MEASURES REGISTRY

RESOURCES FOR MEASURING DIET AND PHYSICAL ACTIVITY
Measurement is a fundamental component of all forms of research and it is certainly true for research on childhood obesity. A top priority for the National Collaborative on Childhood Obesity Research (NCCOR) is to encourage consistent use of high-quality, comparable measures and research methods across childhood obesity prevention and research.
The Measures Registry is a searchable database of nearly 1,400 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 categorized into four domains, each of which is discussed in its own Measures Registry User Guide:

- **INDIVIDUAL DIETARY BEHAVIOR**
- **FOOD ENVIRONMENT**
- **INDIVIDUAL PHYSICAL ACTIVITY BEHAVIOR**
- **PHYSICAL ACTIVITY ENVIRONMENT**

The Measures Registry facilitates access to available measures, helps identify gaps in measures, and spurs development and validation of new measures. It also houses measures in development, links to other measures registries and related resources, and solicits new measures for consideration.

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### At A Glance

**DOMAIN(S)**
- Food Environment
- Individual Dietary Behavior

**MEASURE TYPE**
- Questionnaire

**MEASURE AVAILABILITY**
- Free
- Download measure from biomedcentral.com

**NUMBER OF ITEMS**
- 14 Reported

**STUDY LOCATION**
- Metro/Urban, Small Town/Rural
- Southern, Australia

**LANGUAGE(S)**
- English

**INFORMATION ABOUT DEVELOPMENT OF MEASURE**

The questionnaire was piloted in a convenience sample of 7 students from grades 5–7. These students attended primary schools not involved in the community based project.

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**nccor.org/measures**
User Guide
Overview & Resources

Organized by the same four domains as the Measures Registry, the User Guides are designed to provide an overview of measurement, describe general principles of measurement selection, present case studies that walk users through the process of using the Measures Registry to select appropriate measures, and direct researchers and practitioners to additional resources and sources of useful information. The User Guides will help move the field forward by fostering more consistent use of measures, which will allow for standardization, meta-analyses, and synthesis.

Additional complementary resources found on the NCCOR website include case studies, fact sheets, teaching slides, and webinars.

ncnor.org/mruserguides
CASE STUDY:
Examining Implications of Modifications to Foods Offered for Sale in Vending Machines within an Institution

Background

A project team wishes to assess intake of sugar-sweetened beverages and alternatives before and after changes to vending machine policies. The policy requires that the institution replaces sodas and energy drinks with water.

Considerations & Measure Selection

If the team chooses a narrower focus on snacks and beverages, they may consider using a screener to reduce team and respondent burden.

If the team chooses a broader focus on overall diet, they may consider a 24-hour recall or FFQ to examine different dietary components.

If the respondents are old enough to reliably report their diets, the team may also choose a self-report measure.

Find detailed case studies in the Individual Diet User Guide.
CASE STUDY:
Improving Healthy Eating Behaviors in Independent Neighborhood Restaurants

**Background**

A large city health department is working with the local restaurant association to improve city residents’ healthy eating behaviors. To identify change in availability, pricing, and menu sales over time, the study team will collect baseline data and repeated collection of food availability, price data, and menu revision support for restaurant owners.

**Considerations & Measure Selection**

The study team must select an available, easy to use tool that restaurant staff can use to collect data.

The study team is looking for measures that are publicly available and have known validity and reliability.

The study team chooses NEMS-R which offers a free online training, has established reliability, and can collect data on restaurant menus, factors influencing consumer choices, and sample sale records. To account for lack of established validity, the team structures the study to test for validity evidence.

Find more detailed case studies in the Food Environment User Guide.
CASE STUDY:
Determining Compliance with Physical Activity Recommendations Across Different Grade Levels

Background
National recommendations indicate that youth should accumulate at least 30 minutes/day of Moderate to Vigorous Physical Activity (MVPA) in the school-setting. A research team plans to measure compliance across elementary to high school grade levels by determining what percentage of youth meet the MVPA goal per day at school.

Considerations & Measure Selection
The research team needs a measure appropriate for elementary through high school students.

The measures should capture frequency, duration, and intensity of physical activity occurring at school, and provide immediate feedback.

The research team selects a web-based self-report measure to be administered by physical education teachers that can collect easily shareable data on contexts of in-school.

