

Dietary Guidelines for Americans 2015: Role of NHANES

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Disclaimer: The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention



Dietary Guidelines for Americans (DGA) 2015: Role of NHANES

1) What are the DGA

- History
- Process for DGA update

2) NHANES supporting the DGA 2015 process

- DHANES staff's involvement
- NHANES data uses

3) Status update: DGA 2015

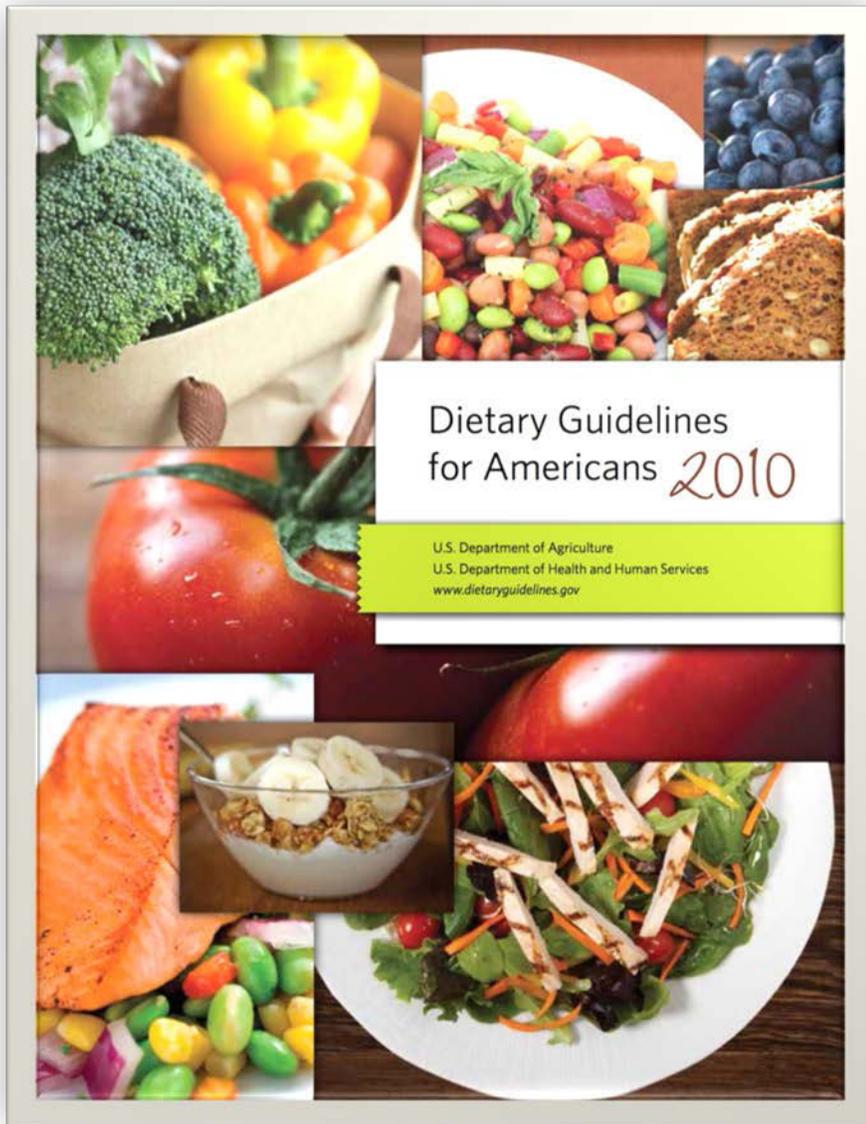
- DGAC committee report
- Next Steps: Dietary guidance for young children (birth to 24 mo.) & pregnant women

4) NHANES dietary data: Controversies

- Controversies in collection methods
- DHANES efforts: Updates



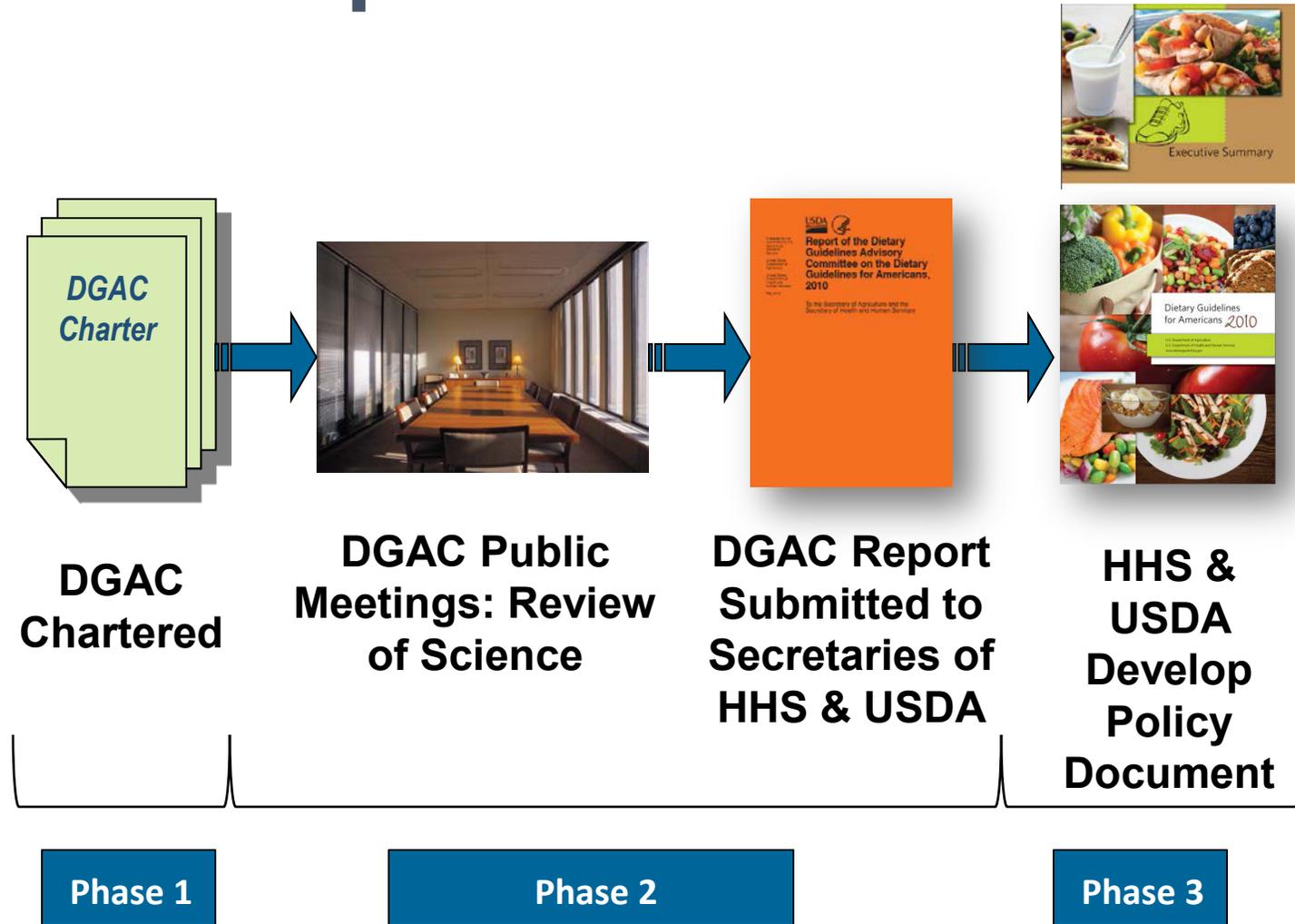
What are the DGA?



- Science-based federal recommendations on healthy eating that can be adopted by the public
- Traditionally focused on Americans ages 2 years and older
- Jointly issued by HHS and USDA
 - First edition published in 1980s
- Mandated to be updated every 5 years
 - Based on review of scientific evidence by federally appointed “Dietary Guidelines Advisory Committee” (DGAC)
 - DGA developed on the basis of the DGAC report by a discretionary federal advisory committee

2010 DGA are the 7th edition of DGA

Development and Implementation of DGA: Over 2 year Process of Development



Executive Summary: Key Recommendations from 2010 DGA



A circular graphic with a fork and knife icon in the center. The text "Key Recommendations" is written in a green, cursive font to the left of the icon.

 **BALANCING CALORIES TO MANAGE WEIGHT**

- Prevent and/or reduce overweight and obesity through improved eating and physical activity behaviors.
- Control total calorie intake to manage body weight. For people who are overweight or obese, this will mean consuming fewer calories from foods and beverages.
- Increase physical activity and reduce time spent in sedentary behaviors.
- Maintain appropriate calorie balance during each stage of life—childhood, adolescence, adulthood, pregnancy and breastfeeding, and older age.

