

Measurement Strategies for Accelerating Progress in Obesity Prevention

Workshop Summary

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IOM Committee to Accelerate Progress in Obesity Prevention

Measurement Workshop

Irvine, California

Workshop Purpose

1. Explore and understand the ways that measurement **techniques**, **strategies**, and **data sources** can impede or promote acceleration of progress toward prevention of obesity
2. Understand what additional knowledge regarding assessments of environments and policies is needed to measure progress of obesity prevention

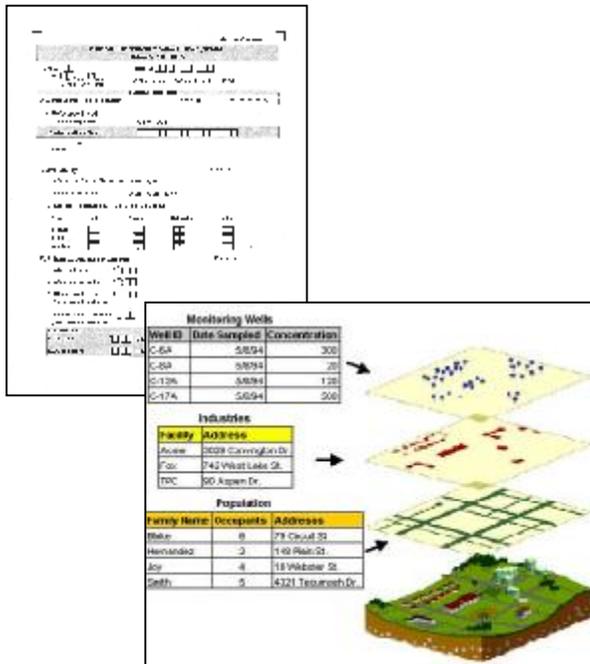
Workshop Structure

- **PANEL I:** The Physical Activity, Inactivity, and Built Environments
- **PANEL II:** The Food and Nutrition Environments
- **PANEL III:** Cross-Cutting Issues
- **PANEL IV:** Marketing and Industry Measures and Evaluations
- **PANEL V:** State and Community Reach
- **PANEL VI:** Disparities and Measurement

Examples

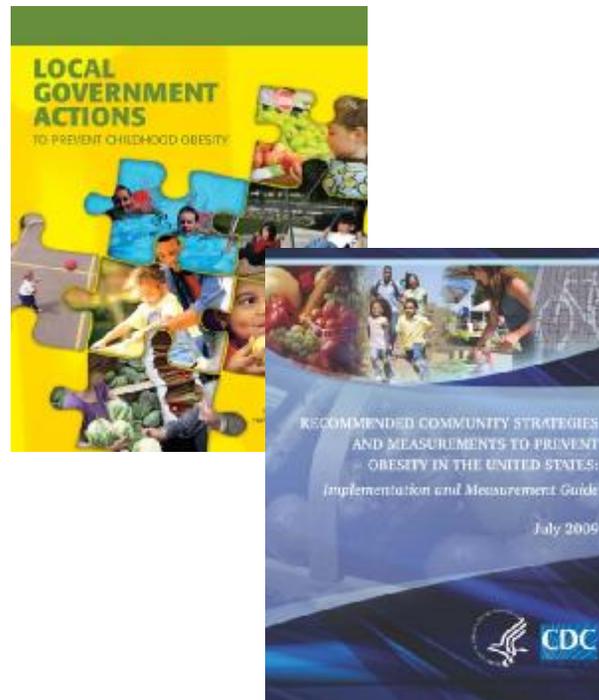
Techniques

- Survey instruments
- GIS
- *Cost-effectiveness analyses*
- *Health Impact Assessments*



Strategies

- Improved geographic availability of supermarkets in underserved areas (number of supermarkets / 10,000 residents)



Data Sources

- National Health and Nutrition Examination Survey (NHANES)
- Medical Expenditure Panel Survey (MEPS)
- School Health Profiles and Policies Survey (SHPPS)



“Measures”

