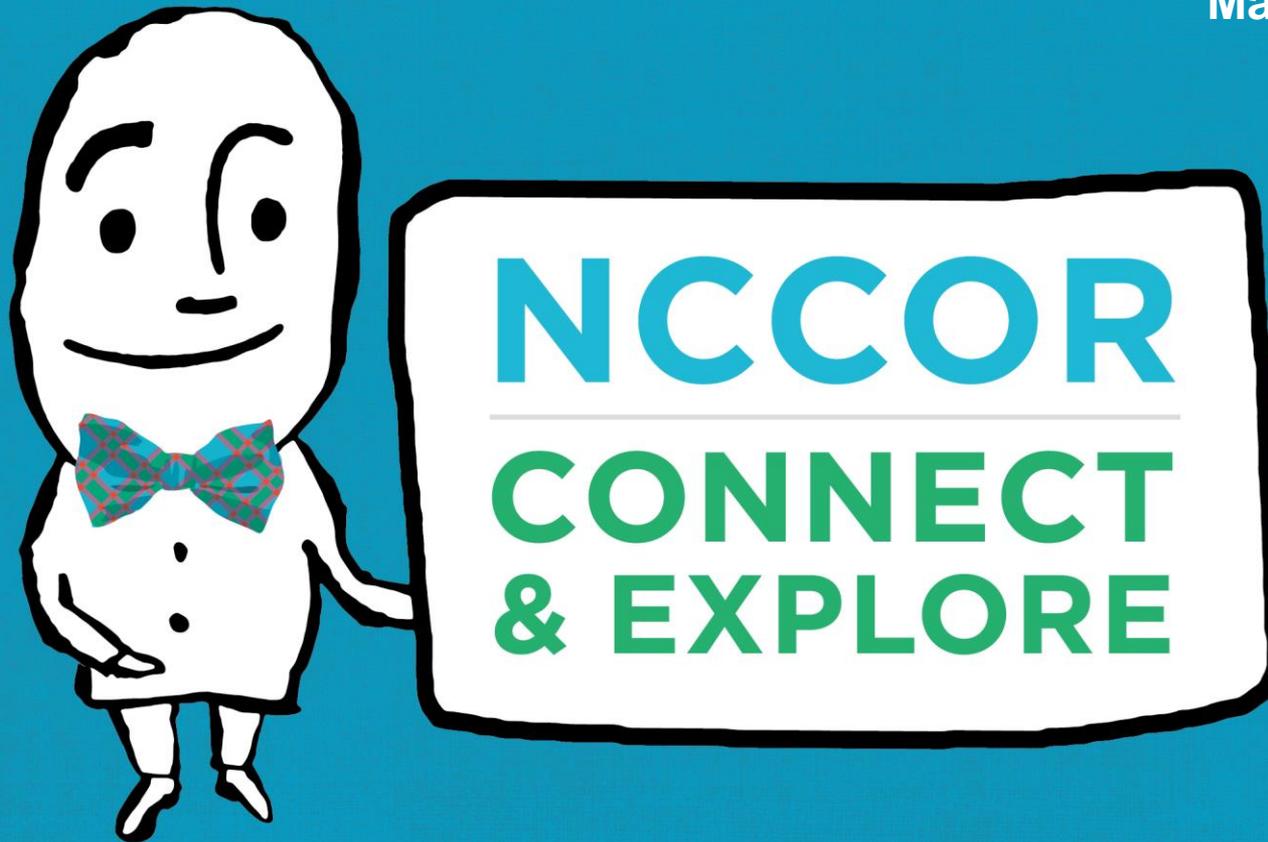


March 29, 2017



Connecting you with experts. Exploring the latest childhood obesity news and research.

We will begin at 2:05 to allow participants time to join the webinar.

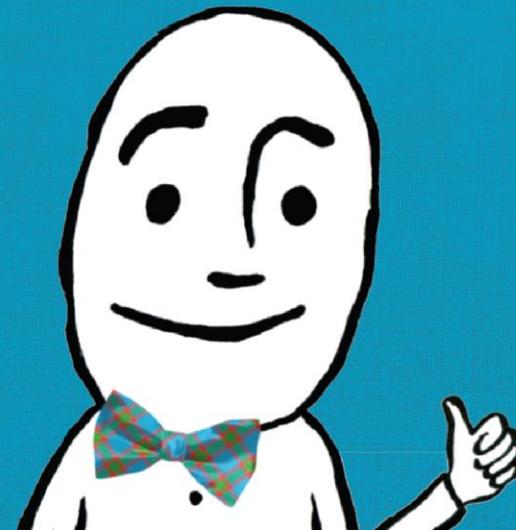
## 1. Spotlight

- Measures Registry User Guides
  - Individual Diet
  - Food Environment

## 2. One on One

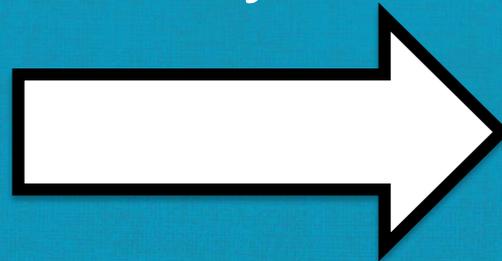
## 3. Upcoming Webinars

# TODAY'S PROGRAM



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located on the right and a representative  
will respond shortly



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# Today's Speakers



**Elaine Arkin**

National Collaborative  
on Childhood Obesity  
Research



**Amanda Raffoul, MS**

Doctoral Student  
University of Waterloo



**Jill Reedy, PhD, MPH, RD**

Program Director, Risk Factor  
Assessment Branch  
National Cancer Institute  
National Institutes of Health



**Leslie Lytle, PhD**

Professor and Chair  
Department of Health  
Behavior  
University of North Carolina  
Gillings School of  
Public Health



**Sharon Kirkpatrick,  
PhD, RD**

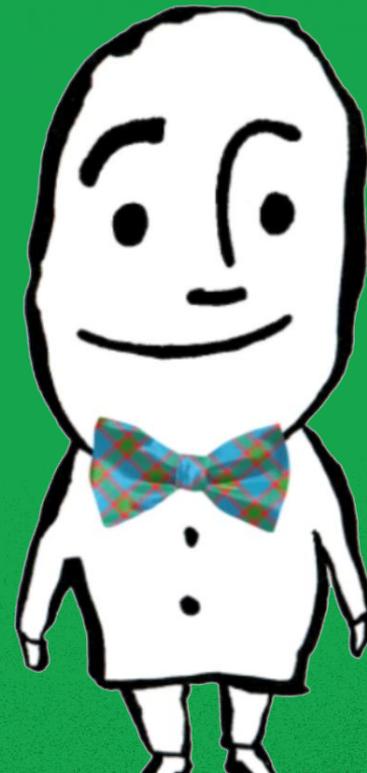
Assistant Professor  
University of Waterloo



**Allison Myers, PhD, MPH**

Executive Director  
Counter Tools  
Adjunct Assistant Professor  
University of North Carolina  
Gillings School of  
Public Health

# INTERACTIVE POLL





# Measures Registry User Guides



# Measures Registry

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National Collaborative on Childhood Obesity Research

News Funding Opportunities Members Contact

ABOUT PROJECTS **TOOLS** WEBINARS PUBLICATIONS EVENTS RESOURCES

HOME > TOOLS

**CATALOGUE OF SURVEILLANCE SYSTEMS**

**MEASURES REGISTRY**

**MEASURES REGISTRY USER GUIDES**

**REGISTRY OF STUDIES**

**SNAP-ED**

**YOUTH COMPENDIUM OF PHYSICAL ACTIVITIES**

## Measures Registry

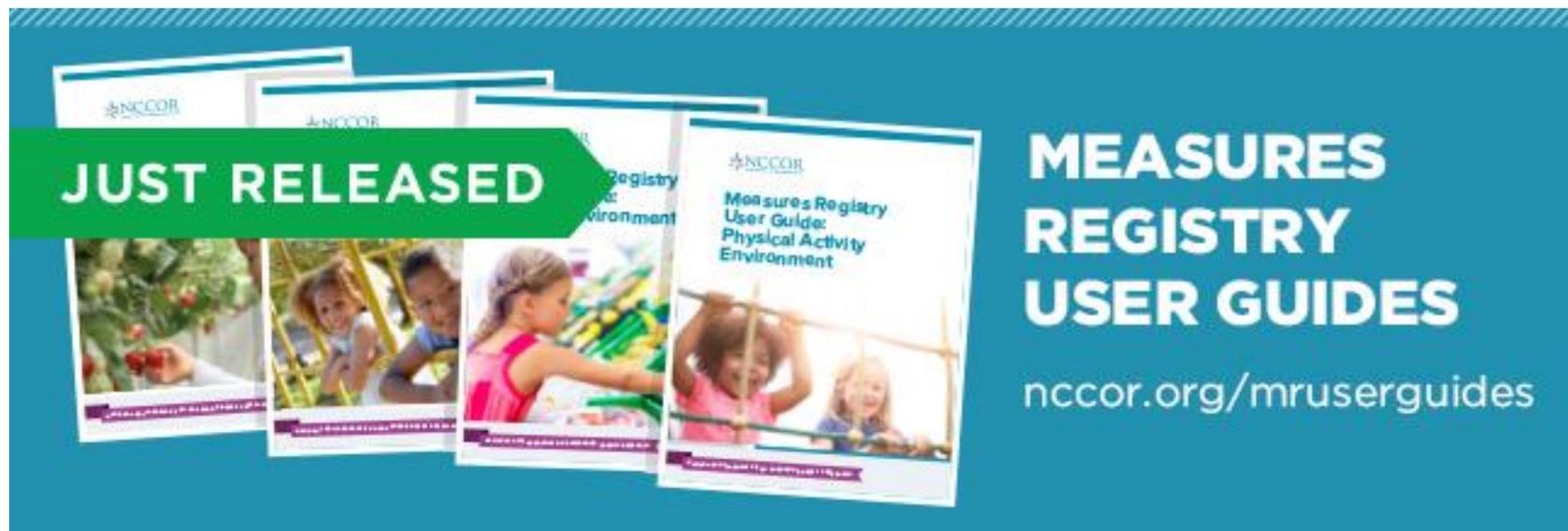
The Measures Registry is a searchable database of diet and physical activity measures relevant to childhood obesity research. Its purpose is to standardize use of common measures and research methods across childhood obesity research at the individual, community, and population levels.

Measures are tools and methodologies used to assess individuals' diet, physical activity, and the environments in which these behaviors occur. Examples of measures include questionnaires, instruments, diaries, logs, electronic devices, direct observations of people or environments, protocols, and analytic techniques.

