The Institute for Obesity Research and Program Evaluation exists to facilitate research collaborations and partnerships to improve health and help prevent the increased incidence of obesity and associated co-morbidities.
NATFAN Research Project

The purpose of the National Food and Nutrition questionnaire (NATFAN) project was to determine the effect of the new WIC package on consumption and healthy food choices by participants from states, territories, and Indian Tribal Organizations. The project included three elements:

1. Design, development, administration, and analysis of NATFAN. The questionnaire was geared to obtain information related to the WIC foods from participating mothers, infants, and children at WIC clinics throughout the nation;

2. Development of an online NATFAN questionnaire for use by those states/ITOs/territories that prefer online questionnaires for their participants and/or staff members; and

3. Establishment of a website to provide state WIC programs with information regarding the NATFAN questionnaire, administration, and results.

The study was conducted through the implementation of questionnaires targeting women, infants and children who were enrolled in the WIC program. The questionnaires were administered before (pre-rollout questionnaire) and after (post-rollout questionnaire) the rollout of the new WIC foods package.
Why revise the WIC Food Packages?

Changes have occurred in the major health and nutrition risks faced by the WIC target population, including:

- Diets lacking in whole grains, fruits and vegetables
- Short duration of breastfeeding
- Overweight and obesity
The WIC foods package revisions were designed to align the WIC food benefit with the Dietary Guidelines for Americans and the American Academy of Pediatrics current dietary guidance for feeding infants.

The overall goals of the changes were to encourage consumption of fruits and vegetables, emphasize the need for whole grains and to lower saturated fat intake, in addition to promoting the establishment of long-term breastfeeding and adapting the food packages to appeal to diverse populations.
The pre-food package change questionnaire was completed by WIC participants prior to February 2009, in advance of the new food package roll-out on October 1, 2009. The questionnaire focused on WIC client demographics with relation to preferences, feeding and consumption practices, with particular focus on the following areas:

- Fruits and Vegetables
- Whole Grain Foods
- Lower Fat Milk
- Adult Eating Practices
- Infant Eating Practices
- Child Eating Practices
- Cultural Preferences

NATFAN: Women
State Agency Report
Pre-Food Package Rollout Questionnaire
Fall 2009
State: West Virginia

- Number of participants who completed part or all of the questionnaire: 386
- Number of participants who completed the English version: 383
- Number of participants who completed the Spanish version: 3
NATFAN: Women
State Agency Report
Post-Food Package Rollout Questionnaire
Spring 2010
State: West Virginia

- Number of participants who completed part or all of the questionnaire: 364
- Number of participants who completed the English version: 362
- Number of participants who completed the Spanish version: 2

Women’s Demographic Information

Age

Education

<table>
<thead>
<tr>
<th>Pre-Rollout</th>
<th>Post-Rollout</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 years</td>
<td>&lt;18 years</td>
</tr>
<tr>
<td>18 - 23</td>
<td>24 - 29</td>
</tr>
<tr>
<td>24 - 34</td>
<td>30 - 34</td>
</tr>
<tr>
<td>&gt;34 years</td>
<td>&gt;34 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-Rollout</th>
<th>Post-Rollout</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 7th grade</td>
<td>&lt; 7th grade</td>
</tr>
<tr>
<td>7th - 8th</td>
<td>9th - 12th</td>
</tr>
<tr>
<td>H.S. Graduate</td>
<td>Some College</td>
</tr>
</tbody>
</table>

Percent

Age

Education
9. How many cups of milk do you drink in a day?

Chart 1. Quantity of Milk Consumed
11. What type of cow’s milk do you usually drink?

Chart 2. Type of Cow’s Milk Consumed

12. I am willing to drink 2% milk.

Chart 1. Willingness to Drink 2% Milk
12. I am willing to drink 1% milk.

