 factor in terms of both attendance at sessions
15 and/or ongoing tailored feedback to people who
16 manage to make these kinds of changes and
17 sustain them long term, it would seem that
18 that type of approach would, as long as
19 calories are reduced, be appropriate in terms
20 of helping people to make these energy
21 reductions in terms of their dietary intake.
22 Would you agree?

1 DR. SACKS: Yes, I think really
2 the emphasis now should be on people finding
3 their way to a healthy diet that is within
4 guidelines for reduction of heart disease or
5 diabetes that they can stick with and learn
6 how to keep the calories down. And they need
7 some type of support. Now, of course, we did
8 it in a very expensive way, but there have to
9 be ways devised that are going to do it
10 cheaply.

11 CHAIR VAN HORN: Excellent.

12 The group? Eric?

13 MEMBER RIMM: This is Eric Rimm.
14 If I could lead the witness a bit more, just -
15 - you know, I think -- and it is not fair,
16 Frank, you haven't -- I mean you talked about
17 the Israeli study, but I wanted to dwell on
18 your study and the Israeli study together
19 because they were both, you know, probably the
20 best, well done, long-term trials of diet
21 composition and weight loss.

22 And if you look at the 2005

1 Dietary Guidelines that specifically say that
2 fat intake should be between 20 and 35 percent
3 of calories from fat. And since that time,
4 now your study has published and the Israeli
5 study has published, and both studies used
6 intervention arms or experimental arms that
7 use 40 percent of calories from fat. And both
8 of those were successful in weight loss when
9 there was support. So do you think there are
10 still grounds to have a 20 to 35 percent of
11 calories of fat range for the amount of fat
12 that is consumed?

13 DR. SACKS: Well, personally, I
14 think maybe we don't need any type of range,
15 you know, for recommended fat intake or even
16 macronutrient intake, that really we could
17 work our recommendations based on foods. But
18 specifically what you're saying, is there a
19 problem with 40 percent fat? No, I don't
20 think so. In fact, there are benefits for the
21 risk factors if it is the right fat obviously.
22 And that's the key. If you recommend high

1 fat, will people really eat the beneficial
2 fats.

3 CHAIR VAN HORN: Tom?

4 MEMBER PEARSON: This is Tom
5 Pearson. Thanks for that presentation, Frank.

6 I had a question about the
7 physical activity part of the POUNDS LOST
8 study. You had 90 minutes per week
9 recommended. And I was just wondering the
10 extent to which you saw compliance with that
11 and if there was any specific interaction with
12 compliance with exercise and the effectiveness
13 of those four diet arms, which, of course, had
14 different components, which may, in fact, have
15 a little different responsiveness to physical
16 activity.

17 DR. SACKS: Well, that is an
18 interesting question. And we're actually
19 looking into that kind of thing now. But I
20 can just tell you that different adherence
21 measures, for example group participation,
22 individual participation, use of the computer

1 web-based thing, physical activity, they are
2 all very inter-correlated. So I suppose that
3 they all would be related to weight loss. But
4 we're looking into that.

5 CHAIR VAN HORN: Cheryl?

6 MEMBER ACHTERBERG: Cheryl
7 Achterberg. You intimated in your
8 presentation that your patients tended to
9 drift back to the dietary pattern that they
10 had before the intervention. And I was just
11 wondering how you might reconcile those data
12 with immigration studies where people, in
13 changing residencies, dramatically change
14 their dietary patterns. So what do you do
15 with that?

16 DR. SACKS: Well, I think -- okay,
17 so maybe I overstated it. So they did -- they
18 drifted toward their previous macronutrient
19 intake. But they didn't go get to that point.

20 So you might say there is partial movement
21 toward the previous.

22 Now, you know, if they were

1 assigned, let's say, to high fat but they are
2 used to eating a low fat diet, that's where
3 they kind of drifted to. So that's -- you
4 know, it just worked that way in any of the
5 groups. Now that doesn't mean we don't know
6 whether they ate the same foods because we
7 recommended healthy foods on all the diets.
8 But in terms of macronutrient intake, they
9 drifted toward that because that was the focus
10 of the study.

11 CHAIR VAN HORN: Larry?

12 MEMBER APPEL: Yes, thanks, Frank.

13 I have two questions, different
14 fronts. You know, in some of the studies
15 we've done we've calculated Framingham risk as
16 an outcome variable. And I didn't see that in
17 your paper. And I was wondering if it was
18 done and if all four diets led to the same,
19 you know, change in Framingham risk.

20 And the second question is
21 distinct having to do with satiety. You
22 mentioned you didn't see any changes in

1 ratings. And yet, you know, we did OmniHeart
2 where we see very distinct, you know, changes
3 in satiety. So I'm just wondering, you know,
4 was there -- can you explain?

5 DR. SACKS: Okay. Well, let's
6 see. Yes, Framingham risk, yes, we were
7 thinking about doing that. The problem with
8 Framingham risk is it doesn't -- you know, our
9 outcome variable, body weight change, doesn't
10 really figure into Framingham risk. So that's
11 sort of a problem.

12 And it would deal with the
13 cholesterol, the HDL, the blood pressure, and
14 using those changes, the diets would probably
15 do more or less the same. But it is a good
16 thought.

17 And there are other risk -- there
18 are other, for example, PROCAM has
19 triglycerides in it and Reynolds has CRP.
20 We're going to get CRP measurements. So we'll
21 kind of wade into that.

22 And the second one was --

1 MEMBER APPEL: The satiety --

2 DR. SACKS: Oh, the satiety --

3 MEMBER APPEL: -- ratings where
4 you didn't see a difference but other studies
5 where you actually control -- you know,
6 typically smaller study or controlled feeding
7 studies do. So, you know, what is the
8 explanation?

9 DR. SACKS: Well, I don't know,
10 you know, if we had done satiety studies very
11 early after a week or two weeks, we might have
12 seen differences like these. But all I can
13 say is they didn't carry through to six
14 months.

15 And the difference between this
16 study, say, and the OmniHeart study is
17 OmniHeart we fed them to constant weight. So
18 we had plenty of obese people who we didn't
19 let lose weight. In this case, the whole
20 emphasis was losing weight. And there wasn't
21 any satiety difference at six months.

22 CHAIR VAN HORN: Rafael?

1 MEMBER PEREZ-ESCAMILLA: Yes,
2 Rafael Perez-Escamilla. Consistent with your
3 follow-up support data showing, you know, that
4 it is important to support people in
5 maintaining the benefit in weight reduction,
6 you know we have found the same whether it is
7 a breast-feeding promotion, whether it is
8 Latinos improving their self-management of
9 diabetes at home. And for low income people,
10 it is very important to think about models
11 based on peer counselors, people from the
12 community that have successfully been able to
13 deal with the problem to become part of the
14 system.

15 Now the problem that we encounter
16 is the reimbursement issue. Like who is going
17 to pay for these. So the question is about
18 cost effectiveness. And what would be your
19 recommendations in terms of the type of cost
20 effectiveness research that we should do to
21 include these findings as part of a healthcare
22 reform in the country?

1 DR. SACKS: Yes, I think that is a
2 tough topic. But I think it is very, very
3 important because our study and others say
4 that really that is the key. I mean it is
5 participation. It is counseling.

6 But now actually, I mean maybe one
7 could just do that in peer groups or
8 neighborhood groups or groups that people are
9 just doing it on their own that they don't
10 have to pay for anybody. Or maybe with the
11 internet they could do it.

12 But I don't know. I think your
13 idea of looking for models that could be done
14 at very low cost or no cost maybe after, you
15 know, the first couple sessions, may be the
16 way to go. I think that's probably where the
17 future is in the whole behavioral side of
18 this.

19 CHAIR VAN HORN: I'd like to just
20 go back to one issue related to your comment
21 about it doesn't matter what fat level, only
22 from the point of view of blood lipids and

1 concerns about risks for cardiovascular
2 disease and juxtaposing what you were saying
3 related to weight control and the fact that we
4 do, of course, have a significant population
5 at risk for cardiovascular disease. And we
6 need to weigh and balance not only the total
7 fat but the qualitative nature of the fat. I
8 know from the Women's Health Initiative, for
9 example, we discovered that a recommendation
10 to lower total fat to 20 percent doesn't
11 necessarily achieve the lipid lowering
12 benefits unless there are qualitative changes
13 in the type of fat.

14 And it would appear from the slide
15 that you showed showing the differences in
16 lipids and insulin, et cetera, that, indeed,
17 you know, the group that had the lower total
18 fat and presumably lower saturated fat would
19 have lower LDL lowering. So I just wondered
20 if you would like to make just a further
21 comment related to that issue in addition to
22 what you said about the weight control issue.

1 DR. SACKS: Oh, sure. Well, you
2 know, taking up -- you know, in comparison
3 with the OmniHeart study that Larry Appel
4 mentioned earlier, so I mean OmniHeart study
5 showed very clearly that unsaturated fat, you
6 know, lowers LDL very nicely.

7 So let's, so in our higher fat
8 group in our POUNDS LOST weight loss study, if
9 they had really eaten unsaturated fat, then
10 their LDLs would have gone down very well,
11 just as much or better than the low fat group.

12 So obviously they weren't quite doing that.
13 I mean they were probably having a little more
14 saturated fat than the low fat group. And
15 that's why there was a 6 percent LDL
16 differential between those groups.

17 So, you know, education on good
18 fat/bad fat -- I mean we really -- we worked
19 hard at it. And certainly there wasn't a 20
20 percent difference. But there was still a
21 small difference. So still that's an issue
22 that we have to work on.

1 MEMBER APPEL: This is Larry
2 Appel. Frank, I didn't see actually what
3 happened in terms of saturated fat by diet in
4 your paper or your slides. So could -- you
5 know, there is this sort of mantra and maybe
6 it is knee jerk and wrong that if you reduce,
7 you know, as total fat goes, so does saturated
8 fat. Is that what you found?

9 I know you were trying to
10 emphasize the, you know, the better fats. But
11 in reality, were people, you know, was it
12 accomplished? You know you could sustain a
13 better fat profile even with higher -- even at
14 of higher fat.

15 DR. SACKS: Well, you know, you
16 got me on that. I just can't pull the numbers
17 out of my head.

18 MEMBER APPEL: Okay.

19 DR. SACKS: But they're published
20 actually in the article, the saturated fat
21 content on the four different diets.

22 CHAIR VAN HORN: Thank you again

1 for an outstanding presentation. We really
2 appreciate all of your excellent comments.

3 And at this time, the group will
4 take a 15-minute break. And please return so
5 that we can hear Dr. Crawford promptly at
6 3:20. Thank you.

7 (Whereupon, the above-entitled matter went off
8 the record at 3:05 p.m. and
9 resumed at 3:24 p.m.)

10 CHAIR VAN HORN: All right. Thank
11 you for standing by. We are now ready to
12 proceed with our next presenter, Dr. Patricia
13 Crawford.

14 Dr. Crawford is Director of the
15 Robert C. and Veronica Atkins Center for
16 Weight and Health, an adjunct professor in the
17 Department of Nutritional Sciences and
18 Toxicology and the School of Public Health at
19 the University of California at Berkeley.

20 Dr. Crawford served as the Chair
21 of the Nutrition Subcommittee for all ten
22 years of the NHLBI Growth and Health Study, an

1 epidemiologic study on the development of
2 obesity and heart disease risk factors in
3 African-American and white Girls.

4 Currently she is directing two
5 studies evaluating changes in children's
6 school lunch intake in the Berkeley School
7 Lunch Initiative Project and the Kansas City
8 Healthy Schools Partnerships Program.
9 Further, she is leading studies evaluating the
10 impact of legislation to improve the foods in
11 California schools examining implementation of
12 school wellness policies and evaluating the
13 impact of large-scale community interventions
14 to create healthy food and activity
15 environments for children.

16 Thank you.

17 DR. CRAWFORD: Thank you, Linda.

18 And I'm truly honored to be here.

19 And I applaud the Committee for your interest
20 in hearing the voices from the community in
21 your deliberations.

22 The Center's mission is to develop

1 the science-based solutions to pediatric
2 overweight, particularly using the environment
3 and policy solutions. And over the last ten
4 years, we've conducted nearly 100 studies with
5 hundreds of community partners.

6 So today, rather than talking
7 about the findings from these studies, I'm
8 actually going to talk about the community
9 partners and their thoughts about the Dietary
10 Guidelines, the pyramid, and the guidance that
11 you all are providing. And these partners
12 include people from cooperative extension,
13 from WIC, teachers, school nutrition
14 directors, advocates, food stamp folks,
15 advocates, various coalition members and
16 leaders, and groups throughout the community.

17 So I thought I'd throw this in to
18 show you how we get information from our
19 partners. We all go jogging on the California
20 coast.

21 Okay, so I have four questions to
22 answer today. And the first one is rather

1 elaborate. In what ways does my work suggest
2 that the current nutrition guidelines are
3 problematic when applied at the school or
4 community level? In what ways are they
5 effective? For example, how can school food
6 service managers and other settings
7 distinguish between foods that are the most
8 healthy and those that are the least? How
9 useful is the discretionary calorie allowance
10 for the lay public and food service manager in
11 planning amounts of various foods that should
12 be consumed?

13 So that's where we're going to
14 start. So in talking to those community
15 members, the first thing that came out is that
16 the current Dietary Guidelines are believed to
17 be credible and they are current and they are
18 comprehensive. And at many times in many
19 circumstances, they are very clear. At other
20 times, they are less clear.

21 And the community members that I
22 spoke with wanted to be sure that you

1 understood that you are providing an
2 invaluable resource for them. And their
3 concerns really deal with the application and
4 the transmission and the translation of this
5 information.

6 And so I'm going to focus, for the
7 rest of the talk, not on all of the wonderful
8 things you are doing but on the concerns that
9 they have to make them even more useful at the
10 community level. So the first concern, and
11 I'm going to list four now, the first is the
12 lack of specificity. People want food-based
13 specifics for the translation of nutrient-
14 based guidelines. They want quantities,
15 types, classifications. They want to know how
16 they can meet the guidelines, not -- they
17 understand what the guidelines are.

18 And a good example are fruits and
19 vegetables. They said that they truly
20 understand. So if you can model, you know,
21 other guidelines based on that fruit and
22 vegetable one, it would be very helpful to

1 them.

2 They said they understand
3 consuming a sufficient amount of fruits and
4 vegetables while staying within their energy
5 needs, two cups of fruit, two-and-a-half cups
6 of vegetables per day are recommended for this
7 reference intake with higher and lower
8 amounts, depending on the calorie levels,
9 choose the variety from the five vegetable
10 subgroups, all of that is very clear.

11 Then it falls apart with the other
12 groups. And largely that is because of
13 processing, how difficult that is. And I know
14 you all know that better than anyone. But
15 even in the example of the lean and low fat
16 foods, when selecting and preparing meat,
17 poultry, dry beans, and milk or milk products,
18 make choices that are lean, low fat, or fat
19 free, that sounds very clear. But the
20 questions that were raised are well, you know,
21 what about turkey hot dogs?

22 And what about bean? And, you

1 know, people where I work don't drink milk.
2 So, I mean, should we really be using cheese
3 often? And those low fat cheeses aren't, you
4 know, aren't the ones that people eat. And so
5 there's just all kinds of questions about how
6 to get to that place. They don't -- they
7 can't translate what they are supposed to do
8 with that information.

9 So it's possible that as a result,
10 the fruit and vegetable messages are more
11 often transmitted and more often discussed.
12 For example, in nutrition education, the
13 primary topic in most of the nutrition
14 education in schools is fruits and vegetables.
15 So it is possible because of that clarity that
16 that is one of the reasons. I'm sure it is
17 not the only reason. But that is possibly one
18 of them.

19 And another situation, I did many
20 focus groups with WIC mothers a few years back
21 and found that through hundreds of pages of
22 transcripts, when they talked about healthy

1 foods, they talked about vegetables. And we
2 know that the WIC messages cover all of the
3 groups. But they truly understood that
4 message.

5 And I don't know how much of that
6 might be because of that specificity.
7 Obviously there are other factors at work.
8 But I think it behooves us that those messages
9 are getting out, you know, strong to the
10 community. And we see it in different ways.

11 So another concern is the
12 complexity of the messages. We hear that
13 especially with nutrition education they
14 cannot seem to figure out how to take the
15 Guidelines or the pyramid into nutrition
16 education. It's complicated. You need a
17 computer for the pyramid. Five-a-day was just
18 simple and useful.

19 But the last one I think is
20 particularly interesting. A national set of
21 benchmarks and standards would be helpful in
22 developing nutrition curriculum. And I'm

1 going to come back to that one again a little
2 bit later.

3 But people are really calling for
4 very concrete guidance. You know they don't
5 want to be out developing their own
6 curriculum. As much as we think they want to
7 do it, they want to adapt. They want to take
8 one, I mean they are busy doing what they do.

9 And so the more guidance that we can provide
10 for them on how to get from the guidelines
11 down to nutrition education would really be
12 helpful.

13 Another one, concepts regarding
14 the Dietary Guidelines include too much focus
15 on nutrients. So that one came out over and
16 over again. We eat foods and you talk about
17 nutrients. And clearly that's not completely
18 fair because foods are a very big part of the
19 Guidelines as well.

20 But take, for example, the effort
21 required by school personnel to decide on and
22 to monitor the competitive foods in California

1 schools after we passed two important pieces
2 of legislation in 2005. Let me show you the
3 two pieces of legislation.

4 The first is Senate Bill 12, which
5 is for competitive foods. Snacks may have,
6 according to our legislation, and this is K
7 through 12 in California, no more than 35
8 percent calories from fat, 10 percent of its
9 calories from saturated fat, 35 percent sugar
10 by weight, 250 calories for a specific
11 portion. So very clear. Right?

12 Now this is a brief summary of
13 California Senate Bill 965. This is for
14 competitive beverages. They were passed at
15 the same time, K through 12. Beverages sold
16 to students must be from the following list:
17 fruit-based, vegetable-based drinks that are
18 at least 50 percent fruit juice without added
19 sweeteners, drinking water without added
20 sweeteners, milk products, electrolyte
21 replacement beverages with a cap on the amount
22 of sweetening.

1 So completely different guidelines
2 for these two pieces of legislation. One more
3 related to the nutrients. One more related to
4 the foods. And we're doing a study right now
5 evaluating compliance with these two pieces of
6 legislation. And these are very common foods
7 and beverages that are sold in California
8 schools as competitive foods.

9 And which do you think -- the
10 beverages or the foods, when we've been out
11 surveying, are the most compliant to that
12 legislation? In 2007, we were supposed to
13 have 50 percent of the beverages were supposed
14 to be compliant to the legislation and 100
15 percent of the foods. When we went out, it
16 was much more likely that the beverages would
17 be compliant than the foods. Now there are a
18 lot of reasons.

19 There are more foods than there
20 are beverages, you know, more choices out
21 there. But one of them could have been it is
22 very simple to follow that legislation with

1 the beverage categories, and it is really hard
2 to follow it with the food nutrient
3 categories.

4 Now look at this list. These are
5 some of the foods that we found when we were
6 out surveying competitive foods in schools to
7 see whether they were meeting the actual
8 legislation. So can you guess which one of
9 these, I mean you saw the criteria, might be
10 compliant and which are not or what percentage
11 of these might be compliant with California's
12 legislation?

13 And remember that was the fat
14 limits, that was the sugar limits. All of
15 them might be compliant, yes. Well, in fact,
16 it is even worse than that. Exactly half of
17 them are adherent, the yellow ones are
18 adherent and the red ones aren't.

19 And it behooves us to look and see
20 -- I mean say you are a school food service
21 director and you are out there and you have to
22 decide between Nature Valley strawberry yogurt

1 granola bar and Nature Valley crunchy oats and
2 honey granola bar. No way.

3 So they're out -- these are in the
4 vending machines, they're in the school
5 stores, they are all over the campus in high
6 schools. And sometimes we have different
7 groups that are responsible for different
8 stores or different venues.

9 So this is really difficult for
10 schools to get to the place -- and they are
11 trying. I mean they really are out there
12 working very hard to get there. So I think
13 that it really helps us understand the kind of
14 things that they are up against because the
15 food supply is so complex now.

16 So also on too much focus on
17 nutrients, I wanted to share with you a quote
18 that I got from a school food service director
19 who is a dietitian in one of our large school
20 districts in California. She said, "As a food
21 service director, we now serve foods that
22 simply taste okay. It's low fat. It's high

1 fiber. It's low sugar. It's trans fat free
2 with high nutritional value. It no longer
3 resembles real food. It no longer tastes
4 great or even good. We used to be able to
5 make small, fresh, satisfying chocolate chip
6 cookies. That has now been replaced by things
7 like fun-shaped whole wheat chocolate flavored
8 crackers."

9 "When food is not satisfying to
10 one's palette, the consumer is left wanting.
11 First we took out the fat, compensated with
12 more sugar. People considered the result to
13 be diet food and ate more resulting in an
14 equal or greater caloric intake. Next we got
15 excited about the sugars and made sugar the
16 villain, then trans fats, and now sodium."

17 So this is pretty difficult to
18 take. But she, being a dietitian, she said
19 ``I am part of this problem.'' But I'd like
20 you to share it with the Committee.

21 "We've become so nutrient focused
22 we've forgotten how to enjoy, appreciate,

1 savor real food. There are far too many
2 confusing, conflicting rules and
3 recommendations. People trying to eat
4 healthily buy processed foods covered with
5 health claims. More defined nutrition rules
6 will not solve our problem. They will only
7 exacerbate it."

8 So this is, you know, this is from
9 somebody on the front line who has been doing
10 the job she has been doing for 30 years. And
11 I think it really expresses very clearly the
12 kinds of things that we hear when we're out
13 talking to people working in the schools and
14 working in the community.

15 So their concerns about the
16 Dietary Guidelines include a fourth issue.
17 And that's the use of discretionary calories.

18 And this one is quite different from the
19 other three because this was something that
20 was, you know, included in the Dietary
21 Guidelines last time that those working in the
22 community really love.

1 So this is such a positive thing.

2 Now they're not using it much, and that's
3 because they are totally confused by how to
4 use it. But they know there is great
5 opportunity if they understood it more.

6 So this came out -- several people
7 mentioned that they've just begun to hear
8 about it, and it actually makes so much sense.

9 That foods -- some foods are core foods. And
10 then they have additional discretionary
11 calories added to them so they can begin to
12 explain that to the public and use examples.

13 The problem is trying to use the
14 examples. I've been using this example in a
15 class that I teach in community nutrition.
16 And I'm not sure. I've actually vetted with
17 somebody on the Dietary Guidelines Committee
18 last year. I vetted it with somebody at USDA.

19 And each one had slightly different opinions
20 of exactly how you calculate.

21 I mean should I be doing extra
22 calories from a doughnut by comparing it to a

1 grain product that doesn't have the fat and
2 sugar? Now would that be the like toast?

3 I mean, so I put this in here
4 because I've tried hard to understand myself
5 how we get to those extra calories. And I'd
6 like, you know, I think that if you could
7 provide more guidance in this area, that we
8 can translate this kind of information for the
9 consumers.

10 And one of our advocate groups,
11 the California Food Policy Advocates said we
12 are using it, we're trying to understand it,
13 it is really working, and tell the Committee
14 that we would love to have a better, you know,
15 translation of this concept.

16 So question number two that I was
17 asked to answer. Have school wellness
18 policies utilized information from the Dietary
19 Guidelines? We're working -- a study we have
20 is Team Nutrition Local Wellness
21 Demonstration Project with the Department of
22 Education and two other states, Iowa and

1 Pennsylvania.

2 And so I'm going to just summarize
3 briefly and say absolutely. This is really a
4 phenomenal way to get the Dietary Guidelines
5 information out to the community in a way that
6 it hasn't been out before. So by getting that
7 wording from the Dietary Guidelines into the
8 wellness committees in every school district
9 that receives federal funding, we are actually
10 putting out information that people at the
11 community level are talking about now.

12 So there are four summary points
13 here that the school wellness policy requires
14 schools to set goals for nutrition education.
15 So while many mention the Dietary Guidelines
16 or MyPyramid, interview data suggests that
17 they are having difficulty using that
18 information in nutrition education. But it is
19 in their wellness policy so they are trying to
20 make that leap and translate it.

21 Number two, they are using it,
22 many of them for competitive foods to put

1 guidelines into their wellness policies. Some
2 schools are actually using the information to
3 set higher nutrition standards than USDA
4 requirements for school lunch.

5 And then the fourth point, many
6 policies are based on model policies. And so
7 that was where I wanted to come back to. The
8 more that you all, as a body, can create
9 models, they love lifting those models and
10 putting it into their own wellness policies.

11 And what that means is they will
12 then have to, and they will begin to really
13 work on, you know, translating that into
14 practice. But they do use policies. You can
15 see that they actually are using the language
16 that is similar in many, many of the
17 districts.

18 So while not a representative
19 sample, we are measuring and looking at 31
20 school districts in this Team Nutrition Local
21 Wellness Demonstration Project. And 30 of
22 them mention the Dietary Guidelines either

1 explicitly for education or competitive
2 schools or at least referenced it.

3 And here's a chart showing you how
4 many did that. And this is with schools in
5 California, Iowa, and Pennsylvania. So the
6 largest part of the circle is with references
7 to the Dietary Guidelines information. But
8 the blue ones specifically mention the Dietary
9 Guidelines. And then there was just that one
10 school that didn't include Dietary Guidelines
11 at all, the information or the specifics.

12 So it does show that this is a
13 real opportunity to get the information out
14 there and to be discussed. And I will -- I
15 won't go over all these examples, but I'll
16 tell you that the wording is all over the map.

17 We just gave you some examples here of the
18 different kinds of wording that is in the
19 Wellness Policy.

20 The first one is very general
21 wording. The second one has some daily
22 recommendations, you know, the sodium issue.

1 The next one here I thought was interesting
2 because in the Wellness Policy, the school is
3 trying to actually operationalize it. They
4 said that fat served on the side, no more than
5 twice a week.

6 And then the next one talks about
7 the variety and limiting certain things, the
8 wording right out of the Guidelines. And two
9 more examples, one of them on nutrition
10 education that they can use the MyPyramid or
11 they can link it to other kinds of education.

12 This is a California Wellness Policy.

13 And then the last one down here is
14 an example of another policy where nutritional
15 integrity is the level of performance that
16 assures that school-sponsored foods meet
17 recommended dietary allowances and dietary
18 guidelines.

19 So you can see it is all over the
20 map. But there are definitely patterns in
21 schools where certain language is picked up by
22 different states, and many of the schools

1 within that state will have the same type of
2 language.

3 So a real opportunity with those
4 wellness policies. And we'll have a
5 conclusion to that study pretty soon. And
6 we'll have more information on it.

7 Question three, how can government
8 nutrition guidelines convey usable information
9 applicable to the school and community
10 settings? For example, how is the pyramid
11 being used? Has it been adapted? Or have
12 alternatives been developed by community
13 groups?

14 Well, we hear a lot about the
15 Guidelines and pyramid when we're talking to
16 our community partners. And I wanted to help
17 you focus here on the third one. The pyramid
18 is not helpful on a social marketing level.
19 So that was one of the messages that came out
20 that was very important, I felt.

21 And down here, it is reiterated in
22 a similar way. The pyramid is helpful for

1 motivated individuals who want tailored
2 messages but it is hard to use to write a
3 curriculum. So I think this is a very clear
4 message about the application.

5 So alternatively, many, many
6 community folks are developing other ways to
7 take the information from the Guidelines and
8 the pyramid and to actually translate them
9 into tools that they feel are more applicable.
10 This one was developed by U.C. Cooperative
11 Extension and has been tested with the
12 Expanded Food Nutrition Education Program as
13 well as Food Stamp Education Program. The
14 staff just love it, and the clients love it.
15 And an article is coming out on the use of
16 this plate curriculum.

17 The Coalition of Food Banks in
18 California like the plate so much but they
19 wanted to add foods, pictures of foods, words
20 about foods. And you can see that this one
21 was adapted for Asian foods so they still like
22 the symbolism of the plate and they use it in

1 their, you know, their education with the food
2 bank recipients.

3 This is another one that is being
4 used in California, Healthy Kids Meal Wheel.
5 And this one is interesting because of the
6 beautiful graphics you'll see. And then you
7 can see how meat is -- red meat is pulled out
8 from the lean protein group. And you can see
9 all the different sources of calcium here.

10 But I want to point out the
11 desserts over here on the little spoon and the
12 little pat of butter on the knife. Isn't that
13 cute? So -- but it is, it's being used in a
14 large school district. And, you know, kids
15 can really understand how it all fits
16 together.

17 And I must say, years ago when I
18 first saw the plate, I was working with the
19 Growth and Health Study where we were working
20 with adolescent African-American girls, and I
21 found that it was sort of irrelevant to the
22 kinds of foods that were being eaten for lunch

1 by these teenage girls. They were having
2 chips and soda. And how does that fit on a
3 plate?

4 And now I've come full circle
5 working in these new studies with schools and
6 with other community groups that if we don't
7 continually show how foods can fit on a plate,
8 pretty soon we won't be eating foods that go
9 on a plate. And I have a beautiful picture,
10 which I didn't bring, of an actual school
11 lunch in one of the studies that we're doing
12 that shows a child bringing from home four
13 little packages that fit on the plate at
14 school.

15 And they just pulled apart each
16 package. And that was the meal. So you can
17 imagine how surprised we all were that you
18 can, you know, go and buy packages and create
19 a meal from these packages. So lots of
20 interest in this area.

21 Okay, so question four, so drawing
22 on my experience, what do you think the needs

1 -- needs to be done at the level of the
2 federal nutrition guidelines to optimize
3 nutrition for Americans in the school and
4 community settings? And so at the end here,
5 I'd like to just provide a few
6 recommendations. One is to provide guidance
7 on what constitutes a healthy food. Be
8 simple. Be specific. Be clear. Give
9 examples.

10 Because what I've been learning
11 from working with these community partners is
12 that if we don't provide that very specific
13 information for them on what is a healthy
14 food, that they will do it themselves. And
15 let me give you just a couple of examples. So
16 one of my students did a survey of
17 restaurants, chain restaurants to look at
18 health claims. And out of 124 chain
19 restaurants, and this is just looking at the
20 websites, 33 say they have healthy menus or
21 items designated as healthy.

22 Seven say they have low calories,

1 19 have health claims about low fat, eight had
2 health claims about low carb, four about
3 sugar, and one just says their entire menu is
4 healthy. Now it's not so much that they all
5 have different ways of determining what
6 healthy foods are, but it's that all of the
7 cutoffs and all of the criteria are different.

8 So think about you as a consumer
9 trying to make a choice between restaurants.
10 You're not sure which cutoff is better. And,
11 you know, so I think it is that kind of
12 confusion out there.

13 Another example of a healthy food
14 definition, I thought this was so original. I
15 was speaking to an elementary school teacher
16 in Oregon who wanted her students to bring a
17 healthy snack every Friday. She said but how
18 do I know what a healthy snack is? I mean I
19 could tell them just to bring a fruit and
20 vegetable because that one I understand. But
21 I wanted to broaden it to a healthy snack.