**SEARCH THE REGISTRY**

<http://www.nccor.org/nccor-tools/measures/>

# User Guides Launched February 21, 2017!



**JUST RELEASED**

**MEASURES  
REGISTRY  
USER GUIDES**

[nccor.org/mruserguides](http://nccor.org/mruserguides)

User Guides supported by a 2-year grant from The JPB Foundation

# Measures Registry User Guides

- The User Guides cover the four domains of the Measures Registry:
  - Individual Diet
  - Food Environment
  - Individual Physical Activity
  - Physical Activity Environment



# Measures Registry User Guides

- Designed to:
  - Provide an overview of measurement
  - Describe general principles of measurement selection
  - Present case studies to walk users through the process of using the Measures Registry to select appropriate measures
  - Direct researchers and practitioners to additional resources

# Measures Registry User Guides

- Aims to help move the field forward by fostering more consistent use of measures, which will allow for standardization, meta-analyses, and synthesis

# Authors and Expert Panels

Food and Nutrition	Physical Activity
<p>1. Individual Diet</p> <p><b>Authors:</b> Sharon Kirkpatrick and Amanda Raffoul (U. of Waterloo)</p>	<p>3. Individual Physical Activity</p> <p><b>Authors:</b> Jim Morrow (U. of North Texas), Pedro Saint-Maurice and Gregory Welk (Iowa State University)</p>
<p>2. Food Environment</p> <p><b>Authors:</b> Leslie Lytle and Allison Myers (U. of North Carolina at Chapel Hill)</p>	<p>4. Physical Activity Environment</p> <p><b>Authors:</b> Jordan Carlson and Kelsey Dean (Mercy Children's Hospital), Jim Sallis (UC San Diego)</p>

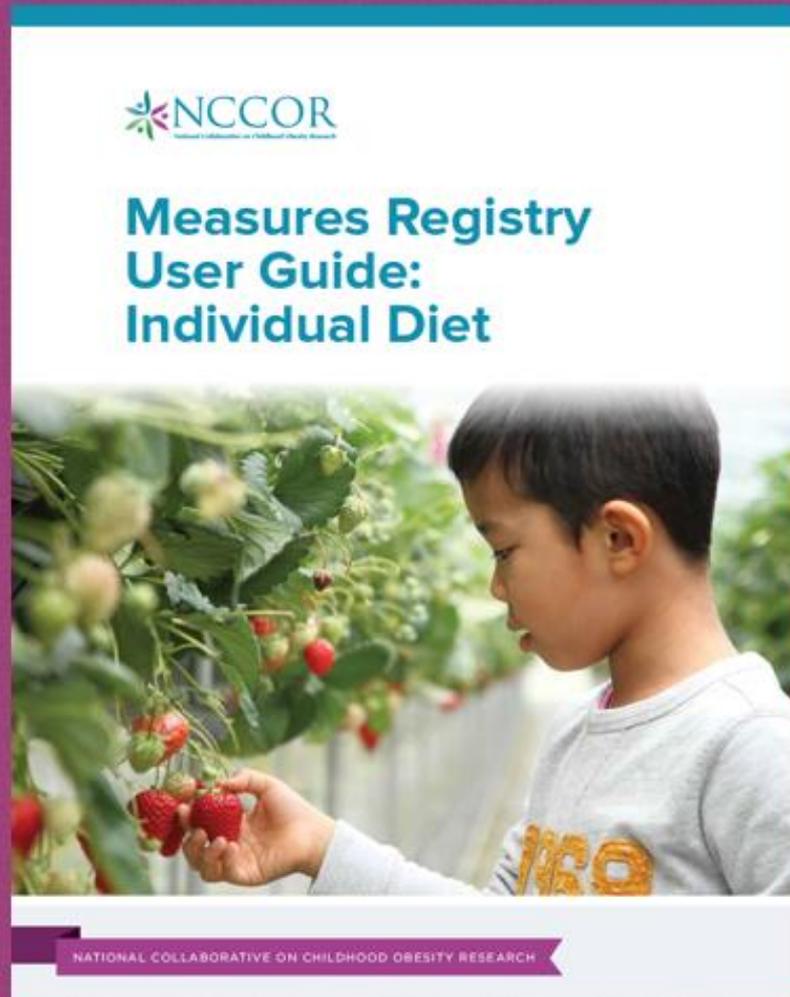
## Food and Nutrition Expert Panel

- Alice Ammerman, DrPH, RD
- Carol Boushey, PhD, MPH, RD
- Karen Webb, PhD, MPH
- Gail Woodward-Lopez, MPH, RD

## Physical Activity Expert Panel

- Genevieve Dunton, PhD, MPH
- Patty Freedson, PhD
- Brian Saelens, PhD

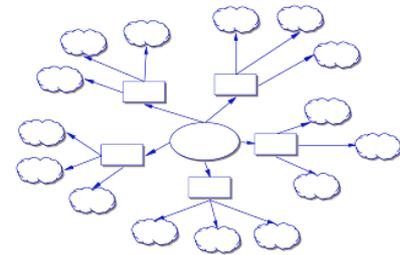
# Measures Registry User Guide: Individual Diet



**Sharon Kirkpatrick & Amanda Raffoul**

# Why Measure Individual Diet?

- Obesity is affected by many factors, including dietary behaviors
- Dietary intakes and behaviors relevant to obesity begin in infancy and continue into adolescence





# CONCEPTUALIZING INDIVIDUAL DIET

# Conceptualizing Individual Diet

## Dietary intake

- Consumption of foods, beverages, supplements
- Frequency of consumption
- Contextual details

## Other dietary behaviors and constructs

- Eating attitudes
- Food preferences
- \*Relevant Registry measures usually also assess intake

# Complexities of Assessing Diet





# MEASUREMENT CHARACTERISTICS

# Two Critical Features of Measures

## Validity

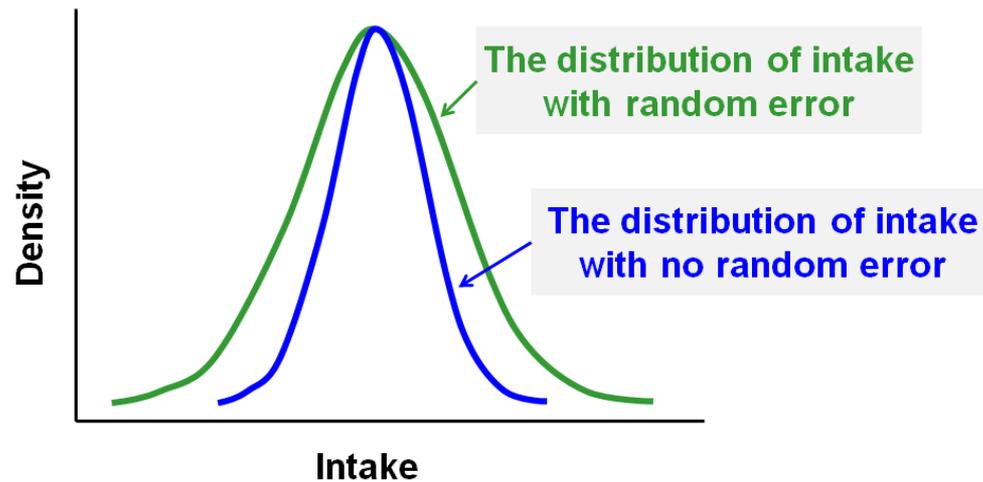
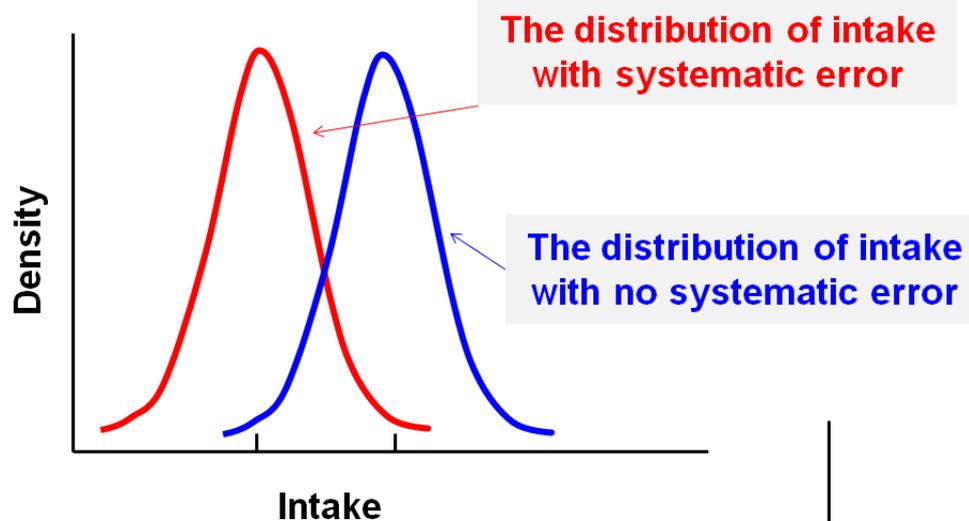
- Ability of a measure to assess what it intends to measure
- Multiple kinds of validity:
  - Face
  - Content
  - Construct
  - Criterion



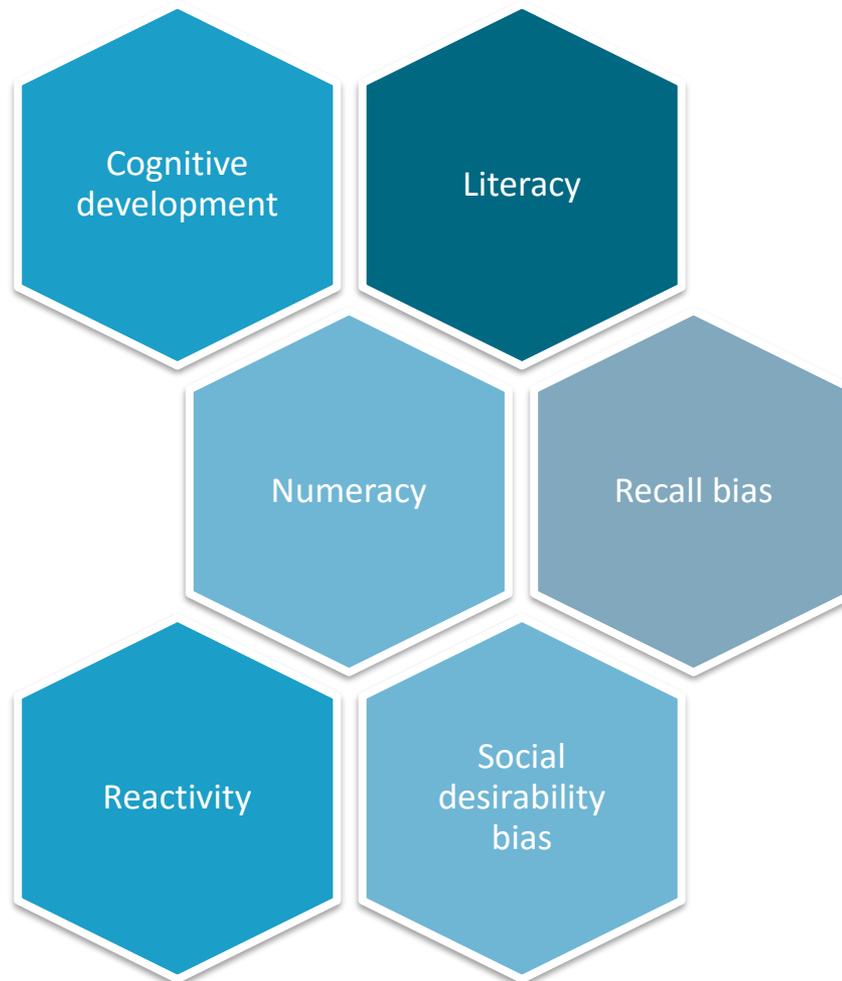
## Reliability

- Extent to which a measure is consistent or stable over time
- Multiple kinds of reliability:
  - Inter-rater
  - Test-retest
  - Internal consistency

