Impact of Food Assistance Programs on Nutrition

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Today’s topics

- What do we know about the impact of food assistance programs on nutrition?
- What are some opportunities for policy-relevant research?
  - Do food assistance programs impact obesity?
  - How can food assistance programs be re-designed to prevent obesity (particularly in children)?
How is food assistance related to nutrition/health outcomes?
Other pathways connecting food assistance to nutrition outcomes

Food Insecurity

Food Assistance

Parenting

Infant feeding (BF, solids)

Weight-for-length

Early Childhood Longitudinal Birth Cohort, n=8693
RIDGE Program
Research Innovation and Development
Grants in Economics

Economic Research Service,
www.ers.usda.gov
Resources

- Oliviera, V. Informing Food and Nutrition Assistance Policy, 2009
- Fox et al. Effects of Food Assistance and Nutrition Programs on Nutrition and Health: Volume 4, Executive Summary of the Literature Review, 2004
Limitations of many studies in determining impact

- **Selection bias** People enrolling in programs are different than low-income nonparticipants
- **Changes over time** Findings from older studies (earlier than mid-1990’s) may not apply

Food Stamp Program (SNAP)

Food Stamps

Increase food expenditures
Increase HH energy/protein
Weaker effects on other nutrients

Effects on individual diet not consistent across studies

Child Nutrition Programs

School Breakfast Program

Better quality diet: lower fat (% kcal), more Mg
Higher serum vit. C and folate

School Lunch Program

More recent studies needed

Summer Food Service Program

Child Care Food Program

Participation in NSLP based on ECLS-Kindergarten Cohort

- Examined weight gain pattern among 1270 low-income children, from 1998-2007
- Compared persistent, transient, and non-participation in NSLP over 5 waves of study
- At Kindergarten, baseline weight not different
- No difference between persistent and transient participation in NSLP
- Starting at 3rd grade, participating girls have higher BMI and BMI gain overtime, compared to non-participating girls. Not seen among the boys

Daphne Hernandez, Penn State University, 2009
Promising strategy: Optimal feeding environment in Child Care Food Program (CACFP)

<table>
<thead>
<tr>
<th>Supporting Environment</th>
<th>CACFP-center</th>
<th>Non-CACFP</th>
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</thead>
<tbody>
<tr>
<td>Family style meal service</td>
<td>93%***</td>
<td>45%</td>
</tr>
<tr>
<td>Sits at table with children</td>
<td>75%*</td>
<td>50%</td>
</tr>
<tr>
<td>Child should eat all food on plate</td>
<td>22%***</td>
<td>45%</td>
</tr>
<tr>
<td>Withhold sweets until child finishes meal</td>
<td>36%**</td>
<td>71%</td>
</tr>
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</table>

* P < 0.05; ** P < 0.01; *** P < 0.001

Madeleine Sigman Grant, 2006
WIC Program

- Increase birth wt/
- Decrease costs (?)
- Improve intake of most nutrients

- Delay introduction of cow’s milk

- Improve intake of some nutrients (iron)
- Decrease anemia
- WIC foods replace less nutritious foods

WIC improves food security

- Analysis of longitudinal data from the Massachusetts WIC dataset (21,863 women, 25,186 children)
- Added 4 food security items
- Women: Early enrollment in WIC during pg produces greatest improvement
- Children: Longer duration on WIC produces greatest improvement
- Among children of overweight mothers, persistent food insecurity increases the odds of:
  - Overweight by 19% at age 2-5 years
  - At risk of overweight by 22% at age 2-5 years

Elizabeth Metallinos, unpublished data from 2007
Breastfeeding as a Strategy to Prevent Obesity

American Academy of Pediatrics (and WHO) recommend:

- Exclusive breastfeeding for first six months of life
- Introduce iron-rich foods at six months
New Findings on Breastfeeding and WIC from the ECLS-Birth Cohort Study

- Based on national sample of 4,450 children born in 2001

- 1st and 2nd Trimester participation in WIC:
  - Less likely to initiate BF
  - Less likely to BF > 4 mos.
  - Less likely to introduce cow’s milk too early

- No difference in early introduction to solids

Promising Strategy: use of WHO growth reference for earlier detection of overweight

Maalouf and Dewey, 2008
Promising Strategy: Providing Economic Incentives to Buy Fruits and Vegetables

- Pilot Study in LA WIC Program (n= 454) gave $40 cash voucher for F/V or diapers
- Redemption rates > 87%
- Participants bought up to 27 different fruits and 34 different vegetables purchased—most common were oranges, apples, bananas, broccoli, tomatoes, grapes, peaches, carrots, lettuce, and potatoes
- Significantly increased F/V consumption and sustained higher level, even at 6 months after intervention

Herman et al, JADA 2006; 106: 740-744
Opportunities for Research: The New WIC Food Packages

- How do changes in formula provision affect BF (Exclusivity & duration)?
- How does elimination of juice during infancy affect later beverage intake?
- Does providing F/V vouchers increase child preferences for those foods?
- How does provision of low-fat milk and less cheese affect postpartum wt loss?
Many research questions remain unanswered

- On-going need for studies with strong research designs to evaluate interventions
- Evaluation needed to capture effects of changes in food assistance programs
- Considerable “data mining” possible from already collected datasets, including those from large national studies
Let’s not forget the elderly!

Changes in Food Security Status among the Elderly in Georgia over 4 months in 2008

Jung Sun Lee et al, 2009
Effect of Food Insecurity on Children: Findings from the Early Childhood Longitudinal Study-Kindergarten Cohort

<table>
<thead>
<tr>
<th>Odds Ratio</th>
<th>95% CI</th>
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<tr>
<td><strong>Overweight</strong></td>
<td>0.80</td>
</tr>
<tr>
<td><strong>From 1999-2000</strong></td>
<td>0.89</td>
</tr>
<tr>
<td><strong>Becoming overweight</strong></td>
<td>0.89</td>
</tr>
<tr>
<td><strong>High wt gain</strong></td>
<td>0.73</td>
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</tbody>
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Rose and Bodar, Pediatrics, 2006 Early Childhood Longitudinal Study, n=16, 889

- Kranz and Siega-Riz developed dietary quality index for preschoolers (2-5 yrs)
- From 1977-1998:
  - Overall diet quality improved slightly
  - Subscores for grains, fruit & vegetables, fat, and dairy improved
  - Subscores for added sugar, excess juice worsened
- WIC children have higher diet quality scores than non-WIC income eligible kids

Kranz et al Am J Public Health 2004; 94 (9) 1525-1530