

The National Collaborative on Childhood Obesity Research Catalogue of Surveillance Systems and Measures Registry

New Tools to Spur Innovation and Increase Productivity in Childhood Obesity Research

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The National Collaborative on Childhood Obesity Research (NCCOR; www.nccor.org) is a partnership among four major funders of childhood obesity research: the CDC, the NIH, the Robert Wood Johnson Foundation (RWJF), and the U.S. Department of Agriculture (USDA). Established in 2009, NCCOR focuses on improving the efficiency, effectiveness, and application of research through enhanced coordination and collaboration, in order to reduce rates of childhood obesity in the U.S.

At its inception, NCCOR identified two goals as especially high priorities for advancing childhood obesity research: (1) increasing the knowledge and use of relevant data resources and (2) encouraging the use of high-quality and comparable measures through improved access. Publicly available data resources related to childhood obesity are often underused because of lack of awareness of the breadth of existing surveillance systems. Previously, locating publicly available data resources for analysis was often challenging for researchers, as there was no one central repository for this information. Instead, researchers often used systems with which they were already familiar or asked colleagues for recommendations; searched relevant bibliographic, government, and private resources; and/or used internet search engines to locate data systems. Finding measures also was challenging for researchers, and few studies used common measures, making comparison of study results difficult.

NCCOR has now created tools to assist researchers and practitioners in both of these areas to support more rapid advances in childhood obesity research. Improving the

knowledge of and access to data resources across the socioecologic model will not only increase research efficiency but might also increase interest in multilevel research, which might, in turn, improve the understanding of environmental determinants of childhood obesity. Improving access to high-quality and comparable measures should strengthen the foundation for research on the causes of childhood obesity and for evaluation of obesity-related policy and environmental changes.

The Catalogue of Surveillance Systems and the Measures Registry

The NCCOR Catalogue of Surveillance Systems (www.nccor.org/css) and Measures Registry (www.nccor.org/measures) were launched in 2011 as freely available web-based resources for obesity researchers and practitioners. The Catalogue currently includes profiles on 87 systems, which may be filtered and sorted according to the level of the ecologic model, scope, key variables, age, race/ethnicity, design, and cost. Each profile synthesizes key information on the surveillance system, including noteworthy characteristics for obesity researchers, key variables, data access and cost, and geocode/linkage information. Users also may compare systems by key features. In addition, the Catalogue provides links to many other resources of potential interest to obesity researchers and practitioners, such as the USDA Food Desert Locator and Food Environment Atlas, as well as federal nutrition program information and legislative databases.

The Measures Registry currently includes information on more than 750 measures extracted from about 550 publications in the peer-reviewed literature. Measures are broadly defined as tools and methodologies to assess individual diet, physical activity, and the environments in which these behaviors occur. Examples include questionnaires, instruments, diaries, logs, electronic devices, di-

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rect observations of people or environment, protocols, and analytic techniques. Measures in the Registry are approximately equally distributed among four domains: individual dietary behavior, individual physical activity behavior, food environment, and physical activity environment. Users may filter measures by domain, measure type, age, and context/location. The profile for each measure includes key information on domain(s) measured, validity and reliability, a link to the actual measure when it has been made available, protocols on use, settings, geographic areas, and populations for which the measure has been used. Users may compare measures by key features. More than 200 measures are available for download on the website. In addition, the Measures Registry provides summary and contact information for measures in development (unpublished measures) and other measures registries and resources.

Development of the Catalogue and Registry

The Catalogue of Surveillance Systems and the Measures Registry were developed in three phases: concept development; content definition; and development, testing, and review.

Phase 1: Concept Development

In this first phase, NCCOR participants from across the partner organizations worked to define the projects' purpose, goals, target audience, conceptual framework, and scope. NCCOR members also established smaller working groups, and subject matter expert panels.

Phase 2: Content Definition

In the second phase, working groups led by NCCOR members developed the product concepts further to define the project specifications through an iterative process. Both the Catalogue and the Registry underwent three rounds of focus group and usability testing with target audience representatives to assess features and functionality, and the working groups defined language and style standards for the tools.

Additionally, the working groups for both tools solicited feedback from subject matter experts in childhood obesity–relevant surveillance systems and measures for the Catalogue and Registry, respectively. The Catalogue subject matter expert panel reviewed surveillance systems for inclusion in the Catalogue and provided feedback on a sample set of system profiles, which summarized content for each system. The expert panel also approved the inclusion criteria for the surveillance systems in the Catalogue. Included systems had to provide data that have been gathered within the past 10 years, provide access to

raw data, have been collected in the U.S., and be publicly available. The Measures Registry expert panel reviewed the project plan and search strategy, developed an abstraction form to compile key information for each measure, provided feedback on the suggested protocol for including measures in development, and commented on the approach for summarizing existing resources.

Phase 3: Development, Testing, and Review

In the third and final phase, NCCOR working groups worked with software developers to develop and refine the two tools. The Catalogue and Registry created profile information for each of the included systems or measures according to a document template or abstraction form, which had been developed and refined during Phase 2. For the Catalogue, each system profile was reviewed multiple times by subject matter experts and also by a representative of each of the surveillance systems. For the Measures Registry, NCCOR conducted a literature review of all English-language articles with measures relevant to childhood obesity published between 2004 and 2010. Additional measures came from an extensive best-practice review and from other suggested papers and resources, some of which were published before 2004. Subject matter experts abstracted all articles using a standardized form that included details on validity, reliability, health outcomes, protocols for use and scoring, and other specifics regarding the populations in which the measures were used. New measures for which peer-reviewed publications were not available were included separately as measures in development.

Impact of the Catalogue and Registry

Early usage statistics are encouraging and show an average of more than 1000 unique visitors per month and more than 400,000 hits for each tool in the first 10 months of operation. Both tools are updated regularly.

For the first time, researchers and practitioners can readily assess the range of available childhood obesity data resources and measures in the U.S., and note any gaps. In assessing the surveillance systems in the Catalogue, for example, there are many more systems at the individual level than at the outer rings of the socioecologic model, and there appears to be only one true policy surveillance system: the Bridging the Gap State Snack and Soda Tax Data System. The Catalogue also reveals that although databases are available that translate foods into meaningful food guidance–related food groups for foods as-eaten, corresponding databases are lacking at the food retail level for foods as-purchased (such as brownie mix and boxed macaroni and cheese). Similarly, a scan of the Registry identifies significant gaps in the availability of measures. For

example, a search for Spanish language measures reveals that only 5% to 10% of the abstracted measures are in Spanish. Additionally, the vast majority of measures have been developed for use in metropolitan or urban areas, with only about 10% of measures developed for use in rural populations or environments.

Future Plans

The National Collaborative on Childhood Obesity Research will continue to update and add data resources and measures to the Catalogue and Registry, respectively, and also to enhance the functionality of the tools. For the Catalogue, priorities include adding information on urban and rural populations, socioeconomic status, and sleep. For the Registry, ongoing challenges relate to providing resources and guidance for selection of the best measure for a particular study and fostering the standardization of measures to improve the comparability of different studies.

Conclusion

The Catalogue and the Registry are intended to spur innovation and enhance productivity of obesity researchers by increasing awareness of available resources, and reducing the time necessary to locate relevant data re-

sources and measures. Additionally, NCCOR hopes that the Catalogue will encourage multilevel research through increased awareness of linkage variables, and that the Registry will foster standardization of measures used in obesity research. Ultimately, NCCOR's goal is for these tools to contribute to efforts to lower rates of childhood obesity in the U.S.

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