Food, Health & Choices (FHC): Using Cost-effectiveness Analysis (CEA) to Determine if Scaling Up is a Wise Investment
Matthew M. Graziose, MS, Y. Claire Wang, ScD, MD, Amber Hsiao, MPH, Pam Koch, EdD RD, Heewon Lee Gray, PhD RD, Isobel R. Contento, PhD

Abstract
Objectives: CEA is useful when advocating to policymakers for scale-up of effective childhood obesity prevention interventions. This study assesses the cost-effectiveness of FHC, an effective 24-lesson science-based obesity prevention curriculum.

Study Design, Setting, Participants, Intervention: A CEA was conducted from a societal perspective with no intervention comparator. For this analysis, FHC implementation was modeled as if the entire population of New York City (NYC) 4th grade public school students (N=76,778) received the curriculum for one year.

Outcome, Measures and Analysis: The CEA included costs of implementation, administration, and future medical costs of adult obesity. Effectiveness of the FHC curriculum was measured using a randomized controlled trial in 20 NYC public schools (boys 4% decrease with curriculum vs. 1.3% increase in control; girls 2.4% decrease with curriculum vs. 1.3% decrease in control). Projected adult obesity was based on published longitudinal studies. The Medical Expenditure Panel Survey (MEPS) provided estimates of direct medical costs for obese adults. To account for intervention risk, a 5% discount rate was applied to future costs and effectiveness.

Methods
We evaluated the cost-effectiveness of FHC under the scenario that it is implemented for all NYC 4th grade public school students (N=76,778) for a given year. We conducted the cost analysis for the 2011-2012 school year (reference year) during which all intervention activities were implemented. A retrospective cost analysis was conducted for the 2011-2012 school year. Cost of time was calculated based on the number of students served times the cost per student per year. Results: For this population, FHC costs $7,088,000 ($104/student/year). Implementation would result in 260 fewer men and 231 fewer women becoming obese as adults, saving 6,497 quality-adjusted life years (QALY) and averting $63,000,000 in direct medical costs (2013 dollars). Baseline costs of the FHC intervention determined costs of $6,481,000 (95% confidence interval: $5,800,000-$7,142,000). Cost-effectiveness analyses can help prioritize investments to prevent obesity. The effectiveness of the curriculum was measured using a randomized controlled trial, an intervention was included and an evaluation of the intervention is excluded. A natural setting for the measurement of nutrition education interventions was identified, as these are an environment conducive to lifelong learning. The study is unique in that healthy eating dietary and physical activity are linked to academic achievement.