

New Challenges in Food and Nutrition to Inform Policy:

Monitoring and Assessing Dietary Intake of The Population

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80+ years of dietary surveys

New challenges and opportunities

technology innovation

societal shifts

accurate assessment

food composition

Disclaimer: The findings and conclusions in this presentation are those of the Presenter and should not be construed to represent any official USDA or U.S. Government determination or policy.

National Dietary Surveys

1930 – 1950's

1935-36 FFCDL
1942 FFCUS
1948-49 FCUFUS
1955 NFCS

survey/decade
household

1960 – 1990's

1965-66 NFCS
1971-75 NHANES I
1977-78 NFCS
1976-80 NHANES II
1982-84 HHANES
1985-86 CSFII
1987-88 NFCS
1989-91 CSFII
1988-94 NHANES III
1994-96,98 CSFII

2-3 surveys/decade
*household
mobile exam center
telephone
computer*

2000 +

1999-00 NHANES
2001-02 WWEIA, NHANES
2003-04 WWEIA, NHANES
2005-06 WWEIA, NHANES
2007-08 WWEIA, NHANES
2009-10 WWEIA, NHANES
2011-12 WWEIA, NHANES
2012-13 FoodAPS
2013-14 WWEIA, NHANES
2015-16 WWEIA, NHANES
2017-18 WWEIA, NHANES
2019-20 WWEIA, NHANES

continuous collection
*household
mobile exam center
telephone
computer
information technology*

U.S. Department of Agriculture

Department of Health and Human Services

National dietary data used for . . .

Dietary assessments

Dietary recommendations

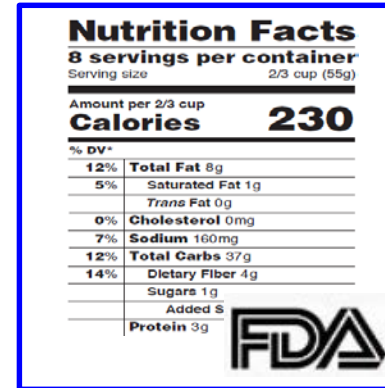
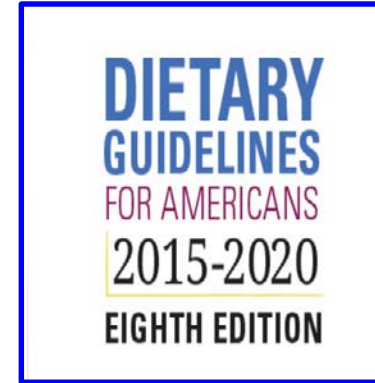
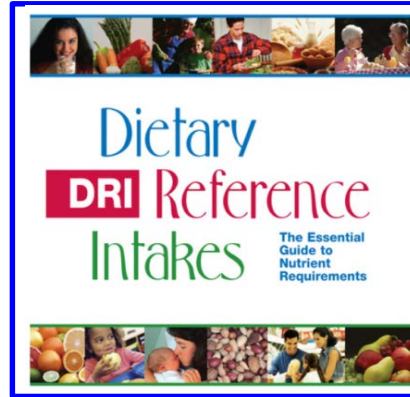
Prevalence of nutrient inadequacy

Labeling and food fortification policy

Federal food programs

nutrition standards/requirements

Safety of food additives and pesticides



Technology Innovation

Possibilities for data are endless

- capture
- review and release
- analysis

Development and maintenance of technology are challenging

- changes in food supply and eating behaviors
- dietary intake is not a *yes* or *no* answer
- testing
- resources

USDA Automated Multiple-Pass Method

5-step standardized interview process

Step 1

Quick List

... Listing of all foods/beverages

30,000+ questions/response options

130 food/beverage categories

Step 2

Forgotten Foods

... Probes for forgotten foods/beverages

15-20 categories updated every two years

Step 3

Time & Occasion

... Ask for each food/beverage

Update process takes 10-12 months

Step 4

Detail Cycle

... Standardized questions for each food/beverage

determining changes to be made

developing specifications for programmers

Step 5

Final Probe

... A final probe for anything else

programming

testing

USDA Automated Multiple-Pass Method

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30,000+ questions/response options

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a typical recall . . .