# Measurement Error



# Biases In Self-Reporting Diet



# Spotlight on the Measures Registry



## 24-Hour Dietary Recall and Willett Food Frequency Questionnaire

Abstract

At A Glance

Study Design

How To Use

**Validity (2)**

Reliability (4)

Type of validity	Construct/subscale assessed	Criterion measure used	Test/statistic used	Result
Criterion	Total fat intake, saturated fat intake, calorie-adjusted total fat intake, calorie-adjusted saturated fat intake (24-hour recall and Willett questionnaire)	LDL-C level analysis	P-value	Statistically significant
Criterion	Total fat intake, saturated fat intake, calorie-adjusted saturated fat intake (24-hour recall and Willett questionnaire)	Serum TC level analysis	P-value	Statistically significant

# Caveats Relevant to Obesity Research

- Energy is particularly affected by misreporting:
  - Estimates of energy intake should **not** be based on self-report
- Misreporting is associated with *body weight, social desirability*:
  - Complicates comparisons across groups



# MEASURING INDIVIDUAL DIET

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# Self-Report Measures

Categorize broadly as:

## Short-term:

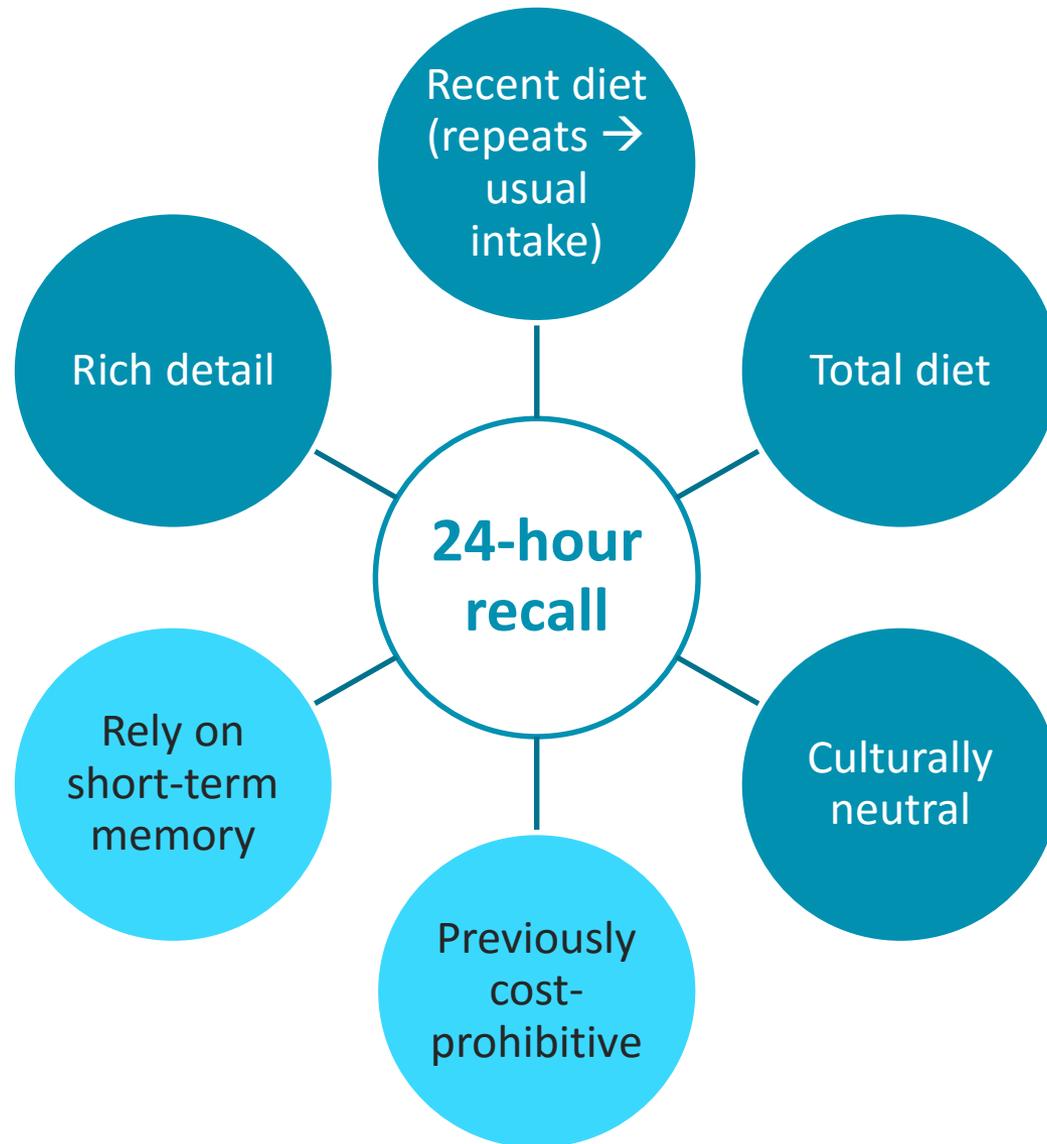
detailed accounting  
of intake for a day  
or a few days

- 24-hour dietary recall
- Food record/diary

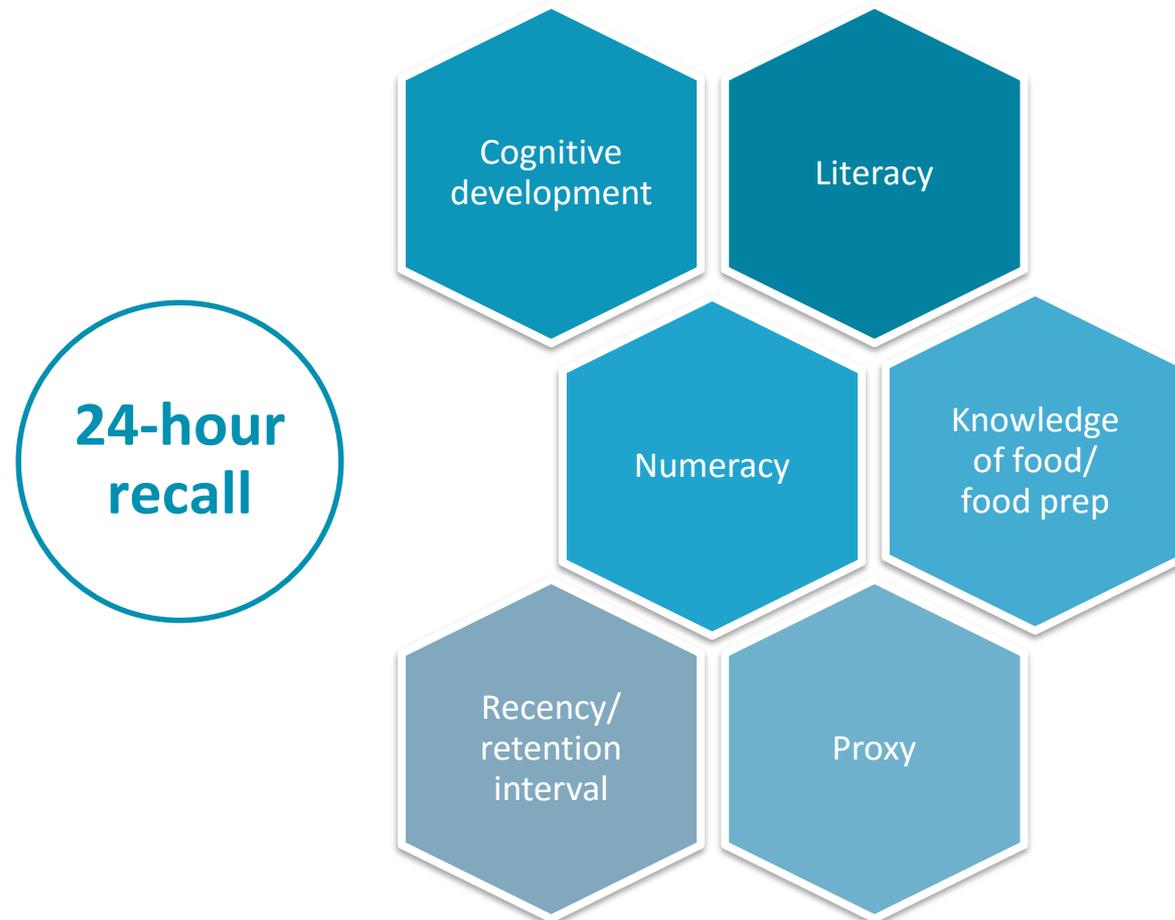
## Long-term:

less detailed accounting  
of intake for a  
long period

- Food frequency  
questionnaire
- Screener

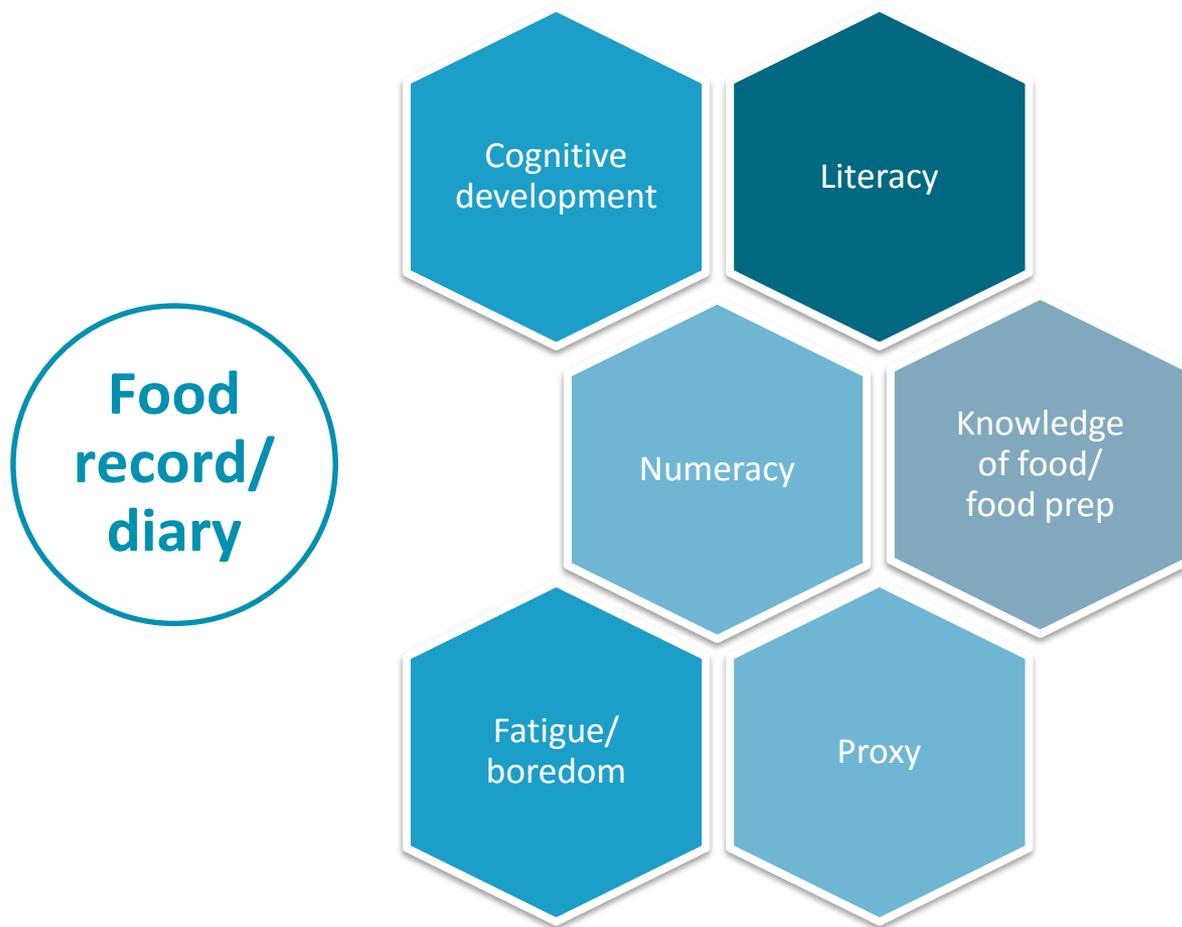


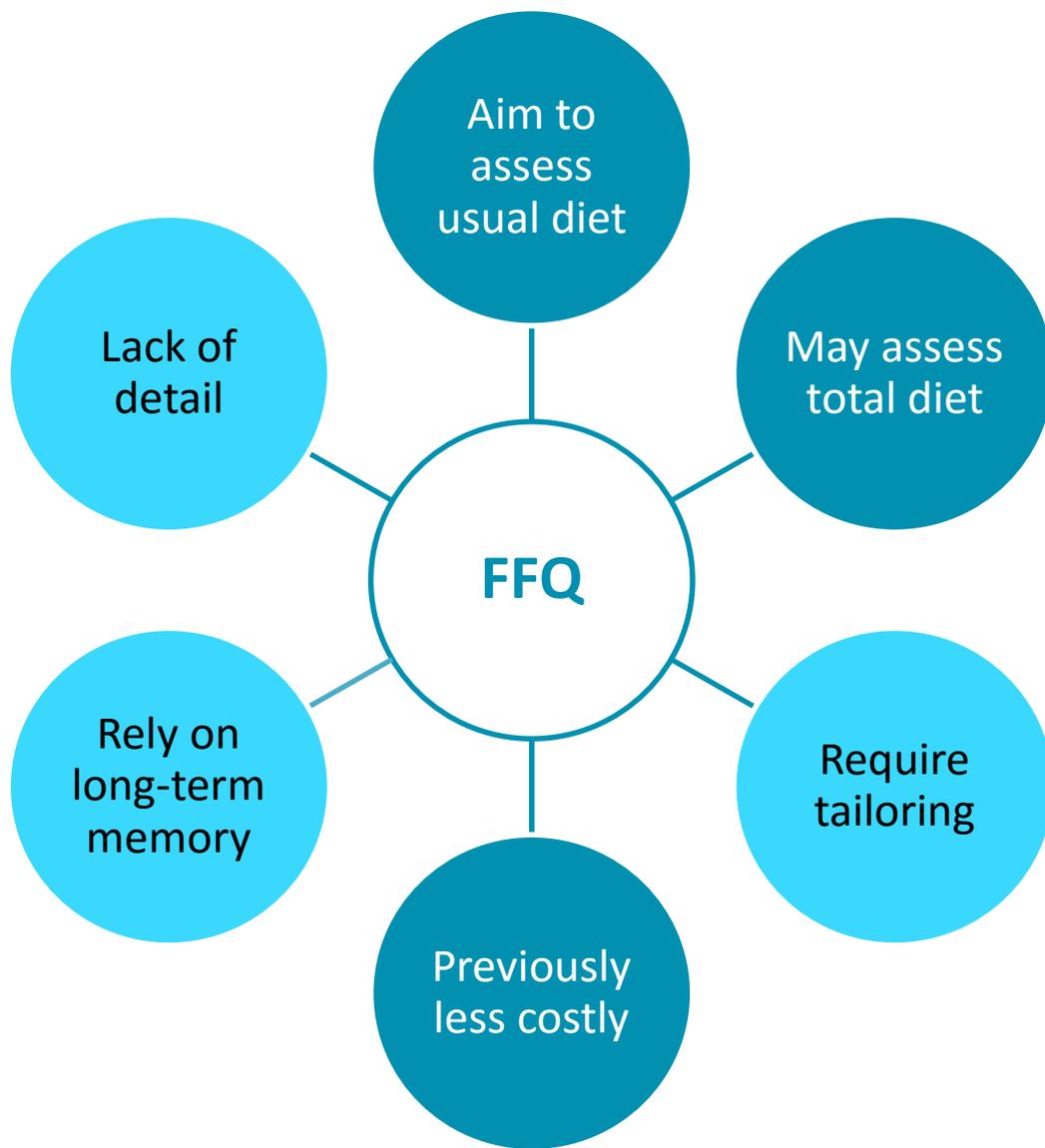
# Salient Considerations for Children

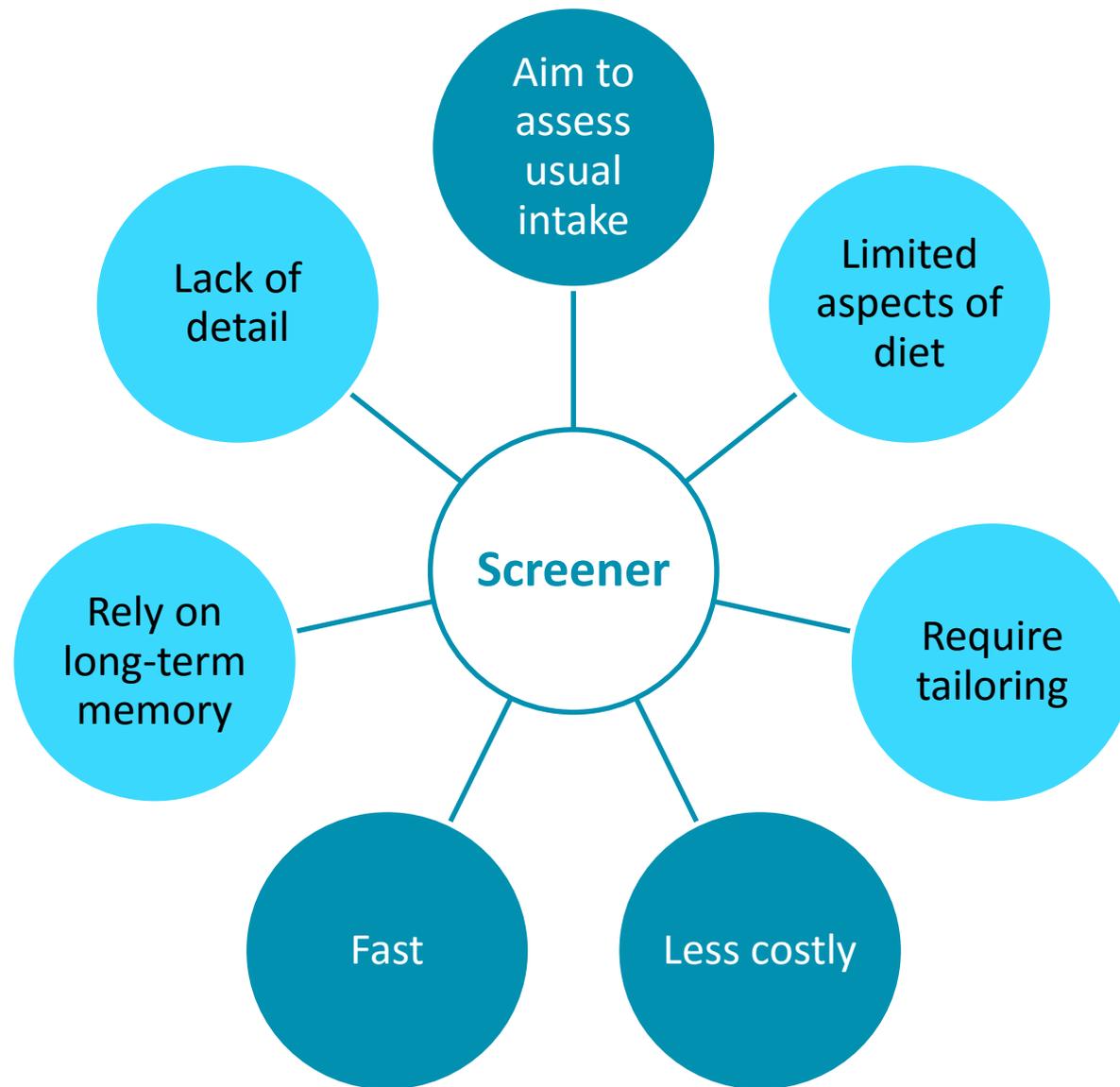




# Salient Considerations for Children







# Salient Considerations for Children

- FFQs and screeners not well-suited due to demands associated with:
  - Literacy and numeracy
  - Concepts of time
  - Memory
  - Attention span
  - Understanding of composite foods



# Technology-based Measures



(a)



(b)

Harray et al., Nutrients 2015

ASA24™ Hide Tips Finish Later

Report Details Review

Add details to your Cheerios  
© BREAKFAST Sunday, March 22nd - 10:00am

Cheerios: How much did you actually eat? 🍌

3/4 cup

AMOUNT:  
3/4 cup

HELP Back Next

<https://epi.grants.cancer.gov/asa24/>

# Other Dietary Behaviors

- Potential complementary measures related to attitudes, perceptions, etc.
- Measures vary in length and complexity, and may require parental assistance
- As with intake, responses may be affected by social desirability biases



# MEASUREMENT IN ACTION

# Considerations in Selecting Measures

Research question

Target population

Study design

Data collection

Settings

Comprehensive or  
focused

Diet as an  
exposure,  
outcome, or  
covariate

Parameters of  
interest

Complementary  
measures

Logistical  
considerations

# Overview of Case Studies

Influences on diet among population subgroups

Associations between diet quality and markers of disease

Implications of modifications to foods offered for sale in vending machines

Effects of a home-based obesity prevention program on children's dietary behaviors

Differences in diet quality among subgroups with different rates of obesity

Effects of calorie-labeling on energy intake

Children's food preferences in relation to advertising

Impact of a body image program on adolescents' dietary behaviors and intake

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# Case Study Format

Case  
background

Considerations

Measure  
selection

# Case Study 1



Case  
background

Considerations

Measure  
selection

└─┘  
Estimate average  
intake and main  
sources of food groups  
in relation to  
sociodemographics;  
children of varying ages

# Case Study 1



Case  
background

Considerations

Measure  
selection

- Need quantification of multiple components
- Possibility of differential bias
- Varying ages

# Case Study 1



Case  
background

Considerations

Measure  
selection

Possibilities:

- Interviewer/web-based 24-hour recall
- Record or mobile record

# Case Study 2



Case  
background

Considerations

Measure  
selection

└─┘  
Elucidate the relation  
between diet quality of  
adolescents and  
proximal markers of  
disease

# Case Study 2



Case  
background

Considerations

Measure  
selection

- Multiple dietary components
- Consider strategies to mitigate error (e.g., multiple measures)
- Adolescents: consider burden and potential for boredom

# Case Study 2



Case  
background

Considerations

Measure  
selection

Possibilities:

- Web-based 24-hour recall
- Mobile record
- FFQ

# Case Study 3



Case  
background

Considerations

Measure  
selection

└─┘  
Assess intake of sugar-sweetened beverages and alternatives before and after changes to vending machine policies

# Case Study 3



Case  
background

Considerations

Measure  
selection

- Consider SSBs only or total diet more broadly
- Quantification versus frequency
- Self- versus proxy-reporting
- Intervention-related biases?

