Change is Good!

Revised Food Package Improves Diets and Breastfeeding Rates of WIC Families

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SHANNON E. WHALEY
California WIC Program

84 Local Agency WIC Programs serving 1.4 million WIC participants (~15% of nation’s total) in over 700 WIC sites.

- Smallest local agency serves <1000 participants
- Largest local agency (PHFE WIC) serves over 300,000 participants
Phone surveys of random samples of ~3000 California WIC participants
NEFPI Survey Details

Collaborative Research Team
- UC Berkeley’s Atkins Center for Weight and Health
- Field Research Corporation
- WIC (California WIC Program and PHFE WIC)

Cross sectional random samples of ~3000 English and Spanish

Callers blind to research aims, WIC client confidentiality protected through the use of auto-dialers

Cooperation Rates: >90%  Response Rates: ~50%

Full surveys available at: www.phfewic.org
Food Shopping & Consumption (FSC) Study Design

Live interviews~3000 California WIC participants

- Time 1 Survey: Before Education Campaign
- Time 2 Survey: After Education Campaign
- Time 3 Survey: Post Food Package Change

Education Campaign
Food Package Change
FSC Survey Details

- 2007: 3176 in-person interviews
- 2010: 5219 in-person interviews
- Interviews in English, Spanish, Vietnamese, Chinese at WIC clinics
- Trained interviewers
- Oversampled Vietnamese- and Chinese-speakers, African Americans, and Spanish-speakers with infants
- Stratified random sample of WIC clinics, statistically representing metropolitan, micropolitan, and rural clinics
What are you hearing about infant foods?
Infant Feeding: Satisfaction with FV Vouchers and Jarred Foods (NEFPI)

N = 355 mothers of infants aged 6-12 months
Infant Feeding: Preference for FV Vouchers vs. Jarred Foods (NEFPI)

N = 355 mothers of infants aged 6-12 months, N = 203 (6-8m), N = 152 (9-11m)
ISIS Redemption Data

Jarred Infant Fruits and Vegetables Redemption by Age

% Redemption of Issuance

Age in Months

- WIC Checks for Jarred Fruit & Vegetables and Infant Cereal
- WIC Checks for Jarred Fruit & Vegetables and Jarred Baby Meats
Parental Preference for WIC Infant Foods, Overall & by Ethnicity, 2010 (FSC)
Parental Preference for WIC Infant Foods, by Region, 2010 (FSC)
Infants 0-6 Months Who Consume Solids (FSC)

Percent of Infants

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>29</td>
</tr>
<tr>
<td>2010</td>
<td>23</td>
</tr>
</tbody>
</table>
Infants 0-6 Months Who Consume Solids, by Ethnicity (FSC)
Infants 0-6 Months Who Consume Solids, by Region (FSC)
Baby Food: Conclusions

- High satisfaction with jarred foods, but if offered a choice, many parents would prefer FV vouchers especially for the older infant.

- Early introduction of solids (<6m) has decreased.
What are you hearing about lower fat milk?
Lower Fat Milk: Increased Intake (NEFPI)

Type Respondent Usually Consumes

Type Child (ages 2-5) Usually Consumes

***P<.001

***P<.001
Milk Choices for Children 2007-2010 (FSC)
Milk Choices for Children by Ethnicity, 2010 (FSC)
Milk Choices for Children by Region, 2010

- Metro
- Micro
- Rural

Categories:
- Skim
- 1%
- 2%
- Whole
- None
Milk: Conclusions

- Significant increases in consumption of lower-fat milk.
- Significant decreases in consumption of whole milk.
- Similar pattern is seen across ethnic groups and geographic regions.
What are you hearing about F and V?
Fruits and Vegetables: Increased Intake of Both (NEFPI)

Reported Change in Intake for Respondent & Family (compared to 6 months earlier)

*P<.05
***P<.001
Adults Consuming Fruits or Vegetables 3+ Times/Day, 2007 vs 2010 (FSC)
Children Consuming Fruits 3+ Times/Day, by Region, 2007 vs 2010 (FSC)
Children Consuming Vegetables 3+ Times/Day, by Region, 2007 vs 2010 (FSC)
Adult Fruit & Vegetable Consumption Predicts Children’s Intake (FSC)

![Bar chart showing adult produce consumption and its effect on children's intake]

- **Children Eating 3+ Times/Day**
  - Fruits: 80% (***), Vegetables: 60% (***)

- **0-2/Times/Day**
  - Fruits: 30%, Vegetables: 20%

Legend:
- **Green** = Fruits
- **Purple** = Vegetables

*** denotes statistical significance.
Fruits & Vegetables: Conclusions

- Nutrition education alone improved fruit consumption but adding the F and V voucher was needed to improve vegetable consumption.