90 questions

15 food/beverages & amounts

20 - 30 minutes to conduct

30 - 45 minutes to code/check

Societal Shifts

online & social media

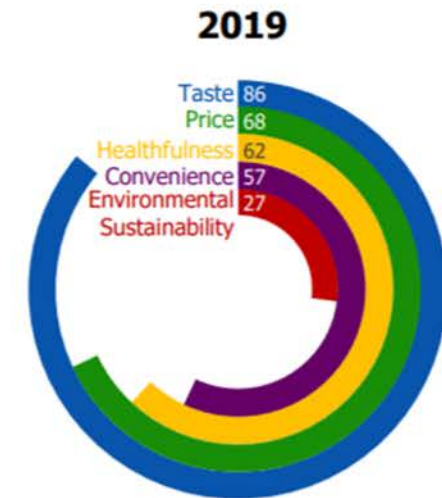
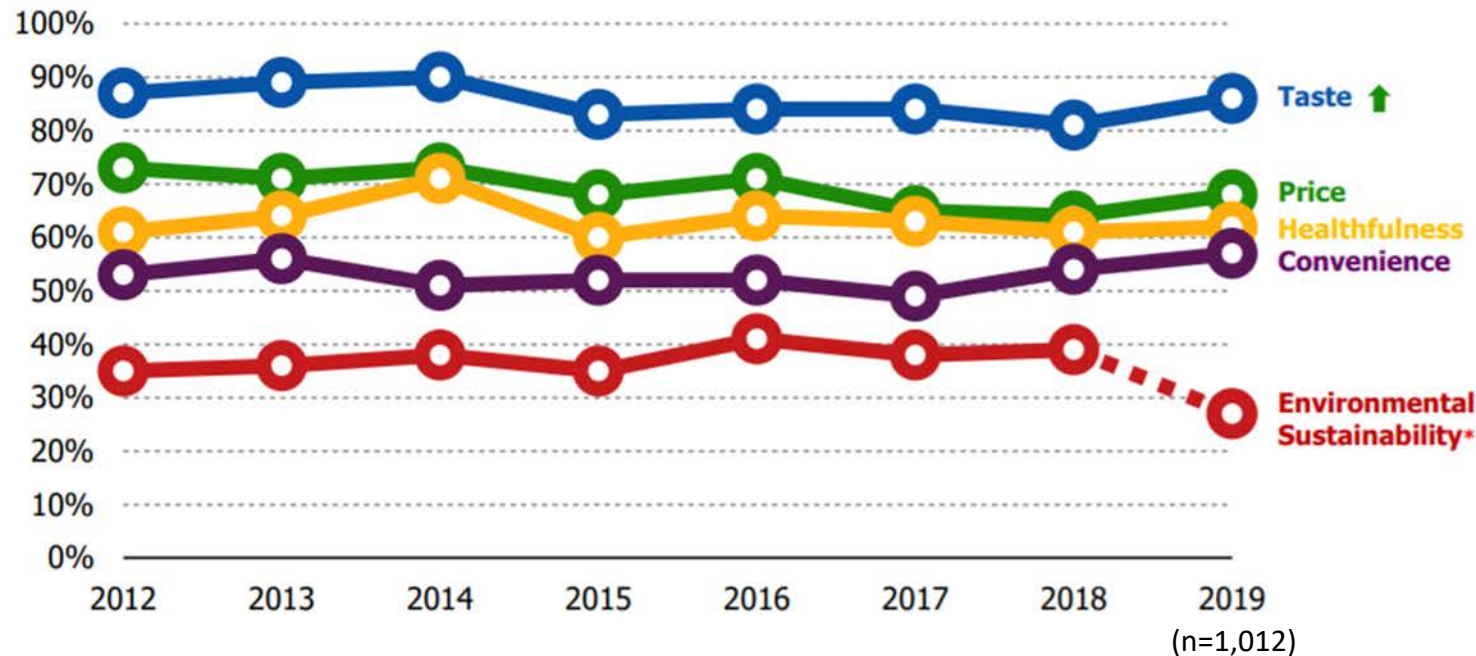
food system

demands on time

2019 Food & Health Survey

International Food Information Council Foundation

Q8. How much of an impact do the following have on your decision to buy foods and beverages?