# Case Study 3



Case  
background

Considerations

Measure  
selection

Possibilities:

- *Narrow:* screener
- *Broad:* 24-hour recall, record, FFQ
- Consider complementary data sources



**PUTTING IT ALL TOGETHER**

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# Key Messages

- Diet is complex and so is dietary assessment
- Choosing the best possible measure of diet requires weighing many considerations, including those salient to children
- Using the Registry and other resources to inform measure selection → more cohesive evidence base

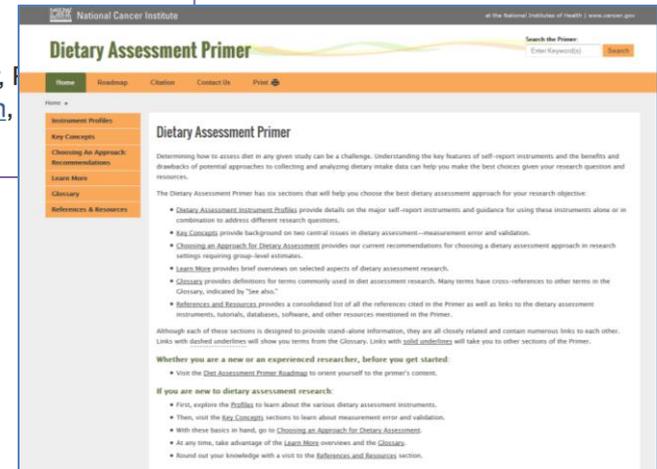
# Additional Considerations

- Consult colleagues with expertise in dietary assessment
  - Get advice on appropriate analytic techniques from a statistician
- Interpret findings in light of what is known about dietary data
- Clearly report methods to ensure research is replicable and interpretable

# Selected Additional Resources

## The National Cancer Institute's Dietary Assessment Primer: A Resource for Diet Research

Frances E. Thompson, PhD, MPH  , Sharon I. Kirkpatrick, PhD, MHS, RD, Amy F. Subar, PhD, RD, Jill Reedy, PhD, MPH, RD, TusaRebecca E. Schap, PhD, MPH, RD, Magdalena M. Wilson, PhD, MPH, M. Krebs-Smith, PhD, MPH



### NHANES Dietary Web Tutorial

#### NHANES Dietary Tutorial Home

Introduction

Logistics

Tutorial Roadmap

Objectives

Dietary Data Survey Orientation

Preparing a Dietary Analytic Dataset

Basic Dietary Analyses

Advanced Dietary Analyses

Additional Resources

- <https://dietassessmentprimer.cancer.gov/>
- <http://epi.grants.cancer.gov/events/measurement-error/>
- <http://www.cdc.gov/nchs/tutorials/dietary/>

# measurement ERROR webinar series

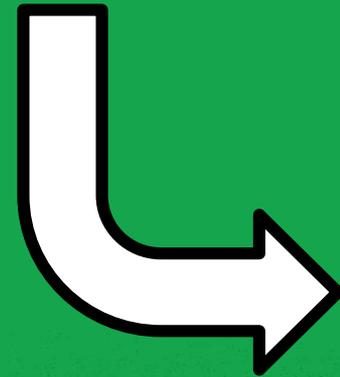
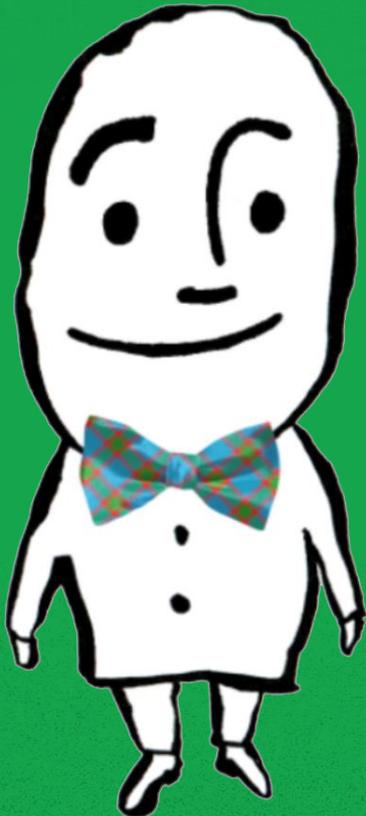
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# Other Issues Covered in This Guide

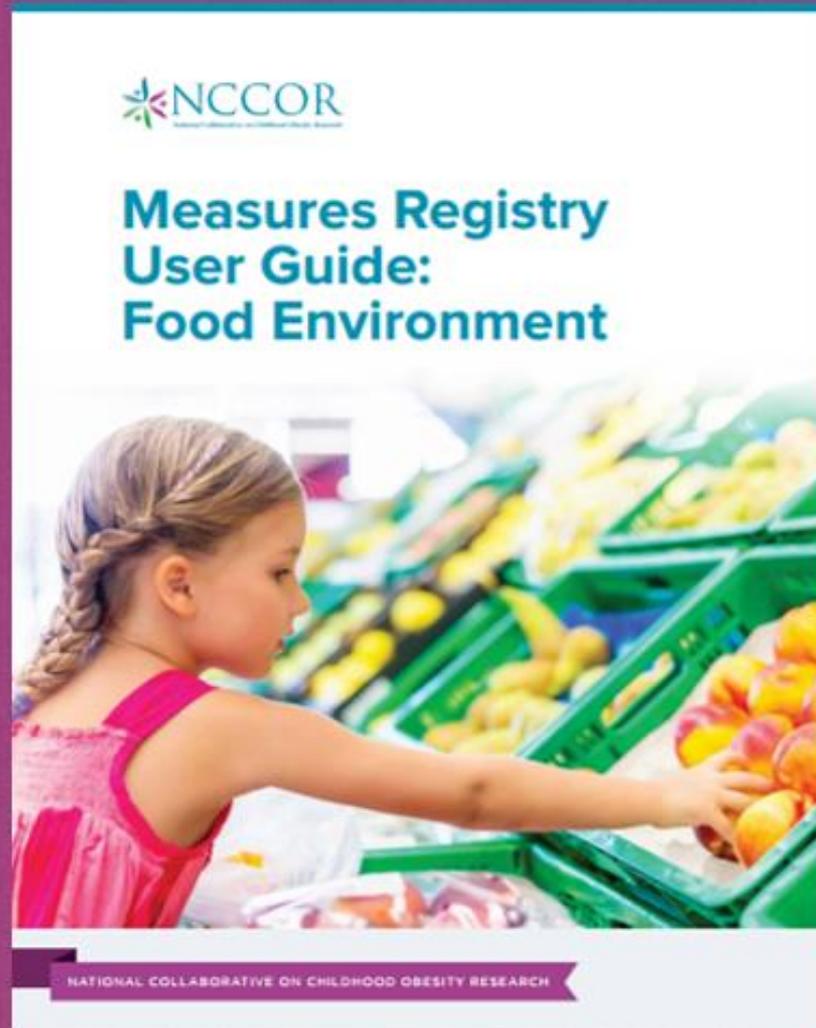
- More detail on:
  - Considerations and recommendations for diet assessment in children
  - Existing evidence on measurement error
  - Guiding questions
- Brief overview of biomarkers and other *objective* approaches
- Additional illustrative case studies

# QUESTIONS?

Please type your question(s) in the chat box located on the right.



# Measures Registry User Guide: Food Environment



**Leslie Lytle & Allison Myers**



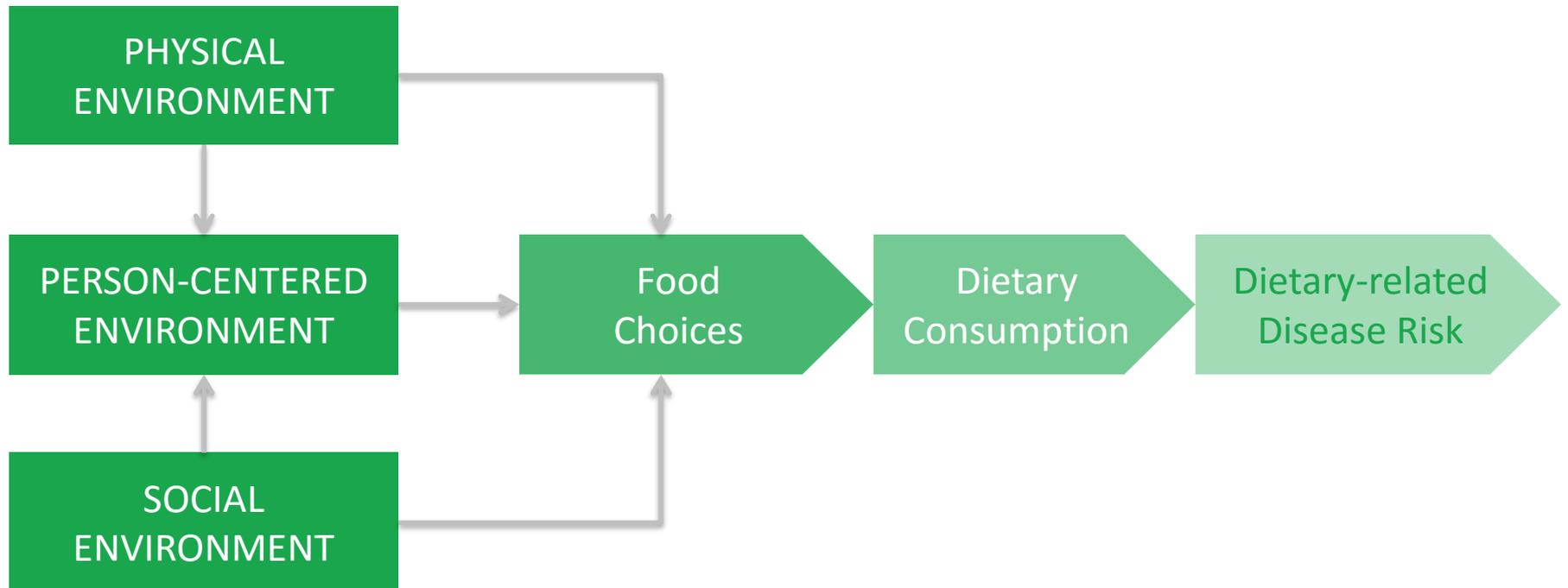
# MEASURING FOOD ENVIRONMENT

# Why Study the Food Environment?

- Influences health-related outcomes:
  - Weight status/obesity
  - Dietary patterns
  - Chronic disease
- Target of public health interventions
- Robust measures are needed for epidemiologic and intervention studies



# Conceptual Model of Environmental Factors Related to Dietary Disease Risk



# 1. Physical

## PHYSICAL ENVIRONMENT



- Home
- Childcare, preschool, school, and community venues
- Stores and restaurants

1. How many and what types of food venues are present?
2. What foods are available?
3. What foods are accessible?
4. What health-related information is present?