 **FOODS AND FOOD COMPONENTS TO REDUCE**

- Reduce daily sodium intake to less than 2,300 milligrams (mg) and further reduce intake to 1,500 mg among persons who are 51 and older and those of any age who are African American or have hypertension, diabetes, or chronic kidney disease. The 1,500 mg recommendation applies to about half of the U.S. population, including children, and the majority of adults.
- Consume less than 10 percent of calories from saturated fatty acids by replacing them with monounsaturated and polyunsaturated fatty acids.
- Consume less than 300 mg per day of dietary cholesterol.
- Keep *trans* fatty acid consumption as low as possible by limiting foods that contain synthetic sources of *trans* fats, such as partially hydrogenated oils, and by limiting other solid fats.
- Reduce the intake of calories from solid fats and added sugars.
- Limit the consumption of foods that contain refined grains, especially refined grain foods that contain solid fats, added sugars, and sodium.
- If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and two drinks per day for men—and only by adults of legal drinking age.³

 **FOODS AND NUTRIENTS TO INCREASE**

Individuals should meet the following recommendations as part of a healthy eating pattern while staying within their calorie needs.

- Increase vegetable and fruit intake.
- Eat a variety of vegetables, especially darkgreen and red and orange vegetables and beans and peas.
- Consume at least half of all grains as whole grains. Increase whole-grain intake by replacing refined grains with whole grains.
- Increase intake of fat-free or low-fat milk and milk products, such as milk, yogurt, cheese, or fortified soy beverages.⁶
- Choose a variety of protein foods, which include seafood, lean meat and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds.
- Increase the amount and variety of seafood consumed by choosing seafood in place of some meat and poultry.
- Replace protein foods that are higher in solid fats with choices that are lower in solid fats and calories and/or are sources of oils.
- Use oils to replace solid fats where possible.
- Choose foods that provide more potassium, dietary fiber, calcium, and vitamin D, which are nutrients of concern in American diets. These foods include vegetables, fruits, whole grains, and milk and milk products.

Recommendations for specific population groups

Women capable of becoming pregnant?

- Choose foods that supply heme iron, which is more readily absorbed by the body, additional iron sources, and enhancers of iron absorption such as vitamin C-rich foods.
- Consume 400 micrograms (mcg) per day of synthetic folic acid (from fortified foods and/or supplements) in addition to food forms of folate from a varied diet.⁸

Women who are pregnant or breastfeeding?

- Consume 8 to 12 ounces of seafood per week from a variety of seafood types.
- Due to their high methyl mercury content, limit white (albacore) tuna to 6 ounces per week and do not eat the following four types of fish: tilefish, shark, swordfish, and king mackerel.
- If pregnant, take an iron supplement, as recommended by an obstetrician or other health care provider.

Individuals ages 50 years and older

- Consume foods fortified with vitamin B₁₂, such as fortified cereals, or dietary supplements.

 **BUILDING HEALTHY EATING PATTERNS**

- Select an eating pattern that meets nutrient needs over time at an appropriate calorie level.

DGA 2015 Process: Status and Role of NHANES Staff

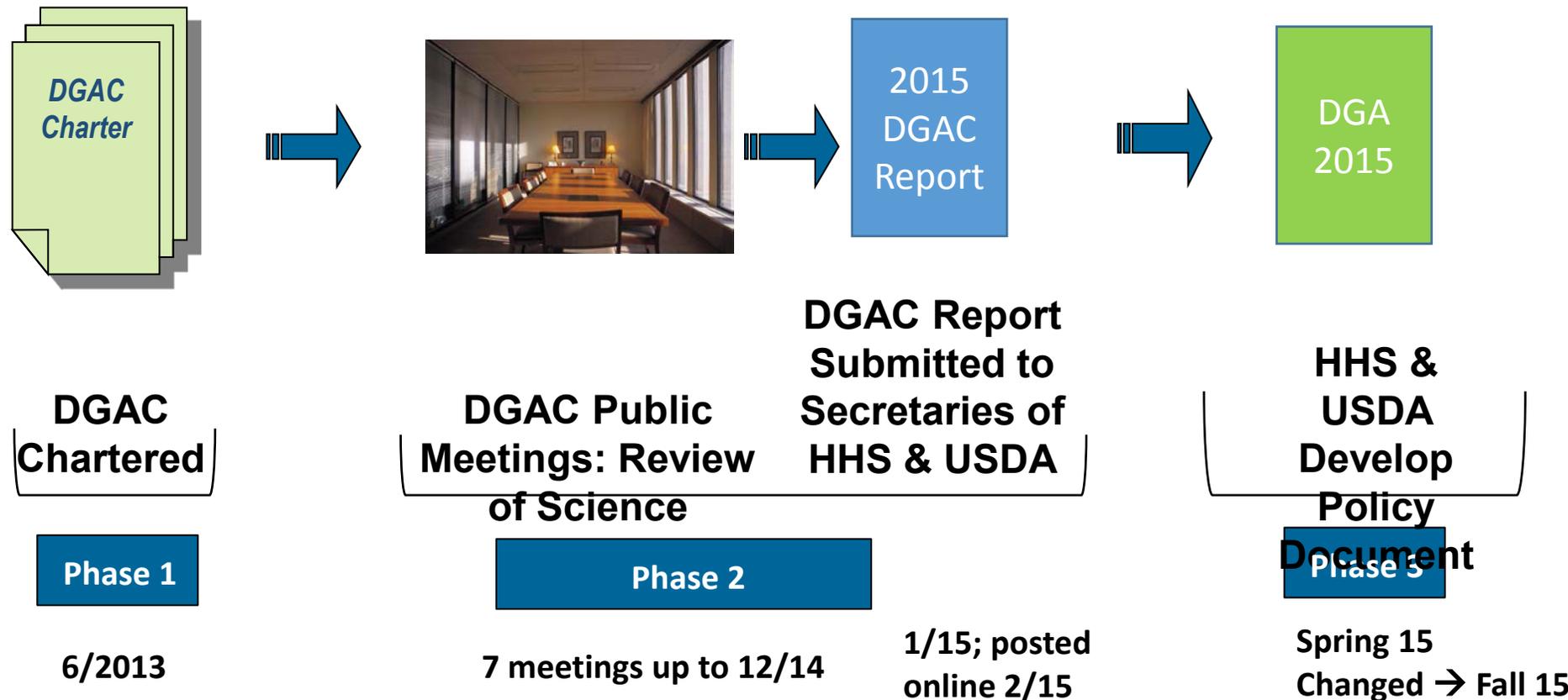
DGAC 2015 Chairs: B. Millen and A. Lichtenstein

Co-executive Secretaries: R. Olson (HHS) and C. Rihane (USDA)

3 Teams to support DGAC needs: Management; Nutrition Evidence Library (NEL); Data analysis team*

* Multiple agency team (USDA, FDA, NCI, CDC etc.)

From CDC – NHANES: C. Ogden, B. Kit, K. Herrick, N. Ahluwalia members of the Data support team





NHANES Data Used Extensively by 2015 DGAC to Develop their Report

Some examples of estimates produced:

- Usual intakes distributions by demographic groups
 - Nutrient intakes from diet (food & beverages) and supplements
 - USDA Food Pattern food groups
- Contribution of energy, selected nutrients, and food groups by various food categories (as consumed)
- Eating behaviors (meal skipping, contribution of meals and snacks to energy and nutrient intakes)
- Nutritional quality of food prepared at home and away from home
- Selected biochemical markers of diet/nutrition in the US population
- Prevalence of health concerns/trends, including body weight, lipid profiles, high blood pressure, and diabetes

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- **DGAC committee report**
- **Next Steps: Dietary guidance for young children (birth to 24 mo.) & pregnant women (B-24/P project)**

4) NHANES dietary data: controversies

- Controversies in collection methods
- DHANES efforts: Updates





**Scientific Report of the
2015 Dietary Guidelines Advisory Committee**

Advisory Report to the Secretary of Health and Human Services
and the Secretary of Agriculture

First Print
February 2015

2015 DGAC Scientific Report: Table of Contents

- Part A: Executive Summary
- Part B: Setting the Stage and Integrating the Evidence
- Part C: Methodology
- Part D: Science Base
 - Ch 1: Food and Nutrient Intakes and Health: Current Status and Trends
 - Ch 2: Dietary Patterns, Food and Nutrients and Health Outcomes
 - Ch 3: Individual Diet and Physical Activity Behavior Change
 - Ch 4: Food Environment and Settings
 - Ch 5: Food Sustainability and Safety
 - Ch 6: Cross-Cutting Topics of Public Health Importance
 - Ch 7: Physical Activity
- Part E: Appendices

<http://health.gov/dietaryguidelines/2015-scientific-report/>

Consistent Message from DGA 2010 to DGAC report 2015

- Four nutrients of public health concern
 - Vitamin D
 - Calcium
 - Potassium
 - Dietary fiber