Q8: How much of an impact do the following have on your decision to buy foods and beverages? (n=1,012)
*Prior to 2019, Environmental Sustainability was asked simply as "Sustainability"

non-GMO

clean label

organic

food system

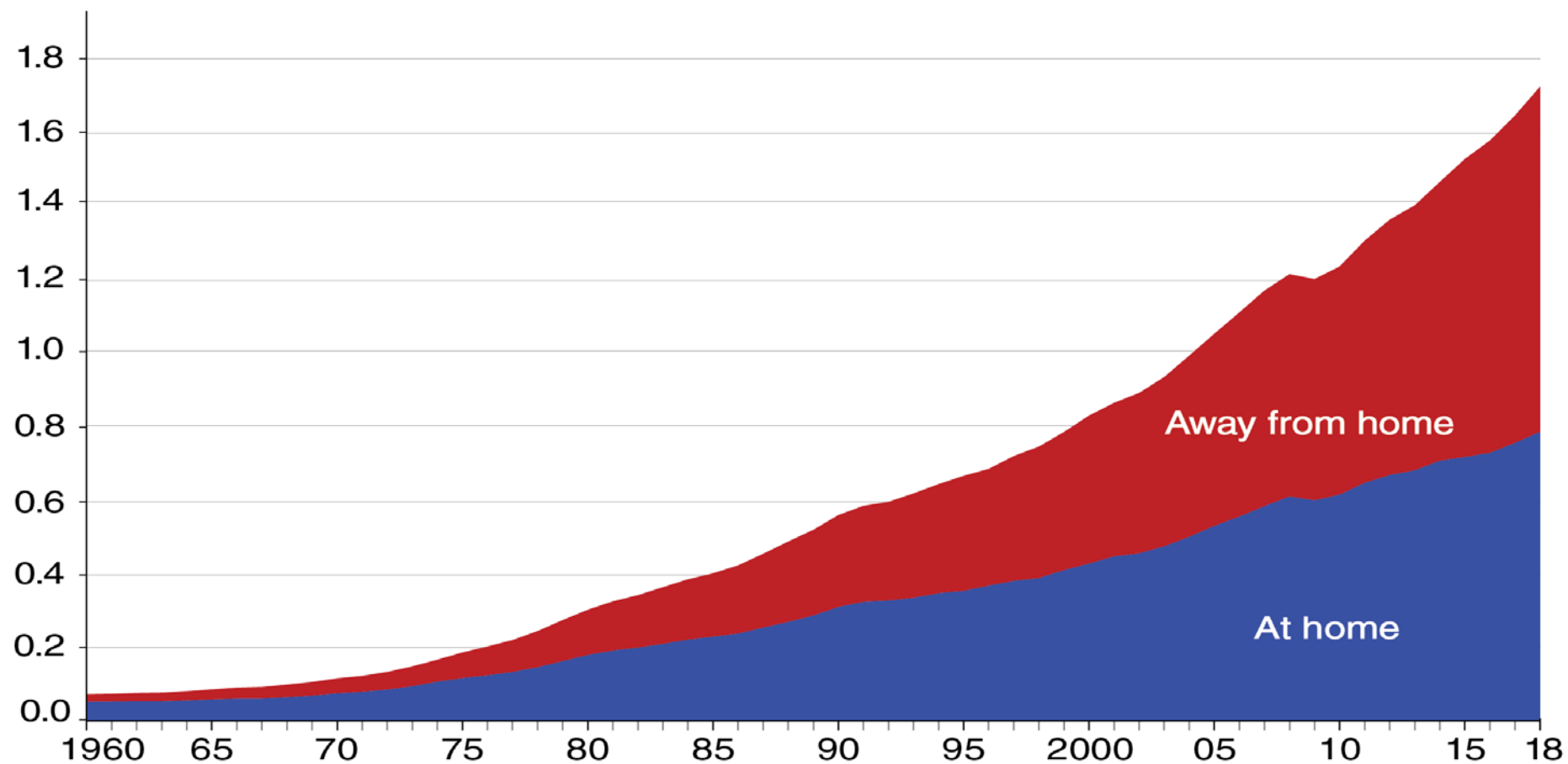
sustainable

free-range

plant-based

At-home and away-from-home U.S. food expenditures, 1960–2018

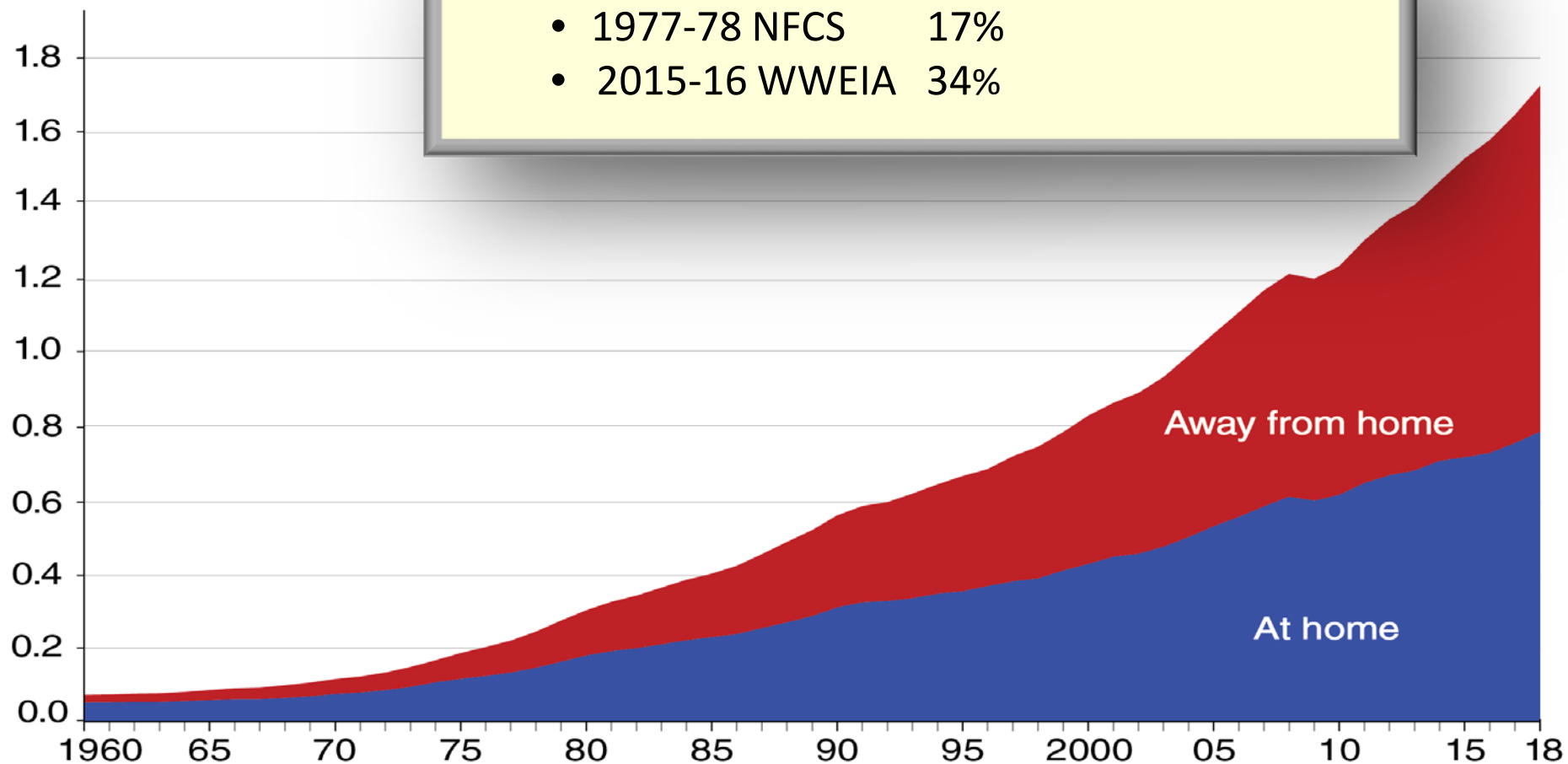
Trillion dollars



Source: USDA, Economic Research Service, Food Expenditure Series.