22 So finally she said, "I talked to

1 everybody, and I came up with a definition
2 that worked for me." She said, "I taught the
3 kids how to read the ingredient labels on all
4 their packages. And I taught them all the
5 ways to describe sugar. And then I said if
6 that is one of the first three ingredients,
7 then it is not called a healthy snack in my
8 classroom."

9 So it's a very practical way to do
10 it. It doesn't hit the fat issue at all. But
11 it definitely worked for her. And she said
12 the snacks have been pretty good.

13 So another example was -- this was
14 in the newspaper. After voting to introduce
15 increased lunch prices next year in Kentucky,
16 a school board member said you can cut lots of
17 costs in a food service program by getting
18 prepackaged foods and stuff that is not
19 healthy out.

20 So this is somebody who has
21 decided that it is more the packaging. The
22 foods that come in packages are less healthy.

1 So different definition.

2 And this is a school nutrition
3 director who said children will eat real whole
4 foods. And she's saying that that is healthy.

5 So lack of processing is healthy.

6 So you can look at this in any
7 different way. This is an adoption of sort of
8 the Dietary Guidelines that have been adopted
9 into a food guide by the Central Food Bank of
10 New York. And now food banks in California
11 are adopting it for their use because they are
12 struggling with trying to bring healthier
13 foods into the food banks.

14 And then to get -- to reduce
15 donations of the least healthy. So they said
16 we can encourage fruits and vegetables.
17 That's the green. And we can discourage sodas
18 and candy. We can sort of understand that.

19 But all the foods in the middle,
20 they have no idea where to -- you know, many,
21 many discussions -- I mean this is just an
22 enormous problem for somebody working in the

1 community.

2 We can do the red part a little
3 bit. We can do the green part a little. But
4 we don't know what to do with all that yellow.

5 I mean is there some way we can figure out
6 which are the healthiest foods? So their goal
7 is right on target but they don't know how to
8 operationalize it.

9 So all suggested we want help
10 defining healthy foods. Can you use colors?
11 Can you use checkmarks? And can you even use
12 a system like we rate restaurants with A for
13 best choice, B for okay, C for worst choice?

14 We need prompts to change
15 behaviors. And we need guidelines that will
16 actually guide dietary practice.

17 This is Armando Valdez, who works
18 with the Latino population in California. And
19 he said, "We really need help on how to guide
20 those choices."

21 And, finally, the last one is near
22 and dear to my heart as a researcher. Someone

1 from the community said last week when I was
2 asking about these questions, "We need more
3 translational research for the Guidelines and
4 the pyramid."

5 I love that. So -- and he ended
6 by saying, "If schools are serving 30 million
7 students per day and meeting regulations
8 crafted from the Guidelines, how can only two
9 percent of the children be meeting it?"

10 Somebody had better research and
11 figure out exactly what is happening? You
12 know why do we have such a disconnect here.
13 So I thought that was a very interesting quote
14 to end with.

15 So thank you again for the
16 opportunity to come and share some of the
17 voices from the schools and communities. I
18 know they appreciate your interest in what
19 they're doing and the problems that they are
20 having. And really look forward to the new
21 Guidelines.

22 CHAIR VAN HORN: Thank you so

1 much, Pat.

2 And in the interest of time, we're
3 just going to take maybe one or two questions
4 now. But then open after Mike gives his
5 presentation, to see if we have further
6 questions.

7 Tom?

8 MEMBER PEARSON: The whole field
9 of guideline development obviously has
10 evolved over the years. Certainly we have
11 been provided descriptors of the strength of
12 evidence supporting recommendations.

13 You've provided a number of models
14 here. Your healthy plate, the Local Wellness
15 Policy, et cetera. How many of those have
16 really been subjected to rigorous randomized
17 evaluations so that we can, in fact,
18 generalize them beyond California or wherever?

19 Because what we've been doing for
20 30 or 40 years is anecdotal discussion of
21 things that look nice for which there is no
22 evidence to say they are worth our time and

1 effort.

2 DR. CRAWFORD: No, I think that
3 they really do want that research. And they
4 do want the evidence because they are just
5 struggling in the community to do what staff
6 say works, what people say they love, you know
7 what they understand. But we want those
8 trials.

9 CHAIR VAN HORN: Chris, go ahead.

10 MEMBER WILLIAMS: I think it is
11 interesting that children get about 30 percent
12 of their calories from snacks. But the
13 problem is that they don't always want
14 something that we might consider to be
15 healthy.

16 I recall a little boy whose mother
17 had just gone apple picking. And every day
18 for five days he got an apple. And finally on
19 the fifth day, he said, "Mom, do you think
20 just one time I could have something that is
21 not healthy?"

22 And I think we have to find a

1 balance somehow between sometimes healthy
2 snacks and sometimes snacks that are pretty
3 good but not quite as top of the line, maybe
4 thinking about healthy, you know, children
5 having two snacks a day, maybe one healthy one
6 and one free one or getting a little more
7 balance there because I think all of us don't
8 want to be totally restricted to a certain
9 category of foods or beverages.

10 DR. CRAWFORD: And that's what
11 they would love. They would love a checkmark
12 system or a color system. Have these every
13 day. Have these on some days. Have these
14 once a month. I mean that is exactly what
15 they want to operationalize it.

16 They said we can take that message
17 to the community. But nobody is willing to go
18 out there and say well, which foods fit on
19 that first level? And on that second level?

20 So you are right on target.

21 CHAIR VAN HORN: Thank you again,
22 Pat. That was excellent.

1 We're going to move right along to
2 give time for our next speaker who is Dr.
3 Michael Hamm. He is the C.S. Mott Professor
4 of Sustainable Agriculture at Michigan State
5 University.

6 He is currently affiliated with
7 the Departments of Community Agriculture,
8 Recreation, and Resource Studies, Crop and
9 Soil Sciences, and Food Science and Human
10 Nutrition.

11 At MSU, he is co-founder of the
12 C.S. Mott Group for Sustainable Food Systems,
13 which engages communities in applied research
14 and outreach to promote sustainable food
15 systems.

16 Dr. Hamm's active research areas
17 include community food security and
18 sustainable food systems.

19 Thank you so much for coming.

20 DR. HAMM: Well, thank you so much
21 for having me. I really appreciate it. And
22 I'm honored to be here.

1 You can tell there have been a lot
2 of mergers in academia because I'm in three
3 departments and every one has a conjunction in
4 the title. So welcome to my world.

5 So what I wanted to do today was
6 kind of step back a little bit and talk about
7 the relationship of the Dietary Guidelines to
8 sustainability. And maybe think about how
9 they relate to one another.

10 And one of the things -- one of
11 the questions -- I was asked to address four
12 questions. And I'll just kind of take them
13 more or less in order. And one of the
14 questions was does sustainability of our food
15 supply relate to the Dietary Guidelines?

16 And I'd like to just think a
17 little bit about fruits and vegetables for a
18 second because that's one where it is pretty
19 clear that Americans, on average, eat far less
20 than they should. And I'd like to just run a
21 scenario by you which is tomorrow morning, 300
22 million Americans wake up and all decide you

1 know what, we've been doing it wrong. We're
2 going to follow the Dietary Guidelines and eat
3 all the fruits and vegetables we're supposed
4 to.

5 Three things would happen. The
6 first thing that would happen is there would
7 be a run at the produce section of every
8 grocery store in the country. And they'd be
9 divorced of everything.

10 The second thing that would happen
11 is that every dietitian in the country would
12 faint.

13 (Laughter.)

14 DR. HAMM: And the third thing
15 that would happen is that we'd find out we are
16 13 million acres short of production.

17 So the reality is is that -- and
18 this is ERS data actually that came out soon
19 after the 2005 Dietary Guidelines were brought
20 out. And so what we know is that there is a
21 disconnect in reality between our agricultural
22 production and our Dietary Guidelines for a

1 healthy diet.

2 So 13 million acres, just to give
3 you an idea of what that is, 13 million acres
4 is two to three Californias of production.

5 And California currently produces 50 percent
6 of our fresh produce that we domestically
7 produce. It is a lot of produce.

8 Now if we step back from that for
9 a second and say okay, so let's say we wanted
10 to get to the Dietary Guidelines with respect
11 to production. Let's say we can create the
12 demand. Now we've got to create the supply.
13 What would it take to do that?

14 Well, one thing to keep track of
15 is is that it is not a static issue and it is
16 a consistently moving target. This is a
17 graphic out of the American Farmland Trust.

18 All those areas in red on the map of the
19 United States are areas of highly productive
20 farmland and under high threat of development.

21 Now that map came out prior to the
22 current economic crisis. And so development

1 actually across the country has slowed down
2 quite a bit. And so it's put less pressure on
3 it.

4 We can anticipate, though, as the
5 economy recovers that those pressures are
6 going to be back on to a large extent.

7 In fact, they estimate that right
8 now 86 percent of the fruits and vegetables
9 that are produced in this country are produced
10 in the path of development.

11 That is the land that they are
12 produced on is under threat of development, 86
13 percent. Sixty-three percent of our dairy is
14 in the path of development.

15 In other words, right now we under
16 produce what we need for a healthy diet by 13
17 to 14 million acres. And what we do produce
18 is in danger of not being there at some point
19 down the road.

20 Now right now, we produce half of
21 our domestic fruits and vegetables in
22 California. And I would argue we need

1 California right now because we need that
2 production.

3 And what we also know is is that
4 California, if we step back even a little bit
5 further, California's production is under
6 threat right now, too. The Central Valley, in
7 the New York Times about three weeks ago, they
8 indicated the Central Valley is going to have
9 about 800,000 acres less production this
10 summer. Why? Because they've had a drought
11 for three years.

12 If climate change scenarios are
13 anything close to right, there is anticipation
14 that they could lose as much as 70 percent of
15 the snowpack runoff that services irrigation
16 for California agriculture.

17 That snowpack runoff in other
18 water supplies also services the population in
19 California, a population that tomographers say
20 may grow from 36 million to 50 million by
21 2050. Another 14 million people needs water,
22 needs land to live, needs land for roads to

1 move around, and needs land for businesses.

2 All of those things do two things.

3 They take land out of production. And they
4 take water out of production.

5 And so one of the things that we
6 can anticipate, that we can project, is that
7 20, 30 years from now when my ten-year-old
8 daughter is 30, 40, 50 years old, California
9 may well not be doing what California is doing
10 now.

11 So what that means is from a
12 standpoint of ensuring a healthy food supply
13 now and into the future, we have to think not
14 just about where we're getting our food now
15 and what we may need to do to boost that
16 production but how are we going to think about
17 a sustainable food supply ten, 20, 30 years
18 down the road.

19 And I would argue that one of the
20 things we need to think about right now is how
21 do we go about preserving that production in
22 places that are highly productive right now.

1 And how do we think about redistributing
2 production across the country?

3 If you go back to a census of
4 agriculture from the `30s or `40s, you would
5 find that just about any county in the United
6 States had a more diverse agricultural
7 production system than it does today. We've
8 concentrated our production into production
9 centers across the country for a whole lot of
10 economic and logistical reasons and climatic
11 reasons.

12 But the reality is is that many,
13 many places in the country have the potential
14 to produce a much broader array of fruits and
15 vegetables, a much broader array of animal
16 products than they currently do. And in many
17 of the advocacy groups that I work with,
18 that's called local food systems.

19 In one vernacular, we can think of
20 that as national security. In another
21 vernacular, we can think of that as economic
22 development potential. There's all kinds of

1 ways we can think about it.

2 I think from our standpoint, the
3 way that we should think about it is how do we
4 think about enhancing the public health of the
5 American population, not just now but for the
6 next 20, 30, 40, 50 years.

7 So that brings us to the next
8 question, which is should we think about more
9 than food as nutrition but also consider other
10 food attributes? And there's a lot of
11 attributes that people want to put into food
12 today.

13 You can go out and get coffee
14 certified five different ways. You can go out
15 and get food that is organic and it is fair
16 trade and it is bird friendly and it is
17 environmental and there is animal welfare
18 characteristics. There's all kinds of
19 attributes that different consumers in the
20 marketplace are looking for.

21 And I'm not really concerned about
22 that right now. And I'm not really sure that

1 is a concern of this Committee. But what I do
2 think is is that when we think about the food
3 system and we think about the food supply,
4 what we think about as moving towards a
5 greater sustainability that can enhance the
6 public health of the population, we think of
7 it not as a simple problem because it's not a
8 simple problem.

9 In fact, it is what we think of as
10 a wicked problem. A wicked problem is a
11 problem for which there is not a solution.
12 There are improvements in the situation. It
13 is a problem in which it is not a linear
14 science problem because human values, morals,
15 perspectives, culture, religion, all kinds of
16 human attributes and things that make up the
17 human community come into play. So there's
18 differences of opinion.

19 If I asked you all to define what
20 sustainability was, we'd come up with a whole
21 bunch of different answers to that question.
22 We'd start about the triple bottom line and go

1 through all kinds of scenarios about what
2 sustainable is.

3 And so to a large extent, I don't
4 think defining a sustainable food system is
5 actually possible. What I do think is
6 possible to do is to think about what kinds of
7 attributes, what kinds of characteristics
8 would we look for in moving that food system
9 towards something that was more sustainable
10 over the long term and that could help enhance
11 the health of the population.

12 I think it would look locally
13 integrated. I think we have to re-disperse
14 our food production across the landscape of
15 the United States. I think we need to do that
16 and I think we need to do it fairly quickly.

17 I think it would be community
18 based and I'll talk about that in a second
19 with respect to economic development. I think
20 there are ways to use the food system and the
21 food supply as tools for other issues that we
22 have in our communities that allow public

1 health people to participate in things like
2 economic development and community development
3 and youth education to a greater extent than
4 we probably are right now.

5 I think we would try to have food-
6 secure communities. I mean I am in Michigan.

7 I've been there six years. There's never
8 been a balanced budget since I've been there.

9 I do a lot of work in Detroit
10 which has a very high unemployment rate. And
11 I look at the upper part of the Lower
12 Peninsula in Michigan which has actually the
13 highest unemployment rate in the state at 18
14 percent.

15 You know our state has an official
16 unemployment rate of 13 percent. That's very
17 high. And it's not going to get any better in
18 the near future.

19 I think it is an -- we would see
20 it as an opportunity to connect to other
21 issues, which I'll talk about more directly in
22 just a second.

1 I think it would focus on health
2 and on healthy. From an agricultural
3 standpoint, how do we build healthy soils so
4 that those soils can nurture plants now and
5 into the future? How do those healthy soils
6 build healthy plants, grow healthy plants, et
7 cetera, down to healthy people? And I think
8 it would be diverse, which is another topic
9 for another day.

10 So many people -- I know the
11 Oxford Dictionary in 2008 declared localvore
12 the word of the year which is kind of
13 interesting in many ways and kind of fun. And
14 also unknowable in terms of what that word
15 really means.

16 For many people in the local food
17 movement, their idea of local is is that
18 everything should come from local sources. If
19 it is coming from a global source, it's
20 probably bad. If it is coming from across the
21 country, it's probably bad. And I actually
22 don't think that is true whatsoever.

1 I think for a whole lot of
2 reasons, that we don't have time to go into
3 here, we should have a dynamic blend in our
4 food system that includes local, direct source
5 local like farmers markets and CSAs, indirect
6 local source like what we might see at a farm-
7 to-school programs in our K through 12 school
8 meals program, in restaurants, in grocery
9 stores.

10 But we also want to get stuff from
11 regional, from national, and from global
12 sources. The issue, I think, and where I sit
13 is is that we've tipped the scales so far that
14 we've forgotten about that local piece. Now
15 it is, of course, hot in the literature -- the
16 locals, the new organic, everybody wants to
17 buy local. It's a big topic.

18 And so the trick is how do we
19 rebalance the portfolio of where our food
20 comes from and use that in such a way that we
21 can, in fact, improve the healthfulness of the
22 food supply?

1 Now, I live in Michigan. I was in
2 New Jersey for 20 years. I was in New York
3 for six years before that. But I grew up in
4 the Midwest. But I'm from Michigan. We're
5 seasonally challenged.

6 You know we have about a six-month
7 growing season at best. And so the question
8 is is okay, this whole local stuff, are there
9 ways from a production standpoint, in fact, to
10 generate fresh fruits and vegetables in a time
11 of year when we really shouldn't be doing that
12 because there is that on the ground.

13 Well, and the answer to that is --
14 and can you do it sustainably? And the answer
15 to that is probably yes. What you are seeing
16 there is -- would probably -- you would say
17 that's a greenhouse. But the reality is is
18 that greenhouse has no fossil fuel energy
19 being used for heat. Any heat that is in
20 there has come from the sun and it's stored
21 heat down in the ground.

22 That hoop house has a double layer

1 of plastic on it with about a 40-watt fan that
2 blows air between those two layers. Think of
3 it as double pane glass on your windows and
4 the insulation value.

5 Then inside there is another layer
6 of plastic over the beds. Inside there, in
7 Michigan, the environment of those plants is
8 about my hometown of St. Louis, Missouri. And
9 so you've moved about three growing zones
10 south. And you can grow about 30 crops in
11 there year round.

12 So this picture is actually taken
13 from the student organic farm at MSU where
14 they have a community-supported agriculture
15 farm of 75 families. And they provide them
16 fresh produce 48 weeks a year. The four weeks
17 is not because they can't grow it. It's
18 because they are taking time off because the
19 students are all gone.

20 So we can do that. So the point
21 is is that we can expand the season and think
22 about this in a way around economic

1 development that I'll talk about in a minute.

2 Now here's the one that is a big
3 one for some people and that I was asked to
4 address. Is local healthier or more
5 nutritious? And the answer is I haven't got a
6 clue. There is absolutely no data to answer
7 that question.

8 I've seen a lot of literature that
9 says the ten reasons to buy local. And one of
10 them is always because it is more nutritious.

11 I can construct scenarios for you in which
12 local is more nutritious or less nutritious.
13 It all depends on how that crop is handled
14 from the moment it is harvested until the
15 moment it goes in your mouth.

16 So post-harvest management, as you
17 all know, once you harvest a crop, it starts
18 to die. And cellular senescence is the thing
19 that destroys fruits and vegetables. And so
20 how you manage that post harvest is critically
21 important. Okay?

22 Now all else being equal, it is

1 traveling a shorter distance. It should be a
2 little bit more nutritious. The reality is
3 the percentages are probably not that
4 significant. If people actually went from
5 what they are consuming now to what they
6 should be consuming, that would be far more
7 significant than kind of any small bump you'd
8 get from the differences between local and
9 distance if they are all handled the same.

10 So I actually think that's kind of
11 a red herring of an issue in local versus
12 distant food. There's other things that
13 probably aren't. But I think that is one that
14 is.

15 Okay, the big one. Because,
16 again, I'm in Michigan and the only reason
17 that's relevant I think here is because we
18 went into the economic recession before
19 anybody else did.

20 And if I were a betting man, I'd
21 say we'll come out of it after everybody else
22 does because Michigan really did run for 100

1 years on the auto industry. And now we've got
2 to recalibrate who we are as a state
3 economically.

4 Now what does that mean? That
5 means that our State Department of Community
6 Health, which is the Public Health Department,
7 essentially has no money for preventative
8 health. If you take away the kind of
9 federally-mandated expenditures, there's
10 nothing left.

11 So what that means is is can we
12 think about -- and the other point to make
13 there is that in Michigan, as it is across the
14 country right now, if you're not having a
15 conversation about economic development, there
16 really is no conversation. That is the
17 conversation.

18 And so the question is is can we
19 think about this relationship of 14 million
20 acres needed in more production, which, if you
21 take us as three percent of the population,
22 that's a lot of acres, and relate that to

1 landscape and land preservation for the future
2 and relate that to economic development and
3 public health.

4 So we asked ourselves that
5 question. And what we did was we said okay,
6 let's look at that public health gap, that
7 difference between what we do consume and what
8 we should consume. And let's just run a
9 scenario and say what would it mean to the
10 state economy if we could bridge that gap?

11 And we did it in a way in which we
12 said okay, let's assume -- you know, when you
13 run models, you make whatever assumptions you
14 want, you just have to justify them -- so our
15 assumption was was that people didn't
16 drastically change their diets. They just ate
17 more of everything they are currently eating:
18 more apples, more oranges, more bananas, et
19 cetera, et cetera.

20 And we threw out the things that
21 we don't grow in Michigan: apples, oranges, et
22 cetera. And then we took the things that we

1 do grow in Michigan, which we grow a lot of
2 different things because we have a lot of
3 microclimates in the state -- the things that
4 we do grow and said how much of the year are
5 they available fresh?

6 So we get about a month of
7 strawberries. We get about two-and-a-half
8 months of tomatoes without season extension
9 technology. We get about ten months with
10 apples because of post-harvest and low
11 atmosphere storage -- controlled atmosphere
12 storage.

13 We said let's take that small
14 piece, which is about 15 percent of the total
15 bump in need that there is, and say what would
16 it mean to the economy if we actually produced
17 that in Michigan and ate that in Michigan with
18 ten million people.

19 And what it means is is that we'd
20 need to produce about 37,000 more acres of
21 produce in the state of Michigan to get that
22 15 percent increase in consumption. That 15

1 percent -- that 37,000 acres of production
2 adds 200 million dollars to the pockets of
3 farmers. And that 200 million dollars in the
4 pockets of farmers generates about 1,800 off-
5 farm jobs and at least twice that many on-farm
6 jobs for the production.

7 So the reality is by just bridging
8 about 15 percent of that public health gap, we
9 can generate a few hundred million more
10 dollars of economic activity and we can
11 generate about five or six thousand more jobs
12 in the state.

13 So in other words, we can -- we
14 firmly believe, and this is actually getting
15 some traction in the state, we can firmly link
16 increasing public health with local production
17 for local consumption with economic
18 development and job creation. And it is not
19 just job creation. It's all small business
20 creation because those farms that are
21 producing that are either small- or medium-
22 scale farms. And those are each businesses

1 that we desperately need in the state.

2 Now we can then think about taking
3 and expanding that opportunity quite
4 dramatically because we can now take with
5 these high tunnels and say okay, that was just
6 seasonal availability without doing anything
7 special. We can now expand the season.

8 With these kinds of devices right
9 here, with those high tunnels, we can, for
10 example, normally where I live in Michigan,
11 we'll start getting field-grown tomatoes
12 sometimes after the 4th of July. And we'll
13 quit getting them sometime between October 3rd
14 and 10th when the first hard frost comes in.

15 With these high tunnels, we can
16 start tomato plants in there right now and
17 start getting tomatoes in early June. And we
18 can keep getting tomatoes until early to mid-
19 November. So we add about two months to the
20 fresh market for tomato season.

21 We can produce lettuce greens. We
22 can produce Asian greens. We can produce most

1 root crops 12 months a year inside there
2 because we've got a research project right now
3 that's going on in three points in Michigan
4 with USDA money up in the Upper Peninsula with
5 Sioux St. Marie, Muskegon on the western side
6 of the state, and Ann Arbor.

7 Each of those are farmers markets.

8 And each of those has three farmers that has
9 one of those 30 by 96 high tunnels sited on
10 their farm. And they are producing to produce
11 for an early and a late market with the idea
12 that let's see if we can expand the season
13 under which people can get stuff fresh. And
14 early and late in the season can we expand the
15 diversity that is in the marketplace?

16 So we know that we can do the
17 production and the farmers are doing that.
18 The question is is if you grow it, will they
19 come? Will there be demand for it?

20 So David Conner in our group, who
21 leads this work, has gone out and surveyed
22 consumers at these farmers markets. And said

1 okay, right now, when is the earliest you come
2 to the farmers market. Most of them say May
3 or later. And that's about right. May is
4 when you start getting in things like broccoli
5 and greens and early root crops like radishes
6 and things like that.

7 He said well, if there were these
8 high tunnels all over the place and there was
9 a lot of product coming in, when would you be
10 willing to come? And they said well, we'd
11 come a lot earlier.

12 He said well, what is the latest
13 you come right now? Well, September, sometime
14 between September and December depending.

15 What's the latest you would come,
16 again if there was product available? Much
17 later.

18 So we actually think that there is
19 an opportunity there to think about linking up
20 this extension of production in a sustainable
21 way with a market, okay.

22 Now the final question around that

1 then is well, who has access to that product?

2 Because one of the things that was talked
3 about earlier is the fact that in many cases,
4 people on food stamps, in the SNAP program,
5 people with limited resources -- and with a 13
6 percent unemployment rate in Michigan, the
7 number that have limited resources is
8 climbing, how does everybody get access to it?

9 Well, of course, one of the
10 problems when we went away from paper food
11 stamps to electronic is the use of food stamps
12 at farmers markets collapsed overnight long
13 ago and now that is starting to come back.

14 And there's a lot of programs
15 around the country to basically get the card
16 readers at various farmers markets and make
17 that accessible. And there's various
18 strategies for doing that.

19 That still doesn't necessarily
20 allow for adequate resources to purchase what
21 people would like to purchase at those farmers
22 markets. And so just to give you an idea of

1 the kind of thing that is going on out there
2 and one of the programs that is going on in
3 Michigan is to think about ways that we can
4 increase local fresh produce at corner grocery
5 stores.

6 For example, in Detroit, there's
7 something like a thousand places to purchase
8 food to take home inside the city of Detroit;
9 92 percent of those are liquor stores, filling
10 stations, and 7-11-type stores. There are
11 only 80 -- something like 80 corner grocery
12 stores, corner full-service grocery stores in
13 the city of Detroit and none of those are
14 supermarkets. There's not one supermarket in
15 the city of Detroit, okay?

16 So, the idea then with using youth
17 and youth farm stands and giving them some
18 entrepreneurial training so we start to break
19 this cycle of thinking that I can go from high
20 school to a lifelong union job that gives me
21 great wages and great benefits and retire,
22 which is now broken in Michigan, we need to

1 think of other things.

2 So we train youth in how to sell
3 produce. And then they get produce from
4 farmers and sell it in the community.

5 There's now a thing called the
6 Michigan Farmers Market Association, MIFMA, in
7 Michigan which has done something really
8 wonderful, which is create an insurance
9 program so that farmers can get a million
10 dollar liability insurance at any farmers
11 market they sell at for only 200 dollars a
12 year.

13 If you check at many farmers
14 markets across the country, you'll find that
15 no farmer and no farmers market has liability
16 insurance. And they're just praying nobody
17 slips on a head of lettuce.

18 And then you need to link that to
19 all those farmers markets being EBT,
20 electronic benefit transfer accessible, many
21 of which aren't. And there is a program in
22 the state right now going on to try to get

1 them card readers.

2 Then you've got to ask yourself,
3 okay, now there's product and there's
4 accessibility from the standpoint of people
5 who can use SNAP cards. Do they have enough
6 resources to do it?

7 Well, there's a program that
8 started with a foundation in Connecticut,
9 which is now moving into Michigan, of pooling
10 money from the philanthropic world to
11 essentially double the value of the bridge
12 cards at farmers markets for fresh produce.

13 So if somebody spends five dollars
14 of a SNAP card, they actually get ten dollars
15 worth of produce. And the farmer is paid out
16 of that philanthropic pool of money to help to
17 make up the difference so the farmer is not
18 the one that is not out in doing that. And so
19 that's going on right now.

20 And finally, and one of the big
21 issues here is in all of this, who is going to
22 grow the food? I mean if you look at the age

1 of the farming population and if you look at
2 the traditional way that we generated farmers
3 in this country, which is kids coming off of
4 farms, going to the land grant, getting a
5 scientific basis for agriculture, and going
6 back to the farm, it's broken. And it's not
7 coming back any time soon.

8 To the extent that it is not
9 broken, there are kids going back. At MSU, I
10 just lectured yesterday in a class on crop and
11 soil science and about half those kids are
12 going back to their farm. But these are
13 three, four, five, six thousand-acre corn,
14 wheat, and soybean farms for the most part.

15 And so figuring out, in fact,
16 strategies for creating the next generation of
17 farmers is there, and there are things going
18 on in Michigan at Michigan State and in other
19 parts of the state. And there are things
20 going on in other places to recognize that we
21 have a large pool of immigrants that are in
22 this country either as migrant farm workers or

1 former migrant farm workers or as refugees,
2 many of which have farming backgrounds and
3 want to go into agriculture.

4 We need different kinds of
5 training programs to work with these
6 populations and to allow them to become part
7 of the American fabric that produces food for
8 our tables.

9 The second group is we have a lot
10 of kids in colleges and universities very
11 interested in the environment. And they are
12 translating that interest into an interest in
13 farming.

14 It is primarily organic farming
15 because it comes from an interest in the
16 environment and everybody thinks that is more
17 environment. That's another discussion.

18 But I found at Rutgers we started
19 a student organic farm there and we never had
20 anybody with a farming background come there.

21 They were all interested in organic. And my
22 feeling was was that six weeks at 90-degree

1 temperatures in July and August kind of burned
2 out the romanticism. And what was left was a
3 reality that it is hard to grow food. It is a
4 lot of work.

5 And so what these young people
6 came out of it with, if they didn't want to
7 farm, they came out with a profound
8 appreciation for people who did it. And if
9 they did want to farm, they came out with a
10 profound appreciation of what they needed to
11 do to get themselves ready.

12 And the third group is there are
13 some young people that live on farms today
14 that want to go into farming. And so there
15 are some programs out there with FFA and with
16 some other things that are engaging these
17 young people in looking at other things they
18 can do besides growing corn, wheat, and
19 soybeans. And that's, again, another
20 discussion.

21 So my point is is that there are
22 ways in communities and in states right now

1 that strategies are being developed to help
2 create these linkages so that we don't just
3 say well, we need 13 million acres of fruits
4 and vegetables. Good luck. But, in fact,
5 ways where we can think about reinvigorating
6 our local economies and providing access for
7 everybody in the communities to these things.

8 So in summary, and I'll end, is I
9 think it is fair to say that most of the
10 activity around enhancing sustainability of
11 the food system in the U.S. can be considered
12 an opportunity with respect to the Dietary
13 Guidelines and can help achieve America's
14 goals in this regard.

15 And on that note, I will quit.
16 And say thank you.

17 CHAIR VAN HORN: Excellent.

18 Can we jump into questions, Mike?

19 Yes, Rafael?

20 MEMBER PEREZ-ESCAMILLA: Thanks,
21 Mike, for what I think is a very important
22 presentation.

1 I think that the idea of free
2 trade agreements and the whole idea of
3 globalizing trade and so on, that was that we
4 shouldn't be so much concerned about these
5 issues because what we cannot grow here,
6 somebody else will grow it somewhere else in
7 the world. And we will be able to get it that
8 way.

9 Can you illuminate us a little bit
10 as to why, in spite of having that model in
11 place, we should be worried about local food
12 production?

13 DR. HAMM: Well, I don't know if I
14 can illuminate but I'll answer the question --
15 I'm not sure I'll illuminate.

16 Here's one thing to keep in mind -
17 - and, again, I think that we can't just think
18 about where we are right now but think about
19 what are likely scenarios down the road over
20 the next ten, 20, 30 years? And recognize
21 that we could be wrong about those scenarios.

22 So I'm a big proponent of

1 maintaining as many options as we can. Okay.

2 We import a tremendous amount of fresh
3 produce now. Every year we increase the
4 percentage of our domestic fresh produce that
5 we import from non-domestic sources.

6 Much of that is coming from
7 tropical areas of the world. If you look at
8 climate change scenarios, the ones that are
9 going to be the hardest hit are those in the
10 tropical regions of the world.