## 2. Social

### SOCIAL ENVIRONMENT

Social referents:

- Other Youth
- Parents
- Teachers
- Other adults



1. Support for healthy food choices
2. Role modeling or social expectation of food choice, eating behavior
3. Food choice incentives or rewards
4. Policies, practices, or rules about eating behavior

# 3. Person-Centered

## PERSON-CENTERED ENVIRONMENT

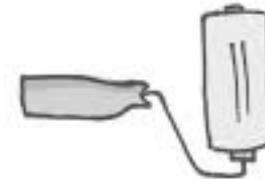
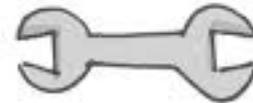
1. Perceptions of the physical environment
  - Availability, access
  - Affordability
  - Acceptability of product
2. Perceptions of the social environment
  - Social norms
  - Social support
  - Perceptions of policies, rules
  - Perceptions of cultural appropriateness

# Measuring Food Environment

**PHYSICAL  
ENVIRONMENT**

**SOCIAL  
ENVIRONMENT**

**PERSON-CENTERED  
ENVIRONMENT**



# 1. Physical

## PHYSICAL ENVIRONMENT

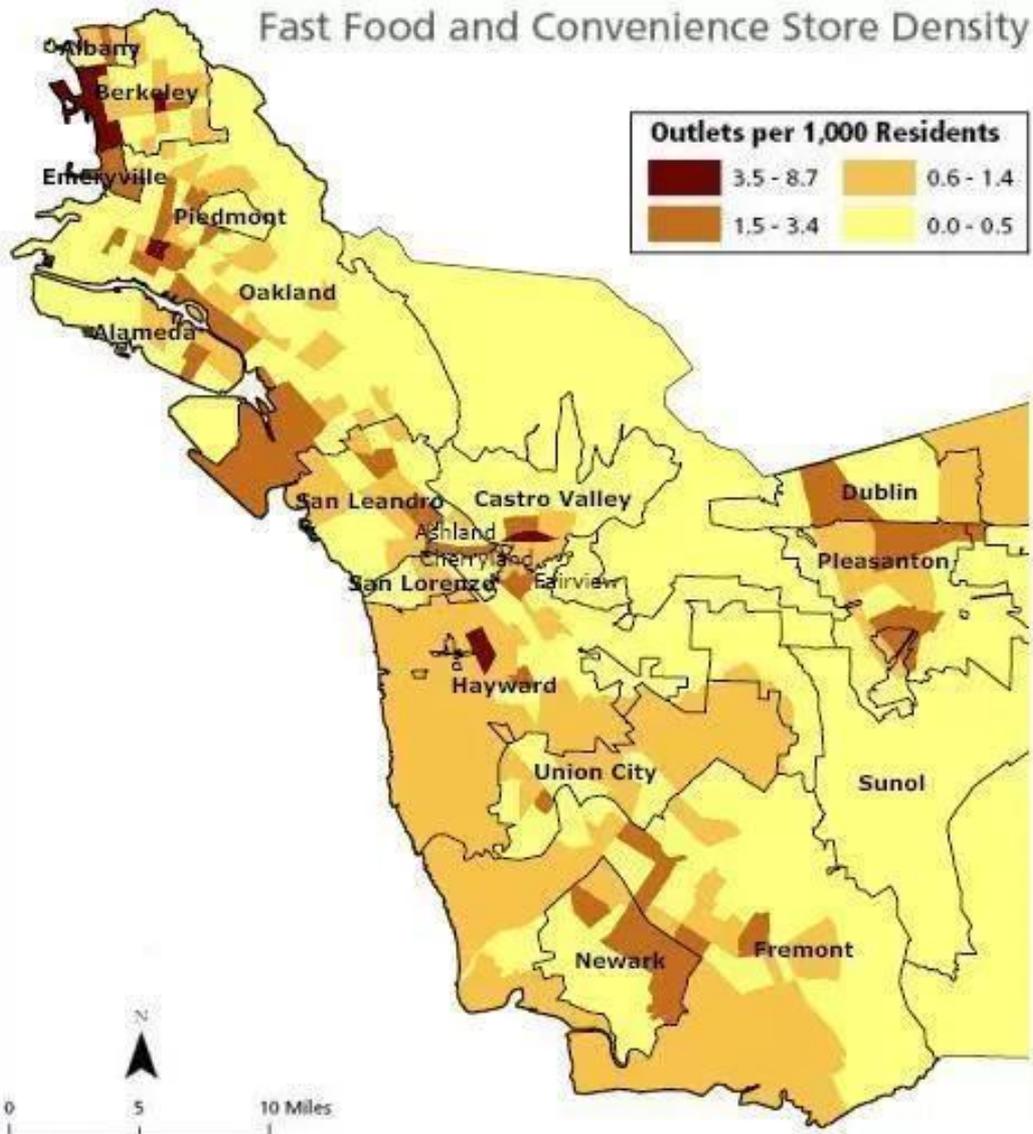
### 1. Geo-spatial analyses or GIS

- Number, location, density of food stores or restaurants
- Proximity of food stores or restaurants to home, schools or community venues, and each other

### 2. Observational scans or assessments

- AKA “log,” “record,” “audit,” “environmental scan”
- Product availability
- Pricing
- Placement/merchandising
- Advertising and information
- **Measures Registry: GIS; environmental observation; record or log**

# Fast Food and Convenience Store Density



Source: California Center for Public Health Advocacy, with data from ESRI/InfoUSA 2005



# Audit Tools, Environmental Scans

**Nutrition Environment Observation Survey (NEOS)  
Food Outlet Cover Page**

 State ID:

Store ID:

Address:

City:  State:  Zip:

Phone:

Website:

Business Type (check all that apply):

Grocery store  
 Convenience store (7-Eleven, Walgreens, etc.)  
 Supermarket (Safeway, Kroger, etc.)  
 Other: \_\_\_\_\_

Secondary Business Type (check all that apply):

Food service  
 Pharmacy  
 Other: \_\_\_\_\_

Year Started: -/-

Year Opened: -/-

Year Closed: -/-

Number of cash registers:

Owner: \_\_\_\_\_

**Nutrition Environment Observation Survey (NEOS)  
Cover Page**

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## Standardized Tobacco Assessment for Retail Settings (STARS)

Data Collector(s) Present in Store:

Adult only  
 Youth only  
 Adult and youth

### FIELD NOTES

This retail environment provides a great photo opportunity.

- Date of visit: \_\_\_\_\_ Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_
- GranTEE Code: \_\_\_\_\_
- Store Name: \_\_\_\_\_  
 Tobacco permit number: \_\_\_\_\_  Store name matches assigned name
- Store Address: \_\_\_\_\_  
 Actual address matches assigned address  County: \_\_\_\_\_
- Can you survey this store? (If not, then select an option below and STOP)  
 Yes, I can  
 No, store does not exist  
 No, store is closed  
 No, under 18 not allowed to enter  
 No, membership or fee required to enter  
 No, environment unsafe for me  
 No, asked to leave before completing the survey  
 Other (specify): \_\_\_\_\_

### EXTERIOR

Which products are advertised outside the store (on windows/doors, building, sidewalk or elsewhere)?

- a. Cigarettes - non-menthol  Yes  No
- b. Cigarettes - menthol  Yes  No
- c. Cigarettes/little cigars  Yes  No
- d. Large cigars  Yes  No
- e. Chew, moist or dry snuff, dip or snus  Yes  No
- f. E-cigarettes/ESDs  Yes  No

### INTERIOR

- Store Type: (Choose one)  
 Convenience store with or without gas (e.g., 7-Eleven, Exxon, Majco)  
 Drug store/pharmacy (e.g., Walgreens, Rite Aid)  
 Beer, wine, or liquor store (e.g., ABC)  
 Grocery store (e.g., small market/deli/produce market) or supermarket (e.g., Brookshire's, Edward Food Giant, Harp's)  
 Mass merchandiser (e.g., Walmart, Sam's Club, Kroger) or discount store (e.g., Dollar General, Family Dollar)  
 Tobacco shop (e.g., Cigarettes Cheaper, cigar shops, hookah bars, e-cigarette/vape shops, or other tobacco shops)  
 Other (specify): \_\_\_\_\_ (e.g., donut shop, bait & tackle)
- Any tobacco products sold here (e.g., cigarettes, cigars, cigarillos/little cigars, chew, moist or dry snuff, dip, snus, or e-cigs/ESDs)? (Choose one)  
 Yes and visible to customers  
 Yes but not visible to customers  
 No (STOP if focusing on tobacco retailers)
- Does the store have a pharmacy counter?  
 Yes  No
- Alcoholic beverages sold here?  
 Yes  No
- Does store display a graphic health warning sign?  
 Yes  No



## 2. Social

### SOCIAL ENVIRONMENT

- Interviews or questionnaires with parents and children
- Self-administered/self-report questionnaire
- Questionnaires of stakeholders/policy decision makers (e.g., food service staff or school principal)
- **Measures Registry: questionnaires; records or logs**

# CDC: School Health Policy and Practice Survey

## Nutrition Services School Questionnaire

36. At your school, are students able to get butter or margarine...
- |  | Yes | No |
|--|-----|----|
| a. In the serving line or on the tables? ..... | 1   | 2  |
| b. If they ask for it? .....                   | 1   | 2  |

37. Is salt available to students...
- |  | Yes | No |
|--|-----|----|
| a. In the serving line or on the tables? ..... | 1   | 2  |
| b. If they ask for it? .....                   | 1   | 2  |

38. Does your school have a self-serve salad bar?
- Yes .....
- No.....

39. In the serving line, are...
- a. Fruits and vegetables placed near the cash register so they are easy to access? .....
- b. Attractive displays used for fruits and vegetables? .....