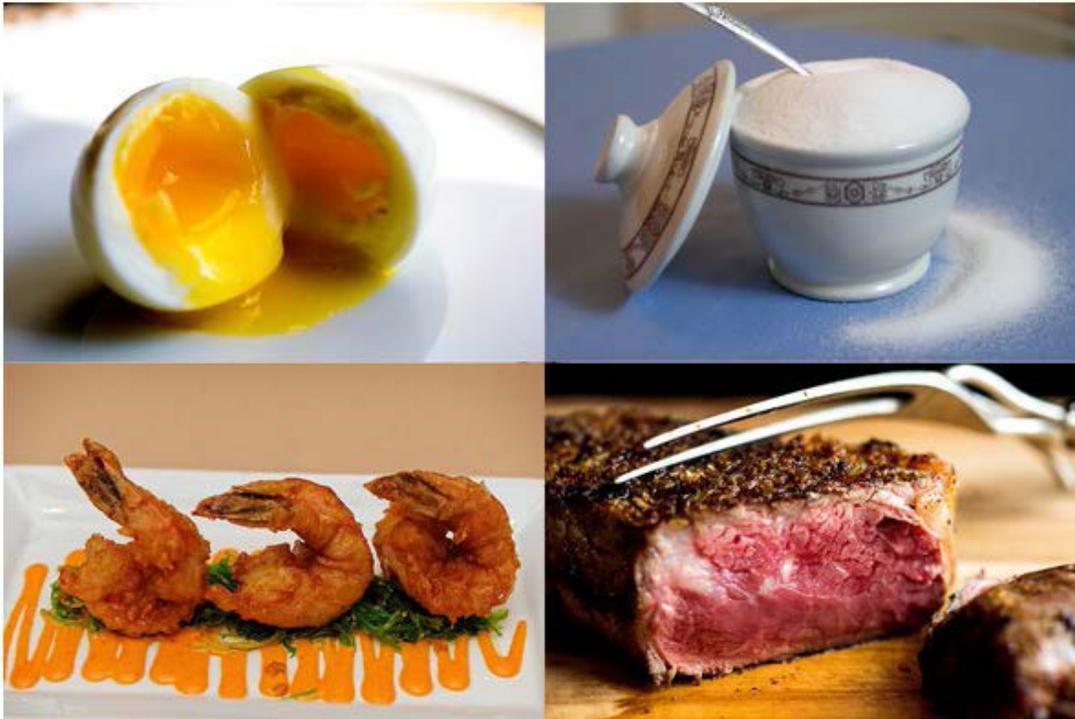
2015 DGAC Report: Some Examples (In the Press)



FOOD

Nutrition Panel Calls for Less Sugar and Eases Cholesterol and Fat Restrictions

By ANAHAD O'CONNOR FEBRUARY 19, 2015 2:47 PM 440 Comments



Andrew Scrivani for The New York Times and Barton Silverman/The New York Times

http://well.blogs.nytimes.com/2015/02/19/nutrition-panel-calls-for-less-sugar-and-eases-cholesterol-and-fat-restrictions/?_r=0

2015 DGAC Report: Some Examples (In the Press)

Up to 5 Cups of Coffee a Day OK, Gov't Advisory Committee Says

By SYDNEY LUPKIN · Feb 21, 2015, 3:52 AM ET

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Getty Images

New federal dietary guidelines recommend "moderate" caffeine consumption, up to 400 milligrams of caffeine or three to five cups of coffee a day.

174
SHARES

You can consume up to 5 cups of coffee a day, or up to 400 milligrams of caffeine, without detrimental effects, according to a new report that will help shape the official government dietary guidelines due out later this year.

This is the first time caffeine has been mentioned in the advisory report, which is submitted by a panel of experts to the U.S. Department of Agriculture and the Department of Health and Human Services every five years. The 2015 Dietary Guidelines for Americans will be finalized by the end of the year.

The advisory committee determined moderate coffee consumption was not associated with health risks, including [cardiovascular disease](#) and cancer. In fact, the committee noted that there's evidence coffee has some health benefits, including reducing the risk of developing type 2 [diabetes](#) and cardiovascular disease. There's also some evidence caffeine offers protection against [Parkinson's disease](#), the committee wrote.

Still, pregnant women and children should limit their caffeine consumption, the committee concluded, adding that mixing alcohol and caffeine should be avoided.

<http://abcnews.go.com/Health/cups-coffee-day-govt-advisory-committee/story?id=29085259>

Next Step: DGA 2015 (Policy Document)

Once the DGA 2015 are issued, can discuss the updates in DGA 2015 vs 2010 guidelines at a later meeting

Stay tuned

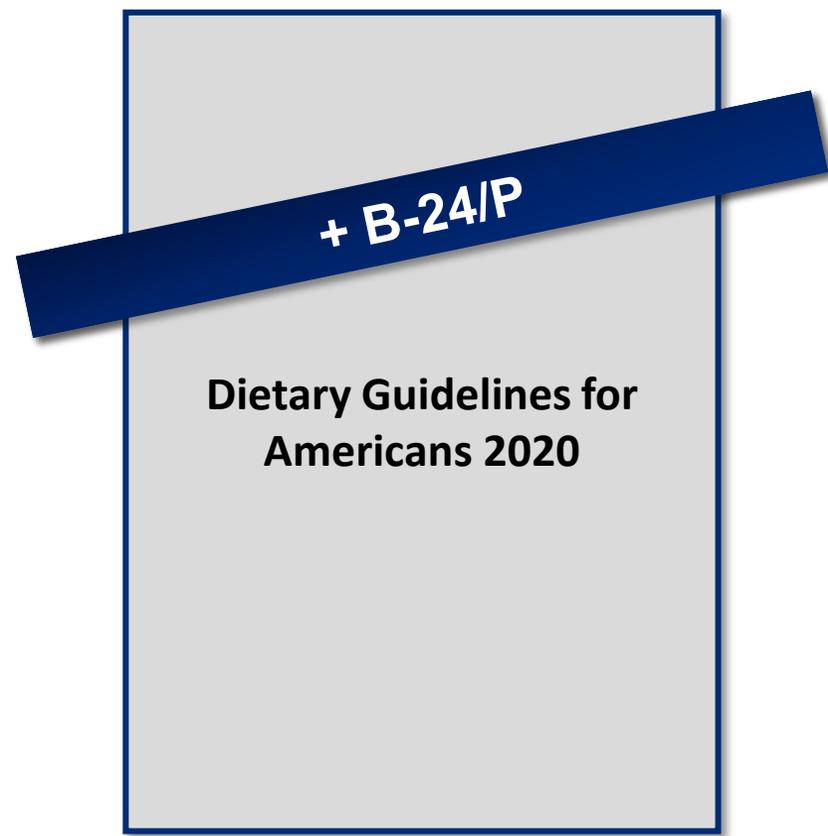
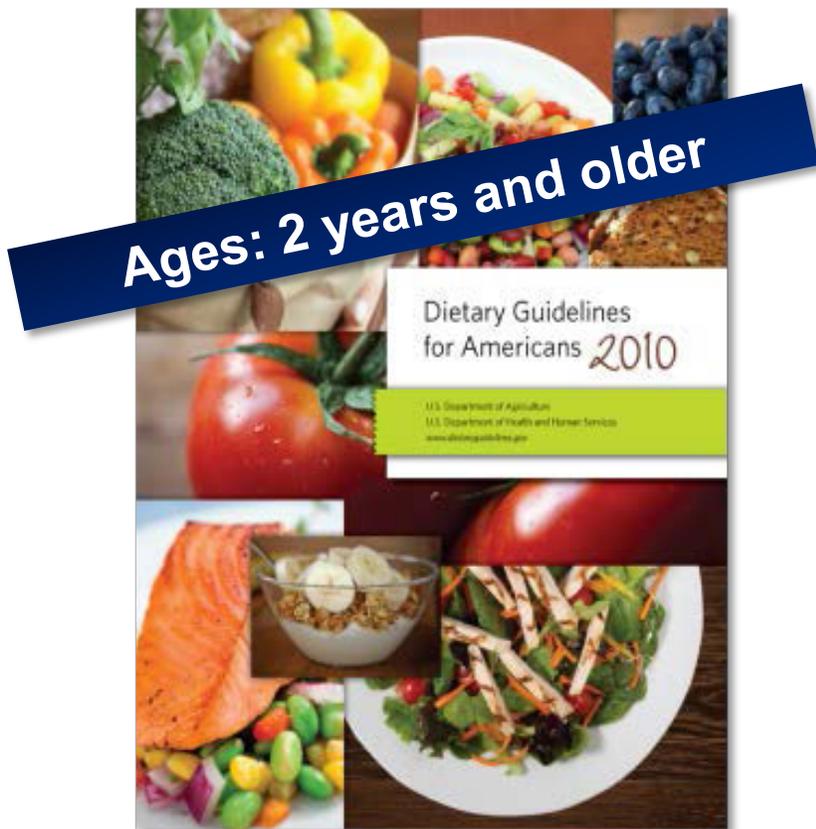


What's Coming Next in the Future DGA?