11 And so the probability is is that
12 places where we're sourcing a lot of that
13 fresh produce from now are going to experience
14 an increase in extreme events of climate, are
15 going to experience an increase in drought
16 events, and finally, those places are also
17 seeing an increase in population. And they
18 need a food supply for their own population,
19 too.

20 So, again, I'm not opposed to
21 global trade. I think it is an important
22 thing. But I think that we need to not lose

1 track of our ability to produce a domestic
2 food supply at the same time.

3 And I think the only way we're
4 going to be able to ensure a domestic food
5 supply down the road is to spread it back out
6 across the countryside.

7 MEMBER PEARSON: As I've
8 disclosed, I may be the only farmer on this
9 board. But I'll tell you, Concord grapes in
10 upstate New York, a ton is 160 dollars, and
11 that's not the production costs.

12 DR. HAMM: Right.

13 MEMBER PEARSON: And one of the
14 reasons it's 160 dollars a ton is is that a
15 converted oil tanker from Asia will pull up
16 with -- loaded with grape juice, and basically
17 undercut the entire market. So I don't think
18 you can have it both ways.

19 We make beautiful table and juice
20 grapes, and most of my farmer friends are
21 basically converting to wine grapes. I think
22 we've got probably enough wine in this country

1 -- my own view -- and it doesn't necessarily
2 fit into the Guidelines perfectly.

3 But certainly the fruit would.
4 And so I think you're going to really have to
5 break out of this cycle. It's a vicious
6 cycle, and the vicious cycle has to do with
7 market creation.

8 DR. HAMM: Right.

9 MEMBER PEARSON: And so I think
10 the Dietary Guidelines does have a role in
11 there. But the implementation of guidelines,
12 you know the Five-A-Day or whatever the
13 messages are, because certainly my farmers at
14 all ages are basically telling me that they
15 can't go ahead and continue to produce fresh
16 fruits and vegetables in the State of New
17 York.

18 DR. HAMM: Was that just a
19 comment, or would you like a response, as
20 well?

21 MEMBER PEARSON: Well, I was just
22 wondering how are you going to really create,

1 because at some point, you're going to have to
2 talk about subsidization of price here, which
3 of course would get into a variety of NAFTA
4 and a variety of trade agreements, which --
5 but currently the global market for fruits and
6 vegetables does not favor the American farmer.

7 DR. HAMM: In some products,
8 that's true. And Michigan experienced the
9 same thing with apple juice. About seven
10 years ago, Chinese concentrates started coming
11 in, and it killed about half of Michigan's
12 apple market overnight.

13 And now they're in the middle of
14 transitioning to a fresh market apple, which
15 of course is a different tree, and so it takes
16 time to do that.

17 That said, one example that I can
18 give you is is that out of the last farm bill,
19 there was a rule -- there's been a ruling put
20 out by USDA that it is not -- I don't want to
21 use the word, illegal, but let's just say it's
22 okay to use geographic preferencing as one of

1 your characteristics when you're bidding for
2 the K through 12 school lunch program for
3 under 100,000 dollars.

4 Now what we just did last fall in
5 our state was work with the state legislature,
6 because what had happened in the past was --
7 and states can be more restrictive on that,
8 and so can locals -- so the way it worked
9 previously is the feds was 100,000 dollars,
10 Michigan put an 18,000 dollar cap on it, and
11 many local school districts put a cap of zero
12 on it. Everything had to be competitively
13 bid, with no preferencing.

14 We got two bills passed in the
15 Michigan legislature last session that raised
16 the Michigan threshold to the federal
17 threshold. So the state's not a barrier.

18 And now we're working with --
19 we've got a state farm-to-school coordinator
20 in my group. And she's working with school
21 districts across the state with food service
22 directors to learn how to work with farmers,

1 and with farmers to learn how to work with
2 food service directors, recognizing that, for
3 a given bid, they've got 100,000-dollar cap,
4 which for the vast majority of the school
5 districts in the state, you're never going to
6 get to a 100,000-dollar cap on a single bid.

7 And in fact, there's a lot of
8 local product that's going to start flowing
9 into the school districts next year. There's
10 some now, and in Genesee County, for example,
11 right now there's two schools doing things.
12 There's 20 that are interested in doing it
13 next year.

14 So I think that there are -- we
15 have some leeway inside the federal
16 regulations right now to start doing some of
17 this. And I think we're going to end up
18 having to go further, and I think we are going
19 to end up having to make a decision of whether
20 we think that a healthy diet is, in fact,
21 something that we, as a population and as a
22 citizenry, think that everybody in our country

1 should have access to. And that's a whole
2 other discussion.

3 But I think there are ways right
4 now that we can think about helping improve
5 viability of farms. And it's not going to
6 cover everything. The juices, I think, is a
7 real problem right now. But I think the fresh
8 market stuff is much less of a problem right
9 now.

10 CHAIR VAN HORN: Excellent points.

11 We have really got to move ahead, I'm afraid.

12 DR. HAMM: Yes.

13 CHAIR VAN HORN: But thank you so
14 much for your presentation, and I'm sure we
15 can talk a little bit later, as well.

16 At this point, we'd like to move
17 forward with our first of the seven
18 subcommittee updates. And first on the agenda
19 is Food Safety and Technology, which is
20 chaired by Roger Clemens.

21 MEMBER CLEMENS: I'm from
22 California. Where water flows, food grows.

1 Thank you very much for your
2 patience. And thank you very much, Pat. And
3 Mike, thank you for those wonderful
4 presentations. We could definitely spend more
5 time with you. I know all of us have more
6 questions, more than time allows today.

7 It's our fortune to talk about
8 food safety -- I actually had some food safety
9 questions for Mike, but they'll have to wait
10 until on sidebar, I'm afraid.

11 Our group has been working
12 together, Rafael, with the excellent support
13 by USDA and DHHS, wonderful staff. Thank you
14 so much for your tremendous work and support
15 to bring this to where we are today.

16 Right now, a number of issues in
17 terms of behavior we'll want to address. We
18 also want to address a very hot topic in the
19 news in methylmercury in terms of fish
20 consumption. This will be in part a
21 collaborative effort with Dr. Pearson's team
22 with Fatty Acids to look at food consumption,

1 and fish consumption in particular, and the
2 impact of methylmercury on other outcomes.

3 And lastly, we want to look at the
4 role of food allergies. Right now, with some
5 expertise from Rafael, I will turn the
6 lavalier over to Rafael to make a presentation
7 on this important topic.

8 MEMBER PEREZ-ESCAMILLA: Thank
9 you, Roger, very much.

10 What we're going to do is to give
11 you an update as to where we stand in terms of
12 the questions that we are working on and the
13 approaches that we are using together with the
14 staff.

15 First of all, what you see on this
16 slide are four questions for which we have
17 already developed PICO charts, and for which
18 the lit review has begun, especially those
19 labeled as priority level one, it means that
20 the work is currently underway, and those
21 questions labeled as priority level two, what
22 it means is that we are in the process, or at

1 the early stage of the review, the lit review
2 process.

3 The first set of questions is
4 related to in-home food safety behaviors, a
5 lot of which fall within the framework. And
6 the second set of questions are related to the
7 risk of fish consumption. And in terms of the
8 priority level two questions, Roger will give
9 us an update on the new technologies related
10 to food safety and where we stand with regards
11 to food allergies.

12 First of all, with regards to in-
13 home food safety behaviors, we are documenting
14 and going very systematically through the
15 literature on describing what actually USA
16 consumers are doing at home in terms of food
17 storage, food preparation, handling, hand-
18 washing, which as we know has become a major
19 thing in the news lately, and also on washing
20 and cleaning techniques for the food
21 preparation utensils, equipment, food surface
22 preparation areas and so on, as well as on the

1 washing and cleaning techniques for different
2 foods that are prepared at home.

3 The second set of sub-questions
4 related to in-home food safety behaviors
5 actually relate to understanding the evidence
6 behind different food safety behaviors, and
7 what impact they actually have at reducing
8 pathogen loads and subsequent risk of home-
9 based foodborne illnesses.

10 So it's not only documenting what
11 people are doing, but does it matter. Is
12 there scientific evidence to make
13 recommendations to the public at large as the
14 best way to store foods, prepare foods, wash
15 their hands, wash and sanitize their kitchens
16 and the foods that they consume.

17 We have developed the search and
18 sort plans, and we have made a strategic
19 decision, at least for now, that with regards
20 to describing the actual behaviors -- not only
21 behaviors, but also knowledge and attitudes,
22 we will concentrate mostly on studies done in

1 the U.S., because it is the main target
2 population for the Guidelines.

3 But when it comes to the evidence
4 behind the different consumer behaviors, food
5 safety behaviors at home, and the changes in
6 food-safety outcomes, we will look at the
7 literature from both the U.S. and abroad. And
8 whenever we have to make a decision, we will
9 try to compare with evidence of countries that
10 are at the similar level of development as the
11 U.S.

12 We are not including in our search
13 the literature related to food safety issues
14 in the health care clinical settings, or
15 concentrating on specific food safety issues
16 surrounding a clinical condition, such as
17 renal disease, because the Guidelines are
18 supposed to target the healthy American
19 population over two years of age.

20 So with regards to in-home food
21 safety behaviors, the conclusion statements
22 will be drafted based on the review of

1 information from two sources: the Federal
2 Consumer Food Safety Survey data from the FDA,
3 and the NEL, Nutrition Evidence Library review
4 that is being conducted.

5 And I must say that the staff has
6 already had a number of conference calls and
7 meetings with key people in the federal
8 government that are in charge of food safety
9 at different agencies. So we're also
10 gathering a lot of information that way.

11 So in terms of the Federal
12 Consumer Food Safety Survey data, it comes
13 mostly from the Food and Drug Administration
14 and Food Safety and Inspection Service.

15 And the survey, which is based on
16 a nationally representative sample, is applied
17 over the phone, was initiated in 1988, and the
18 latest data available is for 2006. The next
19 survey is planned for 2009.

20 So we do have an opportunity to
21 look at circular trends as to how food safety
22 attitudes, knowledge, and behaviors have been

1 changing in the U.S. since the last Dietary
2 Guidelines were issued.

3 And we have received a lot of
4 support from the FDA to do additional data
5 that we request. And with having this goal in
6 mind, we had a teleconference with Amy Lando
7 from FDA, where she presented fairly recent
8 data to the subcommittee on food safety
9 trends, and we will continue working with her
10 to break down these results by socioeconomic,
11 demographic, and other type of characteristics
12 of the population.

13 So the first question that we're
14 concentrating on related to what consumers are
15 actually doing at home, we will have a good
16 snapshot as to what is happening at the
17 country level by different ethnic groups,
18 socioeconomic groups, and so on based on these
19 data from the CFSAN and the FDA.

20 The NEL literature review is
21 proceeding very well, I would say, and there
22 are already 16 studies that have been

1 identified related to in-home consumer
2 behaviors in the U.S., 16 studies related to
3 food storage, food preparation and handling,
4 and seven studies related to favorable food
5 safety techniques, and how they relate to
6 different food safety outcomes. So we do have
7 enough work to do -- enough materials to read
8 already.

9 In terms of next steps, we will
10 conduct additional literature searches and get
11 the sort list approval for in-home consumer
12 behaviors related to hand-washing and the
13 washing and sanitation of food preparation
14 areas, food preparation utensils, and washing
15 and cleaning of foods at home. And also with
16 regards to the influence of several of these
17 techniques or behaviors on food safety
18 outcomes.

19 In terms of the federal programs
20 that are very key for understanding food
21 safety recommendations in the country, we know
22 that the 2005 Dietary Guidelines Advisory

1 Committee Report basically fully endorsed the
2 four key messages from the FightBAC!(c)
3 campaign regarding the prevention of food
4 cross-contamination, proper storage of foods,
5 and so on.

6 And the 2005 Committee also looked
7 at topics that were not included, specifically
8 as part of FightBAC!(c), such as the
9 consumption of high-risk foods. So we're
10 following a very similar approach.

11 The FightBAC!(c) campaign, for
12 those of you that are not familiar with it, is
13 mostly based -- its origin dates back to the
14 Clinton Administration. It was launched in
15 1997.

16 And the scientific evidence behind
17 it is basically the application of the HACCP
18 principles -- HACCP stands for Hazards
19 Analysis and Critical Control Points, that
20 came from the food industry, and how that was
21 translated into the home setting. That's the
22 origin of FightBAC!(c).

1 So the scientific evidence behind
2 it is fairly solid, and we anticipate that we
3 will continue endorsing that framework.

4 So a couple of federal agencies
5 within FDA, USDA, and the Partnership for Food
6 Safety Education have been contacted by staff
7 to get updates on what has happened since 2005
8 with regards to these campaigns and federal
9 initiatives, and if there is any published or
10 unpublished documents to show how they have
11 worked with consumers.

12 So we will concentrate on the
13 literature since 2004. And we may have to go
14 a little bit before then if we identify
15 relevant systematic reviews that we know some
16 of which we already know were published, one
17 of them, for example, in 2003.

18 But by most part, we will start
19 our search with 2004, and try to explain to
20 the public, you know, what is the scientific
21 evidence for the program FightBAC!(c) and the
22 other recommendations that are made with

1 regards to food safety.

2 And very importantly, to identify
3 emerging issues related to food safety in the
4 -- according to the people that are running
5 those federal programs. And you will see that
6 we have identified some of them already.

7 There are a number of very useful
8 websites that you can check if you are more
9 interested in initiatives that are above and
10 beyond FightBAC!(c). And you have those in
11 front of your screen. The FDA launched a safe
12 handling of fruits and vegetables mini
13 campaign, and BACdown was an initiative
14 launched in response to the risk of Listeria.

15 And a lot of interest because of
16 Listeria on more emphasis on teaching
17 consumers how they can check their
18 refrigerator temperature, and which are the
19 ones, the temperatures that they should have
20 their refrigerators at.

21 So what are some of the emerging
22 issues related to food safety that have come

1 up as a result of the interviews with key
2 individuals, or individuals in key positions
3 in federal agencies running food safety
4 programs? One of them that everybody
5 mentioned is related to microwave safety.

6 This is something that had not
7 been included before, and quite frankly, we
8 had not identified until these conversations
9 took place. There's lots of issues related to
10 how to safely microwave uncooked frozen foods
11 all the way to the sanitation of the microwave
12 ovens. And a lot of households have
13 microwaves now in the U.S.

14 Consumption of raw foods related
15 to the whole foods movement is an issue that
16 was identified by several of these key
17 individuals as an area that needs more
18 attention from us. And recommendations for
19 time and temperature relationships for
20 different foods.

21 Again, the consumers do understand
22 that it's important to store foods at the

1 right temperature. And they know there are
2 time limits in terms of how long foods can be
3 left out and so on.

4 But when you put the two together,
5 the time and temperature, we need more
6 specific guidance. They need more user-
7 friendly information to be able to understand
8 and follow the recommendations.

9 So moving on from in-home food
10 safety behaviors, we have continued our work
11 on the benefit-risk analysis literature for
12 fish consumption. And as we know, the main
13 issue, the main concern is related to the
14 methylmercury levels in fish.

15 We have identified a number of
16 reports, some of them that have already been
17 published like the IOM Seafood Choices Report
18 published in 2007, that was devoted completely
19 to reviewing the literature, integrating the
20 literature, and making recommendations about
21 what people should do with regards to their
22 seafood choices, and what researchers should

1 be concentrated on based on information that
2 still needs to be sorted out.

3 We also -- all of us know that the
4 FDA has issued a draft report that until
5 recently was available for public comment
6 where they are actually doing a quantitative
7 risk and benefit assessment of commercial fish
8 consumption based on the very interesting
9 issue that, on the one hand, fish consumption
10 has been associated with improvements in
11 neurological development in children and
12 reduction in risk of heart disease and stroke.

13 But on the other hand, methylmercury has been
14 associated with the opposite risk of slowing
15 down neurological development, and perhaps
16 risk for heart disease and stroke.

17 The two reports -- the IOM Report
18 and the FDA analysis are very much linked with
19 each other, because what the IOM Report did
20 was to endorse the 2004 recommendation or
21 advisory from the FDA and EPA with a caveat
22 that they could not do themselves a

1 quantitative benefit risk assessment to answer
2 more precisely the question, and they
3 recommended for another agency to do so. And
4 that's why the FDA decided to take on this
5 task.

6 We had further contacts with the
7 FDA, and Mike Bolger, from their Risk
8 Assessment Unit, was kind enough to have
9 further conversations and a formal
10 presentation with our subcommittee for us to
11 further understand the methodology that they
12 used in their assessment, and where they were
13 going with it.

14 And the picture that is emerging
15 from reading these reports and having had
16 conversations with experts is that fish
17 consumption is, indeed, a healthy practice,
18 that it should be recommended, but that, at
19 the same time, the risk of methylmercury
20 contamination in fish is real, and the public
21 needs to be well informed, especially about
22 the fish species that are very high in

1 methylmercury, and the amounts of fish that
2 would be safe to consume for different
3 segments of the population, with special
4 attention being paid to pregnant women and
5 young children.

6 In the U.S., the level of fish
7 consumption is quite low, and in terms of the
8 top fish species consumed, none of them are in
9 the high methylmercury category.

10 So the main concern right now
11 pretty much among all the experts and the
12 reports that we have read is pretty much
13 related to the concern that it seems that, as
14 a result of the 2004 advisory, a number of
15 groups took it upon themselves to recommend --
16 for example, pregnant women, to don't eat fish
17 at all during pregnancy.

18 So this has really become an issue
19 as to how best to communicate the benefits,
20 the risks, and for people to be able to make
21 an informed decision. So we believe that that
22 is going to be the challenge for us as we

1 write this section of our Dietary Guidelines
2 Advisory Committee chapter.

3 So what we are planning then is to
4 base our section on risk of fish consumption
5 based on the IOM Report. And if it's made
6 available to us in a more complete fashion,
7 perhaps take into account some of the findings
8 from the 2009 FDA Report.

9 And to do an NEL literature review
10 on the benefit risk analysis of fish
11 consumption, but starting in 2006, because the
12 IOM Report has actually summarized all the
13 literature until then.

14 We believe it's very important for
15 us to better understand how to make more
16 available to the public at large data on fish
17 species specific methylmercury content, so
18 that people can actually decided by themselves
19 and understand what are the different
20 methylmercury levels in different fish.

21 And we also want to better
22 understand the fish consumption patterns of

1 different species of fish by socioeconomic,
2 demographic, and individuals with different
3 physiological status.

4 This is going to require
5 collaborating -- a collaboration between the
6 Food Safety Subcommittee and the Fatty Acid
7 Subcommittee. And I'm sure we will be soon
8 meeting to discuss how to go about it, because
9 the Fatty Acid Subcommittee, we understand,
10 will be addressing the benefits related to
11 fish consumption.

12 And now I will turn the
13 presentation to Roger, who will talk about new
14 food safety technology.

15 MEMBER CLEMENS: Thank you,
16 Rafael.

17 You should note, too, that it's
18 more, as Rafael spoke about methylmercury, is
19 more than just content of that in fish. We
20 want to be looking at some of the nutrients,
21 other nutrients found in fish that actually
22 may offset some of the negative impacts.

1 Therefore, it's important that we conduct this
2 risk analysis and risk benefit analysis on the
3 fish.

4 Thank you, Rafael, very much for
5 that insight.

6 We looked at the data on new
7 technologies since our last meeting. Our
8 research thus far has not shown any
9 differences from what we reported last time,
10 so we will continue to explore other
11 opportunities and technologies that might be
12 available to ensure a safe management of food
13 supply in the home.

14 What we have learned, however, is
15 that we want to look more at this important
16 topic of food allergies. Clearly the topic of
17 food allergies has extended beyond the basic
18 eight.

19 Through the excellent work from
20 Kellie and her team, we've actually explored
21 some additional programs with a number of
22 agencies, one within CFSAN, and one under

1 NIAID here in Washington. One deals with food
2 allergy, food allergy labeling, food allergy
3 implications from the food allergy labeling of
4 2002.

5 We're exploring that in terms of
6 regulatory, and has it made a difference in
7 food selection in the home, as well as for
8 commercial entities.

9 We should note that there will be
10 a public hearing on this topic later this
11 year. Don't know if that's going to make it
12 for the Dietary Guidelines, though. It may be
13 just too late for us to consider. But we want
14 to keep our eyes open to see where that lands
15 for us, Linda.

16 It was really quite intriguing.
17 We're very pleased that Katie was able to give
18 us some additional information. So we're
19 working with the folks in CFSAN to see if
20 there's additional behavioral and choice
21 information that we might be able to use in
22 terms of selection of foods that might be

1 reducing our exposure to food allergens.

2 The work by Marshal Plaut, both at
3 NIAID, information that was shared in the last
4 conference call with our team, looking at what
5 issues there are in food allergy research, and
6 beyond just the basic eight. We're excited
7 about sharing some of the mechanisms, as well
8 as some of the food implications beyond the
9 basic eight -- how some of those guidelines
10 have actually transformed into clinical
11 practice so that, in fact, physicians and
12 health care providers are better informed
13 about food allergies.

14 Under -- oh, this is the
15 development of the piece I just shared with
16 you. So we're excited that we will be working
17 with the agency to explore this in greater
18 detail. And part of the greater detail, we
19 want to do additional evidence-based review,
20 and thank you very much for, Donna Kellie, for
21 initiating the kind of work that we see here
22 to look at the evidence and say, have we

1 changed behaviors, have we changed the choice
2 of the food supply to reduce our exposure to
3 various food components?

4 As we indicated just moments ago,
5 that we're excited about seeing the public
6 comment period, and hopefully some of us will
7 be able to attend that comment period to
8 incorporate the data and perhaps our
9 Guidelines.

10 So at the end of the day, we
11 looked to invite some folks from NIAID,
12 perhaps we'll get Mike or Marshall on board
13 with this at one of our subcommittee meetings,
14 certainly at one of our conference calls, to
15 include what's going on, and see what we
16 actually include in our recommendations for
17 the future.

18 We're really quite excited about
19 this -- really -- that agencies working
20 together for a common issue. It goes back to
21 our priorities here.

22 Clearly the issues on food safety

1 and behavior, we're looking at food safety
2 behaviors in the home. We're not here to look
3 at the food safety issues that we've all
4 experienced in the press of late. Keep that
5 in mind.

6 We clearly want to continue to
7 look at the risks and benefits of food fish
8 consumption, so we're working with Dr.
9 Pearson's group on food analysis on fish
10 consumption.

11 Then we'll continue to explore
12 food technologies. The food technologies that
13 might be incorporated into the home at nominal
14 expense. And of course, we'll hit the very
15 popular topic of food allergies.

16 That's it for here.

17 Any questions?

18 Shelly?

19 MEMBER NICKOLS-RICHARDSON: This
20 is Shelly Nickols-Richardson. Related to the
21 in-home food safety behaviors, it does relate
22 to what's been in the press lately that, in

1 two different states, I've had extension
2 agents share with me that they have received
3 an increase in the number of phone calls
4 related to home canning and long-term storage
5 of food.

6 So not just sort of the short
7 term, are you getting the refrigerator
8 temperatures correct. I don't know how much
9 information there might be related to home
10 canning, long-term preservation of foods.

11 But it is a concern. And even if
12 it's not something that can be addressed in
13 the 2010 Guidelines, perhaps it's an emerging
14 issue for later.

15 MEMBER CLEMENS: Actually, we are
16 addressing that. Thank you for sharing that,
17 Shelly.

18 Rafael?

19 MEMBER PEREZ-ESCAMILLA: Yes, it's
20 in the PICO chart.

21 CHAIR VAN HORN: Tom, go ahead.

22 MEMBER PEARSON: Rafael, I had a

1 question for you relative to the FightBAC!(c)
2 Program, so I was pleased you are going to
3 look at that and see. But I guess one of the
4 questions I had is whether or not you're going
5 to look at it relative to its evidence base
6 for effectiveness. And if not, when we could
7 really put in some of the same criteria that
8 we use for all of our other guidelines of what
9 class and grade of evidence we have that these
10 things work.

11 You know, we have the U.S.
12 Preventive Services Task Force. We have a
13 variety of things that are very, you know,
14 evidence oriented now, and this is such an
15 important area, this home food safety, that I
16 think it should be held to the same standards.

17 CHAIR VAN HORN: Larry? Oh, I'm
18 sorry.

19 MEMBER PEREZ-ESCAMILLA: The
20 answer is absolutely yes.

21 CHAIR VAN HORN: Larry?

22 MEMBER APPEL: Larry Appel. I

1 wanted to find out if there's sort of a
2 question that comes before these, because it
3 looks like these are focusing on sort of
4 things that we think are important.

5 But I was wondering is, you know,
6 is there any sort of compilation of, you know,
7 where is the problem here? You know, is it,
8 you know, is it gastroenteritis? Is it
9 hemolytic-uremic syndrome from undercooked
10 meat?

11 I mean, so that you actually then
12 target, you know, your questions to the big
13 public health problems. I mean that's what we
14 do on these other committees. You know, like
15 what effects blood pressure? What effects
16 heart disease?

17 And I see a different sort of
18 structure here, sort of like topical rather
19 than top down where is the problem. So I just
20 -- is there some data that should guide us?
21 I'm just sort of curious.

22 MEMBER PEREZ-ESCAMILLA: Yes,

1 unfortunately, the surveillance of home-based
2 food illness outbreaks is not great for a
3 number of issues -- the nature of them plus,
4 you know, I guess the word is the lack of
5 investment in terms of trying to answer -- to
6 put the resources to answer your question.

7 There are some attempts at trying
8 to actually quantify the home-based outbreaks,
9 and what are the causes of them. But it's not
10 at the same level, I think, as it is for other
11 topics that are being addressed by the
12 Committee, unfortunately.

13 But we will -- if that literature
14 exists, if any evidence is out there, we will
15 find it.

16 MEMBER APPEL: Okay. Let me
17 follow up then. Maybe, you know, the preface
18 to each of these should be, how big is the
19 problem. So I was listening to your comments
20 about methylmercury, you know, so how big is
21 that problem, you know, so that we can sort of
22 put the recommendations in the context. And

1 you know, that may be more of a comment than a
2 question.

3 MEMBER CLEMENS: We actually --
4 thank you for the questions on that, Larry --
5 we are actually examining the methylmercury
6 implications, as well as the other issues to
7 which Rafael referred. If some of those
8 things pop up, then we will pursue on the
9 clinical basis, or any other of the health
10 consequences through the CDC and other
11 resources.

12 CHAIR VAN HORN: Cheryl?

13 MEMBER PEREZ-ESCAMILLA: And I
14 just want to follow up on that because, in
15 terms of the methylmercury issue, one big
16 concern in OB/GYNs telling pregnant women to
17 don't eat fish during pregnancy. Nobody has
18 ever made that recommendation. It seems that
19 the evidence will not support at all making
20 that recommendation.

21 So your point is very well taken
22 that we need to have a better estimate of --

1 within the context of the U.S., how big is the
2 problem, yes.

3 MEMBER ACHTERBERG: This is Cheryl
4 Achterberg. An entirely different kind of
5 question, different subject area.

6 But in the Nutrient Adequacy
7 Subcommittee, one of the issues that we talked
8 about that probably needed to be examined --
9 and I'm not sure this is the best phrasing yet
10 for it -- but with the new interest or larger
11 interest now in organic foods, local foods and
12 such, that it felt like some subcommittee
13 needed to look at the implications there.

14 And I don't know if you were aware
15 that your subcommittee was nominated to do
16 that.

17 (Laughter.)

18 MEMBER CLEMENS: Thank you very
19 much, Cheryl. You may recall that, in the
20 first meeting we had, that we addressed the
21 "O" word. And it was agreed at that time
22 maybe we wouldn't address it.

1 But it sounds like from your group
2 that perhaps we should put it back on our
3 plate. And they also came up with that wild -
4 - on the fish side, wild versus farmed. And
5 we actually -- that is one of our PICO
6 questions.

7 So we'd be glad to embrace that
8 new question and put it back on. Thank you
9 very much, Cheryl.

10 MEMBER NELSON: Well, I -- this is
11 Mim -- I respectfully may disagree, because
12 I'm not sure -- there are so many different --
13 I mean there's local, there's organic -- I'm
14 not sure that -- I'm sorry that, you know, Dr.
15 Hamm just left.

16 But I'm not sure that -- I'm
17 concerned that, if we deal with it from a
18 food -- in the food safety section, that
19 somehow, just by default, that then there's
20 some kind of worry and question about, you
21 know, local food, and organic food, and all
22 this other stuff which -- I mean we just have

1 a whole range of the food supply.

2 And I think that dealing with the
3 home is the right way to go with it. And I
4 think -- I'm just -- I think it may be the
5 wrong approach for putting organic -- I mean,
6 what's the question?

7 If there's a question about local
8 foods, sustainable foods, organic foods
9 around, you know, nutrient quality, that's
10 another question.

11 But if there is really a serious
12 concern about organic foods, which I don't
13 know the safety literature as much, but I
14 don't think there is, because it's being
15 dealt with elsewhere.

16 As you said, it's about the home
17 that you guys are dealing with. I guess I
18 would just opt for that's the right -- we've
19 got a lot of work to do, and that would be
20 the way to go. But --

21 MEMBER CLEMENS: Where does the
22 local fit? What bucket should it fit in? We

1 do know that the local farms -- there's
2 guidelines at the USDA that indicate there
3 are some farms, some volumes that, in fact,
4 do not fall under the FDA/USDA guidelines for
5 food safety. And maybe we have an
6 opportunity to educate the consumers about
7 these kinds of issues.

8 And the question I was going to
9 give to Dr. Hamm was, in fact, what measures
10 are the local farmers using to be sure that
11 the food supply is safe? There aren't any
12 guidelines right now.

13 MEMBER ACHTERBERG: And to follow
14 up on Mim's comments, I think in our
15 subcommittee we were well aware of some of
16 the issues raised, Mim. Part of it, frankly,
17 is a workload issue, as this particular
18 subcommittee has so many questions to sort
19 through.

20 So we recognize that there are
21 issues around this that perhaps go beyond the
22 traditional food safety perspective, but that

1 there's also an opportunity here, even if
2 it's very brief, to correct some
3 misconceptions, and that a function of the
4 Dietary Guidelines might be to do just that.

5 CHAIR VAN HORN: Right. And any
6 of the speakers that we had already, and
7 including those tomorrow, have agreed, you
8 know, that if we have follow-up issues,
9 follow-up questions, we can certainly go to
10 them.

11 Chris?

12 MEMBER WILLIAMS: Chris Williams.

13 It looks like you're trying to categorize
14 things in terms of foodborne illness, and
15 then food contaminants, which mercury would
16 be one.

17 Have you considered other
18 contaminants, such as pesticides and other
19 things that could contaminate the foods?

20 MEMBER PEREZ-ESCAMILLA: Yes,
21 specifically with regards to fish, that is a
22 very important question. Over 75 percent of

1 the fish advisories, local and federal and so
2 on, are related to methylmercury in fish.

3 Some of the experts that we have
4 contacted believe, or their data suggests to
5 them that, for example, persistent organic
6 pollutants, the POPs, are not a big issue in
7 the U.S., that if methylmercury is addressed,
8 essentially that would address the biggest
9 concern.