Chart 1. Willingness to Drink 1% Milk

12. I am willing to drink skim milk.

Chart 1. Willingness to Drink Skim Milk
Women who answered questions about beverage consumption reported the following:

### Pre-Rollout

15. How often do you do the following?

<table>
<thead>
<tr>
<th>Number of Drinks</th>
<th>Never or less than once per week</th>
<th>1 to 3 times per week</th>
<th>4 to 6 times per week</th>
<th>1 time per day</th>
<th>2 times per day</th>
<th>3 times per day</th>
<th>4 or more times per day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drink 100% juice such as orange, apple, or tomato.</strong> n = 375</td>
<td>27 (7.2%)</td>
<td>94 (25.1%)</td>
<td>62 (16.5%)</td>
<td>67 (17.9%)</td>
<td>63 (16.8%)</td>
<td>40 (10.7%)</td>
<td>22 (5.9%)</td>
</tr>
<tr>
<td><strong>Drink artificially sweetened drinks such as diet cola, diet soda, or Crystal Light.</strong> n = 374</td>
<td>178 (47.6%)</td>
<td>70 (18.7%)</td>
<td>34 (9.1%)</td>
<td>32 (8.6%)</td>
<td>29 (7.8%)</td>
<td>13 (3.5%)</td>
<td>18 (4.8%)</td>
</tr>
<tr>
<td><strong>Drink sugar sweetened drinks such as Kool-Aid, soda, cola, sport drinks, or sugar sweetened tea.</strong> n = 374</td>
<td>58 (15.5%)</td>
<td>92 (24.6%)</td>
<td>51 (13.6%)</td>
<td>51 (13.6%)</td>
<td>47 (12.5%)</td>
<td>36 (9.6%)</td>
<td>39 (10.4%)</td>
</tr>
</tbody>
</table>

(Percentages taken from total number of participants who responded)

### Post-Rollout

15. How often do you do the following?

<table>
<thead>
<tr>
<th>Number of Drinks</th>
<th>Never or less than once per week</th>
<th>1 to 3 times per week</th>
<th>4 to 6 times per week</th>
<th>1 time per day</th>
<th>2 times per day</th>
<th>3 times per day</th>
<th>4 or more times per day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drink 100% juice such as orange, apple, or tomato.</strong> n = 354</td>
<td>42 (12%)</td>
<td>128 (36%)</td>
<td>53 (15%)</td>
<td>49 (14%)</td>
<td>46 (13%)</td>
<td>20 (6%)</td>
<td>16 (5%)</td>
</tr>
<tr>
<td><strong>Drink artificially sweetened drinks such as diet cola, diet soda, or Crystal Light.</strong> n = 352</td>
<td>180 (51%)</td>
<td>71 (20%)</td>
<td>25 (7%)</td>
<td>25 (7%)</td>
<td>29 (8%)</td>
<td>10 (3%)</td>
<td>12 (3%)</td>
</tr>
<tr>
<td><strong>Drink sugar sweetened drinks such as Kool-Aid, soda, cola, sport drinks, or sugar sweetened tea.</strong> n = 352</td>
<td>48 (14%)</td>
<td>95 (27%)</td>
<td>35 (10%)</td>
<td>40 (11%)</td>
<td>52 (15%)</td>
<td>48 (14%)</td>
<td>34 (10%)</td>
</tr>
</tbody>
</table>

(Percentages taken from total number of participants who responded)
16. How often do you eat fruit? This does not include juice.

Chart 4. Frequency of Fruit Consumption

17. How often do you eat vegetables such as salad, carrots, or sweet potatoes? This does not include potatoes, French fries, or potato chips.

Chart 4. Frequency of Vegetable Consumption
18. During the past year, which fruits and vegetables did you usually eat?

Chart 4. Variety of Fruit and Vegetable Consumption

24. How many times do you eat white bread?
25. How many times do you eat whole-wheat or whole grain bread?

Chart 6. Frequency of Whole-Wheat or Whole Grain Consumption

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Pre-Rollout</th>
<th>Post-Rollout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or less than once per week</td>
<td>27.9%</td>
<td>30.8%</td>
</tr>
<tr>
<td>1 to 3 times per week</td>
<td>18.8%</td>
<td>16.3%</td>
</tr>
<tr>
<td>4 to 6 times per week</td>
<td>19.3%</td>
<td>15.7%</td>
</tr>
<tr>
<td>1 time per day</td>
<td>17.6%</td>
<td>11.4%</td>
</tr>
<tr>
<td>2 times per day</td>
<td>10.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>3 times per day</td>
<td>1.1%</td>
<td>2.2%</td>
</tr>
<tr>
<td>4 or more times per day</td>
<td>2.2%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