At-home and away-from-home U.S. food expenditures, 1960–2018

Trillion dollars

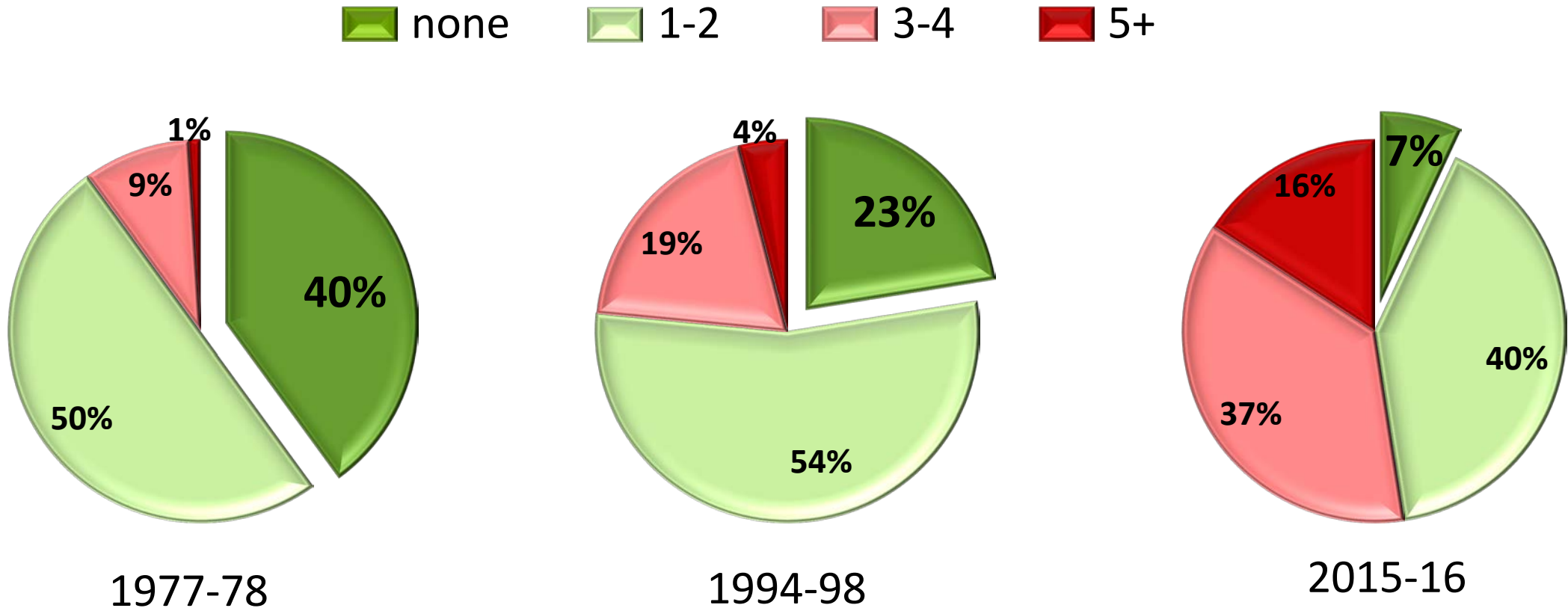


% daily energy . . . *food away from home*

- 1977-78 NFCS 17%
- 2015-16 WWEIA 34%

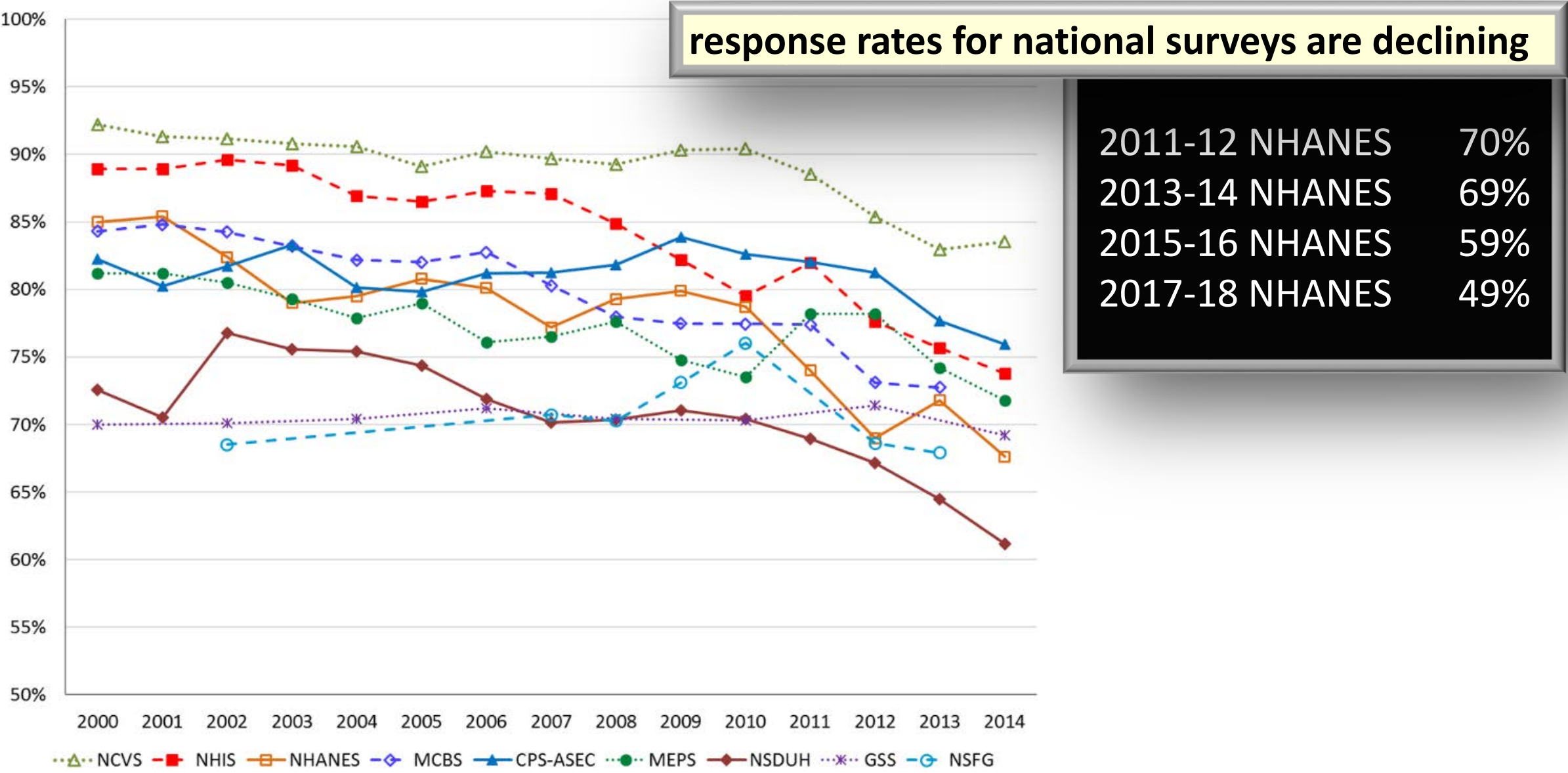
Source: USDA, Economic Research Service, Food Expenditure Series.

Change in Number of Snacks Over Time



Source: 1977-78 NFCS, 1994-98 CSFII, 2015-16 WWEIA, NHANES, 1-day, individuals 2yrs+

Figure 3. Response Rate Trends from 2004-2014



Source: *Journal of Survey Statistics and Methodology*, Volume 6, Issue 2, June 2018, Pages 186–211

Accurate Assessment

Dietary self-reporting influenced by age, gender, social desirability, approval . . .

Biomarkers available for select compounds - not entire foods

Total nutrient intake - food/beverages and dietary supplements

Statistical techniques available to address bias, day-to-day variability, prevalence of inadequacy . . .