10 Others, essentially their concern
11 is related to how complex the data is. So
12 the combination of perhaps having more data
13 available for methylmercury, and that it
14 appears that it is a much larger problem than
15 other known contaminants, lead us to choose
16 this path of concentrating mostly on the
17 methylmercury in fish.

18 If your question is about
19 contaminants in general for all sorts of
20 foods, pesticides and so on, we've had some
21 conversations as to how this probably would
22 fall within the jurisdiction of EPA, and

1 we're not sure how far we would be able to
2 get if we took that path. But any comments
3 are more than welcome, because it is an
4 important issue.

5 MEMBER RIMM: Yes, this is Eric
6 Rimm.

7 I do worry about dropping
8 pesticides from the list for fish, because I
9 think if you ask anybody in this room, would
10 you rather have wild salmon or farmed salmon,
11 I know you just said it's on your PICO chart,
12 everybody would say, wild, likely. And the
13 reason is because they're worried about
14 pesticides in the feed in the farmed salmon.

15 So you know, while I believe that
16 I would have salmon of either kind, because I
17 think it's going to have plenty of omega-3
18 fatty acids, and that's what I'm concerned
19 about, I think you may run into the same
20 problem with pregnant women who are trying to
21 decide whether to eat fish or not based on
22 the mercury content.

1 Salmon has no mercury, but there
2 might be a difference in persistent
3 pesticides. So if the perception is out
4 there, I think we should address it either
5 way.

6 MEMBER PEREZ-ESCAMILLA: And the
7 response from the FDA related to POPs and
8 dioxin, dioxin-like compounds in farmed
9 salmon, which the concern is through the feed
10 --

11 MEMBER RIMM: Yes.

12 MEMBER PEREZ-ESCAMILLA: -- that
13 almost -- that evidence came from studies
14 done outside the U.S. And that, as far as
15 they know, it is not an issue for farmed
16 salmon in the U.S.

17 MEMBER RIMM: Well, yes, but
18 three-quarters of the salmon --

19 MEMBER PEREZ-ESCAMILLA: Or Chile.

20 MEMBER RIMM: All the salmon comes
21 from Chile.

22 MEMBER PEREZ-ESCAMILLA: So I will

1 qualify my statement. So they said the U.S.
2 or the suppliers for salmon in the U.S., such
3 as Chile.

4 So according to their data, the
5 evidence related to farmed salmon and dioxin,
6 it does not apply to the situation in the
7 U.S.

8 MEMBER RIMM: I mean, with all due
9 respect, I disagree, because there are data -
10 -

11 MEMBER PEREZ-ESCAMILLA: Okay.

12 MEMBER RIMM: -- that suggest that
13 there's quite a distribution of it. And
14 again, I don't think there's -- I know there
15 are studies showing that if pregnant women
16 have substantial amounts of pesticides, that
17 there is neurological effects in their
18 children.

19 It's not generally from fish.
20 It's usually from eating other foods that are
21 very high in pesticides. But the perception
22 is out there, I think, that people choose

1 wild over farmed because of this perception
2 of pesticides.

3 And there are plenty of studies,
4 and there have been many over the last five
5 years sort of monitoring differences in
6 pesticides between fish from Chile, and from
7 Scotland, and from Canada, and from the U.S.,
8 and there are differences.

9 You know, whether there are
10 important health differences related to that,
11 I don't know. But I think -- I'm sure that
12 it wouldn't come up if we just focus on
13 mercury, because mercury doesn't -- mercury
14 is not part of anything -- any fish like
15 salmon or any of the smaller species.
16 Mercury is mostly for tuna, and shark, and
17 swordfish.

18 So I just worry that we're sort of
19 missing out on a whole half of the
20 misperception related to fish consumption by
21 just focusing on mercury.

22 CHAIR VAN HORN: All right. Well,

1 excellent points, and outstanding
2 presentations. I think we've all learned a
3 lot today.

4 And certainly appreciate the time
5 and energy that our guest speakers took, as
6 well as all of the groups that came bright
7 and early this morning to begin really
8 hashing through some of these issues.

9 So we will now adjourn for the
10 day, and plan to reconvene tomorrow morning
11 bright and early at 8:30 with another couple
12 of presentations, and then continue with our
13 scientific reports.

14 Thank you all for coming.

15 (Whereupon, the above-entitled
16 matter was adjourned at 5:11 p.m.)

17

18

19

20

21

22

A				
abdominal 76:6	98:11 167:13	211:4	affordable 13:6,19	air 150:2
ability 170:1	achieved 69:2	addressed 33:20	22:16 23:16 41:4	algorithmic 19:20
able 5:14 32:5	71:21	199:12 202:11	45:2,8,14 46:1	allergens 196:1
54:22 96:12 114:4	Achterberg 1:10	204:20 209:7	afraid 175:11	allergies 177:4
168:7 170:4 188:7	92:6,7 204:3,4	addressing 193:10	176:10	178:11 194:16,17
191:20 195:17,21	207:13	199:16	African 29:8	196:13 198:15
197:7 210:1	Acid 193:6,9	adds 156:2	African-American	allergy 195:2,2,2,3
abnormalities	acids 21:20 176:22	Adequacy 204:6	85:11,14 86:20	196:5
75:17	210:18	adequate 160:20	102:3 124:20	allow 145:22
above-entitled	acres 137:16 138:2	adherence 27:4,6,8	African-America...	160:20 165:6
101:7 214:15	138:3 139:17	43:11 66:2 68:1	85:3,5	allowance 104:9
abroad 11:19 180:7	140:9 153:20,22	74:21 77:19,22	afternoon 3:4 8:12	allowances 121:17
absolute 61:11	155:20 156:1	78:2,5 79:22	10:10 12:2	allowing 58:10
absolutely 38:17	167:3	91:20	age 84:12 85:17,19	allows 18:17 176:6
66:21 74:4,18	act 4:4,7	adherent 112:17,18	86:1,1,19,20,21	alternative 35:4
75:20 77:12 118:3	Acting 3:11	adjourn 214:9	86:21,22 87:2	alternatively 123:5
151:6 200:20	active 135:16	adjourned 214:16	163:22 180:19	alternatives 122:12
academia 136:2	activity 29:17	adjunct 11:3	agencies 181:9	ambitious 80:15
accentuation 84:13	71:22 91:7,16	101:16	185:4 187:3	America 1:1 17:22
84:21 86:7,13	92:1 102:14	adjusting 29:14,17	194:22 197:19	American 14:4,5
accept 40:17 59:16	156:10 167:10	Administration	agency 190:3	24:4 26:4,6 29:9
acceptable 24:2	actual 47:18 112:7	181:13 184:14	196:17	70:15 138:17
access 7:8 11:13	125:10 179:20	Admiral 3:16	agenda 10:8,10	143:5 165:7 172:6
15:16 34:15 40:21	acutely 15:15	adolescent 124:20	175:18	180:18
45:3,20 49:22	Adam 2:6 10:18	adopted 129:8	agents 199:2	Americans 12:12
50:22 51:10 52:6	46:16	adopting 129:11	ages 171:14	17:19 27:15 126:3
52:9,14,14 53:6	adapt 109:7	adoption 129:7	ago 32:20 36:12	136:19,22
53:12,21 54:3,8	adapted 122:11	adults 24:18	54:1 68:20 124:17	America's 167:13
54:11,16,17,22	123:21	advantage 38:22	140:7 160:13	amount 15:5 34:14
55:7,9 56:20	add 56:13 123:19	adverse 32:13 88:1	172:10 197:4	34:16 58:10 76:2
57:16,19 160:1,8	157:19	advice 4:6 16:2	agree 53:6 88:22	82:22 90:11 106:3
167:6 175:1	added 16:19,20	44:14,19	agreed 10:16	110:21 169:2
accessibility 163:4	21:11,11,18,20	advisories 209:1	204:21 208:7	amounts 38:4
accessible 15:17	25:20,20 26:10,10	advisory 1:4 3:8,22	agreements 168:2	104:11 106:8
41:5 45:9,14	26:20 40:20,20	4:4,5 5:9,18 8:5	172:4	191:1 212:16
160:17 162:20	41:18,18 42:13,16	8:15 183:22	agrees 86:12	Amy 182:6
accomplished	43:19 110:18,19	189:21 191:14	137:21 142:6	analyses 76:6
100:12	116:11	192:2	147:2	analysis 184:19
account 16:5 51:9	addition 5:6 98:21	advocacy 142:17	agriculture 1:2	188:11 189:18
192:7	additional 116:10	advocate 48:21	3:14 13:14 17:13	192:10 194:2,2
accounts 58:7	182:4 183:10	117:10	135:4,7 140:16	198:9
accused 32:22	194:21 195:18,20	advocated 49:8	142:4 150:14	analyzing 17:15
achievable 80:17	196:19	advocates 103:14	164:5 165:3	Andrea 18:12
80:18	address 6:21 16:7	103:15 117:11	ahead 47:16 133:9	and/or 88:15
achieve 72:21	33:17 136:11	affect 87:4	171:15 175:11	anecdotal 132:20
81:19 82:14,18	151:4 176:17,18	affiliated 135:6	199:21	anecdotally 56:15
	204:22 209:8	afford 13:2 53:2		animal 142:15

143:17	60:19 101:2	aspect 68:6	143:11,19 144:16	balance 98:6 134:1
Ann 158:6	114:22 131:18	aspects 83:4	145:7	134:7
announced 4:12	135:21 214:4	assessment 189:7	audience 6:3	balanced 146:8
answer 14:7 35:3	appreciation 166:8	190:1,8,12	August 166:1	bananas 154:18
45:22 46:4 103:22	166:10	assigned 93:1	authored 27:13	bank 124:2 129:9
117:17 149:13,14	approach 41:3,6,7	assistance 6:14	author's 65:9	banks 123:17
151:5,6 168:14	41:21 43:6,14	33:4,5	auto 153:1	129:10,13
190:1 200:20	44:20 45:1 74:2	assisting 10:7	automatically	bar 84:15 113:1,2
202:5,6	88:12,18 184:10	associated 29:16,19	40:22	barrier 22:11
answers 144:21	206:5	34:3,8,11 189:10	availability 49:10	173:17
anticipate 139:4	approaches 10:20	189:14	157:6	bars 85:20 86:4,6
141:6 185:2	177:13	Association 14:5	available 7:5,17	base 192:4 200:5
anticipation 140:13	appropriate 41:8	26:7 162:6	15:17 58:20 155:5	based 26:14 41:17
antioxidants 22:5	61:8 88:19	Association's 70:15	159:16 181:18	41:20 42:9,12,19
anybody 86:19	approval 183:11	assume 45:3	189:5 192:6,16	44:19 57:18,18,19
97:10 152:19	approximately 7:6	154:12	194:12 209:13	72:9 74:4 90:17
165:20 210:9	20:3 28:19	assumption 154:15	Avenue 51:21	96:11 105:14,21
apart 106:11	approximation	assumptions	average 74:8,19	119:6 145:18
125:15	44:17	154:13	76:16 78:14 80:12	179:9 180:22
appealing 41:5	APRIL 1:6	assure 4:5 53:11	81:22 136:19	181:15 182:18
45:14	Arbor 158:6	assures 121:16	avoidance 41:17	184:13 189:1,8
appear 98:14	archive 7:8,11	assuring 54:16	42:12 44:20	192:5 210:21
appears 43:17	area 8:17 117:7	ate 36:3 40:3 80:10	avoided 72:14	baseline 73:4
209:14	125:20 187:17	93:6 114:13	aware 87:18 204:14	basic 194:17 196:6
Appel 1:11 53:19	200:15 204:5	154:16 155:17	207:15	196:9
53:20 93:12 95:1	areas 8:21 9:7	Atkins 64:3,4,4,10	axis 19:4,19 78:11	basically 73:12
95:3 99:3 100:1,2	30:16,17 135:16	64:13 65:1,5	78:12	84:3 87:4 160:15
100:18 200:22,22	138:18,19 169:7	66:17 67:1,3,12		170:16,21 171:14
202:16	178:22 183:14	67:16 77:21	B	184:1,17
appetite 38:19	argue 139:22	101:15	B 1:14 130:13	basis 164:5 203:9
appetitive 36:5	141:19	atmosphere 155:11	BACdown 186:13	bean 106:22
applaud 59:16	argument 33:2,3	155:11	back 4:19 25:8	beans 20:10 36:20
102:19	47:2	attach 24:17	27:12 40:12,17	37:1 106:17
apple 37:7 133:17	Armando 130:17	attack 32:20	45:10 73:10 74:22	beautiful 83:9
133:18 172:9,12	arms 90:6,6 91:13	attempts 202:7	79:3 92:9 97:20	124:6 125:9
172:14	array 142:14,15	attend 197:7	107:20 109:1	170:19
apples 37:7 154:18	article 100:20	attendance 78:11	119:7 136:6 138:8	Bedford-Stuyves...
154:21 155:10	123:15	88:14	139:6 140:4 142:3	30:15,20
applicable 83:19	Asia 170:15	attended 78:12,15	160:13 164:6,7,9	beds 150:6
122:9 123:9	Asian 123:21	78:19,20	164:12 170:5	begun 116:7
application 105:3	157:22	Attending 60:1	184:13 197:20	177:18
123:4 184:17	aside 9:20	attention 46:3	205:2,8	behalf 3:9
applied 104:3	asked 14:1 15:3	68:15 83:3 87:7	background 61:14	behavior 12:7 36:5
135:13 181:16	29:1 61:4 117:17	187:18 191:4	165:20	176:17 198:1
apply 212:6	136:11 144:19	attitudes 179:21	backgrounds 165:2	behavioral 61:2
appointment 11:3	151:3 154:4	181:22	bad 46:20 70:12	71:15 77:7 79:18
appreciate 10:17	asking 131:2	attributes 143:10	88:5 147:20,21	97:17 195:20

behaviors 23:19 29:18 130:15 178:4,13 179:4,6 179:20,21 180:4,5 180:21 181:22 183:2,12,17 188:10 197:1 198:2,21	betting 152:20 beverage 14:5,5 40:5 112:1 beverages 19:19 26:19 33:12 34:2 34:6,21 35:6 38:22 39:7 40:2,8 110:14,15,21 111:7,10,13,16,20 134:9 beyond 49:2 50:11 85:19 86:9 132:18 186:10 194:17 196:6,8 207:21 bias 54:15 biases 68:16,21 bid 173:13 174:3,6 bidding 173:1 big 67:6 85:18 109:18 148:17 151:2 152:15 163:20 168:22 201:12 202:18,20 203:15 204:1 209:6 biggest 209:8 bill 110:4,13 172:18 bills 71:18 173:14 bird 143:16 bit 63:16 89:14 109:2 130:3 136:6 136:17 139:2 140:4 152:2 168:9 175:15 185:14 blend 148:3 blind 83:8 blood 61:7 69:8 83:12 84:4,14,17 84:21 85:10,20 86:2,3,13 87:22 94:13 97:22 201:15 blows 150:2 blue 120:8 BMI 29:19 board 128:16 170:9	197:12 body 14:22 35:8 73:6,22 76:4,5 94:9 119:8 body's 39:14 Bolger 190:7 boost 141:15 born 29:8 boroughs 30:11 bottom 34:6 39:5 42:15 65:1 144:22 boy 133:16 Bray 69:11 break 101:4 161:18 171:5 182:10 breast-feeding 96:7 Brian 18:13 bridge 154:10 163:11 bridging 156:7 brief 110:12 208:2 briefly 37:20 83:4 118:3 Brigham 60:2 bright 214:6,11 bring 13:9 22:3 40:12 73:9 125:10 127:16,19 129:12 176:15 bringing 125:12 brings 143:7 broadcasting 6:1 broaden 127:21 broader 15:8 16:9 142:14,15 broccoli 159:4 broken 161:22 164:6,9 Bronx 30:20 Brooklyn 30:15,21 brought 4:19 22:21 137:19 bucket 206:22 budget 146:8 build 13:8 147:3,6 bump 152:7 155:15 bunch 144:21	burned 166:1 burst 59:15 business 156:19 businesses 141:1 156:22 busy 109:8 butter 19:15 124:12 buy 27:19 33:10 47:2 55:6 57:1,6 115:4 125:18 148:17 151:9 buys 34:20 <hr/> C <hr/> c 3:1 43:1,7,8 101:15 130:13 184:2,8,11,22 185:21 186:10 200:1 calcium 43:13 124:9 calculate 18:17,19 24:19 116:20 calculated 42:7 93:15 California 26:2,3 44:9 101:19 102:11 103:19 109:22 110:7,13 111:7 113:20 117:11 120:5 121:12 123:18 124:4 129:10 130:18 132:18 138:5 139:22 140:1,4,16,19 141:8,9 175:22 Californias 138:4 California's 112:11 140:5 call 69:8 196:4 called 41:19 61:19 128:7 142:18 162:5 calling 109:3 calls 181:6 197:14	199:3 caloric 39:6,12 40:4 114:14 calorics 34:4 calorie 16:15 17:7 18:20 35:6 71:20 72:12 81:19 104:9 106:8 calories 16:14,15 16:16,18 19:12,14 19:20 20:2,21 21:5,5,9 26:21 27:20,22 28:8 35:9 37:22 38:1 39:2,11,13,15,21 40:5 44:18 46:19 47:4,6,7 57:2,8 70:8 88:19 89:6 90:3,7,11 110:8,9 110:10 115:17 116:11,22 117:5 126:22 133:12 campaign 184:3,11 186:13 campaigns 185:8 campus 113:5 Canada 213:7 Cancer 11:5 candy 129:18 canned 20:18 canning 199:4,10 cap 110:21 173:10 173:11 174:3,6 capable 39:20 carb 64:3,4 80:9,10 81:9,15 82:22 127:2 carbohydrate 61:16,22 62:10,15 62:18,19 63:22 65:4 70:6,19 74:5 carbohydrates 70:7 card 160:15 163:1 163:14 cardiovascular 59:20 60:6,12
---	---	---	--	---

82:10 87:21 98:1 98:5 cards 163:5,12 care 56:7 180:14 196:12 Carlson 18:12 Carole 1:17 3:5 8:8 carry 64:14 77:17 95:13 case 95:19 cases 22:1,1,2 34:9 36:2 37:10,12 58:16 87:12 160:3 categories 70:2 112:1,3 categorize 208:13 category 23:17 73:16,17 134:9 191:9 causes 202:9 caveat 189:21 CDC 203:10 cellular 151:18 census 32:7 142:3 center 3:12 11:5,7 11:8 18:2 20:11 22:15 23:8 28:15 50:3 101:15 centers 142:9 Center's 102:22 Central 129:9 140:6,8 cents 20:3 cereals 19:17 certain 58:10 62:9 62:9,20 68:16 121:7,21 134:8 certainly 16:18 63:15 67:7 79:16 86:11 87:12 99:19 132:10 171:3,13 197:14 208:9 214:4 certified 143:14 cetera 98:16 132:15 147:7 154:19,19,22	CFSAN 182:19 194:22 195:19 chain 126:17,18 Chair 1:9,10 8:4,7 46:6 53:16 56:9 59:8,13 60:8 87:8 88:7 89:11 91:3 92:5 93:11 95:22 97:19 100:22 101:10,20 131:22 133:9 134:21 167:17 175:10,13 199:21 200:17,21 203:12 208:5 213:22 chaired 175:20 Chairperson 1:7 challenge 12:15 191:22 challenged 149:5 challenges 12:14 chance 72:17 change 12:11 15:18 73:20 78:13 85:6 92:13 93:19 94:9 130:14 140:12 154:16 169:8 changed 12:21 197:1,1 changes 82:3 88:16 93:22 94:2,14 98:12 102:5 180:5 changing 23:18 92:13 182:1 chapter 192:2 characteristics 73:4 143:18 145:7 173:1 182:11 charge 181:8 chart 120:3 199:20 210:11 charts 177:17 cheap 16:15,16,18 40:19 57:1,7 cheaper 16:21 17:1 26:11,18 27:19 28:7 58:20	cheaply 89:10 check 162:13 186:8 186:17 checkmark 134:11 checkmarks 130:11 cheese 107:2 cheeses 20:13 107:3 Cheryl 1:10 92:5,6 203:12 204:3,19 205:9 child 125:12 children 102:15 129:3 131:9 133:11 134:4 189:11 191:5 212:18 children's 102:5 Chile 211:19,21 212:3 213:6 Chinese 172:10 chip 114:5 chips 125:2 chocolate 114:5,7 choice 12:6 23:14 49:3 50:13,15,20 50:21 81:16 127:9 130:13,13 195:20 197:1 choices 11:16 15:10 22:18 26:17 40:14 46:1 50:10 106:18 111:20 130:20 188:17,22 cholesterol 60:5 94:13 choose 88:12 106:9 209:15 212:22 choosing 88:11 Chris 133:9 208:11 208:12 CHRISTINE 1:15 circle 120:6 125:4 circular 181:21 circulated 33:22 circumference	75:15,18,20 76:3 82:2 circumstances 104:19 citizenry 174:22 city 28:17,18 29:6 30:10,11 31:5 32:3 102:7 161:8 161:13,15 claims 115:5 126:18 127:1,2 clarifying 9:6 clarity 107:15 class 116:15 164:10 200:9 classic 36:17 classifications 105:15 classroom 128:8 cleaning 178:20 179:1 183:15 clear 7:22 104:19 104:20 106:10,19 110:11 123:3 126:8 136:19 clearly 7:20 39:20 75:12 99:5 109:17 115:11 194:16 197:22 198:6 Clemens 1:11 175:20,21 193:15 199:15 203:3 204:18 206:21 clients 123:14 climate 140:12 169:8,14 climatic 142:10 climbing 160:8 clinical 26:4 60:12 180:14,16 196:10 203:9 clinically 84:10 Clinton 184:14 close 140:13 closely 17:10 50:4 closer 80:9 clue 151:6	CNPP 18:13 coalition 13:21 103:15 123:17 coast 103:20 coffee 143:13 cohesive 40:14 cola 34:3 36:21 37:21 38:8,18,21 40:9 collaborating 193:5 collaboration 193:5 collaborative 176:21 collapsed 160:12 colleague 41:11 colleagues 67:21 collection 67:6,11 colleges 165:10 color 134:12 colors 130:10 Columbia 36:11 combination 34:22 55:13 209:12 come 15:13 17:14 25:7 28:14,15 31:16 35:15 38:14 45:19 73:22 88:6 109:1 119:7 125:4 128:22 131:16 144:17,20 147:18 149:20 152:21 158:19 159:1,10 159:11,13,15 160:13 165:20 186:22 213:12 comes 12:14 21:14 148:20 157:14 165:15 180:3 181:12 201:2 211:20 coming 16:7 71:9 123:15 135:19 147:19,20 159:9 164:3,7 169:6 172:10 214:14
---	--	---	--	--

commend 17:13	125:6 126:4,11	57:11 108:16	103:4 181:4	27:15 117:9
comment 54:10	130:1 131:1 133:5	comply 4:8	conference 181:6	143:19 158:22
97:20 98:21	134:17 135:7,17	components 61:3	196:4 197:14	178:16 182:14
171:19 189:5	144:17 145:17	91:14 197:3	confidence 38:13	185:11 186:17
197:6,7 203:1	146:2 153:5 162:4	composed 16:20	confirms 44:7,8	187:21 207:6
commented 54:1	community-supp...	70:13	conflicting 115:2	consuming 28:3
comments 5:3	150:14	composition 17:18	confound 40:18	106:3 152:5,6
101:2 202:19	comparator 67:16	18:1,16 47:17	confused 116:3	consumption 29:1
207:14 210:2	compare 180:9	76:5 89:21	confusing 115:2	29:2,5,6,9,15,18
commercial 189:7	compared 37:21	compounds 211:8	confusion 127:12	29:22 30:6,10,13
195:8	38:21 65:2,18	comprehensive	conjunction 136:3	30:22 32:1 40:18
Commissioner	66:16 77:20 81:7	104:18	connect 146:20	44:1,3,4 48:5
28:16	86:15	computer 91:22	Connecticut 163:8	155:22 156:17
committed 73:2	comparing 116:22	108:17	connection 17:5	176:20,22 177:1
committee 1:4 3:8	comparison 64:22	concentrate 179:22	connections 24:5	178:7 184:9
3:19,22 4:3,4,16	99:2	185:12	Conner 158:20	187:14 188:12
4:20 5:4,8,9,12,14	comparisons 70:16	concentrated 142:8	consequences	189:8,9 190:17
5:16,17,18 7:20	74:10	189:1	203:10	191:7 192:4,11,22
8:5,10,11,15,16	compelling 87:13	concentrates	consider 133:14	193:11 198:8,10
9:21 10:12 12:3	compensated	172:10	143:9 195:13	213:20
12:10,14 16:9	114:11	concentrating	consideration	contact 5:10 6:11
27:3 33:17 46:12	compensation	180:15 182:14	16:10	63:9 72:13
48:17 53:22	36:22 37:2,17	209:16	considerations	contacted 185:6
102:19 114:20	competitive 109:22	concept 73:2	69:6	209:4
116:17 117:13	110:5,14 111:8	117:15	considered 70:12	contacts 190:6
144:1 184:1,6	112:6 118:22	concepts 109:13	114:12 167:11	contain 16:19
192:2 202:12	120:1	concern 105:10	208:17	39:18
committees 4:6	competitively	108:11 144:1	Consistent 96:2	contains 21:11
12:17 118:8	173:12	188:13 191:10,13	consistently 138:16	contaminants
201:14	compilation 201:6	199:11 203:16	constant 95:17	208:15,18 209:15
Committee's 5:16	complete 4:8 31:22	206:12 209:9,10	constitutes 126:7	209:19
5:20 14:8 46:4	36:22 192:6	211:9	construct 24:7,10	contaminate
common 111:6	completed 9:8 73:6	concerned 15:22	151:11	208:19
197:20	completely 47:1	143:21 168:4	constructing 45:2	contamination
communicate	50:17 109:17	205:17 210:18	consultations 79:17	190:20
191:19	111:1 188:18	concerns 98:1	consume 35:16	content 19:8 41:17
communities	completers 74:6	105:3,8 115:15	44:18 154:7,8	70:6 100:21
131:17 135:13	75:12	conclusion 122:5	179:16 191:2	192:17 193:19
145:22 146:6	complex 49:17	180:21	consumed 17:19	210:22
166:22 167:7	113:15 209:11	Concord 170:9	24:1 26:12 28:13	CONTENTS 2:1
community 28:18	complexity 108:12	concrete 109:4	90:12 104:12	context 202:22
96:12 102:13,20	compliance 43:14	condition 38:15	191:8	204:1
103:5,8,16 104:4	91:10,12 111:5	180:16	consumer 26:17	continually 125:7
104:14,21 105:10	compliant 111:11	conduct 183:10	114:10 127:8	continue 4:12 9:16
108:10 115:14,22	111:14,17 112:10	194:1	180:4 181:2,12	64:19 77:1 171:15
116:15 118:5,11	112:11,15	conducted 11:14	183:1,11	182:9 185:3
122:9,12,16 123:6	complicated 45:4	11:17 26:1 36:11	consumers 17:9	194:10 198:6,11