NATFAN: Infants
State Agency Report
Pre-Food Package Rollout Questionnaire
Fall 2009
State: West Virginia

Total number of participants who completed the questionnaire: 293
Number of participants who completed the English version: 290
Number of participants who completed the Spanish version: 3
NATFAN: Infants
State Agency Report
Post -Food Package Rollout Questionnaire
Spring 2010
State: West Virginia

Total number of participants who completed the questionnaire: 413
Number of participants who completed the English version: 410
Number of participants who completed the Spanish version: 3

Parent/Caregiver Demographic Information

![Age Distribution](image)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pre-Rollout</th>
<th>Post-Rollout</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 years</td>
<td>4.5</td>
<td>4</td>
</tr>
<tr>
<td>18 - 23 years</td>
<td>44.7</td>
<td>45.7</td>
</tr>
<tr>
<td>24 - 29 years</td>
<td>31.2</td>
<td>31.8</td>
</tr>
<tr>
<td>30 - 34 years</td>
<td>11.7</td>
<td>11</td>
</tr>
<tr>
<td>&gt;34 years</td>
<td>7.1</td>
<td>6.5</td>
</tr>
</tbody>
</table>

![Education Distribution](image)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Pre-Rollout</th>
<th>Post-Rollout</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 7th grade</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>7th - 8th grade</td>
<td>7.0</td>
<td>7.7</td>
</tr>
<tr>
<td>9th - 12th grade</td>
<td>15.4</td>
<td>13.9</td>
</tr>
<tr>
<td>H.S. Graduate</td>
<td>34.9</td>
<td>34.6</td>
</tr>
<tr>
<td>Some College</td>
<td>42.6</td>
<td>43.3</td>
</tr>
</tbody>
</table>
8. How old is your infant?

![Bar chart showing the age distribution of infants at breastfeeding cessation.]

13. What was the age of your infant when you stopped breastfeeding?

![Bar chart showing the age distribution of infants at breastfeeding cessation.]

Chart 1. Age of Infant at Breastfeeding Cessation
14. At what age did you first feed your infant formula?

Chart 2. Age of Infant at First Formula Feeding

20. How often does your infant drink 100% juice such as apple, orange, or tomato juice?

Chart 4. Frequency of Infant Consuming 100% Juice and Other Drinks
21. How often does your infant drink other drinks such as Kool-Aid, sugar water, soda, cola, sports drinks, or sweet tea?

Chart 4. Frequency of Infant Consuming Other Drinks

24. At what age did you first feed your infant meats?
25. At what age did you first feed your infant cereal?

Chart 6. Age of Infant at Introduction to Cereals

26. At what age did you first feed your infant desserts?

Chart 6. Age of Infant at Introduction to Desserts
27. At what age did you first feed your infant fruit?

Chart 7. Age of Infant at Introduction to Fruits

28. At what age did you first feed your infant vegetables?

Chart 7. Age of Infant at Introduction to Vegetables
NATFAN: Children
State Agency Report
Pre–Food Package Rollout Questionnaire
Fall 2009

State: West Virginia

• Total number of participants who completed the questionnaire: 798
• Number of participants who completed the English version: 792
• Number of participants who completed the Spanish version: 6

NATFAN: Children
State Agency Report
Post–Food Package Rollout Questionnaire
Spring 2010

State: West Virginia

• Total number of participants who completed the questionnaire: 786
• Number of participants who completed the English version: 779
• Number of participants who completed the Spanish version: 7
11. I am willing to give my child who is two years old or older 2% milk.

Chart 1. Willingness to Give Child 2% Milk

- Disagree: 12.8%  
- Neutral: 11.3%  
- Agree: 78.8%
12. I am willing to give my child who is two years old or older 1% milk.