Dietary Guidance Development for Birth to 24 Months and Pregnancy **B - 24 / P Project**



B-24/P Project: Goal



Support the development of dietary guidance for birth to 24 months and pregnancy **starting with DGA 2020**

The Multi-phase B-24/P Project is Currently in Phase II

Phase I (2012-2013)



- Scientific experts and government policy and program leaders identify topics, systematic review questions, and research and data needs.

B-24 project

* CDC reps: N. Ahluwalia (NCHS);
K. Scanlon and W. Dietz (NCCDPHP)

Phase II (2014-2017)



- Federal Expert Group* prioritizes questions and oversees review of evidence.
- USDA's Nutrition Evidence Library (NEL) collaborates with technical experts to conduct systematic reviews.

Farm bill amended (2/2014):

DGA 2020 to include guidance to B-24/P.

* CDC reps: N. Ahluwalia (NCHS);
K. Scanlon and C. Perrine (NCCDPHP)

Phase III (2017-2018)



- Systematic review reports developed.
- Reports are provided to the 2020 Dietary Guidelines Advisory Committee for consideration.

Themes Addressed by the B-24/P Project

www.cnpp.usda.gov/birthto24months



Human Milk & Infant Formula Feeding



Taste Development

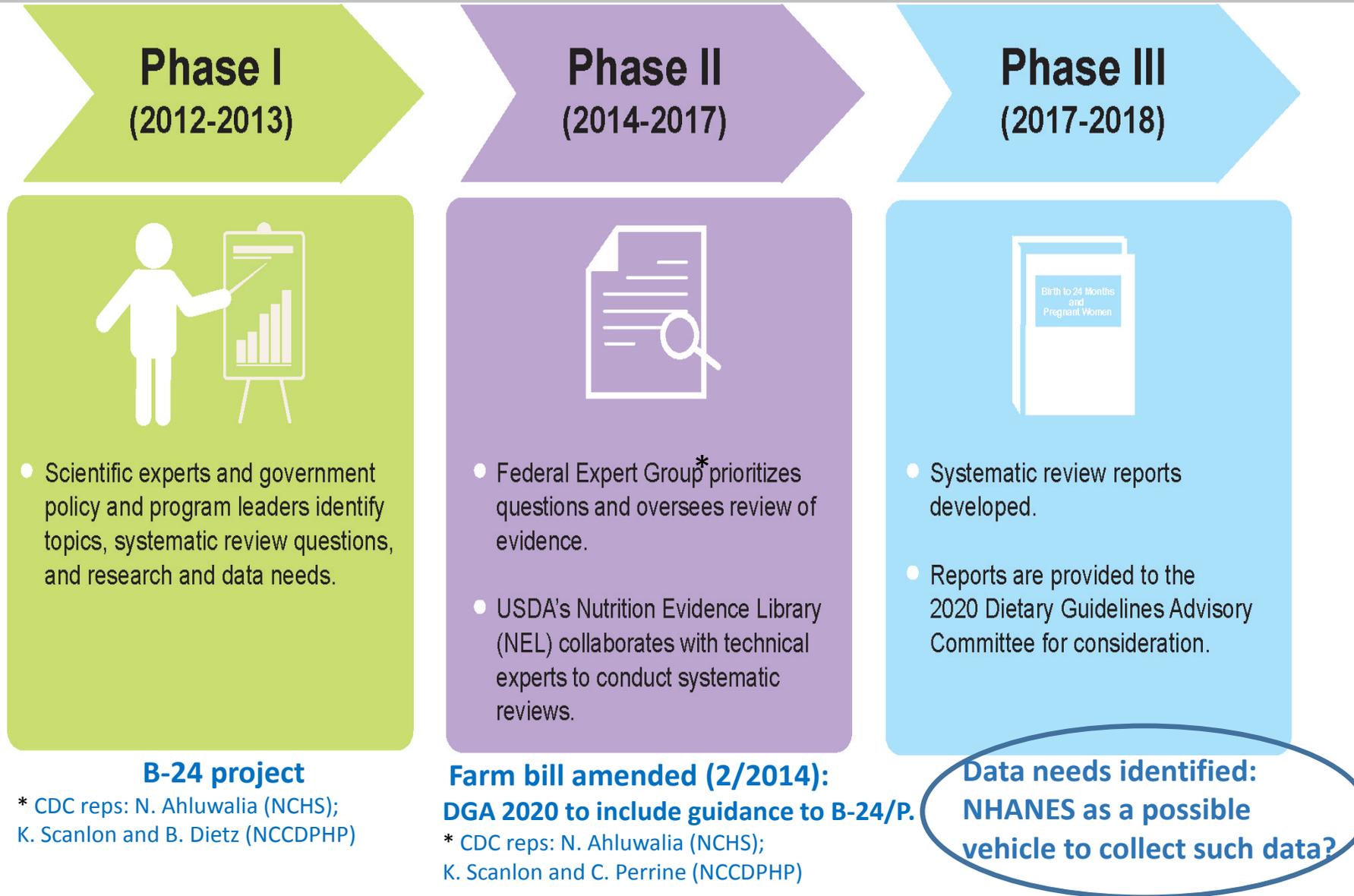


Feeding Practices & Methods



Complementary Feeding: Foods & Beverages

The Multi-phase B-24/P Project is Currently in Phase II



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Discussion

4) Briefing on NHANES dietary data: Controversies

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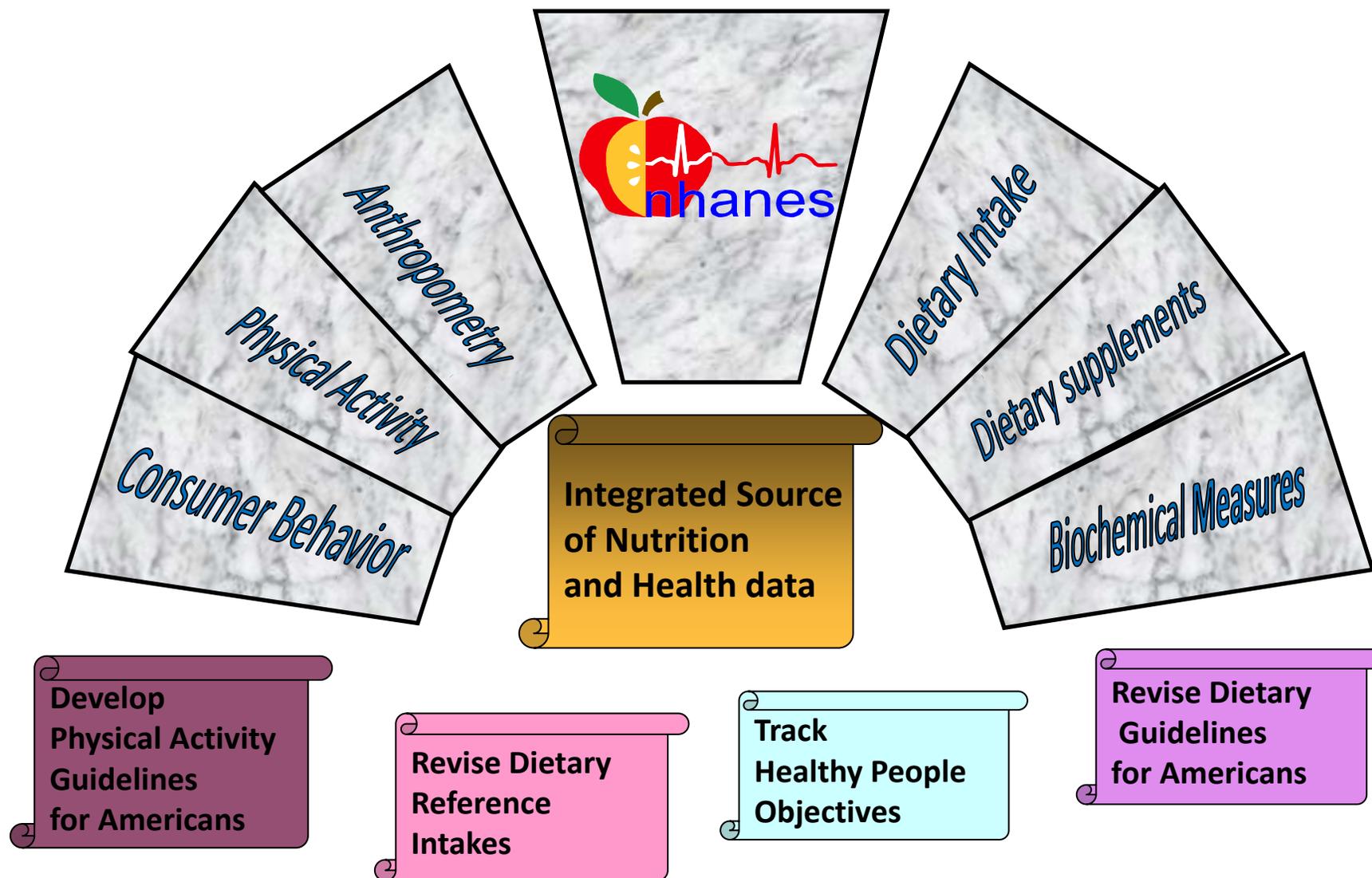