214:12	19:4,19,22 20:9	cravings 81:22	curve 66:16	131:7 133:17,19
continued 75:22	20:21 21:2,4	Crawford 2:8	cut 76:10 128:16	134:5,13 147:9
76:18 188:10	22:11 23:3,9	101:5,13,14,20	cute 124:13	197:10 214:10
continuity 31:22	24:10,13,19 25:2	102:17 133:2	cutoff 127:10	days 9:13 26:6
contradiction	25:5,9,12,13,14	134:10	cutoffs 127:7	133:18 134:13
14:18	25:15,15 26:21	create 12:13 24:6	cycle 161:19 171:5	deal 14:20 15:7
contribute 15:4	27:22 33:11 45:5	41:16 102:14	171:6,6	94:12 96:13 105:3
contribution 32:15	46:19 47:7 51:10	119:8 125:18	cycles 71:7	205:17
control 50:11 62:14	51:13 96:18,19	138:11,12 162:8	C.S 135:3,12	dealing 206:2,17
70:12 84:2,16	97:14,14	167:2 171:22		deals 195:1
85:22 95:5 98:3	costly 20:4	creating 164:16	D	dealt 206:15
98:22 184:19	costs 14:16 18:9	creation 156:18,19	D 3:1	dear 15:16 130:22
controlled 95:6	20:8 22:8 27:14	156:20 171:7	daily 72:10 120:21	December 159:14
155:11	45:12 48:7 128:17	credible 104:17	dairy 20:12 23:10	decide 109:21
controls 4:9	170:11	credited 36:16	139:13	112:22 136:22
convenience 15:11	counseling 72:7	crisis 12:20 138:22	danger 139:18	210:21
conventional 64:6	82:13 97:5	criteria 112:9	Danone 14:3	decided 128:21
64:13	counselors 96:11	127:7 200:7	Danziger 77:20	190:4 192:18
converge 80:3	countries 180:9	critical 28:11	DASH 83:6,7,17	decision 174:19
converged 80:12	country 96:22	184:19	84:7,9,20 86:5,11	179:19 180:8
convergence 80:13	137:8,11 139:1,9	critically 151:20	data 17:12 18:14	191:21
conversation	142:2,9,13 147:21	crop 135:8 151:13	18:17,19 24:12,18	declared 147:11
153:15,16,17	153:14 160:15	151:17 164:10	26:7,15 28:12,14	decreased 78:2
conversations	162:14 164:3,22	crops 150:10 158:1	28:21 30:6 31:4	80:9
187:8 190:9,16	170:22 174:22	159:5	32:4 41:10 44:7,8	default 43:4 205:19
209:21	182:17 183:21	cross 31:9 64:18	47:17,18 48:19	define 144:19
converted 170:15	countryside 170:6	cross-contaminat...	58:21 74:1 75:11	defined 16:13 19:2
converting 170:21	county 142:5	184:4	77:15 83:5 87:13	29:2 115:5
convey 122:8	174:10	cross-cutting 9:17	92:11 96:3 118:16	defining 130:10
cooked 19:17 24:2	couple 23:21 79:2	CRP 94:19,20	137:18 151:6	145:4
cookies 37:21 38:3	97:15 126:15	crunchy 113:1	181:2,12,18 182:4	definitely 121:20
38:9,18 114:6	185:4 214:11	CSAs 148:5	182:8,19 192:16	128:11 176:4
cooking 16:1 45:18	course 9:12 30:17	cultural 57:20	194:6 197:8	definition 127:14
55:17 58:17	33:7 39:10 47:15	82:18	201:20 209:4,11	128:1 129:1
cooperative 103:12	57:12,22 88:2	culture 51:9 57:18	209:12 212:4,9	degree 58:14
123:10	89:7 91:13 98:4	144:15	database 5:4 17:17	deliberations 4:17
coordinator 173:19	148:15 160:9	cups 106:5,5	dataset 17:21 18:1	8:1 12:8 102:21
core 116:9	172:3,15 198:14	curious 201:21	18:4,5 31:6	demand 138:12
corn 21:19 164:13	cover 9:18 60:22	current 11:9 34:11	datasets 17:14 18:6	158:19
166:18	108:2 175:6	104:2,16,17	48:12	demographic
corner 161:4,11,12	covered 115:4	138:22	dates 184:13	182:11 193:2
coronary 62:11	CO-EXECUTIVE	currently 102:4	daughter 141:8	demographics
correct 199:8 208:2	1:17,18	135:6 138:5	David 158:20	29:15,17,22 30:1
correctly 38:11,16	co-founder 135:11	142:16 154:17	Davis 1:17 3:3,5	demonstrate 14:15
cost 4:9 13:16	crackers 114:8	172:5 177:20	day 9:20 25:10,10	Demonstration
14:12 15:11 16:14	crafted 131:8	curriculum 108:22	25:10,11 29:3	117:21 119:21
17:7 18:18,21	craving 77:6,10	109:6 123:3,16	36:3 40:4 106:6	demystify 19:6

dense 13:20 24:11 26:18,22 41:4 44:9,15	Detroit 146:9 161:6 161:8,13,15	80:6 81:16 84:2,3 84:8,9,16,20	100:21 154:16	difficulty 118:17
density 16:13 17:6 18:8,18 19:3,5,7 19:10,11,18 20:7 20:12,13,16,19,20 21:2,21 22:16 23:2,12 25:17 28:4 39:1 41:21 42:19 44:12,13,16	develop 102:22	85:22 86:5 89:3 89:20 91:13 93:2 100:3 114:13 138:1 139:16 174:20	difference 37:14 38:17 39:5 40:7,9 62:13 64:8,12,17 65:8 67:16 74:4 74:18 75:13 76:1 76:14,21 78:17,18 80:22 85:9 95:4 95:15,21 99:20,21 154:7 163:17 195:6 211:2	digress 35:2
deny 58:2	developed 122:12 123:10 167:1 177:17 179:17	dietary 1:4 3:7,22 5:8,12 8:5,15 11:18 16:2 17:17 22:12 24:18 27:4 27:6,9 43:12,15 44:13,14 56:5 60:21 70:18,19 74:13 77:10 81:4 88:21 90:1 92:9 92:14 103:9 104:16 109:14 115:16,20 116:17 117:18 118:4,7,15 119:22 120:7,8,10 121:17,17 129:8 130:16 136:7,15 137:2,19,22 138:10 167:12 171:10 182:1 183:22 192:1 195:12 208:4	differences 75:13 77:13 79:7 81:4 95:12 98:15 144:18 152:8 194:9 213:5,8,10	diligently 9:4
Department 1:2,3 3:13,18 13:13 17:12 31:5 59:21 101:17 117:21 153:5,6	developing 18:14 108:22 109:5 123:6	diets 12:13 13:8 16:20,22 18:9 24:7,9,11,13 25:8 25:16 26:9,22 28:4,5,12,20 33:10 41:1 42:3,5 43:4,7,18 44:5 45:2,6 47:18 48:5 61:14,16 65:1,2 65:10 66:16,22 68:15 69:15,20,21 70:9,13 74:15 76:22 77:20 81:5 81:19 82:6,8,16 93:7,18 94:14	different 21:3 38:2 40:8 48:5 49:7 52:3,4 55:6,8 64:1 65:10 66:22 70:11 72:22 73:13 77:5 88:4,5 91:14,15 91:20 93:13 100:21 108:10 111:1 113:6,7,8 115:18 116:19 120:18 121:22 124:9 127:5,7 129:1,7 143:14,19 144:21 155:2 165:4 172:15 179:1,6 180:4 181:9 182:17 183:6 187:20 191:2 192:19,20 193:1,2 199:1 201:17 204:4,5 205:12	dimension 63:18
departments 135:7 136:3	development 102:1 132:9 138:20,22 139:10,12,14 142:22 145:19 146:2,2 151:1 153:15 154:2 156:18 180:10 189:11,15 196:15	diabetic 17:3	difficult 73:9 106:13 113:9 114:17	dioxin 211:8 212:5
depending 106:8 159:14	devices 157:8	Dietetic 26:7	difficulties 6:10,19	dioxin-like 211:8
depends 151:13	devise 71:16	dietitian 79:16 113:19 114:18 137:11		direct 31:13 41:2 148:4
deprivation 30:16	devised 72:8 89:9			directing 102:4
describe 69:15 71:1 128:5	devoted 188:18			directions 69:18
described 79:9 88:10	DFO 1:18			directly 146:21
describing 178:15 179:20	DHHS 1:19,20 176:13			director 3:12 10:22 11:6 101:14 112:21 113:18,21 129:3
descriptors 132:11	diabetes 11:12 31:16,17 32:6 82:12 89:5 96:9			directors 103:14 173:22 174:2
deserts 55:3	diabetic 17:3			disagree 33:7 205:11 212:9
design 35:12,13 68:12 70:6	Dictionary 147:11			disclosed 170:8
designated 3:6 126:21	die 151:18			disclosure 13:11
designed 70:10	diet 11:17 13:15,16 14:11,12,14 17:8 17:8 24:4,19 25:2 25:4,5,13,14,14 25:15 27:4,7,8 32:1 41:13,17 42:17 43:11,15 44:9,17 45:11,12 62:5,10,15 63:10 63:22,22 64:4,4,6 64:10,13 65:1,3,4 65:6,12,12,16,18 66:17 67:1,1,2,3,7 67:12 68:5,20 70:3,11,12,12,13 72:9,16 73:1 74:9 77:13 78:4 79:11			disconnect 131:12 137:21
designers 50:5				discourage 129:17
designing 70:9				discovered 98:9
desire 39:14 57:18				discretionary 104:9 115:17 116:10
desperately 157:1				discriminate 42:4 43:6
desserts 20:5 124:11				discrimination 43:10
destroys 151:19				discuss 61:2,5,14 193:8
detail 69:16 71:1 196:18,18				discussed 67:21 107:11 120:14
determine 54:19				discussion 8:2 132:20 165:17 166:20 175:2
determining 127:5				discussions 9:17 129:21

disparities 32:8,15	donations 129:15	49:15 50:14,17	25:18,19 27:16	effects 88:1 201:15
disparity 22:7	Donna 196:20	51:2,6,19 52:5,8	28:6 36:7 39:14	201:15 212:17
distance 152:1,9	door 18:22 52:17	52:11,16,19,22	44:10,21 55:12	efficiency 7:3
distant 152:12	53:2 55:1	53:11,14 54:14	61:21 82:22 88:4	effort 109:20 133:1
distinct 93:21 94:2	dose 61:6 70:7,20	56:18 57:9,12,21	91:1 107:4 109:16	176:21
distinguish 52:13	double 83:8 85:10	59:2,12	115:3 129:3	eggs 20:10
104:7	149:22 150:3	Drewnowski's 11:9	136:19 137:2	eight 72:7 127:1
distribution 31:3	163:11	dried 20:18	191:16 203:17	194:18 196:6,9
212:13	doubly-labeled	drift 92:9	210:21	either 54:18 119:22
district 118:8	71:19	drifted 92:18 93:3	eaten 99:9 124:22	156:21 164:22
124:14	Doug 32:20	93:9	eating 27:2,10 28:6	210:16 211:4
districts 113:20	doughnut 116:22	drink 33:11 107:1	47:4 68:4 93:2	elaborate 104:1
119:17,20 173:11	downside 87:19	drinking 37:3	125:8 154:17	electrolyte 110:20
173:21 174:5,9	downsides 87:15	110:19	212:20	electronic 160:11
divergent 67:7	Dr 1:7 3:9,11 8:5	drinks 34:4,4	EBT 162:19	162:20
72:18	10:18 11:6,9 12:1	110:17	economic 12:20	elementary 127:15
diverse 142:6 147:8	37:5 47:12,15	drive 26:17	26:16 33:20 34:15	eloquently 88:10
diversity 158:15	48:1,4,9 49:15	driven 15:10	49:12 52:14 54:16	embedded 70:6
divorced 137:9	50:14,17 51:2,6	drop 66:8	54:22 55:8 138:22	embrace 205:7
documenting	51:19 52:5,8,11	dropouts 67:3 68:8	142:10,21 145:19	emerging 186:3,21
178:13 179:10	52:16,19,22 53:11	68:9	146:2 150:22	190:14 199:13
documents 185:10	53:14 54:14 56:18	dropping 210:7	152:18 153:15	emphasis 81:21
dogs 106:21	57:9,12,21 59:2	drought 140:10	154:2 156:10,17	89:2 95:20 186:16
doing 25:6 48:10	59:12,19,19 60:4	169:15	economically 153:3	emphasize 55:10
52:12 69:11 94:7	60:15,17 87:18	DRPH 1:11	economics 12:6	82:7 100:10
97:9 99:12 105:8	89:1 90:13 91:17	Drug 181:13	34:19 40:13	empty 16:16 28:7
109:8 111:4 115:9	92:16 94:5 95:2,9	dry 19:9,17 106:17	economies 167:6	enables 6:2
115:10 116:21	97:1 99:1 100:15	due 212:8	economists 50:5	encounter 96:15
125:11 131:19	100:19 101:5,12	dwell 89:17	53:8	encourage 42:1,20
132:19 137:1	101:14,20 102:17	dynamic 148:3	economy 139:5	129:16
141:9,9 149:11	133:2 134:10	dyslipidemia 81:14	154:10 155:16	encouraged 16:8
157:6 158:17	135:2,16,20	D.C 3:4	educate 207:6	63:9
160:18 163:18	137:14 168:13		education 26:12	ended 131:5
174:11,12,16	170:12 171:8,18	E	29:11 45:18 55:17	endorse 189:20
178:16 179:11	172:7 175:12	e 1:12 3:1,1 6:12	99:17 107:12,14	endorsed 184:1
182:15 189:6	176:21 198:8	eardrums 59:15	108:13,16 109:11	endorsing 185:3
dollar 21:6,8,10	205:14 207:9	earlier 31:5 99:4	117:22 118:14,18	ends 13:1
26:21 162:10	draft 189:4	159:11 160:3	120:1 121:10,11	energy 10:17 16:13
173:10	drafted 180:22	earliest 159:1	123:12,13 124:1	17:6,7 18:17,18
dollars 21:4 156:2	dramatically 78:2	early 77:15 80:8	146:3 185:6	19:3,4,5,7,11 20:7
156:3,10 162:11	92:13 157:4	95:11 157:17,18	effect 37:10,11,12	20:7,12,13,16,19
163:13,14 170:10	drastically 154:16	158:11,14 159:5	37:13 48:17 61:6	20:20 21:2,2,4,21
170:14 173:3,9	drawing 125:21	178:1 214:7,11	70:20 83:14 84:1	22:8 23:2,3,9,10
domestic 139:21	dressings 19:16	East 30:14 31:11	84:9 85:18 86:7	23:11 24:10,14
169:4 170:1,4	Drewnowski 2:6	Eastside 31:10,19	effective 104:5	25:17 26:18,21
domestically 138:6	10:19 11:6 12:1	easy 28:5	effectiveness 91:12	28:3 39:1 44:3,12
Don 71:15	47:12,15 48:1,4,9	eat 17:21 25:17,18	96:18,20 200:6	71:18 88:20 106:4

149:18 214:5	72:20 73:3	exacerbate 115:7	exists 202:14	extracted 9:9
energy-dense 16:13	Eric 1:14 53:18	exact 39:9	expand 150:21	extreme 169:14
19:9 23:5 27:21	56:9,11 89:12,13	exactly 34:14,16	157:7 158:12,14	extremely 31:20
33:10 58:1	210:5	37:22 48:4 71:18	Expanded 123:12	63:20 79:5
energy-density	ERS 137:18	79:10 112:16	expanding 157:3	eyes 195:14
28:5	especially 15:3	116:20 131:11	expenditures 153:9	eye-opening 34:13
engagement 5:8	108:13 177:18	134:14	expense 198:14	e-counseling 79:18
engages 135:13	190:21	Examination 17:20	expensive 23:6,12	e-mail 6:17,21
engaging 166:16	essentially 24:22	41:14 47:20	23:13 47:9 89:8	e-mails 7:1
enhance 144:5	26:8 56:17 153:7	examined 204:8	experience 6:10	
145:10	163:11 209:8,10	examining 102:11	125:22 169:13,15	F
enhancing 143:4	established 4:5	203:5	experienced 172:8	fabric 165:7
167:10	estimate 139:7	example 52:2 55:3	198:4	FACA 4:4,4 5:7
enjoy 114:22	203:22	57:2 61:21 74:14	experiment 88:3	face 58:1
enormous 129:22	et 98:16 132:15	80:6 81:5 91:21	experimental 35:14	faces 12:15
ensure 170:4	147:6 154:18,19	94:18 98:9 104:5	90:6	facilitate 7:22
194:12	154:21	105:18 106:15	experiments 77:16	fact 22:16,18 26:11
ensuring 141:12	ethnic 182:17	107:12 109:20	expert 2:5 60:13	27:5 28:7 29:14
enter 47:11 68:17	Euros 25:9,10,10	116:14 121:14	expertise 8:22	30:2 44:18 51:14
entire 127:3 170:17	25:11	122:10 127:13	10:13 177:5	64:14 67:14 90:20
entirely 204:4	evaluating 102:5,9	128:13 157:10	experts 9:1 16:6	91:14 98:3 112:15
entities 195:8	102:12 111:5	161:6 172:17	77:8 190:16	132:17 139:7
entrepreneurial	evaluations 59:5	174:10 185:17	191:11 209:3	144:9 148:21
161:18	132:17	191:16 209:5	explain 94:4	149:9 160:3
environment 48:18	event 6:16 7:16	examples 71:8	116:12 185:19	164:15 167:4
49:18 103:2 150:7	events 87:21	116:12,14 120:15	explanation 95:8	174:7,20 196:11
165:11,16,17	169:14,16	120:17 121:9	explicitly 120:1	207:3,9
environmental	everybody 56:3	126:9,15	explore 194:10	factor 75:16 81:12
143:17	87:5 128:1 148:16	excellent 46:7	196:17 198:11	88:14
environments 49:2	152:21 160:8	49:16 52:22 59:14	explored 194:20	factorial 70:17
51:14 102:15	165:16 167:7	89:11 101:2	exploring 195:5	factors 15:10,13
EPA 189:21 209:22	174:22 187:4	134:22 167:17	exposure 25:3	16:4 34:22 49:1
epidemiologic 34:1	210:12	175:10 176:12	196:1 197:2	49:13 81:5 82:4
102:1	everybody's 87:5	194:19 214:1	exposures 57:20	82:10 90:21 102:2
epidemiological	evidence 12:6,17	exceptional 38:8	express 12:3	108:7
11:18	13:10 14:13,15	exceptions 32:4	expresses 115:11	fail 33:19
epidemiologists	77:5 86:11,12	excess 35:6	extended 194:17	faint 137:12
25:1	132:12,22 133:4	excited 5:22 114:15	extension 103:12	fair 36:9 89:15
epidemiology 11:3	179:5,12 180:3,9	196:6,16 197:5,18	123:11 155:8	109:18 143:15
50:7	181:3 184:16	excuse 61:12	159:20 199:1	167:9
equal 24:21 42:9	185:1,21 196:22	executive 3:7,11	extensive 11:14	fairly 29:4 78:1
72:17 114:14	200:5,9,14 202:14	87:10	extent 33:8 39:9	145:16 182:7
151:22	203:19 211:13	exercise 72:10	45:19 50:19 84:8	185:2
equally 23:22 24:1	212:5	91:12	91:10 139:6 145:3	fall 56:1 173:4
equals 19:21	evidence-based	exhaustive 17:22	146:3 164:8	178:5 207:4
equipment 178:21	196:19	exist 22:20	extra 44:17 116:21	209:22
equipoise 69:1	evolved 132:10	existence 22:10	117:5	falls 106:11

familiar 10:2 184:12	40:20 41:18,19 42:14,17 43:1,19	federally-manda... 153:9	175:17,18 177:15 178:3,12 182:13	followed 24:22
families 31:14 150:15	44:20 61:15,22 62:10,15 63:7,12	feds 173:9	204:20	following 7:7 8:1 10:7 33:9 37:1
fan 150:1	63:17 64:6 65:4 65:12,15,18 66:9	feed 210:14 211:9	fish 20:11 176:19	110:16 184:10
far 22:2 88:11 115:1 136:19	66:12 67:2 69:21 69:22 70:1,1,3,18	feedback 7:12 72:10 88:15	177:1 178:7 188:12,14 189:7,9	follow-up 7:14 79:19 87:20 96:3
194:8 210:1 211:14	74:5 75:16 76:6,7 80:6 81:5,8,9	feeding 95:6	190:16,20,22 191:1,6,8,16	208:8,9
farm 148:6 150:13 150:15 156:5	82:11 90:2,3,7,11 90:11,15,19,21	feel 36:14 75:1 123:9	192:4,10,16,20,22 193:1,11,19,21	food 2:10 9:13 11:15,16 12:5,6
158:10 161:17 164:6,12,22 165:1	91:1 93:1,2 97:21 98:7,7,10,13,18	felt 10:12 122:20 204:12	194:3 198:7,9 203:17 205:4	12:12,12,13 13:12 14:14,16 15:9
165:19 166:7,9 172:18	98:18 99:5,7,9,11 99:14,14,18 100:3	FFA 166:15	208:21 209:1,2,17 210:8,21 212:19	14:14,16 15:9 17:6,17 18:4,4,8
farmed 205:4 210:10,14 211:8	100:7,8,13,14,20 106:15,18,18	fiber 22:4 38:4 62:17 114:1	213:6,14,20	19:2 20:8,22 21:9 22:18,19 23:14,17
211:15 212:5 213:1	107:3 110:8,9 112:13 113:22	field 35:11 132:8	fit 68:21 125:2,7,13 134:18 171:2	23:17 24:17 26:17 27:14,14 33:4,5
farmer 162:15 163:15,17 170:8	114:1,11 117:1 121:4 127:1	field-grown 157:11	206:22,22	40:13 43:17 45:15 47:18 52:4 53:8
170:20 172:6	128:10	fifth 133:19	fits 124:15	54:6,7 55:3 56:17 57:16,22 77:6,10
farmers 54:2 148:5 156:3,4 158:7,8	fats 16:20 21:20 25:21 26:20 28:3	FightBAC 184:2,8 184:11,22 185:21	five 14:8 25:10 42:9 53:22 76:11 106:9	102:14 103:14 104:5,10 112:2,20
158:17,22 159:2 160:12,16,21	91:2 100:10 114:16	186:10 200:1	133:18 143:14 156:11 163:13	113:15,18,20 114:3,9,13 115:1
162:4,6,9,10,13 162:15,19 163:12	fattening 32:22	figure 94:10 108:14 130:5 131:11	164:13 213:4	117:11 123:12,13 123:17 124:1
164:2,17 171:13 173:22 174:1	fatty 21:20 176:22 193:6,9 210:18	figuring 164:15	Five-a-day 108:17 171:12	126:7,14 127:13 128:17 129:9,9,10
207:10	fat/bad 99:18	filling 161:9	flavored 114:7	129:13 135:9,12 135:14,17,18
farming 164:1 165:2,13,14,20	favor 172:6	final 159:22	floor 46:11	136:14 141:12,14 141:17 142:18
166:14	favorable 82:3 183:4	finally 81:3 127:22 130:21 133:18	flow 16:11	143:9,10,11,15 144:2,3 145:4,8
farmland 138:17 138:20	FDA 181:2 182:4,7 182:19 185:5	163:20 169:16	flowing 174:8	145:14,20,21 146:5 147:16
farms 156:20,22 164:4,14 166:13	186:11 189:4,18 189:21 190:4,7	find 133:22 137:15 142:5 162:14	flows 175:22	148:4,19,22 152:12 160:4,10
175:5 207:1,3	192:8 211:7	201:1 202:15	focus 44:13 45:1 93:9 105:6 107:20	160:11 161:8 163:22 165:7
farm-to-school 173:19	FDA/USDA 207:4	finding 38:8 89:2	109:14 113:16 122:17 147:1	166:3 167:11 168:11 169:18
fashion 192:6	fed 95:17	findings 60:20 67:6 82:6 96:21 103:7	213:12	170:2,4 173:21 174:2 175:19,22
fast 54:18 61:10	federal 3:6 4:4,13 118:9 126:2	192:7	focused 11:10 114:21	176:8,8,22 177:4 178:4,10,11,13,16
faster 64:6	173:16 174:15 181:1,7,11 183:19	firmly 156:14,15	114:21	178:17,20,21
fat 14:22 21:11 26:10,10 38:3,4	185:4,8 186:5 187:3 209:1	first 10:18 17:16 22:9 42:10 46:17	focusing 201:3 213:21	
		47:14 60:13 61:13 64:2 67:13 79:2	folks 103:14 123:6 195:19 197:11	
		97:15 103:22 104:15 105:10,11	follow 53:21 71:17 111:22 112:2	
		110:4 114:11 120:20 124:18	137:2 188:8 202:17 203:14	
		128:6 134:19 137:6 157:14	207:13	

179:4,6 180:4,13 180:15,20 181:2,8 181:12,13,14,21 182:8 183:3,3,4,6 183:13,14,17,20 184:3,20 185:5 186:1,3,22 187:3 188:9 193:6,14 194:12,16,17 195:1,2,2,3,7 196:1,5,8,13 197:2,3,22 198:1 198:3,7,9,12,12 198:15,21 199:5 200:15 202:2 205:18,18,21,21 206:1 207:5,11,22 208:15 foodborne 179:9 208:14 foods 11:13 12:19 13:2,5,7,20,21 15:16 16:13,19,21 17:6,19 18:8 19:5 19:7,9,9 20:14 21:2,17 22:14,17 22:17 23:5,12,13 23:16,22 24:6,8 24:10 26:18 27:19 27:21 28:1 32:12 34:1,20,20 41:3 42:20 44:15 45:9 45:14,21 49:1,14 49:20 51:3 52:6 52:17 53:12 54:19 55:6 58:2,19 62:1 62:16,20 70:10 82:9 90:17 93:6,7 102:10 104:7,11 106:16 108:1 109:16,18,22 110:5 111:4,6,8 111:10,15,17,19 112:5,6 113:21 115:4 116:9,9,9 118:22 121:16 123:19,19,20,21	124:22 125:7,8 127:6 128:18,22 129:4,13,19 130:6 130:10 134:9,18 179:2,14,14,16 183:15 184:4,9 187:10,14,15,20 187:22 188:2 195:22 199:10 204:11,11 206:8,8 206:8,12 208:19 209:20 212:20 food-based 105:12 food-safety 180:6 Force 200:12 forces 27:20,22 forget 16:1 22:7 26:19 34:18 41:5 forgetting 32:14 forgotten 114:22 148:14 form 15:4 39:16 formal 190:9 former 165:1 formula 34:10 forth 62:2 71:11 77:11 fortune 176:7 forward 9:5 131:20 175:17 fossil 149:18 found 39:17 66:6 78:6 80:1 81:2 96:6 100:8 107:21 112:5 124:21 165:18 193:21 foundation 163:8 four 10:11,15 64:22 69:15 72:5,6 74:8 74:13,14,15 75:21 77:20 78:3 79:11 91:13 93:18 100:21 103:21 105:11 118:12 125:12,21 127:2 136:11 150:16 164:13 177:16	184:2 fourth 115:16 119:5 four-and-a-half 25:9 framework 178:5 185:3 Framingham 93:15 93:19 94:6,8,10 France 14:3 24:12 Francisco 62:12 Frank 2:7 59:19 60:15 89:16 91:5 93:12 100:2 frankly 187:7 207:16 Fred 11:4 free 6:11 38:3 56:17 57:14 58:5 106:19 114:1 134:6 168:1 French 13:17 24:17 24:18 25:22 26:7 44:7 frequent 29:1,6,15 29:18 30:10,13 frequently 23:22 fresh 58:10 114:5 138:6 149:10 150:16 155:5 157:20 158:13 161:4 163:12 169:2,4,13 171:15 172:14 175:7 freshly 34:7 Friday 127:17 fried 20:19 Frieden 28:16 friendly 143:16 188:7 friends 170:20 front 115:9 186:11 fronts 93:14 frost 157:14 frozen 187:10 fructose 21:19 fruit 20:15,17,18	20:18 34:7,8 43:22 48:6 58:6 58:11 105:21 106:5 107:10 110:18 127:19 171:3 fruits 23:10 56:16 105:18 106:3 107:14 129:16 136:17 137:3 139:8,21 142:14 149:10 151:19 167:3 171:16 172:5 186:12 fruit-based 110:17 fuel 149:18 FUKAGAWA 1:10 Fulgoni 41:11 full 4:15,20 13:11 62:1,15 125:4 fullest 48:18 fullness 36:6 38:14 39:8 fully 71:12 184:1 full-service 161:12 fun 147:13 function 11:15 208:3 fundamental 14:10 45:10 fundamentally 50:10 funded 13:13,16,20 14:1 funding 118:9 fun-shaped 114:7 further 14:15 50:19 80:14 98:20 102:9 132:5 140:5 174:18 190:6,9,11 future 12:8 69:18 76:9 82:21 97:17 141:13 146:18 147:5 154:1 197:17	G 3:1 gain 27:1 61:17 64:10 66:10,18 gained 76:16 78:21 gap 154:6,10 156:8 gastroenteritis 201:8 gathering 9:5 181:10 general 14:4 63:2 120:20 209:19 generalize 132:18 generalized 69:5 generally 35:13 75:7 212:19 generate 149:10 156:9,11 generated 164:2 generates 156:4 generation 164:16 Genesee 174:10 gentlemen 3:3 geographic 30:6,11 30:21 172:22 George 69:11 Germany 14:4 getting 26:5 71:13 108:9 118:6 128:17 134:6 141:14 156:14 157:11,13,17,18 159:4 164:4 199:7 girls 102:3 124:20 125:1 give 4:1 5:15 39:3 45:22 57:13,14,16 64:18 69:16 77:2 126:8,15 135:2 138:2 160:22 172:18 177:10 178:8 195:17 207:9 given 13:5 15:17 17:8 35:17 38:19 49:21 63:12 174:3 gives 21:9 38:13 132:4 161:20
--	---	--	--	--

giving 161:17	141:16 146:17	greater 76:12,13	155:1,1,4 158:18	HACCP 184:17,18
glad 205:7	158:3 161:1,2	114:14 144:5	163:22 166:3	half 68:11 70:3,4
glass 150:3	162:22 163:19,21	146:3 196:17,18	168:5,6	84:19 112:16
global 88:3 147:19	164:4,5,9,12,17	green 46:20 47:3,7	growing 149:7	139:20 164:11
148:11 169:21	164:20 169:9,13	129:17 130:3	150:9 166:18	172:11 213:19
172:5	169:15 170:4	greenhouse 149:17	grows 175:22	Hamm 2:9 135:3
globalizing 168:3	171:4,22 172:1	149:18	Growth 101:22	135:20 137:14
glycemic 21:19	174:5,8,17,18	greens 20:17 51:4	124:19	168:13 170:12
62:19	175:5 177:10	157:21,22 159:5	guess 46:17 56:21	171:8,18 172:7
go 20:14 21:7 23:9	178:14 190:13	grew 149:3	61:10 112:8 200:3	175:12 205:15
23:12 25:8,13	191:22 193:4	grocery 137:8	202:4 206:17	207:9
27:14 36:2 46:2	195:11 197:15	148:8 161:4,11,12	guest 214:5	Hamm's 135:16
49:1 50:18 51:8	200:2,4 207:8	ground 149:12,21	guidance 3:7,22	hand 43:5 178:17
61:9 81:10,11	210:17	grounds 90:10	103:10 109:4,9	189:9,13
82:21 83:4 84:22	good 3:4 8:11 12:2	group 20:14 22:18	117:7 126:6 188:6	handled 151:13
92:19 97:16,20	17:22 22:6 34:8	22:19 23:14,17	guide 12:8 129:9	152:9
103:19 120:15	58:2 66:6 68:22	45:15 62:14 63:5	130:16,19 201:20	handling 178:17
125:8,18 133:9	74:21 77:2,16	63:7,7,10,12,16	guideline 132:9	183:3 186:12
134:17 141:21	94:15 99:17	63:17,19 65:21,22	guidelines 1:4 5:9	hands 63:15 67:8
142:3 143:13,14	105:18 114:4	66:4 69:12 70:18	5:13 8:5,15 16:2	179:15
144:22 148:2	128:12 134:3	71:7 72:4 76:20	22:12 27:4,6,9	hand-washing
161:19 165:3	167:4 182:15	77:13 78:10 79:10	43:12,15 44:14	183:12
166:14 171:15	governed 4:3	81:8 82:15 86:19	56:2,5 60:12	happen 68:19
174:18 185:13	government 13:18	89:12 91:21 98:17	70:14,15 89:4	137:5,6,10,15
193:8 199:21	122:7 181:8	99:8,11,14 101:3	90:1 103:10 104:2	happened 84:7
206:3,20 207:21	grade 200:9	124:8 135:12	104:16 105:14,16	100:3 173:6 185:7
208:9	gradient 29:13	158:20 165:9	105:17,21 108:15	happening 131:11
goal 71:22 72:19	grain 117:1	166:12 173:20	109:10,14,19	182:16
84:19 130:6 182:5	grains 62:2	176:11 198:9	111:1 115:16,21	happens 35:13
goals 72:12 80:1,4	gram 84:19	205:1	116:17 117:19	happy 46:4 87:7
80:16 118:14	grams 16:14 19:12	groups 9:15 17:2	118:4,7,15 119:1	hard 99:19 112:1
167:14	19:15 38:2 39:2	19:2 20:9,22	119:22 120:7,9,10	113:12 117:4
goes 19:11 20:17	83:21,21	28:13 42:9 43:18	121:8,18 122:8,15	123:2 157:14
38:10 84:16 100:7	granola 113:1,2	55:5,5 64:17 72:2	123:7 126:2 129:8	166:3
151:15 197:20	grant 164:4	72:13 74:9 75:10	130:15 131:3,8,21	hardest 169:9
going 9:1 10:5	grape 170:16	75:21 76:1,14	136:7,15 137:2,19	Harlem 30:14,14
17:12 21:10 25:20	grapes 170:9,20,21	78:4 79:11 81:10	137:22 138:10	30:19 31:11,19
31:9,18 44:12	graph 46:18 74:11	82:3 86:16 93:5	167:13 171:2,10	Harry 36:11
45:10 47:5 56:13	graphic 138:17	97:7,8,8 99:16	171:11 180:2,17	Harvard 59:21
59:10 61:9,13	graphics 124:6	103:16 106:12	182:2 183:22	60:3 69:10
71:8 83:3,11,12	grateful 11:20	107:20 108:3	192:1 195:12	harvest 151:17,20
85:15 87:9 88:3	gratitude 59:17	113:7 117:10	196:9 197:9	harvested 151:14
89:9 94:20 96:16	gravitate 80:19	122:13 125:6	199:13 200:8	hashing 214:8
103:8 104:13	great 48:14 53:20	142:17 182:17,18	207:2,4,12 208:4	Hazards 184:18
105:6,11 109:1	58:7 77:14 114:4	191:15 214:6	guys 206:17	HDL 81:10 94:13
118:2 132:3 135:1	116:4 161:21,21	grow 140:20 147:6		head 100:17 162:17
137:2 139:6 140:8	202:2	150:10,17 154:21		health 1:3 3:18
			H	