63. During the past 12 months, has anyone from your school...
- |  | Yes | No |
|--|-----|----|
| a. Made menus available to students?.....  | 1   | 2  |
| b. Made information available to students on the nutrition and caloric content of foods available to them?.....                          | 1   | 2  |
| c. Placed posters or other materials promoting healthy eating habits on display in the cafeteria? .....                                  | 1   | 2  |
| d. Placed posters or other materials promoting healthy eating habits on display in the school?.....                                      | 1   | 2  |
| e. Included nutrition services topics during school announcements? .....   | 1   | 2  |
| f. Included articles about the school nutrition services program in a school newsletter, newspaper, website, or other publication? ..... | 1   | 2  |

# 3. Person-Centered

PERSON-CENTERED  
ENVIRONMENT

- Phone interview
- Self-administered questionnaire
- Questionnaire read to children
- **Measures Registry: questionnaire; record or log**

# CATCH: Health Behavior Questionnaire

*5th grade*

CHILD AND ADOLESCENT TRIAL FOR CARDIOVASCULAR HEALTH  
HEALTH BEHAVIOR QUESTIONNAIRE

**GENERAL INFORMATION**

Affix ID Label Here:

1. Student ID #: \_\_\_\_\_

2. Form Version: 1 / 0 / 1 / 2 / 0 / 3

3. Today's Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ 3a. Time \_\_\_\_\_:

4. Measurement Period

1. Fall 1991
2. Spring 1992
3. Fall 1992
4. Spring 1993
5. Fall 1993
6. Spring 1994

5. CATCH Staff Initials: \_\_\_\_\_

6. Language Version: English ..... 1  
Spanish ..... 2

\_\_\_\_\_

**INTRODUCTION:** This is a questionnaire about health. There are no right or wrong answers. Please read each question and answer the best you can. Do not work ahead. Stop at the end of each section. Remember no one at school will see your answers.

\_\_\_\_\_

---

CATCH - Health Behavior Questionnaire - (019) Form Version 10/12/93 - Page 1

**SECTION H: WHAT DO OTHER PEOPLE WANT YOU TO EAT?**

**INSTRUCTIONS:** The questions in this section ask about what other people want you to eat. Please answer by circling either **YES** or **NO** for each question.

1. Who wants you to eat popcorn without salt and butter on it?

a. Your parents	1. YES	2. NO
b. Your teachers	1. YES	2. NO
c. Your friends	1. YES	2. NO

2. Who wants you to eat lots of fruits and vegetables?

a. Your parents	1. YES	2. NO
b. Your teachers	1. YES	2. NO
c. Your friends	1. YES	2. NO

3. Who wants you to eat food without putting salt on it from the salt shaker?

a. Your parents	1. YES	2. NO
b. Your teachers	1. YES	2. NO
c. Your friends	1. YES	2. NO

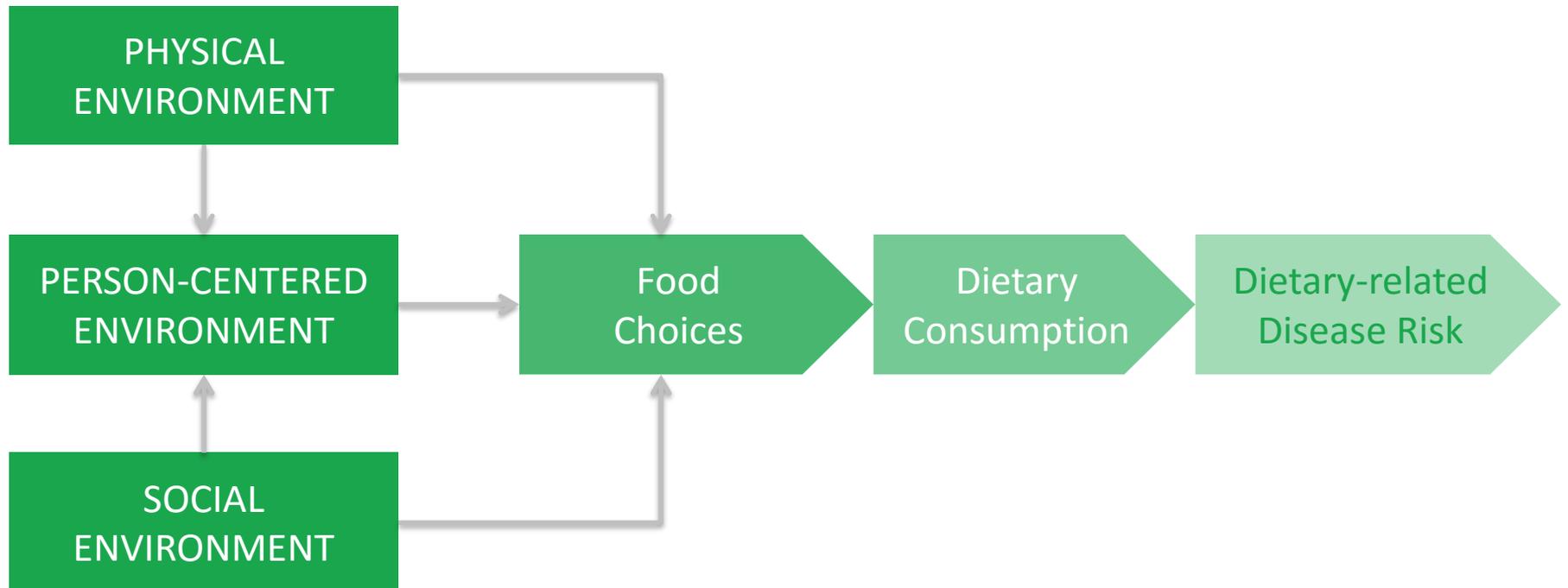
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CATCH - Health Behavior Questionnaire - (019) Form Version 10/12/93 - Page 18



# MEASUREMENT CONSIDERATIONS AND CHARACTERISTICS

# Conceptual Model of Environmental Factors Related to Dietary Disease Risk



# Using the Measures Registry: How Does the Conceptual Model Help?

- What domain or domains do I need to study?
- Is my purpose to examine predictors of food choice in a population or to examine one aspect of the environment already linked to a health outcome?
- If I'm interested in studying the physical environment, what venues do I want to assess?
- If I'm interested in studying the social environment, what aspects and referents should I focus on?
- Is it important to assess people's perceptions of their environment?
- Is my question etiologic or am I testing an intervention?

# Two Critical Features of Measures: Important in Environmental Measures, Too!

## Reliability

- Do two independent observers record data on the environment in a similar way? (inter-rater)
- Is there consistency over time in how the environment is assessed? (test-retest)
- Are items designed to measure the same aspect of the environment correlated? (internal consistency)

## Validity

- Does the measure used seem to assess the factor of interest? (Face validity)
- Is the measure used related to a gold standard measure of the environment? (criterion)
- Do the items used to assess the environment include all of the relevant aspects of the environment? (content)
- Is the environmental measure related to other factors in expected directions? (construct)



# MEASUREMENT IN ACTION

# Food Environment Case Studies

SECTION

8

## Case Studies

1. Study to evaluate a **school**-based intervention on its ability to positively influence the school food environment.
3. Intervention to improve healthy eating behaviors in independent **neighborhood** restaurants



# Case Study 1: Background

school

Study to evaluate a school-based intervention on its ability to positively influence the school food environment

- Importance of early learning
- Components of school food environment
- Goal: Improve à la carte food healthfulness, as measured by calories and added sugar
- 24 schools, group-randomized pre-post design

# Case Study 1: Considerations

school

- How will they document what is sold/available on the à la carte lines before and after the intervention?
- How often and when will data collection occur?
- What resources are available for data collection, cleaning, and analysis?
- Will they collect sales data directly, or will they need to interview or observe students as they purchase food?
- How much detail on the foods available and sold is necessary to evaluate the success of their intervention?

# Case Study 1: Measures Selection **school**

## Decisions:

- Items on à la carte change quickly, so multiple data collection days need to be scheduled both for the pre and post phases of data collection.
- They can use direct sales data from cashier registers to collect data on sales.
- Study staff will need to collect the data on foods available on the line, but resources are limited.

## Measures Registry

### Filter options

[clear filter]

#### Search

Contains

#### Domain

- Individual Dietary Behavior (14)
- Food Environment (166)
- Individual Physical Activity Behavior (5)
- Physical Activity Environment (30)

#### Measure Type

- GIS (25)
- 24-hour dietary recall (0)
- Food frequency (0)
- Electronic monitor (0)
- Environmental observation (37)
- Questionnaire (79)
- Record or log (11)
- Other (43)

#### Age

- 2 - 5 Years (24)
- 6 - 11 Years (58)
- 12 - 18 Years (60)
- Adults (24)

#### Context

- Metro/Urban (111)
- Small Town/Rural (31)

## Checklist for Middle School Environments

- Abstract
- At A Glance
- Study Design
- How To Use
- Validity (0)
- Reliability (0)

### Domain(s)

Food Environment

### Measure Type

Checklist

### Measure Availability

Not reported

### Number of Items

17 Reported

### Study location

Metro/Urban  
Minnesota, USA

### Languages

English

### Information about Development of Measure

The checklist was modified from the Center of Disease Control's School Health Policy and Practice Survey and contains categories of common foods found in school environments. Pilot data showed excellent inter-rater reliability for data collection.