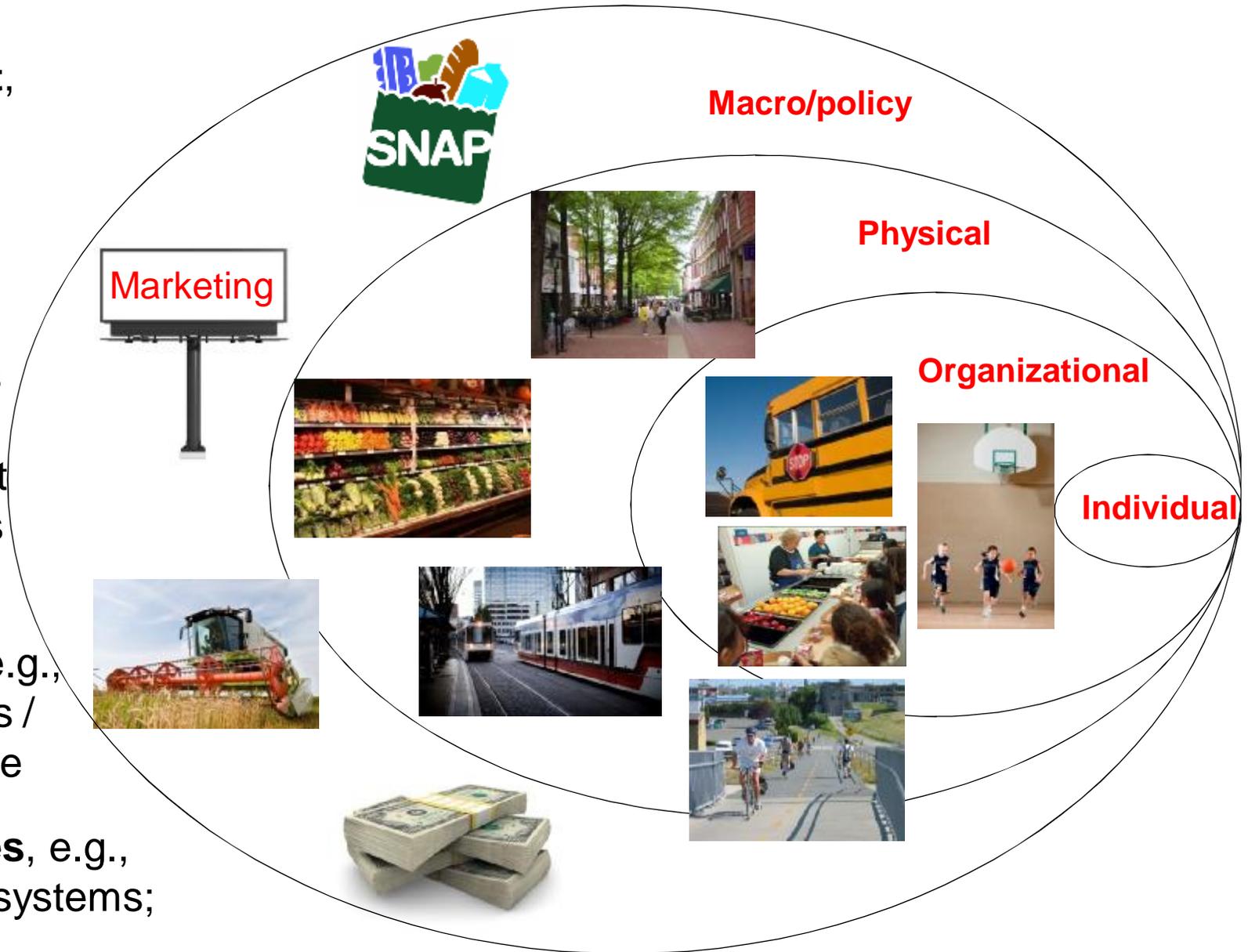
Environments and Policies: Examples

Methods of Assessment,
e.g., survey instruments

Techniques,
e.g., cost-effectiveness analysis;
health impact assessments

Strategies/ Indicators, e.g.,
supermarkets / 10,000 people

Data Sources, e.g.,
surveillance systems;
databases



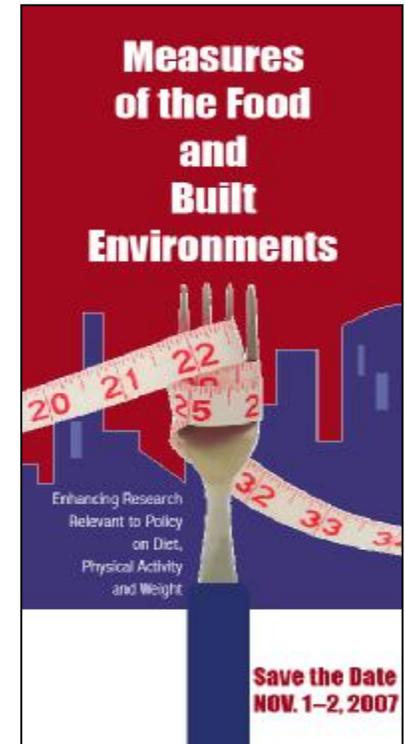
Measurement Techniques, Strategies and Data Sources Provide a Critical Foundation for Obesity Prevention Research