11:7 12:5 13:17 14:22 15:21 16:1 17:20 28:16,18,20 28:22 31:6 32:12 32:13,13,16 34:9 35:1 40:21 41:13 47:19 50:3,8 54:20 59:22 98:8 101:16,18,22 115:5 124:19 126:18 127:1,2 143:4 144:6 145:11 146:1 147:1 153:6,6,8 154:3,6 156:8,16 180:14 196:12 201:13 203:9 213:10 healthcare 96:21 healthful 70:14 healthfulness 148:21 healthier 12:13 13:8 41:1 43:4 45:2,6 129:12 151:4 healthiest 12:18 130:6 healthily 115:4 healthy 11:13 24:7 27:9,15 53:12 89:3 93:7 102:8 102:14 104:8 107:22 124:4 126:7,13,20,21 127:4,6,13,17,18 127:21 128:7,19 128:22 129:4,5,15 130:10 132:14 133:15,21 134:1,4 134:5 138:1 139:16 141:12 147:2,3,5,6,6,7 174:20 180:18 190:17 hear 4:21 9:1,10 60:10 101:5	108:12 115:12 116:7 122:14 heard 56:14 hearing 10:11 102:20 195:10 heart 69:7 70:15 89:4 102:2 130:22 189:12,16 201:16 heat 149:19,19,21 Heights 30:14 held 200:16 help 12:7 24:6 45:13 53:1 122:16 130:9,19 145:10 163:16 167:1,13 helpful 105:22 108:21 109:12 122:18,22 helping 88:20 175:4 helps 113:13 hemolytic-uremic 201:9 herring 152:11 high 21:19,19 22:15 23:9 29:10 29:11 43:8 61:16 62:10,15 65:3,12 65:15 69:22 70:1 78:1 84:17 90:22 93:1 113:5,22 114:2 138:20 146:10,17 157:5,9 157:15 158:9 159:8 161:19 190:22 191:9 212:21 higher 20:13,18,20 28:3,4 29:19 39:19 43:1,15,20 48:5 81:8,9 99:7 100:13,14 106:7 119:3 highest 25:15,15 30:12,18 81:15 146:13 highly 10:13	138:19 141:22 high-risk 184:9 historic 12:9 hit 71:4 128:10 169:9 198:14 home 36:2 96:9 125:12 161:8 178:13,16 179:2,8 180:5 182:15 183:15 184:21 194:13 195:7 198:2,13 199:4,9 200:15 206:3,16 hometown 150:8 home-based 202:1 202:8 honey 113:2 honored 102:18 135:22 hoop 149:22 hope 12:7 hopefully 87:1 197:6 hoping 57:5 Horn 1:7,9 8:6,7,8 46:6,8 53:16 56:9 59:8,13 87:8 88:7 89:11 91:3 92:5 93:11 95:22 97:19 100:22 101:10 131:22 133:9 134:21 167:17 175:10,13 199:21 200:17,21 203:12 208:5 213:22 Hospital 60:2 host 67:20 hot 106:21 148:15 176:18 hours 35:18 36:1 house 149:22 households 187:12 huge 22:7 78:17,18 hugely 16:3 51:11 human 1:3 3:18 31:6 35:8 39:14 135:9 144:14,16	144:17 hundred 156:9 hundreds 103:5 107:21 hunger 36:6 37:11 37:12 38:6,14 39:8 hungry 14:17 27:17 Hutchinson 11:5 hydrated 19:10 Hygiene 31:6 hypertension 60:6 83:5 hypertensive 84:13 85:4 hypertensives 83:10 85:11,13 86:20 hypotheses 69:4 hypothesis 69:18 hypothesized 70:21 hypothetical 52:1 <hr/> I <hr/> idea 97:13 129:20 138:3 147:17 158:11 160:22 161:16 168:1,2 identical 30:3 75:21 identified 8:21 88:1 183:1 186:6 187:8 187:16 188:15 identify 41:3 45:8 45:13 185:14 186:2 identifying 23:15 ill 32:12,13 40:21 illegal 172:21 illness 202:2 208:14 illnesses 179:9 illuminate 168:9,14 168:15 illustrate 24:13 26:16	imagine 64:15 125:17 immediately 27:20 35:18,21 immense 32:8 immigrants 164:21 immigration 92:12 impact 39:19 102:10,13 177:2 179:7 impacts 193:22 implementation 102:11 171:11 implications 195:3 196:8 203:6 204:13 implying 56:22 import 169:2,5 importance 45:18 important 7:22 10:6 16:3 32:14 51:11 53:15 59:5 59:7 63:20 64:19 66:14 67:22 68:2 68:14 72:14 79:20 82:14 84:11 96:4 96:10 97:3 110:1 122:20 151:21 167:21 169:21 177:7 187:22 192:14 194:1,15 200:15 201:4 208:22 210:4 213:10 importantly 186:2 improve 14:11 45:11 102:10 148:21 175:4 improved 82:11 improvements 144:12 189:10 improving 96:8 imputed 74:1 incapable 35:8 inches 82:2 include 22:11,17 56:3 96:21 103:12
---	---	---	---	--

109:14 115:16 120:10 135:17 197:15,16 included 77:8 115:20 184:7 187:7 includes 42:20 148:4 including 65:3 180:12 208:7 income 17:2 28:13 49:6 51:15,16 52:2 55:4,5 96:9 incomes 12:5 16:4 45:4 51:20 inconclusive 37:9 inconsistent 5:18 incorporate 197:8 incorporated 198:13 increase 19:21 31:18 155:22 161:4 169:3,14,15 169:17 199:3 increased 80:11 128:15 increasing 15:6 17:3,3 156:16 increment 19:21 index 21:20 25:3 27:10 41:17,19 62:19 indicate 207:2 indicated 30:18 140:8 197:4 indices 44:19 indirect 148:5 individual 24:20 50:11 72:6 79:7 82:17 91:22 individuals 5:10 6:4 10:12 123:1 187:2,2,17 193:2 industry 14:2 30:7 153:1 184:20 inexpensive 40:19 influence 183:16	influential 49:5 information 5:11 6:9,12 7:7 9:6,8 56:6 68:1 103:18 105:5 107:8 117:8 117:18 118:5,10 118:18 119:2 120:7,11,13 122:6 122:8 123:7 126:13 181:1,10 188:7 189:1 195:18,21 196:3 199:9 informed 71:12 190:21 191:21 196:12 ingestion 37:1 ingredient 128:3 ingredients 128:6 initial 45:10 initially 56:22 initiated 181:17 initiating 196:21 initiative 98:8 102:7 186:13 initiatives 185:9 186:9 innovative 10:20 inside 150:5,6 158:1 161:8 174:15 insight 194:5 Inspection 181:14 Institute 14:6 Institutes 13:17 Institution 69:8 institutions 69:13 instructive 29:5 insulation 150:4 insulin 81:10,15 98:16 insurance 32:16 162:8,10,16 intake 24:18 35:6 37:11,13 52:4 61:8 80:9,20 88:21 90:2,15,16	92:19 93:8 102:6 106:7 114:14 intakes 43:2,13 80:5 82:8 integrated 145:13 integrating 188:19 integrity 121:15 intended 68:18 intensification 83:14 84:4 intensity 72:1 intention 82:1 intentions 69:1 interaction 79:12 79:21 85:18 91:11 interest 102:19 125:20 131:18 132:2 165:12,12 165:15 186:15 204:10,11 interested 6:3 79:6 165:11,21 174:12 186:9 interesting 25:7 29:21 44:2,6 67:4 76:8 91:18 108:20 121:1 124:5 131:13 133:11 147:13 189:8 interestingly 76:15 international 6:15 14:3 internationally 6:5 internet 8:13 79:18 97:11 interpret 67:5 intervals 36:7 intervene 28:10 intervention 90:6 92:10 interventions 102:13 interview 118:16 interviews 187:1 inter-correlated 92:2 intimated 92:7	intriguing 195:16 intrinsically 25:5 introduce 10:1 59:18 60:14 128:14 invaluable 105:2 inverse 21:1,13 23:4 inversely 19:8 investigators 67:8 72:15,22 investment 202:5 invite 197:11 inviting 12:4 involved 60:4 in-home 178:4 179:4 180:20 183:1,11 188:9 198:21 IOM 188:17 189:17,19 192:5 192:12 Iowa 117:22 120:5 irrelevant 124:21 irrigation 140:15 Israeli 89:17,18 90:4 issue 15:7,15 20:21 26:16 28:11 33:17 36:10 40:12 49:10 51:13 53:7,8,15 53:22 54:11 61:5 96:16 97:20 98:21 98:22 99:21 115:16 120:22 128:10 138:15 148:12 152:11 187:15 188:13 189:9 191:18 197:20 199:14 203:15 207:17 209:6 210:4 211:15 issued 182:2 189:4 issues 9:17 16:8,9 34:19 57:22 61:7 145:21 146:21	163:21 168:5 176:16 180:13,15 186:3,22 187:9 196:5 197:22 198:3 202:3 203:6 204:7 207:7,16,21 208:8 214:8 items 126:21 <hr/> J <hr/> J 1:11 Janet 53:22 January 8:16 jelly 36:20 37:1 jerk 100:6 Jersey 149:2 JOANNE 1:15 job 43:21 44:1 115:10 156:18,19 161:20 jobs 156:5,6,11 jogging 103:19 join 11:21 joining 47:17 48:11 joint 11:4 Journal 26:4,6 28:22 juice 37:6,8 38:21 39:7 40:10 110:18 170:16,19 172:9 juices 34:7,8 175:6 July 157:12 166:1 jump 167:18 June 157:17 jurisdiction 209:22 justify 154:14 juxtaposing 98:2 <hr/> K <hr/> K 1:10 110:6,15 148:7 173:2 kale 58:18 Kansas 102:7 KATHRYN 1:18 Kathy 65:14 Katie 195:17 keep 72:3 89:6 138:14 157:18
--	---	--	---	---

168:16 195:14 198:4 Kellie 194:20 196:20 Kentucky 128:15 key 82:20 88:13 90:22 97:4 181:7 183:20 184:2 187:1,2,16 kids 124:4,14 128:3 164:3,9,11 165:10 killed 172:11 kilocals 71:19 kilograms 74:8,20 76:12,21 78:13,15 78:20,22 kind 33:2 36:14 40:14 44:11 62:4 68:12 73:13 80:11 81:1 91:19 93:3 94:21 113:13 117:8 127:11 136:6,12 147:12 147:13 152:7,10 153:8 161:1 166:1 190:8 196:21 204:4 205:20 210:16 kinds 40:8 73:13 79:7 88:16 107:5 115:12 120:18 121:11 124:22 142:22 143:18 144:15 145:1,6,7 157:8 165:4 207:7 King 53:22 Kissileff 36:11 kitchens 179:15 knee 100:6 knew 71:7,13 knife 124:12 know 21:12,12,16 46:18,19 47:6 48:16 49:3,6,8 51:17 54:1,2,3 58:18 62:9 68:3,5 69:3 74:16 75:15	77:14 84:11 86:22 89:15,19 90:15 92:22 93:4,5,14 93:19 94:1,2,3,8 95:5,7,9,10 96:3,6 97:12,15 98:8,17 99:2,2,6,17 100:5 100:7,9,10,11,12 100:15 105:15,20 106:13,14,20 107:1,4 108:2,5,9 109:4 111:20 115:8,20 116:4 117:6,14 119:13 120:22 124:1,14 125:18 127:11,18 129:20 130:4,7 131:12,18 133:6 134:4 137:1,20 140:3 146:15 147:10 149:6 151:17 154:12 158:16 168:13 171:12 176:5 178:18 183:21 185:15,16,20 188:1,12 189:3 195:11 199:8 200:11,13 201:5,6 201:7,8,12,14 202:4,17,20,21 203:1 204:14 205:14,21 206:9 206:13 207:1 208:8 210:11,15 211:15 212:14 213:9,11 knowledge 15:22 45:20 55:11,13,15 56:4,6 58:17 179:21 181:22 known 209:15 <hr/> L <hr/> L 1:15,15 lab 37:4,5 labeled 177:19,21	labeling 195:2,3 labels 128:3 laboratory 28:15 35:15,16 lack 32:16 68:1 105:12 129:5 202:4 Ladies 3:3 land 139:11 140:22 140:22 141:1,3 154:1 164:4 Lando 182:6 lands 195:14 landscape 145:14 154:1 language 119:15 121:21 122:2 large 68:8 82:7 113:19 124:14 139:6 145:3 164:21 179:13 192:16 largely 106:12 larger 63:1 83:18 204:10 209:14 largest 120:6 large-scale 102:13 Larry 53:17,19 56:14,21 93:11 99:3 100:1 200:17 200:21,22 203:4 lastly 177:3 late 8:15 158:11,14 195:13 198:4 lately 178:19 198:22 latest 159:12,15 181:18 Latino 130:18 Latinos 96:8 Laughter 137:13 204:17 launched 184:14 186:11,14 lavalier 177:6 LAWRENCE 1:11 lay 104:10	layer 149:22 150:5 layers 150:2 LD 1:9 LDL 81:6 98:19 99:6,15 LDLs 99:10 lead 26:22 40:22 43:4 69:6 89:14 209:15 leader 10:19 leaders 103:16 leading 102:9 leads 69:3 158:21 leafy 46:20 47:3,7 51:4 lean 106:15,18 124:8 leap 16:22 118:20 learn 89:5 173:22 174:1 learned 194:14 214:2 learning 126:10 lectured 164:10 led 40:2,5 53:22 93:18 leeway 174:15 left 21:18 79:2 114:10 153:10 166:2 188:3 205:15 legislation 102:10 110:2,3,6 111:2,6 111:12,14,22 112:8,12 legislature 173:5 173:15 lesser 84:8 lettuce 157:21 162:17 let's 16:1 26:18 41:5 58:1 63:21 85:2 93:1 94:5 99:7 138:9,11 154:6,8,12 155:13 158:12 172:21 level 23:8,11 24:20	70:18 85:15 87:16 97:21 104:4 105:10 118:11 121:15 122:18 126:1 134:19,19 177:19,21 178:8 180:10 182:17 191:6 202:10 levels 77:22 81:6 88:5 106:8 188:14 192:20 liability 162:10,15 liberty 14:9 Library 181:3 lifelong 161:20 lifting 119:9 limit 41:20 42:1,21 61:11 limitations 34:20 67:19,20 limited 50:21 51:15 51:16,20 52:2 54:4 160:5,7 limiting 40:21 41:7 43:3 45:3,21 121:7 limits 112:14,14 188:2 Linda 1:7,9 8:6,8 46:8 60:18 102:17 195:15 line 6:17 39:5 65:1 69:4 72:17 75:22 115:9 134:3 144:22 linear 23:1 70:20 83:14,15 144:13 link 20:7 32:11 121:11 156:15 162:18 linkages 167:2 linked 17:10 18:5 29:7,9,12 189:18 linking 18:6 159:19 links 11:11 14:15 lipid 98:11 lipids 97:22 98:16
--	--	---	--	--

liquid 15:4 33:18 35:6,8,16 38:18 39:16,18	173:11 174:8 204:11 205:13,21 206:7,22 207:1,10 209:1	166:17 193:20 196:4 198:1	134:11,11	macronutrient 33:14 69:17 71:2 71:4 72:11 80:1,4 80:4,16 81:20 82:8 90:16 92:18 93:8
liquids 36:12,21 37:14 39:12	locales 88:4	looks 76:6 201:3 208:13	low 23:10 24:13 29:10,10 33:11 42:22 43:1,7 49:6 55:4 61:15,22 62:10,14,18 63:7 63:12,17,22 64:3 64:4,6 65:4,18 66:9,12 67:2 69:20 70:1 80:6 80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	macronutrients 14:21 32:12 40:13 40:19,20 60:21 61:1 77:5
liquor 161:9	locally 145:12	lose 62:3,6,7 65:15 68:10 76:18 77:1 95:19 140:14 169:22	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	mailed 6:13
list 105:11 110:16 112:4 183:11 210:8	locals 148:16 173:8	losing 95:20	lower 14:12 17:2 20:9,12 24:10 25:13,16 26:12,13 27:22 28:12,13 44:4 66:16 85:15 86:3 98:10,17,18 98:19 106:7 146:11	main 180:1 188:12 188:13 191:10
listening 59:15 202:19	location 30:1,7,11 30:22	loss 34:12 60:21 61:2,3,17 62:5,13 63:8 64:5,12 65:5 65:19,21 66:5,22 69:2 71:2 73:11 74:8,19,19 75:19 75:19 76:10,11 78:10 79:8,14 80:18 81:17,19,22 82:7,14,16 89:21 90:8 92:3 99:8	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	maintain 82:14
listen-only 5:1	locations 76:8	lost 26:21 60:9,16 62:8 63:11 66:12 69:9 76:21 78:14 78:19 88:9 91:7 99:8	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	maintaining 14:12 45:12 96:5 169:1
Listeria 186:14,16	log 23:2,3	lot 48:16 57:3 62:19 63:8 64:1 65:22 72:3 78:9 79:13 83:13 85:14 111:18 122:14 136:1 138:7 142:9 143:10 146:9 148:1 151:8 153:22 155:1,2 159:9,11 160:14 165:9 166:4 169:12 174:7 178:5 181:10 182:3 186:15 187:12 206:19 214:3	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	major 178:18
lists 17:18	logic 16:11 32:9 33:9	lots 61:22 125:19 128:16 187:9	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	majority 174:4
lit 177:18 178:1	logistical 142:10	Louis 150:8	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	making 88:11 188:20 203:19
literally 49:6	log/log 22:22	love 115:22 117:14 119:9 123:14,14 131:5 133:6	80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	male 29:7
literature 8:20 9:7 148:15 151:8 178:15 180:7,13 182:20 183:10 185:13 188:11,19 188:20 192:9,13 202:13 206:13	long 87:19 88:17,18 145:10 160:12 188:2		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	man 152:20
182:20 183:10 185:13 188:11,19 188:20 192:9,13 202:13 206:13	longer 37:15 68:10 114:2,3		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	manage 88:16 151:20
little 63:11 91:15 99:13 109:1 124:11,12 125:13 130:2,3 133:16 134:6 136:6,17 140:4 152:2 168:9 175:15 185:14	longtime 61:15		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	management 5:13 151:16 194:12
182:20 183:10 185:13 188:11,19 188:20 192:9,13 202:13 206:13	long-term 64:21 82:18 87:19 89:20 199:4,10		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	manager 104:10
live 6:1 7:19 22:13 51:14,20 54:5 140:22 149:1 157:10 166:13	look 23:7 31:4 33:21 38:6 46:13 47:22 48:1,6 70:5 70:16 81:11 85:2 89:22 112:4,19 126:17 129:6 131:20 132:21 145:8,12 146:11 154:6 163:22 164:1 169:7 176:22 177:3 180:6 181:21 194:15 196:22 198:2,7 200:3,5 204:13		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	managers 104:6
51:14,20 54:5 140:22 149:1 157:10 166:13	looked 12:17 79:15 83:19 184:6 194:6 197:11		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	Manhattan 31:2,3 31:21 32:3
lived 51:17 52:3	looking 18:7 36:4 41:12 84:20 91:19 92:4 97:13 119:19 126:19 143:20		80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	mantra 100:5
lively 9:16			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	map 120:16 121:20 138:18,21
living 52:17			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	maps 31:2
loaded 170:16			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	Marie 158:5
loads 179:8			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	market 54:6 157:20 158:11 159:2,21 162:6,11 162:15 170:17 171:7 172:5,12,14 175:8
local 117:20 119:20 132:14 142:18 147:16,17,18 148:4,5,6,14,17 149:8 151:4,9,12 152:8,11 156:16 156:17 161:4 167:6 168:11			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	marketer 15:12
			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	marketing 68:16 122:18
			80:10 81:5,9 82:11 84:14,18,18 85:1 93:2 96:9 97:14 99:11,14 106:15,18 107:3 113:22 114:1 126:22 127:1,2 155:10 191:7	marketplace 143:20 158:15

markets 54:2 148:5 158:7,22 160:12 160:16,22 162:14 162:19 163:12 Marshal 196:2 Marshall 197:12 materials 183:7 matter 82:15 97:21 101:7 179:11 214:16 matters 55:1 Mattes 37:5 mayonnaise 19:16 McGregor 83:8 McManus 65:14 McMURRY 1:18 MD 1:10,11,13,14 1:15 meal 35:17,20,22 36:8 71:18 124:4 125:16,19 meals 148:8 mean 24:16 27:2 42:7 51:16 52:1 57:4 75:19 89:16 93:5 97:4,6 99:4 99:13,18 107:2 109:8 112:9,20 113:11 116:21 117:3 127:18 129:21 130:5 134:14 146:6 153:4 154:9 155:16 163:22 201:11,13 205:13 205:22 206:5 212:8 means 23:5 26:13 43:2 52:8 119:11 141:11 147:15 153:5,11 155:19 177:19,22 measure 27:8 35:21 36:1,17 measured 27:5 measurement 74:1 measurements	73:10 75:1 94:20 measures 27:7,10 91:21 207:9 measuring 36:5 119:19 meat 20:10 106:16 124:7,7 201:10 mechanism 35:4 mechanisms 196:7 media 68:15 Medical 60:3 medicine 11:4 60:3 Mediterranean 65:12,21 66:4,9 66:12 67:1 68:20 Mediterranean-s... 65:16 medium 6:2 84:18 84:18,22 156:21 meet 13:1 105:16 121:16 meeting 1:5,7 3:21 4:11,20,22 6:20 7:3,7,9,13,13,18 8:4,14 9:18,22 112:7 131:7,9 193:8 194:7 204:20 meetings 4:15,18 181:7 197:13 megajoules 25:12 member 1:10,11,11 1:12,12,13,13,14 1:14,15,15 5:15 11:4 46:15 47:13 47:21 48:3,8,13 50:12,16 51:1,5 51:12,22 52:7,10 52:15,18,21 53:10 53:13,19 56:11,19 57:10,13 58:21 59:6 60:11 89:13 91:4 92:6 93:12 95:1,3 96:1 100:1 100:18 128:16 132:8 133:10 167:20 170:7,13	171:9,21 175:21 177:8 193:15 198:19 199:15,19 199:22 200:19,22 201:22 202:16 203:3,13 204:3,18 205:10 206:21 207:13 208:12,20 210:5 211:6,11,12 211:17,19,20,22 212:8,11,12 members 5:9,14 7:20 9:21 46:12 103:15 104:15,21 men 29:20 mention 79:22 118:15 119:22 120:8 mentioned 93:22 99:4 116:7 187:5 menu 127:3 menus 71:6 126:20 mercury 208:15 210:22 211:1 213:13,13,13,16 213:21 merely 51:3 mergers 136:2 message 6:1 108:4 123:4 134:16 messages 107:10 108:2,8,12 122:19 123:2 171:13 184:2 met 8:16 metabolic 17:4 32:6 61:18 75:17 82:12 methodology 190:11 methylmercury 176:19 177:2 188:14 189:13 190:19 191:1,9 192:17,20 193:18 202:20 203:5,15 209:2,7,13,17	Mexican 29:8 Michael 2:9 135:3 Michigan 135:4 146:6,12 149:1,4 150:7 152:16,22 153:13 154:21 155:1,17,17,21 157:10 158:3 160:6 161:3,22 162:6,7 163:9 164:18,18 172:8 173:10,15,16 Michigan's 172:11 microclimates 155:3 microwave 187:5 187:10,11 microwaves 187:13 mid 157:18 middle 22:13,17 85:7,19,22 86:1 129:19 172:13 midtown 51:18 Midwest 149:4 MIFMA 162:6 migrant 164:22 165:1 Mike 132:4 167:18 167:21 176:3,9 190:7 197:12 mild 86:20 mildly 84:12 milestones 8:17 milk 20:13 38:21 39:7,8 40:10 106:17,17 107:1 110:20 milligram 86:14,14 milligrams 87:4,17 milliliters 38:2 millimole 83:20 85:9 millimoles 83:11 83:11 84:6 85:6 million 131:6 136:22 137:16 138:2,3 139:17	140:20,20,21 153:19 155:18 156:2,3,9 162:9 167:3 Mills 14:4 Mim 46:13,15 205:11 207:16 Mim's 207:14 mind 34:3 168:16 182:6 198:5 minerals 22:5 mini 186:12 minimal 21:21 minority 29:7 minute 35:3 151:1 minutes 46:10 72:1 87:9 91:8 MIRIAM 1:12 misconceptions 208:3 misperception 213:20 missing 213:19 mission 102:22 Missouri 150:8 mixed 41:22 mode 5:1 model 27:11 105:20 119:6 168:10 models 96:10 97:13 119:9,9 132:13 154:13 moderate 83:9 Mom 133:19 moment 31:8 151:14,15 moments 197:4 monetary 25:3 money 15:15 45:20 55:11,13,16,18 56:4,7 153:7 158:4 163:10,16 monitor 109:22 monitoring 6:17 7:2 213:5 month 26:3 74:12
---	--	--	---	--

77:18 134:14 155:6 months 64:3,11,16 65:19,20,20 66:2 66:10,19 67:13 71:21 72:5 74:20 74:22 75:1,5,6,9 75:12,20 76:1,17 76:19 77:13,14 78:1 80:9 95:14 95:21 155:8,9 157:19 158:1 morals 144:14 morning 136:21 214:7,10 Morningside 30:14 mother 133:16 mothers 107:20 motivated 71:14 123:1 motivational 71:10 Mott 135:3,12 mouth 151:15 move 9:4 24:8 32:9 40:11 59:10 63:21 135:1 141:1 175:11,16 moved 150:9 movement 92:20 147:17 187:15 moving 44:2 50:8 138:16 144:4 145:8 163:9 188:9 MPH 1:11,14,15 MSU 135:11 150:13 164:9 MSW 1:19 Muskegon 158:5 MyPyramid 118:16 121:10	national 13:16 14:2 15:6 17:20 18:4 24:17 41:13 47:19 69:7 108:20 142:20 148:11 nationally 181:16 natural 88:3 naturally 26:22 nature 98:7 112:22 113:1 202:3 Neal 63:5 near 130:21 146:18 nearly 103:4 necessarily 23:22 43:4,20 45:22 48:22 58:18 63:3 98:11 160:19 171:1 need 13:4,6 16:4 22:10 24:2,5 40:1 45:7 51:6 57:1,7 59:10 74:16 79:6 89:6 90:14 98:6 108:16 130:14,15 130:19 131:2 139:16,22 140:1 141:15,20 145:15 145:16 155:15,20 157:1 161:22 162:18 165:4 167:3 169:18,22 188:5,6 203:22 needed 8:22 153:20 166:10 204:8,13 needs 106:5 125:22 126:1 140:21,22 140:22 141:1 187:17 189:2 190:21 negative 193:22 neighborhood 49:20,21 52:3 97:8 neighborhoods 15:18 32:17 49:14 neither 63:19 NEL 181:3 182:20	192:9 Nelson 1:12 46:15 46:16 47:13,21 48:3,8,13 50:12 50:16 51:1,5,12 51:22 52:7,10,15 52:18,21 53:10,13 205:10 neurological 189:11,15 212:17 never 79:3 146:7 165:19 174:5 new 6:2 28:17,18 29:6 30:10,11 31:5 32:3 48:19 58:9 60:11,20 125:5 129:10 131:20 140:7 148:16 149:2,2 170:10 171:16 178:9 193:13 194:6 204:10 205:8 news 176:19 178:19 newspaper 128:14 NHANES 42:6 NHLBI 60:8,11 101:22 NIAID 195:1 196:3 197:11 nice 23:1 44:1 132:21 nicely 99:6 Nickols-Richard... 1:12 198:19,20 nine 66:10 82:1 nominal 198:13 nominated 204:15 non 85:4,13 non-African-Am... 85:12 non-domestic 169:5 normally 157:10 normotensive 85:4 normotensives 85:12,14	notably 16:4 note 6:22 167:15 193:17 195:9 notes 6:19 notice 4:13 10:16 19:19 20:6,9,16 20:20 23:4 29:5 34:1 37:22 39:10 43:18 78:17 notion 55:11 novelty 68:14 November 157:19 nuanced 51:7 number 6:14 15:13 27:19 35:5 39:2 49:19 55:20 77:4 77:9 78:12 117:16 118:21 132:13 160:7 176:16 181:6 186:7 188:15 191:14 194:21 199:3 202:3 numbers 100:16 nurture 147:4 nutrient 13:19,20 17:18 18:1,8,9,16 18:22 22:15 24:14 25:16 41:4,21 42:19 44:9,13,14 44:16 45:4 47:17 105:13 112:2 114:21 204:6 206:9 nutrients 18:20,20 41:20,22 42:1,20 42:21 43:3 109:15 109:17 111:3 113:17 193:20,21 nutrient-dense 12:19 13:5,6 23:16 44:5 nutrient-rich 28:1 45:9 51:2 62:16 nutrition 3:12 11:7 15:22 16:2 17:17 17:20 18:3 26:4	41:14 45:18 47:20 50:3,7 55:16 59:21 60:5 101:21 103:13 104:2 107:12,13 108:13 108:15,22 109:11 115:5 116:15 117:20 118:14,18 119:3,20 121:9 122:8 123:12 126:2,3 129:2 135:10 143:9 181:3 nutritional 11:1 21:21 73:14 101:17 114:2 121:14 nutritionist 15:21 nutritious 12:19 151:5,10,12,12 152:2 nuts 20:10
O				
O 3:1 204:21				
oats 113:1				
obese 17:2 33:4,6 33:12,15 73:17 95:18				
obesity 10:21 11:8 11:11,11 14:16 15:4,6 17:10 29:12 30:1,2,18 31:1,4,8,10,11,14 31:15 32:2,6 34:3 102:2				
objective 4:7 71:3				
observation 4:16				
observational 68:13				
observed 36:22 37:2				
obtain 72:10				
obvious 67:10 74:17				
obviously 15:9 21:10 30:12 90:21				
N				
N 3:1				
NAFTA 172:3				
name 7:21				
NAOMI 1:10				
nation 6:4				