NHANES: Monitoring the Nation's Health & Nutrition

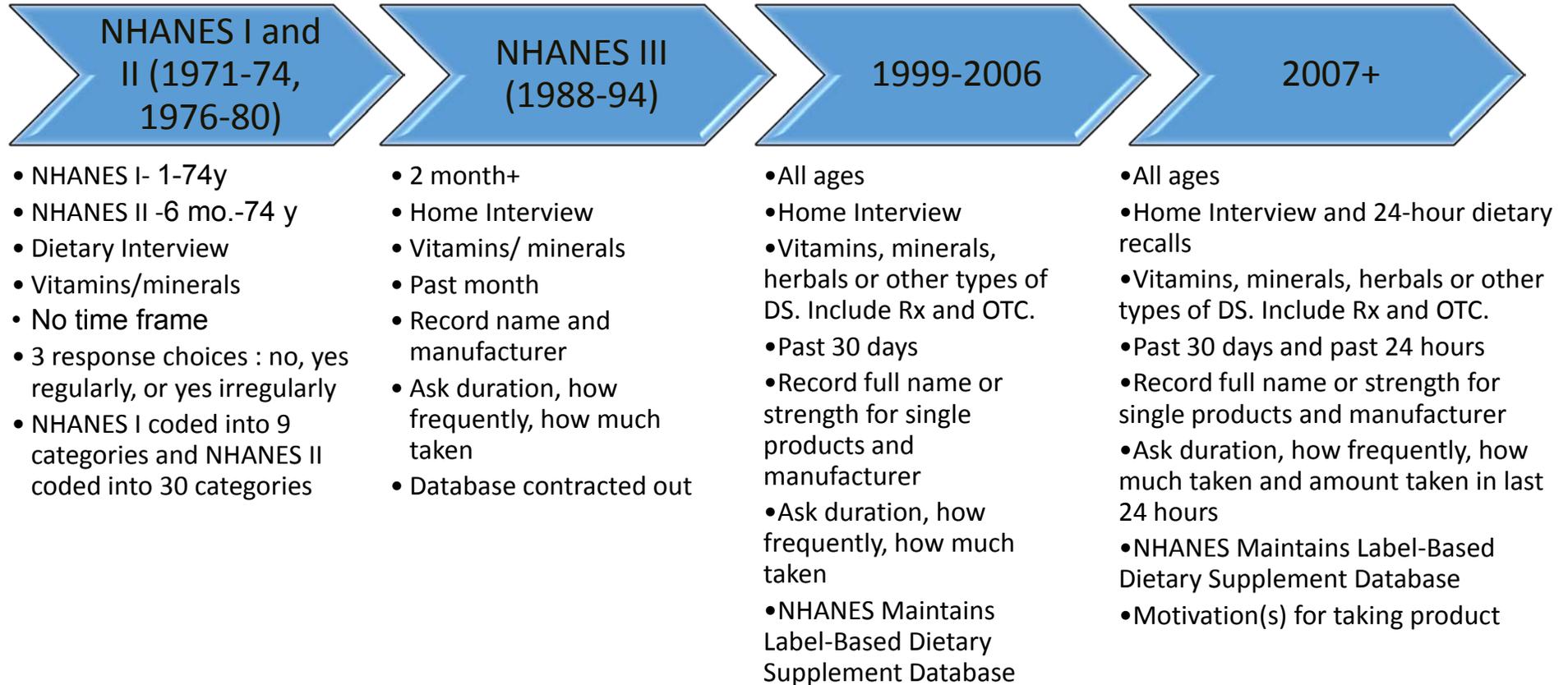
Goal: To assess the health and nutritional status of adults and children in the United States



NHANES: Keystone of 21st Century U.S. Nutrition Monitoring with Comprehensive Nutrition Status Assessment



Dietary Supplements: Expansion Through the Surveys



NHANES: Dietary Recall Component



- **Partnership with USDA's Agricultural Research Service (ARS)**
 - **What We Eat In America (WWEIA) – dietary component of NHANES**
- **Data collected by dietary interviewer using the AMPM software developed by the ARS**

USDA's AMPM: Obtaining 24-Hour Dietary Recall



5-Step Multiple Pass

Step 1

Quick List

... Listing of all foods/beverages

Step 2

Forgotten Foods

... Probes for forgotten foods/ beverages

Step 3

Time & Occasion

... Ask for each food/beverage

Step 4

Detail Cycle

... Standardized questions for each food /beverage

Step 5

Final Probe

... A final probe for anything else

- **Computer assisted, 5-step multiple pass approach, with standardized probes, to estimate current dietary intake and minimize misreporting**

- Respondent prompted to recall foods and beverages consumed in the 24-hour period (3 dimensional food models and food model booklet used to estimate portion size)
- Uses multiple memory cues to elicit recall of all possible foods (Moshfegh et al. AJCN 2008)
- Process designed to enhance complete and accurate data collection with reduced respondent burden

WWEIA, NHANES: Dietary Recall Component



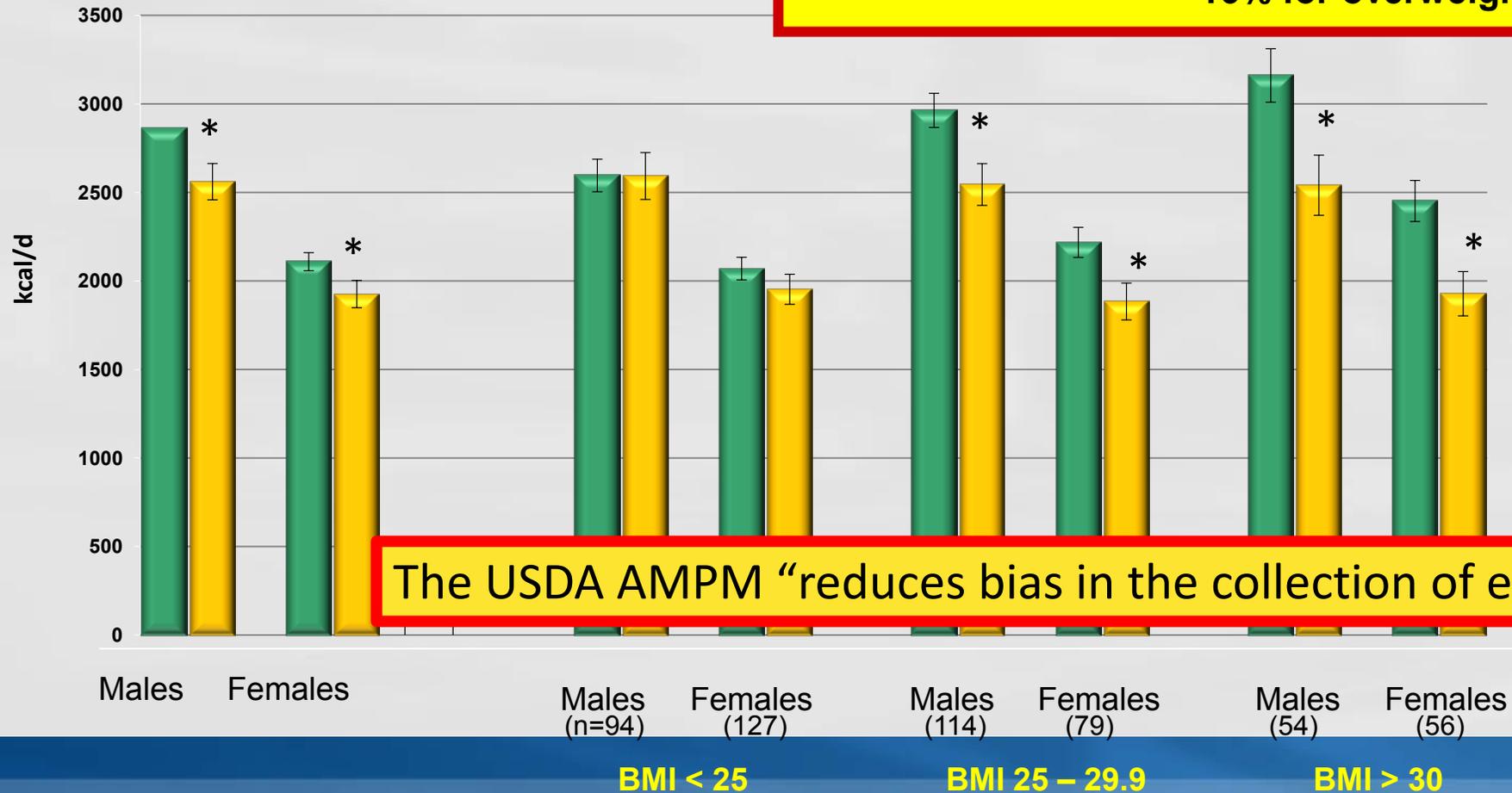
- ✓ • **AMPM - Standardized and validated technique**
 - doubly labeled water - reference method for energy expenditure
 - biomarkers (sodium)