2007 Workshop/ 2009 American Journal of Preventive Medicine Supplement

Key Challenges Noted

- Measurement of environments for high-risk populations
- Relatively little testing / reporting on psychometric properties
- Appropriate use of GIS
- Need for refinement of conceptual models
- Managing data complexity



Changes since workshop: Increased sophistication of analyses beyond buffer zones around homes, to network buffers incorporating travel behavior, e.g., mapping routes; Number of studies in this area has increased substantially; Increased attention to validity and reliability of secondary datasets; Continued lack of validated instruments for measuring the food environment.

Food / Physical Activity Environments

- Methods of assessment
 - Survey instruments (observed, self-report) (perceived, objective – still relatively few studies incorporate both)
 - GIS
- Trends emerging in physical activity research, e.g., associations between walkability, sidewalks, recreation facilities, aesthetics and activity
 - Built environment
 - School environment
- Measures exist in many cases (some with large number of items!)
 - Need for brevity, especially if incorporating into large surveys, e.g., PANES
 - Activity-related measures appear to be further developed than food environment
 - NEMS has been widely disseminated
- Validity of instruments often not tested/reported
- Instruments often not validated with sub-populations at increased risk for obesity

Food / Physical Activity Environments cont'd

- Importance of qualitative as well as quantitative research methods
- Caution needed with some data sources – questions of currency of data
- Cooperation needed to incorporate health-related measures into non-health sector surveys, particularly related to:
 - Transportation
 - Urban planning
 - Parks and recreation
 - Education
- Opportunity to learn from experience of progress in individual dietary assessment and surveillance resources
 - Progress is possible!
 - Match the measures and methods with the questions of interest
 - Sober assessment of measures and data sources
 - Need for linkage of guidance-based food group databases with surveys on grocery stores / markets

Cross Cutting Issues

- NCCOR Measures Registry and Catalogue of Surveillance Systems may be helpful resources
- BMI (relatively) easy to measure, but affected by growth, puberty, age, race/ethnicity, aging (height loss); good for trends
- Economics and Obesity
 - Negative health consequences of obesity include: increased risk of certain cancers, diabetes type II, cardiovascular disease, osteoarthritis, stroke, gallbladder disease, and infertility
 - Increased rates of obesity also associated with increased healthcare costs
 - Obesity responsible for \$147 Billion in healthcare costs (Finkelstein et al., 2009)
 - Increased obesity responsible for 27% of rise in healthcare costs (Thorpe et al., 2004)
 - Widespread obesity has greater impact on healthcare spending than smoking or problem alcohol consumption (Sturm, 2002)
 - Other costs: increased rates of disability, absenteeism, reduced productivity (Finkelstein et al., 2005); emerging evidence on impact on national security

Cross Cutting Issues cont'd

- Economic analyses in obesity research
 - Economics recognizes that health is one of many competing goals
 - Cost-benefit analyses:
 - Focuses only on economic costs (and not health benefits)
 - Need to include all costs when analyzing the effect of an intervention
 - Cost-effectiveness analysis and cost-utility analyses may be most useful/appropriate in obesity prevention research – focus on most cost-effective interventions with greatest health benefits; best value in comparison to other interventions
 - Use of modeling/simulation may be very helpful
 - Replication of earlier results important
 - Overall: need to integrate economic analyses into public health

Marketing and Industry Measures & Evaluation

- Methods of assessment include: survey instruments, diaries; 24-hour dietary recalls; UPC scanning (commercial datasets)
- Challenges/advantages of commercial data sources:
 - Commercial: increased cost, sometimes not available; often rich datasets, but issues of representativeness, reporting bias. Only nutrition facts panel – no food groups
 - Publically available: sometimes subpopulation sample sizes small; lag-time for data availability
- Some findings:
 - No relationship found between media use and physical activity (although questions related to measures of activity used)
 - Tweens'/teens' exposure to food and beverage advertising very high
 - Some disconnect between public and commercial datasets on food supply/intake. This is to be expected and differences should be studied and results combined where possible
- Need to encourage commercial data sources to gather information helpful for public health researchers