99:12 108:7 132:9	132:4 195:14	177:2 180:6 183:6	Park 51:20	patience 176:2
OB/GYNs 203:16	Opening 2:4	183:18	part 4:14 16:3 24:4	patients 62:12 63:6
occasion 12:10	operationalize	outreach 135:14	32:18,18 49:7	73:10 76:16 78:20
occur 4:17	121:3 130:8	outs 66:8	58:11 91:7 96:13	79:1,4 80:2 84:12
occurred 80:14	134:15	outside 8:22 10:13	96:21 109:18	86:8 92:8
October 157:13	operations 5:19	56:1 211:14	114:19 120:6	patient's 82:17
offer 8:9	opinion 144:18	outstanding 101:1	130:2,3 146:11	Patricia 2:8 101:12
Officer 3:6	opinions 73:1	214:1	164:14 165:6	pattern 64:2 67:10
official 146:15	116:19	ovens 187:12	176:20 184:8	92:9
offset 193:22	opportunities 5:2	overall 11:16 23:4	185:18 196:18	patterns 92:14
oh 95:2 99:1 196:14	194:11	82:2	207:16 213:14	121:20 192:22
200:17	opportunity 60:19	overblown 54:13	partial 92:20	pay 10:14 25:17,18
oil 19:12 170:15	116:5 120:13	overeat 28:5	participants 5:1	96:17 97:10
oils 19:14 20:1	122:3 131:16	overeating 26:22	6:15,18 8:12	paying 25:19 83:2
okay 33:9 48:13	146:20 157:3	overemphasize	41:13 42:6,8	Pearson 1:13 91:4
60:17 64:9 65:11	159:19 167:12	45:17	47:19 68:4,11	91:5 132:8 170:7
67:5 71:22 73:18	181:20 207:6	overnight 160:12	71:4,17 72:9,16	170:13 171:9,21
74:11 81:3 83:7	208:1	172:12	73:21 76:18 78:14	199:22
85:2,17,20,22	opposed 39:12	overstated 92:17	80:2,8,19	Pearson's 176:21
92:16 94:5 100:18	169:20	overview 61:1	participate 5:2	198:9
103:21 113:22	opposite 63:21	overweight 14:18	146:1	pediatric 103:1
125:21 130:13	64:18 65:3 189:14	73:16 103:2	participating 6:5	peer 96:11 97:7
138:9 149:8	opt 206:18	Oxford 147:11	participation 8:10	PENELOPE 1:19
151:21 152:15	optimize 126:2		66:3,13 79:8	Peninsula 146:12
154:5,12 157:5	options 41:8 169:1	P	91:21,22 97:5	158:4
159:1,21 161:15	orange 40:9 86:6	P 3:1	particular 78:4,5	Pennington 69:10
163:3 169:1	oranges 154:18,21	package 32:18	82:22 177:1	72:8 77:8
172:22 202:16	order 1:7 14:10	58:11 125:16	207:17	Pennsylvania
212:11	22:8 24:6 136:13	packages 125:13	particularly 7:22	118:1 120:5
old 141:8	Oregon 127:16	125:18,19 128:4	61:6 103:2 108:20	Penny 3:16
older 86:1,4	organic 143:15	128:22	parties 6:3	people 10:2 12:21
omega-3 210:17	148:16 150:13	packaging 128:21	partner 69:11	12:22 13:1 15:22
OmniCarb 60:10	165:14,19,21	PAGE 2:3	partners 103:5,9	22:3 24:6 25:4
OmniHeart 94:1	204:11 205:13,21	pages 32:21 107:21	103:11,19 122:16	26:12,15 28:11,19
95:16,17 99:3,4	206:5,8,12 209:5	paid 25:4 163:15	126:11	33:3,4,10 35:5
once 25:6 134:14	organized 9:9	191:4	partnership 3:17	42:16,18 44:18,21
151:17	oriented 200:14	palette 114:10	185:5	51:20 53:3,3
ones 107:4 112:17	origin 184:13,22	pane 150:3	Partnerships 102:8	55:20 56:19 57:1
112:18 120:8	original 34:10 65:9	panel 60:13	parts 30:20 164:19	57:6,14,14,18
169:8 186:19	127:14	paper 27:12 33:22	passed 110:1,14	58:17 59:15 65:15
one's 114:10	Ornish 65:3 77:21	93:17 100:4	173:14	69:14 70:1 71:12
ongoing 82:13	ounce 29:3	160:10	pasta 19:18	72:3,8 76:22
88:13,15	outbreaks 202:2,8	paradigm 61:15,19	pat 124:12 132:1	78:18,19 81:14
online 5:4	outcome 73:20	62:8,21	134:22 176:2	82:22 83:22 86:4
on-farm 156:5	75:18 93:16 94:9	paradoxically 27:1	path 139:10,14	86:8,22 88:12,15
open 4:7,14,16 9:22	outcomes 14:22	paramount 71:3	209:16 210:2	88:20 89:2 91:1
18:21 46:11 88:8	32:13,14 73:19	parents 49:8	pathogen 179:8	92:12 95:18 96:4

96:9,11 97:8	211:19,22 212:11	125:9 150:12	24:13 49:12 63:14	positions 187:2
100:11 103:12	perfectly 171:2	190:14	64:8 74:14 75:3	positive 116:1
105:12 107:1,4	performance	pictures 123:19	77:18,18 87:1	possibilities 33:16
109:3 114:12	121:15	piece 148:14	92:19 97:22 119:5	possible 14:11,17
115:3,13 116:6	period 197:6,7	155:14 196:15	124:10 139:18	45:11 88:11 107:9
118:10 133:6	persistent 209:5	pieces 110:1,3	150:20 153:12	107:15 145:5,6
140:21 143:11	211:2	111:2,5	166:21 172:1	possibly 107:17
146:1 147:7,10,16	person 42:8 52:2	pilot 56:15 58:5	175:16 203:21	post 3:10,11 32:21
151:3 152:4	personal 49:3	PI-SUNYER 1:14	pointing 23:15 41:8	151:20
154:15 155:18	50:13,15 82:17	place 107:6 113:10	points 6:8 76:10	posted 7:17
158:13 160:4,5,21	personally 5:11	159:8 168:11	118:12 158:3	post-harvest
163:4 166:5,8,13	90:13	187:9	175:10 184:19	151:16 155:10
166:17 179:11	personnel 109:21	places 141:22	214:1	potatoes 20:19,19
181:7 186:4	perspective 207:22	142:13 161:7	policies 102:12	potential 87:3,5
188:21 191:20	perspectives	164:20 169:12,16	117:18 119:1,6,6	142:13,22
192:18 212:22	144:15	plain 39:12 40:6	119:10,14 122:4	poultry 106:17
perceived 68:18	pertinent 9:5	plan 214:10	policy 3:12 18:3	pounds 60:9,16
perceiving 39:21	pessimistic 58:14	planned 181:19	50:8 60:5 103:3	66:10,13 69:9
percent 22:8 31:11	pesticides 208:18	planners 50:5	117:11 118:13,19	82:1 88:9 91:7
31:14 34:7 37:16	209:20 210:8,14	planning 104:11	120:19 121:2,12	99:8
37:17 39:7 68:9	211:3 212:16,21	192:3	121:14 132:15	poverty 11:10
69:21,22 70:4,4,8	213:2,6	plans 9:6 71:18	pollutants 209:6	12:22 14:16 17:9
70:8 73:7,15,16	PHD 1:9,10,10,12	179:18	pool 163:16 164:21	29:10,10,10 30:2
73:22 74:7,22	1:12,13,13,15	plants 147:4,6,6	pooling 163:9	30:16,22 31:3,14
76:11,12 80:7,11	phenomenal 118:4	150:7 157:16	poor 24:15 32:22	31:15 32:2,15
81:7,8 86:17	phenomenon 81:2	plastic 150:1,6	33:3,4,10	40:21 45:5 49:5
87:13 90:2,7,10	philanthropic	plate 123:16,18,22	pop 203:8	power 12:11,14
90:19 98:10 99:15	163:10,16	124:18 125:3,7,9	POPs 209:6 211:7	35:7 49:20
99:20 110:8,8,9	phone 181:17	125:13 132:14	popular 34:3	practical 128:9
110:18 111:13,15	199:3	205:3	198:15	practice 119:14
131:9 133:11	phrasing 204:9	Plaut 196:2	population 13:8	130:16 190:17
138:5 139:8,13,13	physical 29:16 52:9	play 144:17	24:21 62:7 63:1,3	196:11
140:14 146:14,16	52:14 54:17,18	please 6:22 10:1	80:12 83:19 84:11	praying 162:16
153:21 155:14,22	71:22 91:7,15	11:22 59:16 101:4	86:16,18 87:14	pre 80:3,3
156:1,8 160:6	92:1	pleased 195:17	98:4 130:18	precisely 190:2
161:9 208:22	Physician 60:1	200:2	140:18,19 143:5	preclude 5:19
percentage 68:8	physicians 196:11	pleasure 59:18	144:6 145:11	preface 202:17
112:10 169:4	physiological 193:3	60:14	153:21 164:1	preference 57:22
percentages 152:3	phytochemicals	plenty 23:14 95:18	169:17,18 174:21	preferences 11:15
perception 211:3	22:6	210:17 213:3	180:2,19 182:12	51:9 82:18
212:21 213:1	picked 121:21	plot 32:5	191:3	preferencing
Perez-Escamilla	picking 133:17	plots 23:1	populations 11:12	172:22 173:13
1:13 96:1,2	PICO 177:17	plunge 10:9	62:21 165:6	preferentially 17:1
167:20 177:8	199:20 205:5	plus 40:5 202:3	population-based	pregnancy 191:17
199:19 200:19	210:11	pocket 21:8	78:5 80:16	203:17
201:22 203:13	picture 15:9 16:3	pockets 156:2,4	portfolio 148:19	pregnant 191:4,16
208:20 211:6,12	32:18 43:9 81:12	point 12:18 21:15	portion 110:11	203:16 210:20

212:15	191:11,12	209:14 210:20	products 20:12	provide 4:6 26:20
preload 35:12,17	prevalence 29:11	problematic 43:3	23:11 106:17	27:21 39:1 56:5,7
Premier 79:19	30:9,13,18 31:8	104:3	110:20 142:16	109:9 117:7 126:5
prepackaged	31:10,11	problems 68:2	172:7	126:6,12 150:15
128:18	prevent 61:17	131:19 160:10	professor 11:2	provided 39:15
preparation 24:3	preventative 153:7	201:13	59:20 60:2 101:16	73:6 132:11,13
178:17,21,22	prevention 10:21	PROCAM 94:18	135:3	providers 196:12
183:3,13,14	59:20 184:3	procedures 25:1	profile 100:13	provides 44:16
prepare 179:14	Preventive 200:12	proceed 101:12	profiles 38:7	providing 5:3 20:2
prepared 179:2	previous 60:22	proceeding 35:8	profound 166:7,10	58:5 103:11 105:1
preparing 106:16	66:18 72:18 81:1	182:21	program 11:1	167:6
present 1:8,16 9:14	92:18,21	proceeds 6:20	56:17 58:5,9	proximately 84:19
12:5 18:10,15	previously 173:9	process 4:15 5:3	66:11 68:7 71:1	proximity 52:12
21:3	pre-specified 73:19	48:10,11 177:22	75:8 79:17 102:8	54:18,18
presentation 7:4	price 34:15,19	178:2	123:12,13 128:17	psychological
46:7 53:20 59:14	47:18 172:2	processed 115:4	148:8 160:4 162:9	71:11
91:5 92:8 101:1	prices 13:12 14:14	processing 106:13	162:21 163:7	psychologists 71:15
132:5 167:22	16:5 17:6 18:4,5	129:5	173:2 185:21	77:7
175:14 177:6	24:17 128:15	produce 137:7	200:2	PT 1:19
190:10 193:13	price-related 18:22	138:6,7,7 139:16	programs 58:13	public 4:7,11,13,17
presentations 2:5	primarily 165:14	139:17,20 142:14	59:1 66:7 148:7	4:20,22 5:2,21 6:8
5:15 176:4 214:2	primary 73:18,19	150:16 155:20,21	160:14 161:2	6:18 7:3,19 8:1,12
214:12	107:13	157:21,22,22	165:5 166:15	9:22 10:7 11:7
presented 35:20,22	principles 184:18	158:10 161:4	183:19 186:5	15:21 45:8,13
48:20 87:12 182:7	prior 83:7 138:21	162:3,3 163:12,15	187:4 194:21	50:3,8 59:22 60:5
presenter 10:18	priorities 197:21	169:3,4,13 170:1	project 102:7	101:18 104:10
101:12	prioritized 8:18	171:15	117:21 119:21	116:12 143:4
presenters 10:15	priority 177:19,21	produced 139:9,9	141:6 158:2	144:6 145:22
presenting 16:6	178:8	139:12 155:16	promote 33:19	153:6 154:3,6
preservation 154:1	privilege 87:10	produces 85:10	35:6 61:16 62:5	156:8,16 179:13
199:10	probability 169:11	138:5 165:7	135:14	185:20 189:5
preserving 141:21	probably 36:9	producing 156:21	promoted 39:8	190:20 192:16
presiding 1:7	89:19 94:14 97:16	158:10	78:4	195:10 197:5
press 198:4,22	99:13 146:4	product 117:1	promotes 64:4	201:13
pressure 61:7	147:20,21 149:15	159:9,16 160:1	promoting 46:1	publication 41:11
83:12,15 84:4,14	149:16 152:3,13	163:3 174:8	promotion 3:13	public's 23:19
84:17,22 85:10,20	170:22 204:8	production 137:16	18:3 96:7	publish 59:4
86:2,3,13 87:22	209:21	137:22 138:4,11	promptly 4:8 101:5	published 26:3,5
94:13 139:2	problem 54:13	140:2,5,9 141:3,4	prompts 130:14	27:12 28:21 58:22
201:15	55:19,22 90:19	141:16,21 142:2,7	proper 184:4	90:4,5 100:19
pressures 26:17	94:7,11 96:13,15	142:8,8 145:14	proponent 168:22	185:9,16 188:17
139:5	114:19 115:6	149:9 153:20	proportions 70:11	188:18
presumably 98:18	116:13 129:22	156:1,6,16 158:17	propose 69:7	Puerto 29:8
pretty 65:19	133:13 144:7,8,10	159:20 168:12	protein 38:4 39:18	pull 100:16 170:15
114:17 122:5	144:10,11,13,14	170:11	70:4,5,19 74:5	pulled 124:7
125:8 128:12	175:7,8 201:7,19	productive 138:19	83:1 124:8	125:15
134:2 136:18	202:19,21 204:2	141:22	protocol 65:9	purchase 12:12

160:20,21 161:7 purchasing 49:19 Purdue 37:5 pursue 203:8 pushing 82:21 put 19:9 20:22 117:3 118:22 139:2 143:11 172:19 173:10,11 188:4 200:7 202:6 202:22 205:2,8 putting 20:8 118:10 119:10 206:5 pyramid 103:10 108:15,17 122:10 122:15,17,22 123:8 131:4 p.m 1:7 3:2 101:8,9 214:16	122:7 125:21 143:8 144:21 149:7 151:7 153:18 154:5 158:18 159:22 168:14 182:13 190:2 200:1 201:2 202:6 203:2 204:5 205:8,20 206:6,7 206:10 207:8 208:22 209:18 questioning 47:1 questionnaires 71:11 77:9 questions 8:19 14:8 46:5,12,17 87:7 93:13 103:21 106:20 107:5 131:2 132:3,6 136:11,12,14 167:18 176:6,9 177:12,16,21 178:3,6,8 198:17 200:4 201:12 203:4 205:6 207:18 208:9 quick 87:11 88:7 quickly 145:16 quintile 42:15 quit 157:13 167:15 quite 25:7 52:4 74:17 76:7 99:12 115:18 134:3 139:2 157:3 187:7 191:7 195:16 197:18 212:13 quote 113:17 131:13	199:18,22 203:7 raised 106:20 173:15 207:16 randomized 63:6 68:10 69:14 73:5 73:21 132:16 range 19:10 48:18 82:7 86:14 90:11 90:14 206:1 ranges 83:22 rapid 64:10 65:5 66:18,19 72:10 rare 36:2 rate 130:12 146:10 146:13,16 160:6 rates 11:12 15:6 31:15,17 32:6 rating 37:11,13 ratings 94:1 95:3 rationale 85:15 raw 187:14 RD 1:9,13,15 reach 6:2 reached 72:11 read 128:3 183:7 191:12 readers 160:16 163:1 reading 190:15 ready 101:11 166:11 real 84:13 114:3 115:1 120:13 122:3 129:3 175:7 190:20 reality 100:11 137:17,21 142:12 149:17 152:2 156:7 166:3 realized 15:9 really 12:10,20 14:10 23:13 30:5 33:15 37:17 46:20 50:8,9 51:8 53:1 54:21,21 55:1,2 58:16 64:16 68:4 71:12 73:2 74:16	76:13 78:8 82:20 83:13 84:10 89:1 90:16 91:1 94:10 97:4 99:9,18 101:1 105:3 107:2 109:3,11 112:1 113:9,11,13 115:11,22 117:13 118:3 119:12 124:15 130:19 131:20 132:16 133:3 135:21 143:21,22 147:15 149:11 152:22 153:16 162:7 171:4,22 175:11 191:18 195:16 197:18,19 200:7 206:11 214:7 Rear 3:16 rearranging 14:9 reason 50:2 57:6 73:12 107:17 152:16 210:13 reasonable 4:9 reasons 49:19 61:18 107:16 111:18 142:10,11 148:2 151:9 170:14 rebalance 148:19 recalibrate 153:2 recall 133:16 204:19 receive 7:7,14 33:3 received 182:3 199:2 receives 118:9 Recess 2:11 recession 152:18 recipients 124:2 recognize 3:16 22:10 164:20 168:20 207:20 recognizing 87:13 174:2 recommend 90:22	191:15 recommendation 98:9 189:20 203:18,20 recommendations 22:12 56:2 90:17 96:19 115:3 120:22 126:6 132:12 179:13 183:21 185:22 187:18 188:8,20 197:16 202:22 recommended 13:3 68:5 87:16 90:15 91:9 93:7 106:6 121:17 190:3,18 reconcile 92:11 reconvene 214:10 record 36:2 72:9 101:8 recorded 7:5 recording 38:12 recordkeeping 4:10 recovers 139:5 Recreation 135:8 red 85:20 86:3 112:18 124:7 130:2 138:18 152:11 redistributing 142:1 reduce 82:9 100:6 129:14 197:2 reduced 81:18 83:12 84:5 88:19 reducing 45:12 86:3 87:16 179:7 196:1 reduction 60:13 71:18,20 75:22 84:2,5,9,16,17,22 85:11,19,21 87:20 89:4 96:5 189:12 reductions 85:21 88:21 refer 5:10
Q				
quadruples 31:8,12 qualify 212:1 qualitative 98:7,12 quality 11:17,18 13:15 14:11,15 17:7,22 18:8,9 27:5,7,8 28:12 41:12 42:5 43:11 43:16 44:17 45:11 49:22 206:9 quantify 202:8 quantitative 189:6 190:1 quantities 105:14 quarter 76:17 quartiles 24:21 Queens 30:21 question 14:10 15:2 27:3 28:9 35:3 45:10 46:14 49:16 53:5,17 54:15 56:10 61:20 62:4 87:11 88:8 91:6,18 93:20 96:17 117:16	R			
	R 3:1 31:21 radishes 159:5 RADM 1:19 Rafael 1:13 95:22 96:2 167:19 176:12 177:5,6 193:16,18 194:4			

reference 25:14 106:7	92:3 97:20 98:3 98:21 111:3,3	replay 7:5	respectfully 205:11	right 10:10 22:4
referenced 120:2	178:4,6,9 179:4	replicated 26:1,8	respond 6:22	46:11 48:3,8
references 120:6	180:13 182:14	report 59:3 76:9	response 70:7	50:12,16 51:1,5
referred 203:7	183:1,2,4,12	184:1 188:17	171:19 186:14	52:12,18 53:13
reflecting 43:14	186:3,22 187:5,9	189:4,17,19 192:5	211:7	61:13 65:13 67:18
reform 96:22	187:14 188:13	192:8,12	responsible 15:5	70:22 90:21
refrigerator 186:18	191:13 193:10	reported 77:22	113:7	101:10 110:11
199:7	198:20 199:4,9	78:2 194:9	responsive 86:17	111:4 121:8 130:7
refrigerators	209:2,11 211:7	reports 36:20	86:18 87:2,14	134:20 135:1
186:20	212:5 213:10,20	188:16 189:17	responsiveness	139:7,15,20 140:1
refugees 165:1	relates 88:9	190:15 191:12	91:15	140:6,13 141:20
regain 64:10 65:6	relating 61:7 77:10	214:13	rest 36:3 105:7	141:22 143:22
66:19 75:6,9 76:2	relation 11:16	represent 74:15	restaurants 126:17	146:4 153:14
76:3	14:14,21 18:7	representative 5:17	126:17,19 127:9	157:8,16 158:2
regained 64:5	19:3 20:6 21:1,12	119:18 181:16	130:12 148:8	159:1,3,13 162:22
65:22	21:13 23:2 31:4	representing 3:17	restraint 77:11	163:19 166:22
regard 77:3 81:3	31:13,16,20 83:16	request 7:11 182:5	restricted 134:8	168:18 170:12
88:6 167:14	relationship 11:10	require 24:3 193:4	restrictive 173:7	171:8 174:11,16
regarding 28:20	21:14,17 23:5	required 109:21	result 27:18 31:22	175:3,7,8 176:16
109:13 184:3	136:7 153:19	requirement 5:19	45:5 64:18 66:5	177:4 188:1
regardless 66:8,11	relationships	requirements 4:10	67:4 69:3,5 74:7	191:10 206:3,18
68:22 81:20	187:19	119:4	75:2 77:2 78:10	207:12 208:5
regards 178:10,12	relative 200:1,5	requires 118:13	107:9 114:12	213:22
179:19 180:20	relatively 10:15	research 8:18	187:1 191:14	rigorous 132:16
183:16 185:8	26:15	10:20 11:5,8,9	resulting 114:13	Rimm 1:14 56:11
186:1 188:21	released 18:3	13:12,15,19,22	results 37:8 39:17	56:12,19 57:10,13
208:21	relevant 4:6 6:9	16:12,12 18:22	63:18 64:21 67:7	58:21 59:6 89:13
regional 148:11	75:16 152:17	35:11 40:1 48:12	67:11 72:18 74:12	89:13 210:5,6
regions 169:10	185:15	60:4 68:12 79:13	182:10	211:11,17,20
Register 4:13	reliably 43:6	96:20 131:3,10	resumed 101:9	212:8,12
registrants 6:13	religion 144:15	133:3 135:13,16	retail 20:3	risk 60:12 81:5,12
7:6,14	remainder 72:6	158:2 194:8 196:5	retire 161:21	82:3,9,10 90:21
regret 15:20	remaining 9:15	researcher 130:22	return 76:7 101:4	93:15,19 94:6,8
regulations 131:7	remarkable 62:12	researchers 63:15	reverse 14:9	94:10,17 98:5
174:16	Remarks 2:4	69:4,13 188:22	review 5:7 6:7 8:19	102:2 178:7 179:8
regulatory 195:6	remember 33:1	researcher's 68:22	9:6 177:18 178:1	186:14 189:7,12
reimbursement	112:13	resembles 114:3	178:1 180:22	189:14,16 190:1,7
96:16	remind 9:21	residencies 92:13	181:3 182:20	190:19 192:4,10
reinvigorating	reminders 4:1	resistance 81:15	192:9 196:19	194:2,2
167:5	reminds 32:19	resource 105:2	reviewing 188:19	risks 98:1 191:20
reiterated 122:21	removing 41:6	135:8	reviews 9:5,7 34:1	198:7
relate 136:9,15	renal 180:17	resources 160:5,7	185:15	road 139:19 141:18
153:22 154:2	rephrase 45:1	160:20 163:6	Reynolds 94:19	168:19 170:5
179:5 183:5	replaced 114:6	202:6 203:11	re-disperse 145:13	roads 140:22
198:21	replacement	respect 138:10	Rican 29:8	Robert 3:10 101:15
related 19:7 51:13	110:21	145:19 167:12	rich 13:21 24:14	Roger 1:11 175:20
		212:9	25:16 62:1,17,20	177:9 178:8

193:13	salt 44:20	117:17 118:8,13	seasonally 149:5	select 63:2
role 171:10 177:4	sample 119:19	119:4,20 120:10	Seattle 11:2 26:2,5	selected 17:1,8
romanticism 166:2	181:16	121:2 122:9	32:5 44:8 50:4	62:20
room 6:16 210:9	San 62:12	124:14 125:10,14	52:13 55:2	selecting 106:16
root 158:1 159:5	sanitation 183:13	126:3 127:15	second 8:14 63:17	selection 195:7,22
round 150:11	187:11	128:16 129:2	93:20 94:22	self 77:21 78:1
row 85:7,7	sanitize 179:15	148:7 161:20	120:21 134:19	self-management
rule 172:19	satiating 35:7	173:2,11,20 174:4	136:18 137:10	96:8
rules 5:6,7 115:2,5	36:13,21 39:19	174:9	138:9 145:18	sell 162:2,4,11
ruling 172:19	satiation 35:22	schools 49:7,9 50:1	146:22 165:9	Senate 110:4,13
run 136:20 137:7	satiety 12:7 13:22	58:5 102:8,11	178:6 179:3	send 6:18
152:22 154:8,13	33:18,19 35:4	107:14 110:1	secondary 75:18	senescence 151:18
210:19	36:1,4,17,18 38:7	111:8 112:6 113:6	Secretary 1:17,18	Senior 60:1
running 186:4	38:17 77:6,15	113:10 115:13	3:7	sense 64:20 69:16
187:3	81:21 93:21 94:3	118:14 119:2	section 137:7 192:1	72:22 116:8
runoff 140:15,17	95:1,2,10,21	120:2,4 121:21,22	192:4 205:18	sensitive 15:15
Rutgers 165:18	satisfaction 77:6	125:5 131:6,17	secure 146:6	39:11,15
	81:21	174:11	security 135:17	September 159:13
	satisfying 114:5,9	school-sponsored	142:20	159:14
S	saturated 26:10	121:16	see 6:9,20 17:5 21:1	serious 206:11
S 3:1	41:18 42:14,17	science 135:9	23:8 30:12,19	serve 113:21
Sacks 2:7 59:19,19	43:1,19 44:19	144:14 164:11	31:7,16,22 43:12	served 32:17
60:4,15,17 87:18	98:18 99:14 100:3	Sciences 11:1	54:8 58:12 64:2	101:20 121:4
89:1 90:13 91:17	100:7,20 110:9	101:17 135:9	65:5,14 66:18,21	service 104:6,10
92:16 94:5 95:2,9	savor 115:1	science-based	74:13,14 75:5,19	112:20 113:18,21
97:1 99:1 100:15	saw 91:10 112:9	103:1	76:13 77:22 78:14	128:17 173:21
100:19	124:18	scientific 8:19 9:4	84:3,13 85:8 86:2	174:2 181:14
safe 186:11 191:2	saying 27:13 33:9	12:17 164:5	86:6,7 93:16,22	services 1:3 3:18
194:12 207:11	48:21 50:10 52:1	179:12 184:16	94:2,6 95:4 100:2	140:15,18 200:12
safely 187:10	56:21 57:6 90:18	185:1,20 214:13	108:10 112:7,19	servicing 29:2,3 55:4
safety 2:10 9:13	98:2 129:4 131:6	score 41:20 42:12	119:15 121:19	131:6
175:19 176:8,8	says 127:3 151:9	42:19,22 43:21	123:20 124:6,7,8	session 78:10,15
178:4,10,13 179:4	scale 19:20 23:3,3	46:20	132:5 146:19	173:15
179:6 180:5,13,15	83:15,18 156:22	scores 42:4,7,9	148:6 158:12	sessions 72:4,7
180:21 181:2,8,12	scales 38:11,15	44:1,19	177:15 186:5	78:12,19,21 79:2
181:14,21 182:8	148:13	Scotland 213:7	195:14,19 196:21	82:13 88:14 97:15
183:5,6,17,21	SCD 1:14	screen 6:9,20	197:15 200:3	set 9:19 54:1
185:6 186:1,3,22	scenario 136:21	186:11	201:17	108:20 118:14
187:3,5 188:10	154:9	seafood 188:17,22	seeing 149:15	119:3 178:3,6
193:6,14 197:22	scenarios 140:12	search 179:17	169:17 197:5	179:3
198:1,3,21 200:15	145:1 151:11	180:12 185:19	seek 46:1	setting 184:21
205:18 206:13	168:19,21 169:8	searches 183:10	seemingly 37:15	settings 104:6
207:5,22	school 59:22 60:3	season 149:7	seen 30:8 56:15	122:10 126:4
salad 19:16 20:16	101:18 102:6,6,12	150:21 155:8	59:2,3 95:12	180:14
salmon 210:10,10	103:13 104:3,5	157:7,20 158:12	151:8	seven 8:17 9:11
210:14,16 211:1,9	109:21 112:20	158:14	segments 13:7	31:10 126:22
211:16,18,20	113:4,18,19	seasonal 157:6	15:14 50:19 191:3	172:9 175:17
212:2,5 213:15				

183:4 sevenfold 31:18 seven-and-a-half 25:11 share 12:4 60:20 113:17 114:20 131:16 199:2 shared 196:3,15 sharing 196:7 199:16 shark 213:16 SHARON 1:12 shellfish 20:11 Shelly 198:18,20 199:17 short 10:15 137:16 199:6 shorter 152:1 show 14:13 21:5 24:11 30:4 37:19 38:10 39:4 42:2,3 45:7 103:18 110:2 120:12 125:7 185:10 showed 36:12 67:8 71:8,19 74:7 79:12 83:10 87:22 98:15 99:5 showing 28:12 31:3 87:21 96:3 98:15 120:3 212:15 shown 194:8 shows 16:12,12 19:1 20:6 23:1 74:11 79:20 125:12 side 22:4 97:17 121:4 158:5 205:4 sidebar 176:10 significant 64:7 65:8 67:15 75:13 98:4 152:4,7 similar 32:4 33:9 39:17 48:12 56:14 64:9 66:21 70:10 75:9 81:19,22 119:16 122:22	180:10 184:10 simple 108:18 111:22 126:8 144:7,8 simplistic 49:11,16 simply 7:1 15:16 19:8 113:22 single 174:6 Sioux 158:5 sit 148:12 sited 158:9 situation 107:19 144:12 212:6 six 9:15 25:10 37:16 64:11 65:19 66:19 71:21 72:5 74:12,20,20,21 75:1,6,12,20 76:16,19 77:13,17 78:1 80:9 81:7 84:18 95:13,21 146:7 149:3 156:11 164:13 165:22 Sixty-three 139:13 six-month 74:14 75:2 149:6 size 35:20,22 skills 16:1 45:19 55:17 58:17 Slade-Sawyer 1:19 3:16 SLAVIN 1:15 slide 19:1 22:22 33:20 42:11 98:14 177:16 slides 21:15 61:10 100:4 sliding 12:22 slightly 116:19 Slimfast 34:9,10 slips 162:17 slowed 139:1 slowing 189:14 small 38:4 76:2 99:21 114:5 152:7 155:13 156:19,21	smaller 95:6 213:15 snack 127:17,18,21 128:7 snacks 110:5 128:12 133:12 134:2,2,5 SNAP 160:4 163:5 163:14 snapshot 182:16 snowpack 140:15 140:17 social 32:7,15 122:18 society 15:14 50:20 55:21 socioeconomic 29:13 182:10,18 193:1 soda 29:1,3,6,9,15 29:18,22 30:10,13 30:22 37:3 39:7 49:3,9 57:1,2,6 125:2 sodas 48:20,21 129:17 sodium 41:19 42:14,17 61:5,6,8 83:4,6,7,8,17,20 83:21 84:1,5,8,14 84:15 85:5,19,21 86:2,11 87:3,3,20 88:5 114:16 120:22 sodium-blood 83:15 soil 135:9 164:11 soils 147:3,4,5 sold 110:15 111:7 solicit 5:11 solid 35:16 37:7,7 38:18 39:15 75:2 185:2 solids 36:13,20 37:14 solution 54:13 144:11	solutions 103:1,3 solve 115:6 somebody 115:9 116:17,18 128:20 129:22 131:10 163:13 168:6 somewhat 37:8 67:2 84:8 soon 122:5 125:8 137:18 164:7 193:7 sorry 200:18 205:14 sort 47:13 48:15,18 49:2 56:20 62:11 84:21 86:6 94:11 100:5 124:21 129:7,18 179:18 183:11 199:6 201:1,3,6,17,18 201:21 202:21 207:18 213:5,18 sorted 189:2 sorts 57:19 209:19 sounds 106:19 205:1 soups 36:12 source 147:19 148:4,6 sources 14:2 16:15 16:16,18 124:9 147:18 148:12 169:5 181:1 sourcing 169:12 south 30:19 150:10 soybean 164:14 soybeans 166:19 sparkling 39:13 speak 5:16 6:18 speaker 59:11,19 135:2 speakers 208:6 214:5 speaking 3:9 7:21 10:2 46:9 77:19 127:15 special 10:14 157:7	191:3 specialists 50:6 species 190:22 191:8 192:17 193:1 213:15 specific 4:19 14:21 30:6 32:1,11,12 33:14 54:15 91:11 110:10 126:8,12 180:15 188:6 192:17 specifically 35:3 48:7 90:1,18 120:8 184:7 208:21 specificity 105:12 108:6 specifics 105:13 120:11 specified 71:6 Specter 27:13 spend 176:4 spending 27:1,14 spends 163:13 spinach 57:14 spite 168:10 split 24:20 42:8 spoiled 38:19 spoke 104:22 193:18 sponsored 60:9 spoon 124:11 spread 170:5 spreads 19:15,15 squeezed 34:7 St 150:8 158:5 staff 6:16,22 72:15 72:16 123:14 133:5 176:13 177:14 181:5 185:6 stage 178:1 stamp 56:17 103:14 123:13 stamps 57:16 160:4 160:11,11 stand 177:11
---	---	---	--	---