Find more detailed case studies in the Individual Physical Activity User Guide.
A local bicycle and pedestrian advocacy organization is working with the city planning department to improve environments around schools to support active living. The organization plans to apply for grant funding to support specific environmental improvements and would like the improvement targets to be identified through a community needs assessment. Their goal is to identify specific locations and types of improvements.

Background
A local bicycle and pedestrian advocacy organization is working with the city planning department to improve environments around schools to support active living. The organization plans to apply for grant funding to support specific environmental improvements and would like the improvement targets to be identified through a community needs assessment. Their goal is to identify specific locations and types of improvements.

Considerations & Measure Selection
The organization is interested in having community members identify environmental attributes in a neighborhood or park environment that could feasibly be modified during the two-year grant. With their focus on specific environmental features, they eliminate GIS and self-report measures which have a macro-level focus.

The team decides on two audit tools that are brief, require little training, and contain simple metrics: 1) the Active Neighborhood Checklist for the streetscape audit, and 2) a subset of the Community Park Audit Tool (CPAT) for the park audit.

Find more detailed case studies in the Physical Activity Environment User Guide.
Measures Registry Learning Modules Overview and Resources

NCCOR’s Measures Registry Learning Modules are designed to complement the Measures Registry and Measures Registry User Guides by highlighting key concepts for users in 5 to 15-minute modules. The 17 Learning Modules make it easier to understand measurement issues in the four major domains: individual diet, food environment, individual physical activity, and physical activity environment. Each of the four domains provides an introduction, key concepts, and a case study.

The Learning Modules also include a glossary of definitions and links to additional resources. This is a great tool that is geared towards people newer to research and evaluation in diet and physical activity, such as students, or individuals who need a refresher on key concepts and quick assessments to check their understanding.

Standard measures are needed for:

- Research and evaluation related to the causes of childhood obesity
- Interventions to prevent and treat obesity in children
- Programs and policies concerning individual and environmental determinants of childhood obesity
- Progress towards identification and implementation of evidence-based interventions, programs and policies
Individual Diet Module Series
The Individual Diet Module Series addresses considerations related to the measurement of dietary behaviors in children. The series includes the following four modules:

- **Module 1**: Introduction to the Individual Diet Module Series
- **Module 2**: Considerations for measuring diet in the context of childhood obesity research
- **Module 3**: Overview of measures of individual diet
- **Module 4**: Case Study: Assessing the effects of a home-based obesity intervention on pre-school children’s dietary behaviors

Food Environment Module Series
The Food Environment Module Series addresses considerations related to measuring the physical, social, and person-centered environments that play a role in what people eat. The series includes the following four modules:

- **Module 1**: Introduction to the Food Environment Module Series
- **Module 2**: Measuring the physical, social, and person-centered aspects of the food environment
- **Module 3**: Making decisions about what food environment tools to use
- **Module 4**: Case Study: Evaluating a home-based intervention to reduce childhood obesity
The Individual Physical Activity Module Series addresses considerations that influence decisions about physical activity assessments. The series includes the following four modules:

**Module 1** Introduction to the Individual Physical Activity Module Series

**Module 2** Processing, scoring, and interpreting physical activity data

**Module 3** Selecting and using activity monitors

**Module 4** Case Study: Identifying predisposing factors for active communizing in elementary school children who live in urban and suburban settings

The Physical Activity Environment Module Series addresses why the built environment is important to physical activity and what can be gained from using existing physical activity and environment assessment tools. The series includes the following four modules:

**Module 1** Introduction to the Physical Activity Environment Module Series

**Module 2** GIS-based measures for the physical activity environment

**Module 3** Audit tools for physical activity environment assessments

**Module 4** Case Study: Improving streetscapes and parks around schools
DO YOU WANT TO BE FEATURED IN NCCOR’S NEXT CASE STUDY?

Tell us how you use the Measures Registry, User Guides, and Learning Modules!

Email: NCCOR@FHI360.org
The National Collaborative on Childhood Obesity Research (NCCOR) brings together four of the nation’s leading research funders:

Centers for Disease Control and Prevention (CDC)
National Institutes of Health (NIH)
Robert Wood Johnson Foundation (RWJF)
U.S. Department of Agriculture (USDA)

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