

Using Systems Models to Assess Public Health Policies and Interventions for Childhood Obesity Prevention and Control

The National Collaborative on Childhood Obesity Research (NCCOR) Envision Project will coordinate and support computational and statistical modeling efforts to forecast the impact of public health policies and interventions on childhood obesity on a population-wide level and among specific subpopulations.

The Envision Project is part of NCCOR's effort to build capacity for multi-level, systems-oriented, and integrated research examining the effects of individual, socio-cultural, economic, environmental, and policy forces on children's diet, physical activity, energy balance, and body weight. NCCOR's Envision Project will support systems modeling efforts to gain insight into the most effective ways of preventing childhood obesity.

The Envision Project consists of three modeling networks:

- COMNet (Childhood Obesity Modeling Network) – 5 varied and advanced projects co-funded by the Robert Wood Johnson Foundation (RWJF), Eunice Kennedy Shriver National Institute of Child and Health Development (NICHD), and Office of Behavioral and Social Science Research (OBSSR)
- CompMod (Comparative Modeling Network) – 6 newly formed systems modeling projects, including agent-based modeling, system dynamic modeling, Markov modeling, and micro-simulation, funded jointly by the NICHD, OBSSR, and RWJF
- NIH U01 Network – 7 advanced computational and statistical modeling projects funded under an RFA sponsored by the NICHD, NHLBI, and OBSSR

Each network will have an expert steering committee drawn from the modeling teams and members of NCCOR's member organizations to guide, review, and improve on the proposed modeling projects and assist with interpretation of results to increase the efficiency of cross-project learning.

The Envision Project will convene modeling groups from around the world (United States, Canada, United Kingdom and Australia). The development of simulation models in close collaboration with leading researchers working on cohort and intervention studies provides a powerful tool for assessing public health policies for childhood obesity prevention. As we have seen from similar investments in tobacco control research, mathematical models can help guide intervention and funding strategies and can be an invaluable support to policymakers.

Through the Envision Project, NCCOR hopes to achieve:

- (1) Greater understanding of the complex etiology of childhood obesity;
- (2) Comparative evaluations of energy balance models;
- (3) Comparative evaluations of models projecting the impact and cost-effectiveness of different policy and environmental changes;
- (4) Comparative evaluation of different modeling approaches to childhood obesity;
- (5) Virtual testing of the effects of different combinations and sequence of childhood obesity interventions;
- (6) Continued collaboration, cooperation and strategic networking among modeling groups;
- (7) Development and dissemination of scientific papers, presentations, and reports.

NCCOR is a collaboration among the Centers for Disease Control and Prevention (CDC), National Institutes of Health (NIH), Robert Wood Johnson Foundation (RWJF), and United States Department of Agriculture (USDA) to accelerate progress on reversing the epidemic of childhood obesity in the United States.