- Regional differences seen in F and V consumption.

- Adult intake of F and V predicts young children’s intake.
What are you hearing about whole grains?
Whole Grains: Increased Intake (NEFPI)

Reported Change in Intake for Respondent & Family (compared to 6 months earlier)

Percent of Respondents

- Time 1
- Time 2
- Time 3

** P<.01
*** P<.001
## Ranking of Most Popular Whole Grains Ever Purchased, by Ethnicity, 2010 (FSC)

<table>
<thead>
<tr>
<th>Item</th>
<th>Latino</th>
<th>Anglo</th>
<th>African American</th>
<th>Asian</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>Whole wheat bread</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Oatmeal</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Corn tortillas</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Whole wheat tortillas</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Brown rice</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Whole wheat pasta</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
# Ranking of Most Popular Whole Grains Ever Purchased, by Region, 2010 (FSC)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Metro</th>
<th>Micro</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole wheat bread</td>
<td>1</td>
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</tr>
<tr>
<td>Whole wheat pasta</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
Whole Grains Purchased by Adult, 2010 (FSC)

- Whole wheat bread: 80%
- Oatmeal: 60%
- Corn tortillas: 60%
- Whole wheat tortillas: 40%
- Brown rice: 40%
- Whole wheat pasta: 40%
- Rye bread: 20%
- Barley: 20%
- Quinoa: 10%
- Whole wheat couscous: 10%
- Bulgar: 5%
Whole Grains: Conclusions

• Nutrition Education alone improves whole grain intake.

• Providing the whole grains significantly increases consumption.

• The specific whole grains allowed impacts what people buy.
**High Satisfaction With New Foods (NEFPI)**

<table>
<thead>
<tr>
<th>Caregiver* satisfaction with:</th>
<th>Very/ Somewhat Satisfied</th>
<th>Not very/ Not at all Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>New WIC Foods</td>
<td>93.5</td>
<td>5.9</td>
</tr>
<tr>
<td>Education on New WIC Foods and Checks</td>
<td>96.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Checks for Fruit and Vegetables</td>
<td>94.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Checks for Whole Grains</td>
<td>89.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Checks for only Lower Fat Milk</td>
<td>90.1</td>
<td>7.9</td>
</tr>
<tr>
<td>Amount of Milk</td>
<td>83.9</td>
<td>15.4</td>
</tr>
<tr>
<td>Amount of Cheese</td>
<td>81.1</td>
<td>18.2</td>
</tr>
<tr>
<td>Amount of Eggs</td>
<td>79.3</td>
<td>19.9</td>
</tr>
<tr>
<td>Amount of Juice</td>
<td>86.4</td>
<td>12.7</td>
</tr>
</tbody>
</table>

*Caregivers with a child > 12 mos; March 2010*
### Satisfaction of Veteran vs. New Participants

<table>
<thead>
<tr>
<th>Caregiver* satisfaction (very or somewhat satisfied) with:</th>
<th>Veteran WIC Participants (n=2732)</th>
<th>New WIC Participants (n=264)</th>
</tr>
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<td><strong>Amount of Eggs</strong></td>
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<td><strong>86.0</strong></td>
</tr>
<tr>
<td><strong>Amount of Juice</strong></td>
<td>86.1</td>
<td><strong>90.2</strong></td>
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*Caregivers with a child > 12 mos  **p<.01

March 2010
Conclusions - we found
Nutrition education in WIC can change participant knowledge, attitudes, and behaviors supporting the consumption of a healthier diet.

Ritchie, Whaley, Gomez & Crawford, 2010
New Food Package Improves Diets

The new food package supports the consumption of a healthier diet, with reported increases in family consumption of:

- fruits
- vegetables
- lower fat milk
- whole grains

*Whaley, Ritchie, Gomez & Spector, Submitted for publication.*
High Satisfaction

California WIC participants report high satisfaction with the new food package.

Participants new to the program since October 2009 have higher satisfaction with all foods, including those foods that were reduced in amount.
Ethnic and Regional Differences can impact Outcomes
Acknowledgements

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