178:10	status 9:11 193:3	37:6,20 56:15	subjects 35:14 36:2	192:12
standard 63:7,11	stay 10:6 66:6	64:1,20 66:14,18	38:11,15 39:3,11	summary 7:16
63:17 77:9	staying 66:11 106:4	67:11,17,19 68:3	39:20 40:3	81:18 110:12
standards 108:21	step 40:17 47:16	72:18 73:14 75:7	submitted 41:10	118:12 167:8
119:3 200:16	51:8,8 136:6	79:11 81:1 87:19	subsequent 179:8	summer 140:10
standing 3:5	138:8 140:4	90:5 92:12 93:14	subsidization 172:2	sun 149:20
101:11	steps 183:9	95:4,7,10 102:5,9	substantial 212:16	superior 67:2
standpoint 141:12	step-wise 43:13	103:4,7 125:5,11	subtle 51:7 68:21	superiority 67:9,12
143:2 147:3 149:9	Steve 27:13	135:8 179:22	sub-questions	supermarket 21:7
163:4	stick 89:5	182:22 183:2,4	179:3	161:14
standpoints 41:15	stocked 49:21	211:13 212:15	success 58:7,12,15	supermarkets
stands 161:17	storage 155:11,12	213:3	58:22 61:3 72:17	54:19 55:4 161:14
184:18	178:17 183:3	study 25:22 26:3,5	82:19	suppliers 212:2
stark 54:8	184:4 199:4	28:21 30:19 35:12	successful 76:20	supplies 140:18
start 13:11 18:7	store 53:1 137:8	38:20 42:6 63:5	79:19 82:6,16	supply 53:8 113:15
20:8 25:6 44:11	179:14 187:22	64:9 65:7,13	90:8	136:15 138:12
104:14 144:22	stored 149:20	66:15,20 67:14	successfully 96:12	141:12,17 144:3
157:11,16,17	stores 113:5,8	68:19 69:11 70:7	Sudzucker 14:3	145:21 148:22
159:4 161:18	148:9 161:5,9,10	70:17 73:5,6,13	suffering 17:3	169:18 170:2,5
174:8,16 185:18	161:12,12	77:10,17,20 78:6	sufficient 106:3	194:13 197:2
started 4:2 57:4	strange 33:2	78:7 79:19 80:4	sufficiently 36:16	206:1 207:11
78:1 163:8 165:18	strategic 179:18	80:17 81:1,4 83:6	sugar 14:22 15:5	support 6:11 8:11
172:10	strategies 160:18	83:8,9,17 86:11	19:13 20:2 21:11	13:10 17:11 63:8
starting 160:13	164:16 167:1	88:9 89:17,18,18	26:10 34:14,15,16	63:9,13,19,20
192:11	strawberries 155:7	90:4,5 91:8 93:10	38:3 40:20 41:18	88:13 89:7 90:9
starts 151:17	strawberry 112:22	95:6,16,16 97:3	42:13,16,22 43:20	96:3,4 176:12,14
state 7:20 58:8 61:1	streamed 7:19	99:3,4,8 101:22	44:20 110:9	182:4 203:19
122:1 135:4	streaming 7:2	102:1 111:4	112:14 114:1,12	supporting 132:12
146:13,15 153:2,5	street 31:9 54:5	117:19 122:5	114:15 117:2	suppose 21:7 62:16
154:10 155:3,21	strength 132:11	124:19	127:3 128:5	92:2
156:12,15 157:1	strict 63:4	stuff 22:6 128:18	sugared 36:21	supposed 107:7
158:6 162:22	stroke 189:12,16	148:10 149:8	sugars 15:3 16:20	111:12,13 137:3
164:18,19 171:16	strong 31:21 108:9	158:13 175:8	19:17 21:18 25:20	180:18
173:5,5,19,21	stronger 31:17	205:22	26:20 28:3 33:18	suppress 38:8
174:5	strongly 21:15	stupendous 29:14	114:15	suppressed 39:8
statement 212:1	structure 201:18	subcommittee 9:3	suggest 16:22	suppression 40:2
statements 180:21	struggling 129:12	9:14 101:21	104:1 212:12	sure 50:22 56:1
states 1:1 3:13	133:5	175:18 182:8	suggested 35:5	99:1 104:22
11:19 117:22	student 150:13	190:10 193:6,7,9	83:13 130:9	107:16 116:16
121:22 138:19	165:19	197:13 204:7,12	suggesting 44:22	127:10 143:22
142:6 145:15	students 110:16	204:15 207:15,18	51:4	168:15 175:14
166:22 173:7	126:16 127:16	subcommittees	suggestion 22:9	193:7 204:9
199:1	131:7 150:19	4:19 8:18 9:12	suggests 118:16	205:12,14,16
state's 173:17	studied 28:22	subgroups 85:3	209:4	207:10 210:1
static 138:15	studies 11:14,18	106:10	sum 86:10	213:11
stations 161:10	17:18 26:1,14	subject 204:5	summarize 118:2	surface 178:21
statistically 67:15	35:14 36:10,15,17	subjected 132:16	summarized 72:19	surprise 77:14

surprised 125:17	178:14	57:22 58:2 113:22	151:9 155:9,18	161:1 162:5
surprising 17:9	systems 135:12,15	tastes 114:3	163:14 168:20	168:16 169:22
surrounding	135:18 142:18	tastier 58:20	tended 80:3 92:8	172:9 178:19
180:16		taught 70:3 71:17	tenfold 19:21	things 23:21 32:10
surveillance 202:1	T	72:15,16 128:2,4	ten-year-old 141:7	32:17 41:6 50:7
survey 7:14 17:21	table 2:1 170:19	teach 57:15 116:15	term 87:20 88:17	51:11 105:8
28:19 41:14 47:20	tables 165:8	teacher 127:15	145:10 199:7	113:14 114:6
126:16 181:2,12	tailored 82:17	teachers 103:13	terms 14:19 21:18	115:12 121:7
181:15,19	88:15 123:1	teaching 71:3	27:8 43:11 52:11	132:21 136:10
surveyed 158:21	take 15:8 16:4	186:16	87:11 88:14,19,21	137:5 141:2,2,5
surveying 111:11	24:16 31:4 33:21	team 5:13 79:13	93:8 96:19 100:3	141:20 144:16
112:6	40:16 41:2 42:10	117:20 119:20	147:14 176:17,19	146:1 152:12
surveys 28:19	87:7,10 101:4	176:21 194:20	177:11 178:7,16	154:20,22 155:2,3
suspect 30:7	108:14 109:7,20	196:4	181:11 183:9,19	159:4,6 160:2
sustain 88:17	114:18 123:7	technical 6:8,10,11	188:2 191:7 195:5	162:1 164:17,19
100:12	132:3 134:16	6:14,19	195:22 202:5	166:16,17 167:7
sustainability	136:12 138:13	technique 72:1	203:15 208:14	174:11 200:10,13
136:8,14 144:5,20	141:3,4 153:8,21	techniques 178:20	terrific 69:12	201:4 203:8
167:10	155:13 157:4	179:1 183:5,17	tested 83:22 123:11	208:14,19
sustainable 135:4	161:8 190:4 192:7	technologies 178:9	thank 3:4 8:7 11:21	think 12:9,10,12,16
135:12,14,18	taken 50:6 56:7	194:7,11 198:12	12:1 46:3,6,7	13:4,6 25:2 27:9
141:17 145:2,4,9	150:12 203:21	198:12	53:16 54:14 59:8	36:9 47:1,2 49:12
159:20 206:8	takes 172:15	technology 2:10	59:12 60:17 83:2	53:7,14,17 54:12
sustainably 149:14	talk 14:1 18:14	9:13 155:9 175:19	87:6,8 100:22	54:16,21,22 55:2
sustained 62:13	21:17 103:8 105:7	193:14	101:6,10 102:16	57:3 59:4,6 61:20
63:9,13 65:21	109:16 136:6	tech_issue@yaho...	102:17 131:15,22	62:21 67:22 68:1
67:13 75:5,8	145:18 146:21	6:21	134:21 135:19,20	68:21 69:17 72:21
79:12,17,21	151:1 172:2	teenage 125:1	167:16 175:13	75:7 82:16 87:15
sweetened 19:18	175:15 176:7	teleconference	176:1,2,3,13	89:1,15 90:9,14
26:19 33:11 34:4	193:13	182:6	177:8 193:15	90:20 92:16 96:10
sweeteners 110:19	talked 54:17 89:16	television 57:19	194:4 196:20	97:1,2,12,16
110:20	107:22 108:1	tell 15:12 45:15	199:16 203:4	108:8,19 109:6
sweetening 110:22	127:22 160:2	60:15 91:20	204:18 205:8	111:9 113:12
sweets 20:5 23:9	204:7	117:13 120:16	214:14	115:11 117:6
swordfish 213:17	talking 48:16 103:6	127:19 136:1	thanks 8:9 10:14	123:3 125:22
symbolism 123:22	104:14 115:13	170:9	12:3 46:16 48:14	127:8,11 133:2,10
symbols 74:15	118:11 122:15	telling 38:16 44:21	91:5 93:12 167:20	133:19,22 134:7
syndrome 17:4	talks 121:6	171:14 203:16	theories 77:4	136:8,16 141:13
32:7 82:12 201:9	tanker 170:15	temperature	theory 33:18,19	141:16,20 142:1
syrup 20:18 21:19	target 61:8 80:7	186:18 187:19	they'd 137:8	142:19,21 143:1,2
system 53:9 72:9	130:7 134:20	188:1,5	thing 34:13 37:18	143:3,4,8 144:2,2
96:14 130:12	138:16 180:1,18	temperatures	37:21 43:12,17	144:3,4,6,9 145:4
134:12,12 142:7	201:12	166:1 186:19	62:11 83:5 84:21	145:5,6,12,13,15
144:3 145:4,8,20	targets 71:2,5	199:8	86:6,21 91:19	145:16,17,19
148:4 167:11	task 41:7 190:5	ten 25:12 46:10	92:1 104:15 116:1	146:5,19 147:1,7
systematic 185:15	200:12	76:12 87:9 101:21	137:6,10,14	147:22 148:1,12
systematically	taste 11:15 15:11	103:3 141:17	138:14 151:18	150:2,21 152:10

152:13,17 153:12 153:19 157:2 159:18,19 161:3 162:1 167:5,9,21 168:1,17,17,18 169:21,22 170:3 170:17,21 171:4,9 174:14,17,18,20 174:22 175:3,4,6 175:7 200:16 201:4 202:10 206:2,4,4,14 207:14 210:9,17 210:19 211:4 212:14,22 213:11 214:2 thinking 32:10 33:8 46:18 48:19 94:7 134:4 161:19 thinks 165:16 third 1:5 3:21 122:17 137:14 166:12 thirst 36:7 38:7,9 38:12 THOMAS 1:13 thought 34:18 56:14,22 94:16 103:17 121:1 127:14 131:13 thoughts 12:4 103:9 thousand 47:4 156:11 161:7 thousand-acre 164:13 threat 138:20 139:12 140:6 three 19:2 36:1 39:6 55:21 65:2 66:16 72:4 115:19 122:7 128:6 136:2 137:5 138:4 140:7 140:11 150:9 153:21 158:3,8 164:13 three-quarters	211:18 threshold 173:16 173:17 threw 154:20 throw 103:17 tie 81:13 ties 56:21 tight 10:4 time 3:15 9:19 10:17 15:15 36:16 37:4 45:20 55:11 55:14,15,18 56:4 59:4 61:11 68:20 73:20 75:3 80:2 80:20 90:3 101:3 110:15 115:21 132:2,22 133:20 135:2 148:2 149:10 150:18 164:7 170:2 172:16 176:5,6 187:19 188:2,5 190:19 194:9 204:21 214:4 timeline 10:4,6 times 104:18,20 140:7 tipped 148:13 title 136:4 toast 117:2 today 3:11 4:21 6:5 8:13 9:1,14 10:5 10:16 11:21 16:7 18:11 60:10 103:6 103:22 136:5 142:7 143:12 166:13 176:6,15 214:3 today's 10:10 told 61:11 toll 6:11 Tom 28:16 74:1 91:3,4 132:7 199:21 tomato 157:16,20 tomatoes 155:8 157:11,17,18	tomographers 140:19 tomorrow 4:21 6:6 9:2,15,20 10:5 16:7 18:12,15 136:21 208:7 214:10 ton 170:10,14 tools 123:9 145:21 top 34:2 84:15 134:3 191:8 201:19 topic 4:18 8:17 28:14 38:21 59:4 61:2 97:2 107:13 147:8 148:17 176:18 177:7 194:16,16 195:10 198:15 topical 201:18 topics 10:12 184:7 202:11 total 40:5 44:3 76:3 79:10 81:12 98:6 98:10,17 100:7 155:14 totally 116:3 134:8 tough 97:2 Toxicology 101:18 to-school 148:7 track 138:14 170:1 tract 32:7 traction 156:15 trade 143:16 168:2 168:3 169:21 172:4 traditional 164:2 207:22 train 162:2 training 161:18 165:5 trajectories 64:15 trans 21:20 114:1 114:16 transcript 7:15 transcripts 107:22 transfer 162:20	transformed 196:10 transitioning 172:14 translate 82:5 107:7 117:8 118:20 123:8 translated 184:21 translating 119:13 165:12 translation 105:4 105:13 117:15 translational 131:3 transmission 105:4 transmitted 107:11 transparent 4:15 5:20 transportation 49:22 50:6 51:10 traveling 152:1 treat 82:1 treatment 10:21 tree 172:15 tremendous 169:2 176:14 trends 181:21 182:9 trial 60:9,10 68:10 68:17 69:8,9,16 73:19 trials 60:9,22 66:5 69:2 87:20 89:20 133:8 trial-wide 72:19 trick 148:18 tried 12:18 56:16 117:4 triglycerides 94:19 triple 144:22 tropical 169:7,10 true 147:22 172:8 truly 10:17 67:15 73:8 102:18 105:19 108:3 Trust 138:17 truth 22:3 try 41:3 146:5	162:22 180:9 185:19 trying 12:22 32:11 40:12 52:13 62:6 62:7 85:16 100:9 113:11 115:3 116:13 117:12 118:19 121:3 127:9 129:12 202:5,7 208:13 210:20 tuna 213:16 tunnels 157:5,9,15 158:9 159:8 turkey 106:21 turn 8:4 177:5 193:12 TV 29:11,16 twice 121:5 156:5 two 9:12 17:14 18:6 26:1 33:16 35:18 35:22 37:20 41:14 42:4 46:17 48:11 60:8 66:21,22 67:14 69:20,21 71:6 72:5,7 73:21 74:3,9 77:2,18 78:13,15 79:3,16 80:13,21 81:20 82:1 93:13 95:11 102:4 106:5 110:1 110:3 111:2,5 117:16,22 118:21 121:8 131:8 132:3 134:5 138:4 141:2 150:2 157:19 173:14 174:11 177:21 178:8 180:19 181:1 188:4 189:17 199:1 two-and-a-half 106:5 155:7 type 15:5 17:8 35:11 42:3 48:12 49:20 62:10 63:22 65:12 67:8 74:7
---	---	--	---	---

78:4 88:18 89:7 90:14 96:19 98:13 122:1 182:11 types 42:4 48:6 65:2 67:9 74:13 105:15 typical 84:3 typically 95:6	12:11,15 unpublished 185:10 unresolved 36:10 unsaturated 99:5,9 unusual 30:5 update 9:10 177:11 178:9 updates 175:18 185:7 upper 31:10,18 55:5 85:7 146:11 158:4 upstate 170:10 uptake 54:4 urban 28:22 50:4,5 USA 178:15 usable 122:8 USDA 1:18 3:6 17:14 18:1 19:2 20:4 32:20,22 48:10 58:4 59:3 116:18 119:3 158:4 172:20 176:13 185:5 207:2 use 12:13 17:12 24:6 35:11 57:15 90:7 91:22 115:17 116:4,12,13 119:14 121:10 123:2,15,22 129:11 130:10,11 130:11 145:20 148:20 160:11 163:5 172:21,22 195:21 200:8 useful 40:15 104:9 105:9 108:18 186:7 user 188:6 usual 80:19 usually 21:17 39:3 80:10 212:20 utensils 178:21 183:14 utilized 117:18	U.C 123:10 U.S 3:17 13:13 17:12 26:2 29:8 84:3 86:18 167:11 180:1,7,11 182:1 183:2 187:13 191:6 200:11 204:1 209:7 211:14,16 212:1,2 212:7 213:7	vegetable 47:8 105:22 106:9 107:10 127:20 vegetables 20:15 23:10 43:21 46:20 47:3 48:6 56:16 58:6,10 62:1 105:19 106:4,6 107:14 108:1 129:16 136:17 137:3 139:8,21 142:15 149:10 151:19 167:4 171:16 172:6 186:12 vegetable-based 110:17 vegetarian 62:15 63:4 vegetarians 61:21 vending 113:4 venues 113:8 vernacular 142:19 142:21 Veronica 101:15 versus 37:6,7,15,16 49:4,6,13 51:15 70:18,19 152:11 205:4 vertical 19:4 vetted 116:16,18 viability 175:5 VICE 1:10 vicious 171:5,6 Victor 41:11 view 49:12 97:22 171:1 viewing 8:13 29:16 viewpoint 17:11 views 13:10 villain 114:16 visit 7:10 vitamin 43:1,7,8,10 vitamins 22:5 voices 10:3 102:20 131:17 Volume 38:1	volumes 207:3 voting 128:14 vulnerable 11:12
U				
uncooked 187:10 underappreciated 36:15 undercooked 201:9 undercut 170:17 understand 105:17 105:20 106:2 113:13 117:4,12 124:15 127:20 129:18 133:7 187:21 188:7 190:11 192:15,19 192:22 193:9 understanding 179:5 183:20 understood 105:1 108:3 116:5 underway 177:20 unemployment 32:16 146:10,13 146:16 160:6 unfortunately 202:1,12 unhappy 73:11 union 161:20 unique 80:22 unit 18:21 19:11 190:8 United 1:1 3:13 11:19 138:19 142:5 145:15 universities 165:10 University 11:1 101:19 135:5 unknowable 147:14 unprecedented	U	V	W	Wadden's 74:2 wade 94:21 wages 161:21 waist 75:15,17,19 75:22 76:2 82:2 wait 176:9 wake 136:22 walk 53:2 55:1 57:5 Wansink 18:13 want 3:20 12:2 13:10 14:20 15:8 18:10 21:16 22:3 24:11 27:16,16 30:4 37:19 40:16 42:2,3 46:2 47:4 49:3,4 53:21 56:2 58:4 63:14 105:12 105:14,15 109:5,6 109:7,7 123:1 124:10 130:9 133:3,4,7,13 134:8,15 143:11 148:10 154:14 165:3 166:6,9,14 172:20 176:17,18 177:3 192:21 193:20 194:15 195:13 196:19 198:6 203:14 wanted 33:17 65:14 71:4,12 83:18 89:17 104:22 113:17 119:7 122:16 123:19 127:16,21 136:5 138:9 201:1 wanting 114:10 wants 148:16 wash 179:14,15 washing 178:18,19 179:1 183:13,14 Washington 3:4

11:2 32:21 58:8 195:1 wasn't 95:20 99:19 Watchers 79:15 watching 29:11 water 19:8,8,11 20:17 39:13 40:6 71:19 110:19 140:18,21 141:4 175:22 watermelon 37:6,7 way 12:11,18 21:3 40:14,15 45:8 51:8 89:3,8 93:4 97:16 113:2 118:4 118:5 122:22 128:9 129:7 130:5 143:3 148:20 150:22 154:11 159:21 164:2 168:8 170:3 173:8 179:14 181:10 187:11 206:3,20 211:5 ways 7:2 23:15 56:8 89:9 104:1,4 108:10 123:6 127:5 128:5 143:1 143:14 145:20 147:13 149:9 161:3 166:22 167:5 170:18 175:3 web 6:1 72:8 WebEx 6:11 webinar 3:21 7:13 website 7:10,17 websites 126:20 186:8 web-based 92:1 WEDNESDAY 1:6 week 71:6 72:1 91:8 95:11 121:5 131:1 weeks 72:5,6,7 95:11 140:7 150:16,16 165:22	weigh 98:6 weight 15:1 19:12 27:1 34:12 60:21 61:2,3,16,17 62:4 62:5,6,7,8,13 63:8 63:11 64:5,5,10 64:12 65:5,15,18 65:21 66:1,5,18 66:22 69:2 71:2 73:7,10,11,20,22 74:8,19,19 75:19 76:4,10,11,16,18 77:1 78:9,13 79:8 79:14,15 80:17 81:17,19,22 82:6 82:14,16 89:21 90:8 92:3 94:9 95:17,19,20 96:5 98:3,22 99:8 101:16 110:10 welcome 3:20 8:9 136:4 210:3 welfare 143:17 wellness 102:12 117:17,20 118:8 118:13,19 119:1 119:10,21 120:19 121:2,12 122:4 132:14 well-known 35:12 went 67:17 81:6 101:7 111:15 152:4,18 160:10 weren't 99:12 western 158:5 we'll 38:6 46:11 58:12 60:10 76:8 88:8 94:20 122:4 122:6 152:21 157:11,12 176:17 197:12 198:11,14 we're 10:4,5 27:13 32:5,10 33:8,9 36:4,5 41:22 47:5 47:16 48:9 50:17 52:12 59:10 69:17 91:18 92:4 94:20	104:13 111:4 115:12 117:12,19 122:15 125:11 132:2 135:1 137:1 137:3 141:14 149:4 169:12 170:3 173:18 174:17 177:10 181:9 182:13 184:9 195:5,17,18 196:6,16 197:5,18 198:1,2,8 210:1 213:18 we've 48:16 54:17 64:1 76:5 93:15 93:15 103:4 111:10 114:21,22 132:19 137:1 138:12 142:7 148:13,14 153:1 158:2 170:22 173:19 194:20 198:3 206:18 209:20 214:2 whatnot 77:7 83:1 whatsoever 39:6 75:14 147:22 wheat 114:7 164:14 166:18 Wheel 124:4 white 20:19 102:3 WIC 58:9,11 103:13 107:20 108:2 wicked 144:10,10 wild 205:3,4 210:10 210:12 213:1 Williams 1:15 133:10 208:12,12 Williamson 71:15 willing 134:17 159:10 willingness 11:21 windows 150:3 wine 170:21,22 witness 89:14 women 29:19 73:15	191:4,16 203:16 210:20 212:15 Women's 60:2 98:8 wondered 98:19 wonderful 105:7 162:8 176:3,13 wondering 91:9 92:11 93:17 94:3 171:22 201:5 word 147:12,14 172:21 202:4 204:21 wording 118:7 120:16,18,21 121:8 words 36:6 123:19 139:15 156:13 work 4:8 5:12,16 5:20 9:11 35:10 54:5 62:9 63:3 73:1 90:17 99:22 104:1 107:1 108:7 119:13 142:17 146:9 158:21 165:5 166:4 173:5 173:22 174:1 176:14 177:20 183:7 188:10 194:19 196:2,21 200:10 206:19 worked 38:11 93:4 99:18 128:2,11 173:8 185:11 workers 164:22 165:1 working 3:19 9:4 41:12 50:4 113:12 115:13,14,21 117:13,19 124:18 124:19 125:5 126:11 129:22 173:18,20 176:11 177:12 182:9 195:19 196:16 197:19 198:8 workload 207:17 works 62:21	130:17 133:6 world 54:7,7 88:4 136:4 163:10 168:7 169:7,10 world-renowned 10:19 worried 168:11 210:13 worry 205:20 210:7 213:18 worse 112:16 worst 54:7 130:13 worth 132:22 163:15 wouldn't 58:13 204:22 wouldn't 213:12 wrapping 44:12 write 123:2 192:1 written 5:3 7:16 67:21 wrong 100:6 137:1 168:21 206:5 www.dietaryguid... 5:5 7:10
<hr/> X <hr/>				
X 78:11 XAVIER 1:14				
<hr/> Y <hr/>				
Y 78:12 year 7:6 17:15 18:2 67:17 76:17 77:18 116:18 128:15 147:12 149:11 150:11,16 155:4 158:1 162:12 169:3 174:9,13 195:11 years 32:19 36:12 36:19 54:1 66:21 67:14 72:8 73:21 74:4,9 77:2 78:13 78:15 79:3 80:13 80:21 81:20 101:22 103:4 107:20 115:10				

124:17 132:10,20 140:11 141:7,8,17 143:6 146:7 149:2 149:3 153:1 168:20 172:10 180:19 213:5 yellow 112:17 130:4 yesterday 164:10 yogurt 20:12 39:21 112:22 yogurts 39:18,20 York 28:17,18 29:6 30:10,11 31:5 32:3 48:20 129:10 140:7 149:2 170:10 171:17 young 29:7 166:5 166:13,17 191:5 youth 146:3 161:16 161:17 162:2	100,000 173:3,9 100,000-dollar 174:3,6 102 2:8 11 66:13 12 2:6 29:3 64:11 65:20 74:12 75:5 75:6,9 76:1 110:4 110:7,15 148:7 158:1 173:2 12-month 64:8 124 126:18 13 137:16 138:2,3 139:16 146:16 160:5 167:3 135 2:9 14 139:17 140:21 153:19 15 36:19 70:4,19 155:14,22,22 156:8 15-minute 101:4 150 83:19 85:6 1500 85:1 16 182:22 183:2 160 170:10,14 175 2:10 18 65:20 66:2,10 74:12 146:13 18,000 173:10 19 127:1 1988 181:17 1997 184:15	200 83:11 156:2,3 162:11 2001/2002 18:5 2002 195:4 2003 185:17 2004 185:13,19 189:20 191:14 2005 89:22 110:2 137:19 183:22 184:6 185:7 2006 181:18 192:11 2007 111:12 188:18 2008 147:11 2009 1:6 181:19 192:8 2010 3:21 199:13 2050 140:21 214 2:11 22-pound 62:13 23 85:22 24 37:16 74:12 75:9 77:14 25 70:4,19 250 110:10 27 73:15 29 1:6	35 70:8,20 80:11 90:2,10 110:7,9 36 140:20 37,000 155:20 156:1	8 8:30 214:11 80 73:7 74:6 161:11 161:11 800 73:5 800,000 140:9 811 69:14 86 139:8,12 87 31:21 38:2
<hr/> Z <hr/> zero 19:11 37:15 55:21 73:20 173:11 zones 150:9	15-minute 101:4 150 83:19 85:6 1500 85:1 16 182:22 183:2 160 170:10,14 175 2:10 18 65:20 66:2,10 74:12 146:13 18,000 173:10 19 127:1 1988 181:17 1997 184:15	<hr/> 3 <hr/> 3 2:4 3rd 157:13 3,000 86:15 3,500 86:15 3.5 83:20 3:05 101:8 3:20 101:6 3:24 101:9 30 78:19 115:10 119:21 131:6 132:20 133:11 141:7,8,17 143:6 150:10 158:9 168:20 30s 142:4 300 38:1 71:20 136:21 31 119:19 33 126:20	<hr/> 4 <hr/> 4th 157:12 40 69:22 70:18 86:22 87:2 90:7 90:19 132:20 141:8 143:6 40s 86:8 142:4 40-watt 150:1 400 69:22 70:1,17 71:20 41 85:22 412 83:22 45 84:12 86:19,22 87:2 48 150:16	<hr/> 9 <hr/> 9.3 76:21 90 71:22 91:8 90-degree 165:22 900 19:12,14 92 161:9 93 74:22 96 158:9 96th 31:9 965 110:13
<hr/> 0 <hr/> 0.2 78:14	<hr/> 2 <hr/> 2 31:20 2,000 24:18 2,500 86:14,15 2.1 84:17,17 2.3 83:20 20 20:3 36:12 69:21 70:18 73:21 76:12 90:2,10 98:10 99:19 141:7,17 143:6 149:2 168:20 174:12 20-minute 36:7	<hr/> 5 <hr/> 5:11 214:16 50 47:6,7 68:9 83:13,20 84:5 85:7,8,9 110:18 111:13 138:5 140:20 141:8 143:6 50s 51:17 86:8	<hr/> 6 <hr/> 6 99:15 60 2:7 84:6 64 73:15 645 73:5 65 70:8,20 80:7	<hr/> 9 <hr/> 9.3 76:21 90 71:22 91:8 90-degree 165:22 900 19:12,14 92 161:9 93 74:22 96 158:9 96th 31:9 965 110:13
<hr/> 1 <hr/> 1,000 19:20 20:2,21 21:4 22:8 46:19 1,500 86:14 87:4,17 1,800 156:4 1-866-229-3239 6:12 1.2 83:21 1:30 1:7 3:2 10 110:8 10th 157:14 10,000 28:19 100 16:14 19:12,15 34:7 37:15 39:2 47:5 83:11,13,20 85:6,7,9 103:4 111:14 152:22	<hr/> 2 <hr/> 2 31:20 2,000 24:18 2,500 86:14,15 2.1 84:17,17 2.3 83:20 20 20:3 36:12 69:21 70:18 73:21 76:12 90:2,10 98:10 99:19 141:7,17 143:6 149:2 168:20 174:12 20-minute 36:7	<hr/> 7 <hr/> 7-11-type 161:10 70 86:17 87:13 140:14 700 38:2 73 73:16 75 150:15 208:22 750 71:19	<hr/> 7 <hr/> 7-11-type 161:10 70 86:17 87:13 140:14 700 38:2 73 73:16 75 150:15 208:22 750 71:19	