Marketing and Industry Measures & Evaluation cont'd

- Issues with randomized controlled trials (RCTs) and communication and social marketing programs (CSMPs). Importance of answering the right questions
 - Alternatives: long-term, large-sample cohort studies; natural experiments (e.g., geographic variations); interrupted time series studies; quasi-experiments)
- Existing measures and datasets promising in tracking any intervention to reduce unhealthy food and beverage marketing to youth.
- Challenges: food consumed away from home; linking media exposure to intake to weight outcomes. Other issues:
 - Measures of digital marketing, adver-games
 - Issues of validity of measures, given multi-tasking, new media

State and Community Reach

- Partner organizations with broad reach into broad array of audiences and communities may be helpful in determining measures, gathering data, disseminating results, developing health impact assessments, e.g., Leadership for Healthy Communities
- CDC Recommended Community Strategies Report 2009: “state of the art”; in process of being validated / evaluated; focuses on local government strategies
- Assessment measures/methods (e.g., survey instruments) included in large evaluation studies may also be helpful resources: e.g., from the CDC’s Communities Putting Prevention to Work program and the Healthy Communities Study led by the National Heart, Lung, and Blood Institute

State and Community Reach cont'd

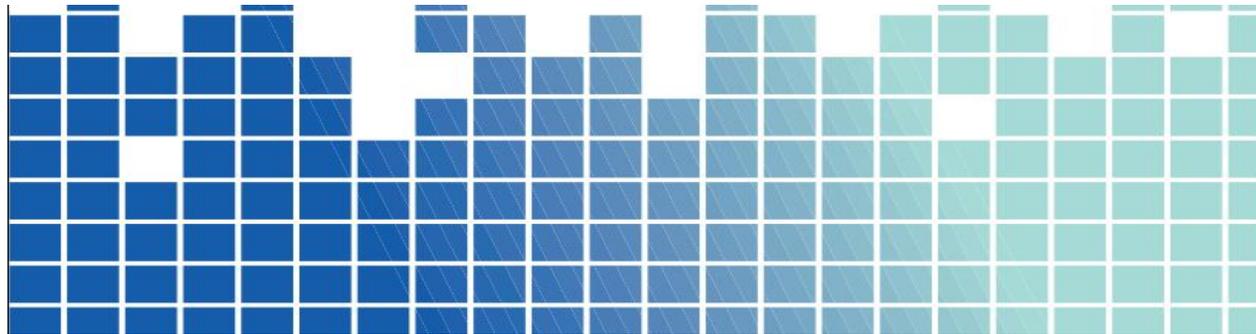
- Some legislation assessment methods (e.g., for physical education, trails, building zoning; school wellness policies exist
 - Time intensive; reporting issues; language can be difficult to interpret; enactment does not equal implementation
- Data sources available: tracking databases exist; public policy legislation *surveillance* limited (exceptions include: the National Cancer Institute-developed C.L.A.S.S. tools; some Bridging the Gap initiatives). Existing surveillance focuses on schools, and most are state-level systems, very few local policy resources
 - NIAAA Alcohol Policy Implementation System may be a helpful model;
 - Local smoking regulations database

Disparities and Measurement

- Racial/ethnic minorities at higher risk for obesity, not simply question of SES
- Low-income communities appear to provide less healthy food environments
- Existing assessment tools:
 - Measures of school competitive food environments: FoodBEAMS
 - Store assessment tool (SAMS); and many others
 - Objective measures of physical activity available; self-report methods important complement: what people want to tell you, perceptions, measure behavior
 - Market basket analyses; content analyses
- Multimodal activity measures in diverse populations needed
- Mixed methods (qualitative and quantitative) approaches may be particularly helpful in developing/adapting measures for communities at highest risk
- Changes appear to be underway in the food environments of low-income communities, e.g., advertising, increased number of supermarkets
- Racial/ethnic markets are attractive targets for marketers – populations / incomes increasing: target marketing
- Challenges include: how to measure differentiated targeting marketing – system of strategies; synergistic and cumulative effects; consumer responses

