Effects of the WIC Food Package Revisions on Eating and Purchasing Behaviors:
Results from New Mexico and Across the Nation

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Overview

- 2009 WIC policy change
- Results from our study
  - Effect of the 2009 WIC policy change on dietary intake of preschool-age children from rural communities in New Mexico
- Results from similar studies
  - Dietary intake
  - Food purchasing
- Conclusions and Implications
2009 WIC Policy Change: Food Package

- **Rationale for the change:**
  - 2005 DGA, AAP infant feeding recommendations
  - Changing nutritional risks in WIC populations

- **Changes:**
  - New categories—fruits and vegetables, whole grains, infant foods
  - Decreased quantities—milk, cheese, eggs, 100% juice
  - Milk fat content—2% or less for people ≥ 2 years old
  - Infant packages—no fruit juice, less infant formula

- **Implementation in New Mexico:**
  - On October 1, 2009
  - Nutrition education changes in spring 2009
Our Study—Design

- Research question:
  To examine the effect of 2009 WIC policy changes in the food package on dietary intake of preschool-age children in rural New Mexico communities

- Study population: Subset of the CHILE Study
  - Preschool-age children
  - Attending a Head Start center
  - Living in WIC-participating household
  - Predominantly Hispanic or Pueblo communities
Our Study—Design (continued)

- Outcomes:
  - Fruit, vegetables, whole grains
  - Fruit juice, saturated fat
  - Type of milk—lower fat (skim, 1%, 2%) or whole

- Analysis:
  - Pre-post design: Fall 2008 vs. Spring 2010
  - Multi-level modeling
  - Adjusted for multiple covariates
Our Study—Results

- **Participants:**
  - 162 interviews reporting on 149 children
  - 8 communities: 3 Pueblos, 5 predominantly Hispanic

- **Effect of WIC policy change:**
  - Decrease: saturated fat (g)
  - Increase: lower-fat milk (i.e., 2%, 1% or skim)
  - Decrease: vegetables excluding potatoes
  - No effect: fruits, vegetables including potatoes, fruit juice, whole grains, saturated fat (% energy)
<table>
<thead>
<tr>
<th>Chiasson et al. (2013)</th>
<th>Increase in prevalence of children consuming at least some fruit (66.4% to 69.4%), vegetables (78.1% to 80.8%), and whole grains (59.0% to 64.4%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Children 1-4 years, enrolled in WIC</td>
<td>• Increase in prevalence of children consuming low-fat or non-fat milk (66.4% to 69.4%)</td>
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<td>• WIC program data, New York State</td>
<td>• Increases for low-fat or non-fat milk consumption greater for older children</td>
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<td>• n=3,562,184</td>
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</table>
## Other Studies—Dietary Intake

| Whaley et al. (2012) | • Adult WIC participants and their children  
| | • Phone surveys, California State  
| | • n=6,000, pred. Hispanic | • Increased daily frequency of mother’s consumption of fruit (1.26 to 1.38), but no change in vegetables  
| | | • Increased prevalence of mothers (70.9% to 85.2%) and children (66.8% to 86.3%) consuming lower-fat milk (2% or less)  
| | | • Increase in mother’s perception of her family consuming more whole grains (33.8% to 51.1%) and vegetables (39.0% to 46.2%) than six months earlier, but no change for fruit |
### Other Studies—Dietary Intake

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>Odoms-Young et al. (2013)</td>
<td>• Children 2-3 years and their mothers</td>
<td>• Increase in fruit consumption (+0.33 servings/day) among Hispanic mothers</td>
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<td></td>
<td>• Chicago WIC clinics</td>
<td>• Increase in low-fat dairy consumption among Hispanic mothers (+0.21 servings/day), Hispanic children (+0.34 servings/day) and African-American children (+0.24 servings/day)</td>
</tr>
</tbody>
</table>
Other Studies—Food Purchasing

- **Series of studies:**
  - Andreyeva & Luedicke (2013)
  - Andreyeva et al. (2013)
  - Andreyeva et al. (2014)

- **Design:**
  - WIC-participating households
  - Store scanner data from supermarket chain
  - Connecticut & Massachusetts
  - n=2137 households (whole grains, juice);
  - n=515 (dairy)
Other Studies—Food Purchasing

Whole grains
- Increase in purchases of 100% whole-grain bread (6.3 to 19.6 ounces/month), and decreases in purchases of white (59.5 to 52.7 ounces/month) and ≤ 50% whole-grain bread (8.6 to 7.5 ounces/month)
- Increase in purchases of brown rice (0.3 to 2.4 ounces/month), and no change in purchases of white rice (5.5 to 5.7 ounces/month)
- Purchases using WIC were not off-set by non-WIC purchasing

100% juice
- Decrease in total juice purchases (238 to 182 ounces/month), where the change was largely driven by WIC purchases, and purchases in other payment methods increased slightly but not enough to off-set overall decreases
- Increase in purchasing of fruit drinks (+12 oz/mo) and new age beverages (+13 oz/mo), and decrease in purchases of soft drinks (-41 oz/mo) and bottles water (-21 oz/mo)
Other Studies—Food Purchasing

Dairy

- Decrease in total milk (503 to 431 oz) and WIC-eligible cheese purchases (24 to 15 oz), driven by purchases by WIC benefits, but not off-set by other purchases for milk, and only partially off-set for cheese

- Purchases of whole milk decreased (280 to 142 oz), and of reduced-fat milk increased (110 to 172 oz), while low-fat and non-fat milk did not change; not off-set by non-WIC purchases
Conclusions and Implications

- Changes in the WIC food package effected changes in dietary intake and food purchasing
- Some dietary changes may be hard to see right away
- Limitations of the studies
- Next steps:
  - Effect on morbidity
  - Implementation process
  - What can we do?
Thank you! Questions?
Discussed Studies

**Dietary Intake**


Discussed Studies (continued)

Food Purchasing