Food Composition

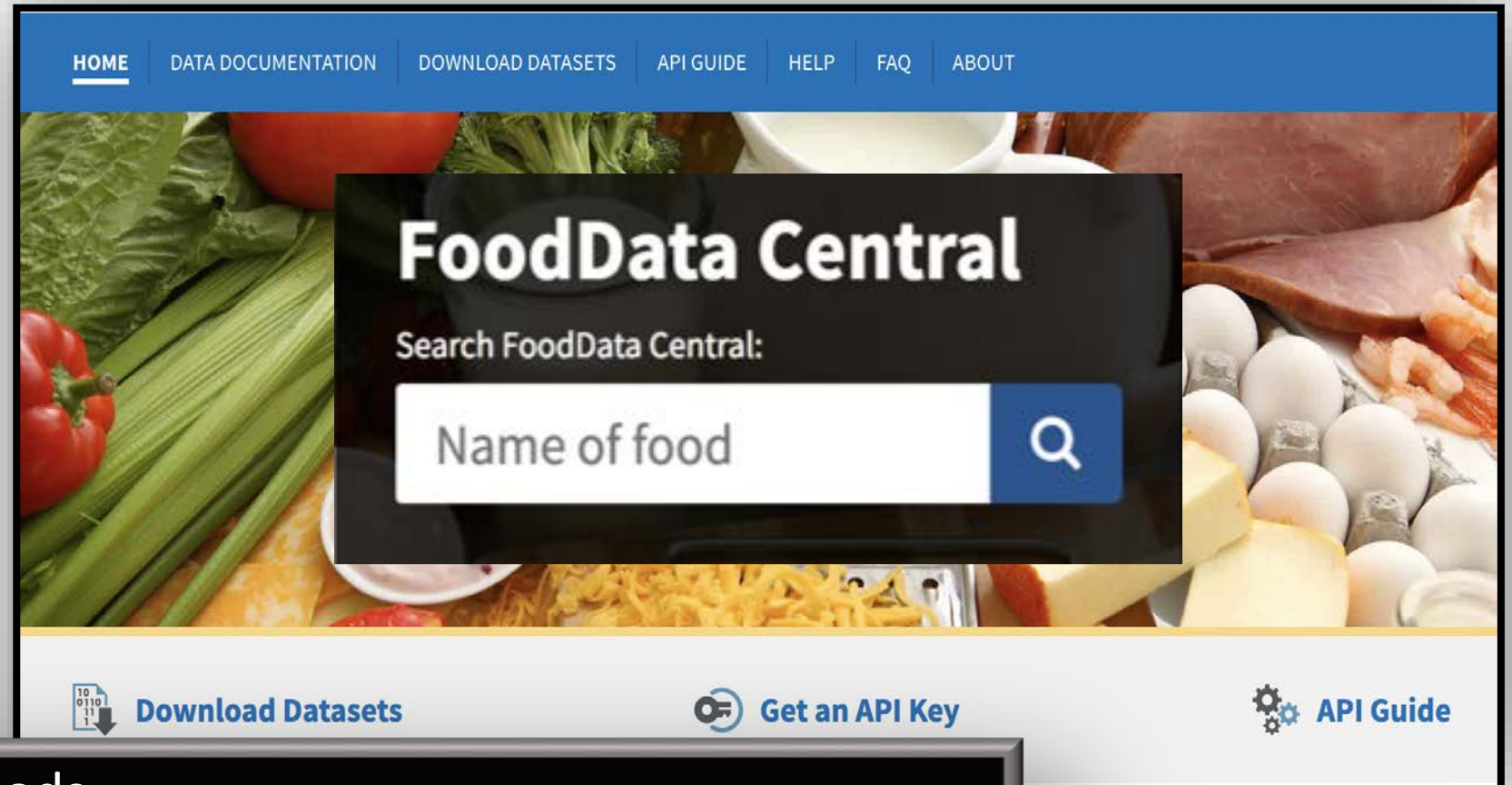


Composition data must be current

Demand beyond nutrients - - other components in foods

Variability - - location, environment, agricultural practices,
genotype, processing . . .

USDA Food Composition Data System



- Foundation Foods
- Food & Nutrient Database for Dietary Studies (FNDDS)
- Branded Food Products Database (BFPD)
- Standard Reference (SR) Legacy
- Experimental Foods

- **Importance of dietary data cannot be overstated**
- **Evidenced-based research must be paramount**
technology innovations
assessment methods
food composition
- **Assessing dietary intakes must be a balance**
data needs with today's society