Chart 1. Willingness to Give Child 1% Milk

12. I am willing to give my child who is two years old or older skim milk.

Chart 1. Willingness to Give Child Skim Milk
### Pre-Rollout

#### Beverages

<table>
<thead>
<tr>
<th>17. How often does your child do the following?</th>
<th>Never or less than once per week</th>
<th>1 to 3 times per week</th>
<th>4 to 6 times per week</th>
<th>1 time per day</th>
<th>2 times per day</th>
<th>3 times per day</th>
<th>4 or more times per day</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drink 100% juice such as orange, apple, or tomato. n=782</td>
<td>25 (3.2%)</td>
<td>121 (15.5%)</td>
<td>97 (12.4%)</td>
<td>130 (16.6%)</td>
<td>239 (30.6%)</td>
<td>120 (15.3%)</td>
<td>50 (6.4%)</td>
<td></td>
</tr>
<tr>
<td>Drink artificially sweetened drinks such as diet cola, diet soda, or Crystal Light. n=785</td>
<td>566 (72.1%)</td>
<td>158 (20.1%)</td>
<td>18 (2.3%)</td>
<td>27 (3.4%)</td>
<td>11 (1.4%)</td>
<td>2 (0.3%)</td>
<td>3 (0.4%)</td>
<td></td>
</tr>
<tr>
<td>Drink sugar sweetened drinks such as Kool-Aid, soda, cola, sport drinks, or sugar sweetened tea. n=783</td>
<td>266 (34.0%)</td>
<td>326 (41.6%)</td>
<td>65 (8.3%)</td>
<td>51 (6.5%)</td>
<td>53 (6.8%)</td>
<td>13 (1.7%)</td>
<td>9 (1.1%)</td>
<td></td>
</tr>
</tbody>
</table>

### Post-Rollout

#### Beverages

<table>
<thead>
<tr>
<th>15. How often does your child do the following?</th>
<th>Never or less than once per week</th>
<th>1 to 3 times per week</th>
<th>4 to 6 times per week</th>
<th>1 time per day</th>
<th>2 times per day</th>
<th>3 times per day</th>
<th>4 or more times per day</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drink 100% juice such as orange, apple, or tomato. n=762</td>
<td>37 (5%)</td>
<td>145 (19%)</td>
<td>80 (10%)</td>
<td>130 (17%)</td>
<td>196 (26%)</td>
<td>111 (15%)</td>
<td>63 (8%)</td>
<td></td>
</tr>
<tr>
<td>Drink artificially sweetened drinks such as diet cola, diet soda, or Crystal Light. n=761</td>
<td>500 (66%)</td>
<td>185 (24%)</td>
<td>28 (4%)</td>
<td>31 (4%)</td>
<td>7 (1%)</td>
<td>6 (1%)</td>
<td>4 (1%)</td>
<td></td>
</tr>
<tr>
<td>Drink sugar sweetened drinks such as Kool-Aid, soda, cola, sport drinks, or sugar sweetened tea. n=756</td>
<td>248 (33%)</td>
<td>290 (38%)</td>
<td>83 (11%)</td>
<td>56 (7%)</td>
<td>41 (5%)</td>
<td>20 (3%)</td>
<td>18 (2%)</td>
<td></td>
</tr>
</tbody>
</table>
18. **How often does your child eat fruit? This does NOT include juice.**

![Chart 2. Frequency of Child's Fruit Consumption](image)

19. **How often does your child eat vegetables such as salad, carrots, or sweet potatoes? This does not include potatoes, French fries, or potato chips.**

![Chart 2. Frequency of Child's Vegetable Consumption](image)
20. During the past year, which fruits did your child usually eat?

![Chart 4. Variety of Fruit and Vegetable Consumption](chart)

26. How many times does your child eat white bread?

![Chart 6. Frequency of White Bread Consumption](chart)
The NATFAN project was an exciting opportunity to examine WIC participants’ food and beverage choices and has significant implications for national and state WIC program policies and nutrition education practices.

NATFAN was among the first national-level reviews of WIC participants’ food choices and attitudes about whole grain foods, milk and formula products, and a variety of fruits and vegetables.
Observations

• WV not much different than National results
• Increase in lower fat milk consumption reported post-rollout
• Increase in willingness to drink lower fat milk
• Increase in whole grain/wheat bread
• We see the effects of limiting formula to breastfed infants, and eliminating juice in all infants in the new WIC food package

Action Steps

• Decrease sugared beverages and juice more than once a day
• Increase fruit and vegetable consumption, and whole grains
• Adding brown rice, tortillas in future
• Expand types of fruits and vegetables in future (frozen)

Questions?