Validation of AMPM for Energy

■ **TEE** (\bar{x} , 95% CI)
doubly labeled water

■ **EI** (\bar{x} , 95% CI)
AMPM 3-day average

Energy intake was under-reported by:
11% overall
<3% for normal weight
16% for overweight

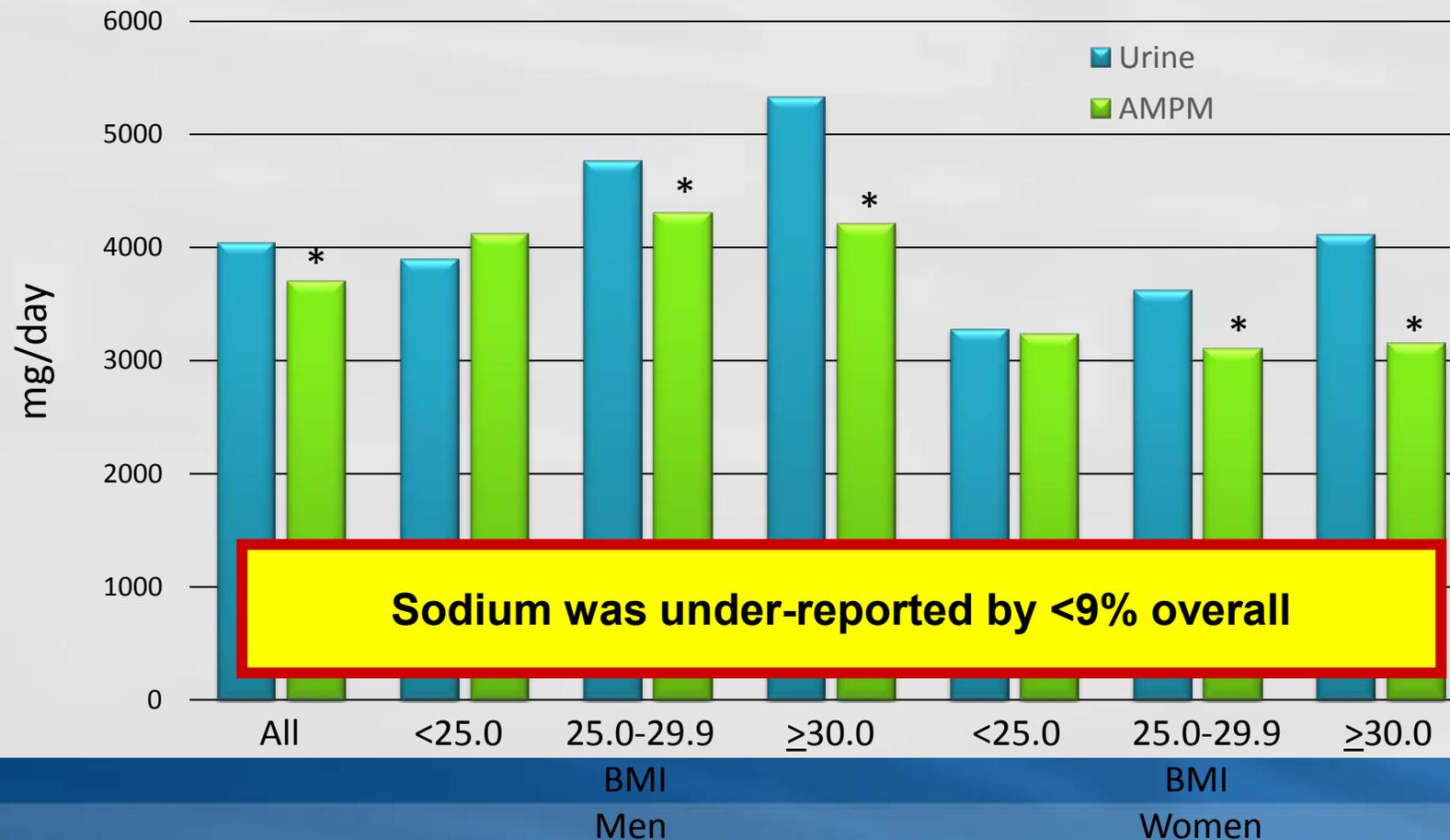


The USDA AMPM “reduces bias in the collection of energy intake”

* Significant at <5%

Validation of AMPM for Sodium

- 465 weight-stable adults – 232 men & 233 women
- At least 1 24-h recall and at least 1 24-h urine sample



WWEIA, NHANES: Dietary Recall Component



- To capture day-day variability in intake, NHANES obtains two 24-hour recalls since 2002 using the AMPM method
 - 1st in person, and 2nd over telephone
 - non consecutive days

Important to know

- 24-hour recalls include information on dietary supplement taken
- Data bases updated every 2 year cycle
 - FNDDS version released with each dietary data release to cover foods reported consumed in the 2-year survey cycle

NHANES Dietary Data: Controversies

OPEN ACCESS Freely available online



Validity of U.S. Nutritional Surveillance: National Health and Nutrition Examination Survey Caloric Energy Intake Data, 1971–2010

Edward Archer^{1*}, Gregory A. Hand¹, Steven N. Blair^{1,2}

1 Department of Exercise Science, Arnold School of Public Health, University of South Carolina, Columbia, South Carolina, United States of America, **2** Department of Epidemiology and Biostatistics, University of South Carolina, Columbia, South Carolina, United States of America

Abstract

Importance: Methodological limitations compromise the validity of U.S. nutritional surveillance data and the empirical foundation for formulating dietary guidelines and public health policies.

Objectives: Evaluate the validity of the National Health and Nutrition Examination Survey (NHANES) caloric intake data throughout its history, and examine trends in the validity of caloric intake estimates as the NHANES dietary measurement protocols evolved.

Design: Validity of data from 28,993 men and 34,369 women, aged 20 to 74 years from NHANES I (1971–1974) through NHANES 2009–2010 was assessed by: calculating physiologically credible energy intake values as the ratio of reported energy intake (rEI) to estimated basal metabolic rate (BMR), and subtracting estimated total energy expenditure (TEE) from NHANES rEI to create 'disparity values'.

Main Outcome Measures: 1) Physiologically credible values expressed as the ratio rEI/BMR and 2) disparity values (rEI-TEE).

Results: The historical rEI/BMR values for men and women were 1.31 and 1.19, (95% CI: 1.30–1.32 and 1.18–1.20), respectively. The historical disparity values for men and women were –281 and –365 kilocalorie-per-day, (95% CI: –299, –264 and –378, –351), respectively. These results are indicative of significant under-reporting. The greatest mean disparity values were –716 kcal/day and –856 kcal/day for obese (i.e., ≥ 30 kg/m²) men and women, respectively.

Conclusions: Across the 39-year history of the NHANES, EI data on the majority of respondents (67.3% of women and 58.7% of men) were not physiologically plausible. Improvements in measurement protocols after NHANES II led to small decreases in underreporting, artifactual increases in rEI, but only trivial increases in validity in subsequent surveys. The confluence of these results and other methodological limitations suggest that the ability to estimate population trends in caloric intake and generate empirically supported public policy relevant to diet-health relationships from U.S. nutritional surveillance is extremely limited.

Citation: Archer E, Hand GA, Blair SN (2013) Validity of U.S. Nutritional Surveillance: National Health and Nutrition Examination Survey Caloric Energy Intake Data, 1971–2010. PLoS ONE 8(10): e76632. doi:10.1371/journal.pone.0076632

Editor: Darcy Johansen, Pennington Biomed Research Center, United States of America

Received: May 9, 2013; **Accepted:** August 25, 2013; **Published:** October 9, 2013

Copyright: © 2013 Archer et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Funding: This study was funded via an unrestricted research grant from The Coca-Cola Company. The sponsor of the study had no role in the study design, data collection, data analysis, data interpretation, or writing of the report.