### Food Environment Variables

#	Type of Environment/Institution
38	School (K-12)

Measure	objective	perceived
Labeling/Point of Purchase Info	✓	✗
Availability/Access	✓	✗

Food Group/Type of Food
Fruits and vegetables
Low-fat dairy
Foods of minimal nutritional value
Sweetened beverages
A la carte items

Measure last modified : 01/27/2017 2:02 PM

# Case Study 1: Summary Table

**Title: Study to evaluate a school-based intervention on its ability to positively influence the school food environment**

Type of Case Study	Intervention
Background	<ul style="list-style-type: none"><li>• School-based obesity prevention intervention to change à la carte offerings in 24 metro area middle school cafeterias</li><li>• Primary outcome is foods sold on à la carte using sales data from cash register receipts</li><li>• Secondary outcome is foods available on à la carte</li></ul>
Considerations	<ul style="list-style-type: none"><li>• Schools are willing/able to provide daily detailed sales data</li><li>• Study staff will need to assess food and beverage availability</li><li>• Measures Registry &gt; Food Environment &gt; Schools</li></ul>
Measure Selection	<ul style="list-style-type: none"><li>• TACOs for primary outcome</li><li>• IDEA/ECHO checklist for documentation of available food</li></ul>

# Case Study 3: Background

neighborhood

Intervention to improve healthy eating behaviors in independent neighborhood restaurants

- Small, independent restaurants offer healthy foods, affordable prices
- Large city health department
- 2 year timeline: baseline with follow-up
- Project goal: Identify change in availability and pricing and changes in menu sales over 2 years

# Case Study 3: Considerations

neighborhood

- Recruit independent restaurant owners
- Train health department and restaurant association staff to collect data on:
  - Menus in each restaurant (including types of foods offered, serving size, and price per serving)
  - Contextual factors that may influence patrons' decision making about menu selection (such as menu labeling or nutrition information)
  - Sales records from before and after the program begins

 <a href="#">Comparing Measures</a>		X	X	X	X
<a href="#">Hide empty rows</a>	<a href="#">Availability and Quality of Foods in Grocery Stores</a>	<a href="#">China Urban Built Environment Scan Tool (CUBEST)</a>	<a href="#">EURO-PREVOB Community Questionnaire for Food and Built Environments</a>	<a href="#">Nutrition Environment Measures Study in Restaurants (NEMS-R)</a>	
<b>Domain</b>					
Individual Dietary Behavior					
Food Environment	✓	✓	✓	✓	
Individual Physical Activity Behavior					
Physical Activity Environment		✓	✓		
<b>Measure Type</b>					
GIS	✓				
24-hour dietary recall or food frequency					
Electronic monitor					
Environmental observation	✓	✓	✓	✓	
Questionnaire		✓			
Record or log					
Other	✓			✓	
<b>Available Info</b>					
Validity	✓	✓	✓	✓	✓
Reliability	✓	✓	✓	✓	✓
Instrument	✓ 				✓ 

# Case Study 3: Summary Table

## Title: Intervention to improve healthy eating behaviors in independent neighborhood restaurants

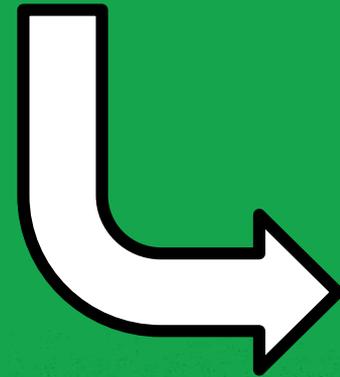
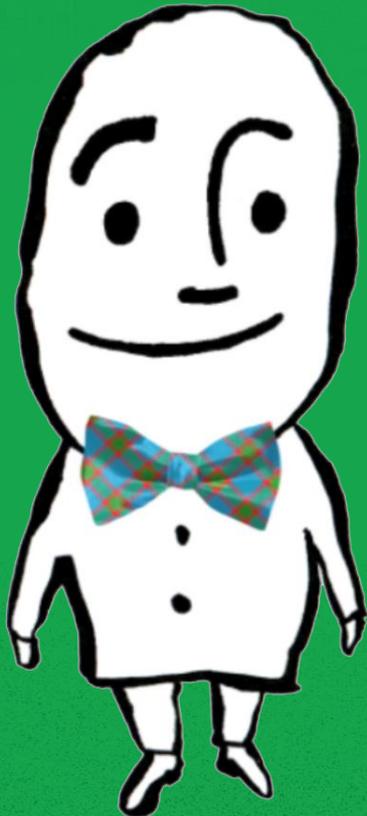
Type of Case Study	Program evaluation
Background	<ul style="list-style-type: none"><li>• Large city health department with goal to prevent obesity and chronic disease and to promote economic development</li><li>• Collect baseline and follow-up data on foods and prices in locally owned and operated restaurants</li></ul>
Considerations	<ul style="list-style-type: none"><li>• Data collectors are health department and restaurant association staff</li><li>• Measures Registry &gt; Food Environment &gt; Environmental Observation &gt; Metro/Urban &gt; Compare</li></ul>
Measure Selection	<ul style="list-style-type: none"><li>• NEMS-R: Instrument is freely available, has been widely used, includes a free online training, and has demonstrated reliability</li></ul>

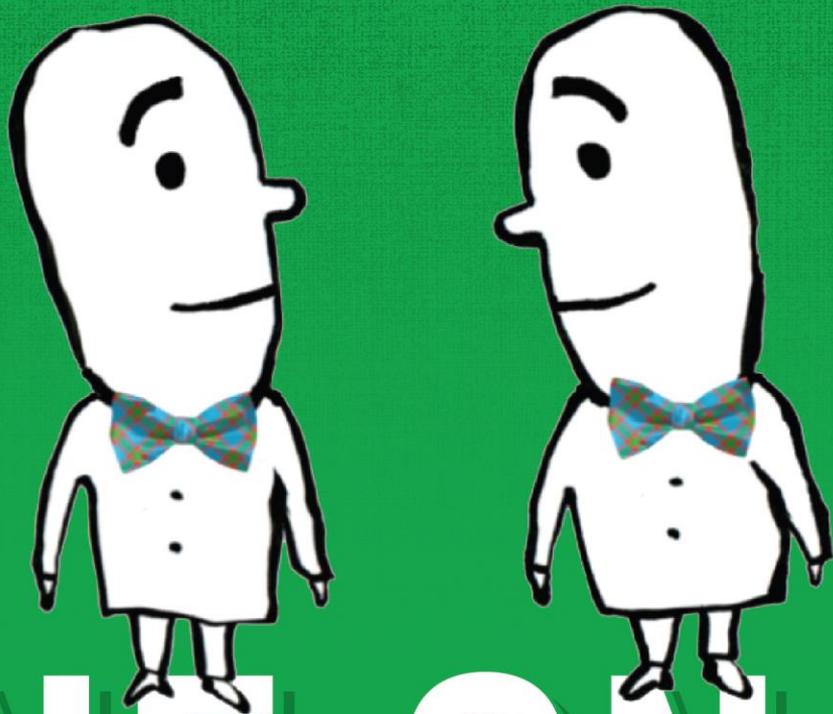
# Conclusions

1. Finding the appropriate measurement tool is an essential step in any research project or program evaluation.
2. Be certain the tool you choose meets the specific needs of your project and is appropriate for your population of interest.
3. Look for one that has *some* demonstrated reliability and validity, and try to contribute to reliability and validity in your study.
4. Choose a tool that will provide the most rigorous measure possible given your project resources.
5. There is no PERFECT tool! Do the best you can.

# QUESTIONS?

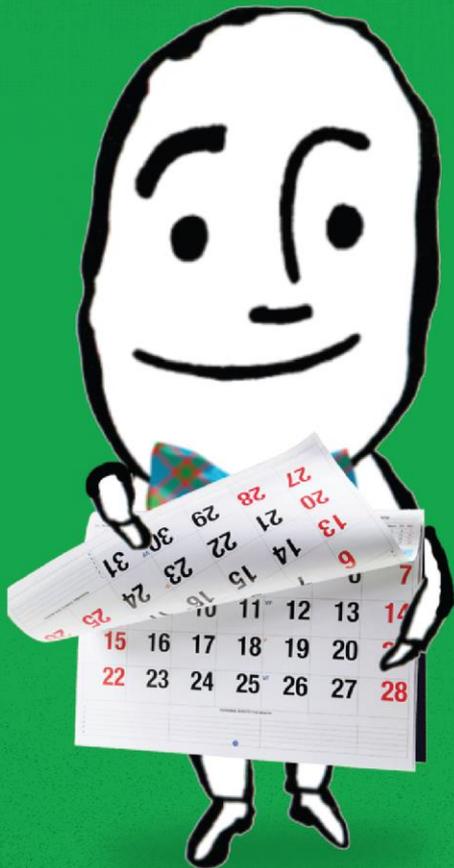
Please type your question(s) in the chat box located on the right.





# ONE ON ONE

# UPCOMING EVENTS



# Next Connect & Explore: April 12

## New NCCOR Measures Registry User Guides: Selecting the Best Measure – Physical Activity Guides

- April 12, 2017
  - 2:00 p.m. ET / 11:00 a.m. PT
- Guest speakers:
  - **Gregory Welk, PhD**, Associate Professor, Department of Kinesiology, Iowa State
  - **James Morrow, Jr., PhD, FACSM, FNAK**, Regents Professor Emeritus, Health Promotion, and Recreation, University of North Texas
  - **Pedro Saint-Maurice, PhD**, Postdoctoral Fellow, National Cancer Institute, National Institutes of Health
  - **Jordan Carlson, PhD**, Director, Community Engaged Research, Children's Mercy Kansas City
  - **James Sallis, PhD**, Distinguished Professor, Department of Family and Preventive Medicine, University of California, San Diego

# Acknowledgments: Project Team

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Jill Reedy, PhD, MPH, RD (co-lead)

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# FURTHER QUESTIONS?

Other questions about NCCOR  
or upcoming activities?

Email the NCCOR Coordinating Center  
[nccor@fhi360.org](mailto:nccor@fhi360.org)

## WHAT'S HAPPENING IN NCCOR NEWS

### NCCOR at APHA

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[Connect & Explore SNAP-Ed Evaluation Framework Q&A](#)

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[Connect & Explore: Evaluating Health Care-Community Collaborations: Hospital-Based Programs](#)

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[Three ways NCCOR is accelerating progress to reduce Childhood Obesity](#)

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[NCCOR Childhood Obesity Declines - New RWJF Signs of Progress Data](#)

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## Connect & Explore



## Upcoming Webinars

Mark your calendar for these upcoming Connect & Explore webinars!

**NOV 10**

[Evaluating Health Care-Community Collaborations: Implications and Recommendations for the Field](#)

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## Archived Webinars

Missed a webinar? Check out videos from past webinars.

**2016**

2015

2014

2011

2010

2009

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**OCT 27**

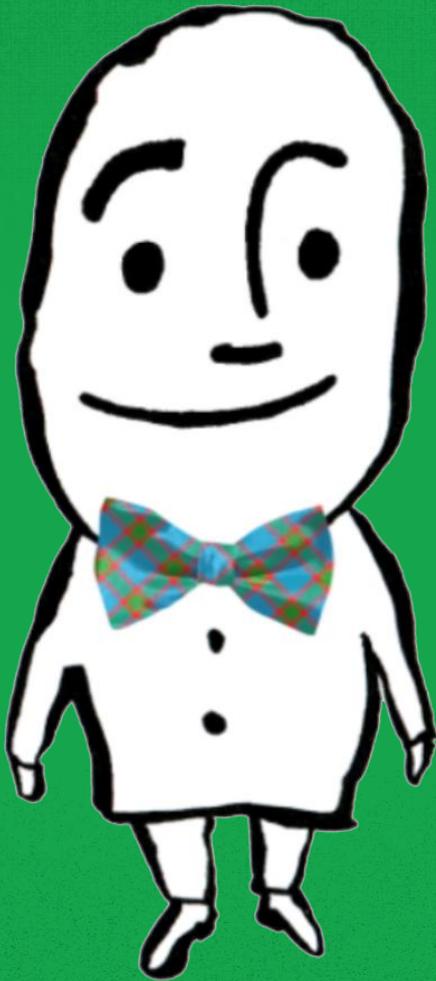
[Looking Back and Looking Forward: Nine Years of School District Wellness Policy Implementation](#)

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**SEP 14**

[Evaluating Health Care-Community Collaborations - A Three-Part Series](#)

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**THANK YOU!**