Next Steps

Next Steps



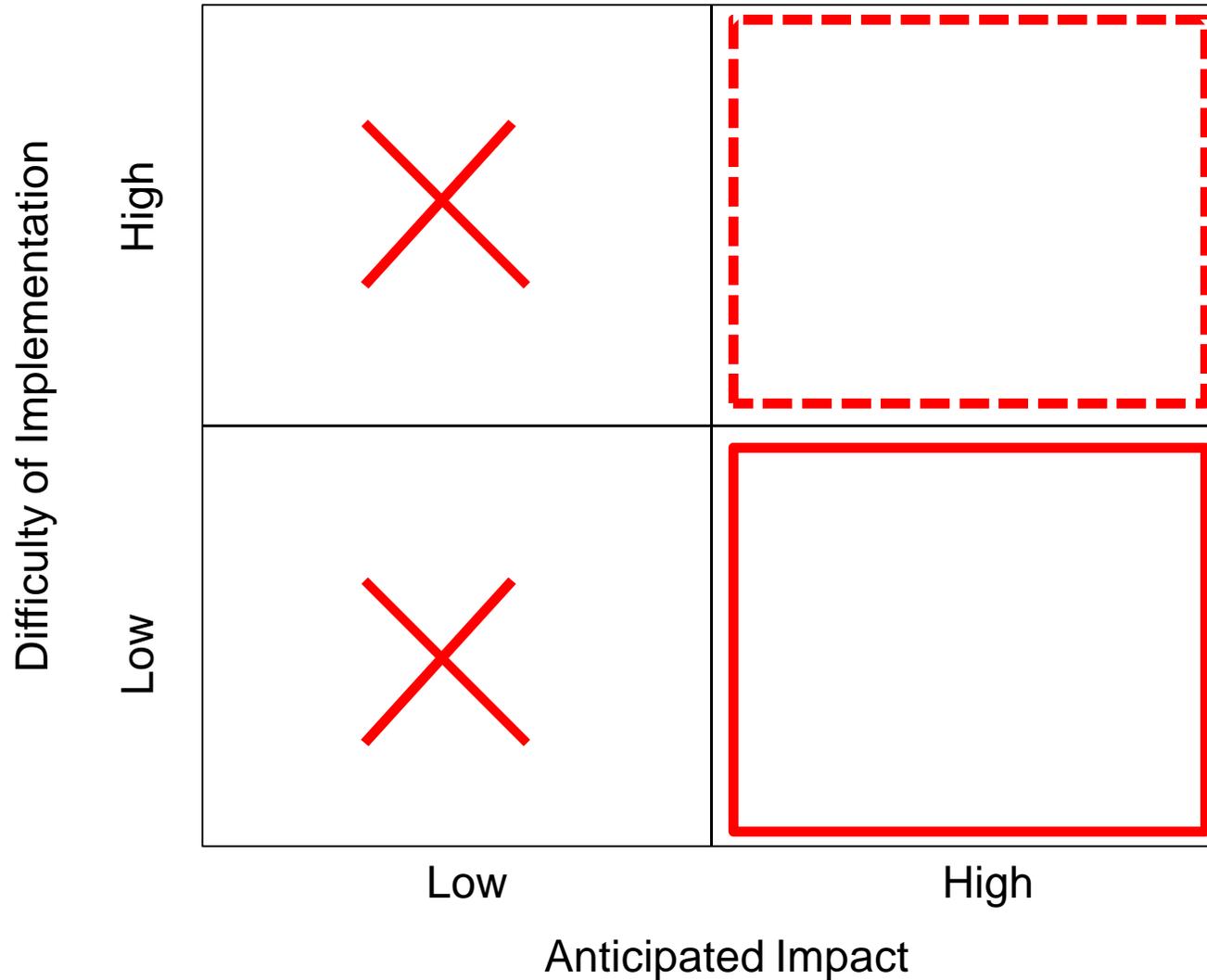
- Match the measures and methods to the questions of interest
- Possible next steps:
 - Determine exposures and outcomes of interest (CDC, IOM recommendations/strategies, as well as forthcoming Transtria comprehensive literature review of environmental interventions on diet and activity may be helpful starting points)
 - Assess existing measurement techniques, measures (assessment methods); strategies; data sources (NCCOR Measures Registry and Catalogue of Surveillance Systems may be helpful resources)
 - Determine gaps (e.g., lack of public health policy surveillance; measures tailored to racial/ethnic minorities; consumer response), and priorities
 - Determine (non-health) partners, including communities; and strategies needed
 - (Promote study designs that focus on answering the right questions)
 - (Evaluation and dissemination)

Lesson of the person searching for their keys where the light is shining...



Let's not measure what is easiest/most convenient...

Possible Model for Prioritization of Future Work



And finally...

What gets measured gets changed!

J. Chriqui

Citations

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