Competing Interests: Dr. Gregory Hand has received consultancy fees from the National Institutes of Health (NIH) and grants from the NIH, and The Coca-Cola Company. Dr. James Hébert is supported by an Established Investigator Award in Cancer Prevention and Control from the Cancer Training Branch of the National Cancer Institute (K05 CA136975). Dr. Steven Blair receives book royalties (<\$5,000/year) from Human Kinetics; honoraria for service on the Scientific/Medical Advisory Boards for Clarity, Technogym, Santech, and Jenny Craig; and honoraria for lectures and consultations from scientific, educational, and by groups which are donated to the University of South Carolina or not-for-profit organizations. Dr. Blair is a consultant on research projects with the University of Texas-Southwestern Medical School and the University of Miami. During the past 5-year period Dr. Blair has received research grants from The Coca-Cola Company, the National Institutes of Health, and Department of Defense. Funding for the study was provided by an unrestricted research grant from The Coca-Cola Company. The sponsor of the study had no role in the study design, data collection, data analysis, data interpretation, or writing of the report, and does not alter the authors' adherence to all the PLOS ONE policies on sharing data and materials.

* E-mail: archerec@email.sc.edu

- Archer et al. (2013) related energy intake (EI) based on a single dietary recall to estimated energy needs (based on BMR by Schofield eq. or for total energy expenditure by the IOM method)
- Major finding: Majority of participants underreported EI
 - EI values not “physiologically plausible”
- Several media reports and interviews by Dr Archer questioning the validity of NHANES dietary data and diet-health associations

Reaction to Article by Archer et al.

- **Surge of letters/ editorials/ interviews by scientists and SMEs** (energy metabolism, energy intake assessment, nutrition epidemiology and nutrition policy)
- **Findings not novel – no effort to account for sources of error**
 - Long known that a single dietary recall inadequate to capture variation in dietary (energy) intake
 - Shown previously in several studies including reports from NHANES (Briefel et al.)
- **Overdrawn conclusions**
- **Key response paper: Hebert et al. (2014)**

Considering the Value of Dietary Assessment Data in Informing Nutrition-Related Health Policy^{1,2}

James R. Hébert,^{3,5,6*} Thomas G. Hurley,³ Susan E. Steck,^{3,5,6} Donald R. Miller,^{7,8} Fred K. Tabung,^{3,5} Karen E. Peterson,^{9,10,11} Lawrence H. Kushi,^{12,13} and Edward A. Frongillo,^{4,6}

Departments of ³Epidemiology and Biostatistics and ⁴Health Promotion, Education, and Behavior, Arnold School of Public Health, ⁵Cancer Prevention and Control Program, and ⁶Center for Research in Nutrition and Health Disparities, University of South Carolina, Columbia, SC; ⁷Department of Health Policy and Management, Boston University School of Public Health, Boston, MA; ⁸Center for Healthcare Organization and Implementation Research, Bedford Veterans Affairs Medical Center, Bedford, MA; ⁹Human Nutrition Program, Department of Environmental Health Sciences, School of Public Health and ¹⁰Center for Human Growth and Development, University of Michigan, Ann Arbor, MI; ¹¹Department of Nutrition, Harvard School of Public Health, Boston, MA; ¹²Division of Research, Kaiser Permanente Northern California, Oakland, CA; and ¹³School of Medicine, University of California, Davis, Sacramento, CA

Advances in Nutrition 5: 447-55; 2014

ABSTRACT

Dietary assessment has long been known to be challenged by measurement error. A substantial amount of literature on methods for determining the effects of error on causal inference has accumulated over the past decades. These methods have unrealized potential for improving the validity of data collected for research studies and national nutritional surveillance, primarily through the NHANES. Recently, the validity of dietary data has been called into question. Arguments against using dietary data to assess diet–health relations or to inform the nutrition policy debate are subject to flaws that fall into 2 broad areas: 1) ignorance or misunderstanding of methodologic issues; and 2) faulty logic in drawing inferences. Nine specific issues are identified in these arguments, indicating insufficient grasp of the methods used for assessing diet and designing nutritional epidemiologic studies. These include a narrow operationalization of validity, failure to properly account for sources of error, and large, unsubstantiated jumps to policy implications. Recent attacks on the inadequacy of 24-h recall–derived data from the NHANES are uninformative regarding effects on estimating risk of health outcomes and on inferences to inform the diet-related health policy debate. Despite errors, for many purposes and in many contexts, these dietary data have proven to be useful in addressing important research and policy questions. Similarly, structured instruments, such as the food frequency questionnaire, which is the mainstay of epidemiologic literature, can provide useful data when errors are measured and considered in analyses. *Adv. Nutr. 5: 447–455, 2014.*

Implausible Data, False Memories, and the Status Quo in Dietary Assessment¹⁻³

Dear Editor:

In their recent article, Hébert et al. (1) ask their readers to consider the value of self-reported dietary data (SRDD) in informing public health policy while stating that our challenge to the validity of these data (2) is due to "ignorance"

Recently, strong proponents of SRDD protocols provided data that demonstrate the futility of these methods (11). In Freedman et al. (11), the squared average correlation between "true" energy intake and self-reported energy intake ranged from 0.04 to 0.10. The trivial relations between the proxy estimates (i.e., self-reported energy intake) and its referent (i.e., actual energy intake) provide unequivocal evidence that SRDD offer an inadequate basis from which to draw scientific conclusions (6). Importantly, energy intake is the foundation of dietary consumption, and therefore all nutrients must be consumed within the quantity of food

Abstract
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Publication dates

these data are not valid for any inferences regarding energy intake and the etiology of the obesity epidemic. Remark-

ably, on this point, we provide no data from a 39-y history of 67.3% of women "biologically plausible" British Medical suggesting that "life" (3). These research conclusions that public policy from commonsense research that demonstrate severe, intractable come with statistical example, energy equate to correct

Importantly, that human measurement and precise representation assumption is that methods require mimetic procedures such, it is impossible recalled foods reports, are gross with actual consensual machinery that improve

- [The Inadmissibility of What We Eat in America and NHANES Dietary Data in Nutrition and Obesity Research and the Scientific Formulation of National Dietary Guidelines.](#)

1. Archer E, Paveis G, Lavie CJ.

Mayo Clin Proc. 2015 Jul;90(7):911-26. doi: 10.1016/j.mayocp.2015.04.009. Epub 2015 Jun 9. Review.

PMID: 26071068

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Abstract

Mayo Clin Proc. 2015 Jul;90(7):845-7. doi: 10.1016/j.mayocp.2015.05.009. Epub 2015 Jun 9.

The Validity of Self-reported Dietary Intake Data: Focus on the "What We Eat in America" Component of the National Health and Nutrition Examination Survey Research Initiative.

Davy BM¹, Estabrooks PA².

Author information

Comment on

The Inadmissibility of What We Eat in America and NHANES Dietary Data in Nutrition and Obesity Research and the Scientific Formulation of National Dietary Guidelines. [Mayo Clin Proc. 2015]

PMID: 26071069 [PubMed - Indexed for MEDLINE]



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²Author disclosures: E Archer has received honoraria from the International Life Sciences Institute and The Coca-Cola Company. SN Blair receives book royalties (<\$5,000/y) from Human Kinetics; honoraria for service on the Scientific Medical Advisory Boards for Clarity, Technogym, Santech, and Jenny Craig, and honoraria for lectures and consultations from scientific, educational, and lay groups, which are donated to the University of South Carolina or not-for-profit organizations; he is a consultant on research projects with the University of Texas-Southwestern Medical School and the University of Miami. During the past 5-y period he has received research grants from The Coca-Cola Company, Technogym, BodyMedia, the NIH, and the Department of Defense.

³The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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1. Hébert BR, Midthun DK, Peterson KE, et al. The validity of dietary assessment methods to estimate usual intake of nutrients. *Am J Clin Nutr* 2001;74:654-659.
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doi:10.3945/an.114.007799

Reply to E Archer and SN Blair^{1,2}

Dear Editor:

We thank Drs. Archer and Blair for commenting on our article (1), which was motivated in part by commentary by them (2) and others (3, 4) that dismissed an entire field of research based almost completely on the concern that a single 24-h dietary recall (24HR) provides inaccurate estimates of energy intake that are not "physiologically plausible." In our article, we outlined 9 points that can be considered in judging the utility of dietary assessment data, in assessing diet-disease relations, and in drawing inferences from research results. In their response, Archer and Blair allege that there are "intractable systematic biases" in the NHANES data. However, they have not presented evidence to establish the nature of these alleged systematic biases. As we noted under the seventh point in our article, knowing the specific nature of biases provides essential information regarding their effect and offers opportunities for improving methods of risk estimation.

Far from being silent on the matter of drawing inferences based on these kinds of data (and not just from a single 24HR, as in the NHANES), we quoted directly from Archer et al. (2) and then responded to their and others' criticisms of self-report dietary data in a systematic manner. Under our first point, we readily acknowledged errors in dietary self-report and provided a variety of solutions that we and others have devised and applied. Whole sections of our article were devoted to acquainting readers with understanding the nature of errors and describing methods for adjustment that, in turn, allow for predicting "hard" biological endpoints (i.e., "constructs").

We also questioned the specific cutoffs that Archer and Blair used to judge implausibility and pointed out the statistical properties of repeat, as opposed to single, measures of daily dietary intake. When taken into account, repeat measures can provide estimates of intraperson variability that can be used to inform analyses using these 24HR-derived data. It is well known to methodologists in this field that a single 24HR is not adequate to characterize an individual's usual diet (5). This is due to the relatively large day-to-day variation in dietary intake of most people. Beaton and colleagues (6-8) demonstrated that between 42% and

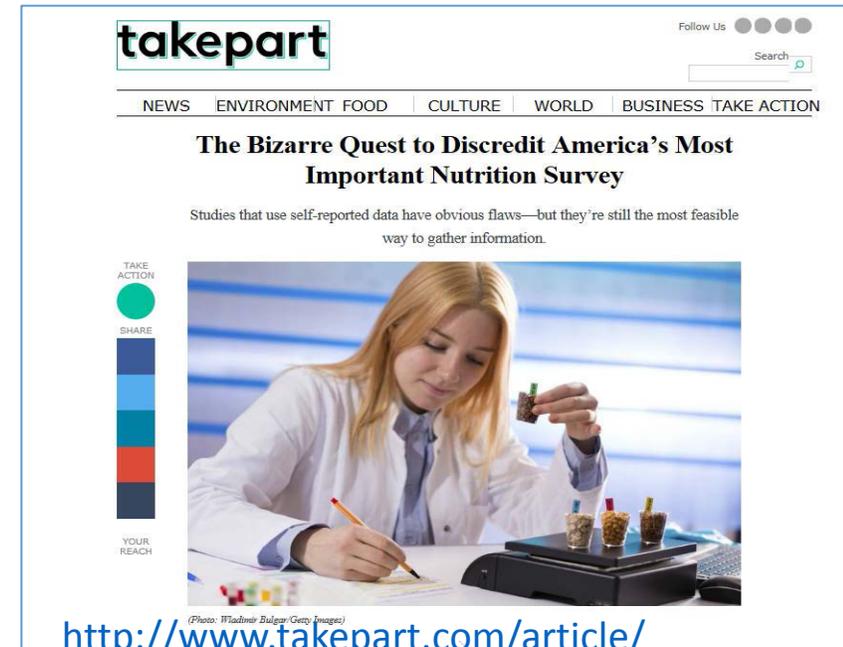
NHANES Staff's Communications on its Dietary Data and Role in Nutrition Monitoring

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Update on National Health and Nutrition Examination Survey (NHANES) Dietary Data: Focus on Collection, Release, Analytical Considerations, and Uses to Inform Public Policy

Corresponding Author: Namanjeet Ahluwalia
Additional Authors: Johanna Dwyer, Ana Terry, Alanna Moshfegh, Clifford Johnson



The screenshot shows the TakePart website interface. At the top, there is a search bar and navigation links for NEWS, ENVIRONMENT, FOOD, CULTURE, WORLD, BUSINESS, and TAKE ACTION. The main article title is "The Bizarre Quest to Discredit America's Most Important Nutrition Survey". Below the title is a sub-headline: "Studies that use self-reported data have obvious flaws—but they're still the most feasible way to gather information." To the left of the article is a vertical sidebar with a green circle labeled "TAKE ACTION", a blue circle labeled "SHARE", and a section labeled "YOUR REACH" with a vertical bar chart. The main image shows a woman in a white lab coat working in a laboratory, holding a small vial and looking at a scale. A small caption below the image reads "(Photo: Windows/Belga/Getty Images)".

[http://www.takepart.com/article/](http://www.takepart.com/article/2015/06/29/america-dietary-guidelines-self-reporting)

2015/06/29/america-dietary-guidelines-self-reporting

Scientific Symposia at the American Society of Nutrition meeting at the Experimental Biology Conference in April 2016 (proposed and accepted)

Symposia Title: Nutritional Status Monitoring in the U.S. over 45 years in the National Health and Nutrition Examination Survey (NHANES): Updates and Challenges

Chairs: N. Ahluwalia and C. Boushey

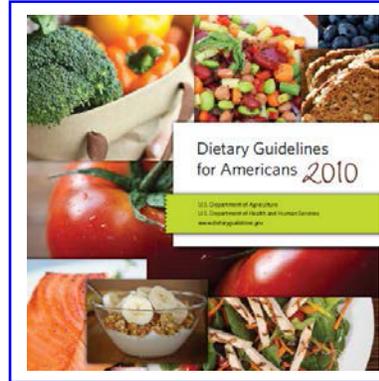
Speakers: A. Moshfegh (USDA); J. Gahche (NCHS); R. Bailey (ODS); K. Dodd (NCI); C. Pfeiffer (NCEH)



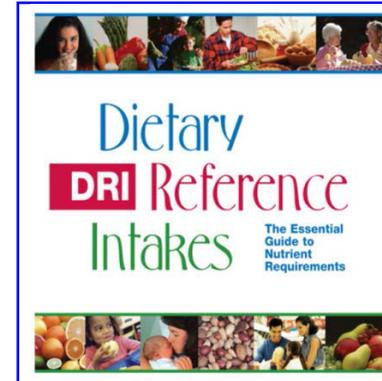
NHANES dietary data used for



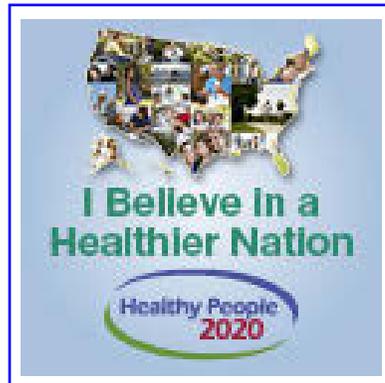
Federal Food Programs



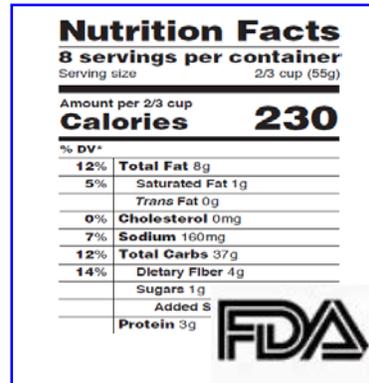
Dietary Guidelines for Americans



Dietary Reference Intakes



Healthy People 2020



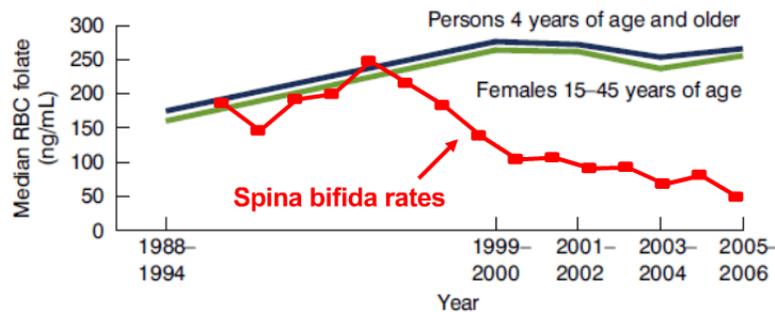
Food Labeling and Fortification



Food Safety

NHANES dietary data in conjunction with other data (e.g. biomarkers) informative in setting and tracking nutrition policy

Birth defects: Folic acid fortification



Iron deficiency anemia

- Grain and cereal product iron fortification based on low serum iron levels and low intake from NHANES
- NHANES iron status used, in part, to set RDA by FNB expert panel
- Track progress on Healthy People objective to reduce iron deficiency since 1990

Iodine deficiency

- Iodine deficiency disorders such as goiter, cretinism, and stillbirth virtually eliminated through iodization of salt
- NHANES data showed dietary sufficiency of changes in fortification decisions

Summary

- NHANES dietary data are useful for several but not all (e.g. individual level assessment) purposes and are critical in population-level nutrition monitoring
- Dietary data from NHANES provide one of the key pieces of information to inform nutrition policy
- NHANES methods evolve over time to address emerging research and public health needs
- The need to update food, nutrient and bioactives databases is recognized and efforts are ongoing
- Data users must apply appropriate statistical analysis methods, accounting for error, and should interpret findings cautiously

Dr George Blackburn on NHANES

Am J Clin Nutr 2003

**“where nutrition meets medicine for
the benefit of health”**



Thanks to NHANES (NCHS), WESTAT, and our
multiple collaborators who make this happen.

<http://www.cdc.gov/nchs/nhanes.htm>