FARM TO FAMILY:
PROGRAM DEVELOPMENT AND IMPACT ON
CHILDREN’S FRUIT AND VEGETABLE CONSUMPTION

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Farm to Early Care and Education

Farm to ECE activities connect child care settings to local food and/or food producers with the objectives of serving locally-grown, healthy foods to young children, improving child nutrition, and providing related educational opportunities.

- Educational activities focused on local food
- Purchasing/serving local food in meals at school
- School gardening
- *Increasing families’ access to local foods*

(Hoffman, Schmidt, Wirth, Johnson, Sobell, Pellissier, & Harris, 2016)
Farm to Family: Connecting food, preschool and family systems to make high quality vegetables accessible and affordable
Development of the F2F Model

• Built in collaboration with families, Head Start programs, local farmers and academic partners
• Fall 2010, Head Start parents (N = 119; 34% participation rate) and staff (N = 20) surveyed in English and Spanish
  • 93% interested in receiving vegetables through Head Start
  • 67% interested if vegetables were offered at a reduced price
  • 59% interested if they could use SNAP
F2F Model Basics

• Subsidized Community Supported Agriculture (CSA) model
• Goal: increase access to fresh, affordable vegetables in households with young children
• Locally grown produce delivered weekly to community sites
F2F Model Basics

• Implemented 2011-2016
• 16 week program (July-October)
• F2F participants pay $7.50/week for $22.50/week of produce
  • Can pay with SNAP or cash
  • Subsidized portion comes from sister shares, sponsorship funds raised by program manager (suggested $80; tax exempt)
F2F Model Basics: Site Coordinators

• 1-2 staff members/site who champion the program
• Selected by the program director
• Roles include:
  • Recruiting participants
  • Receiving and distributing weekly shares
  • Making reminder and pick up phone calls
  • Handling payments
• Part of work duties
Families’ Motivation to Participate

Primary reason for participating in F2F:
- Low price (51%)
- Desire to eat more fresh or local food (37%)
- Have more F&V for their family (30%)
- Convenience of program (15%)

Source: 2012 F2F Year End Survey
N=86; some respondents selected multiple motivations.
Families’ Assessment of Produce

Amount
- Just right = 74%
- Not enough = 21%
- Too much = 5%

Selection
- Very happy = 46%
- Somewhat happy = 32%
- Neutral = 16%
- Somewhat unhappy = 6%
- Very unhappy = 0%

Quality
- Very happy = 54%
- Somewhat happy = 29%
- Neutral = 14%
- Somewhat unhappy = 4%
- Very unhappy = 0%

Source: 2012 F2F Year End Survey; N=86
Program Challenges & Solutions

- Not all families can pick up at the same time of day
  - Identify area in the building (ideally the kitchen) where boxes can be stored until families arrive

- Families forgetting to pick up
  - Send text message reminders regarding pick up

- Families preferring not to participate for the whole growing season
  - Keep a wait list and contact families as soon as a spot opens

- Unfamiliar produce in the boxes
  - Provide simple recipes to give families ideas of how to cook unfamiliar produce

- Funding for subsidized shares
  - Ensuring that advertisement of the CSA shares includes information about making donations to support shares for low income families
F2F Theory of Change

- Increased availability of high quality F&V
- Increased exposure & opportunities to taste F&V
- Increased F&V liking
- Increased F&V consumption

(Birch & Marlin, 1982; Birch, McPhee, Shoba, Pirok, & Steinberg, 1987; Rasmussen et al., 2006; Wardle et al., 2003)
Consumption of a New Fruit/Vegetable

Adults
- Yes: 67%
- No: 33%

Children
- Yes: 57%
- No: 26%
- N/A: 17%

Source: 2012 F2F Year End Survey
Notes: N=86; new foods included eggplant, squash, yellow watermelon.
Changes in Vegetable Consumption

- MANY MORE Vegetables: 56.6%
- FEW MORE Vegetables: 20.5%
- SAME AMOUNT of Vegetables: 21.7%
- FEWER Vegetables: 1.2%

Source: 2012 F2F Year End Survey (N=86)
2015 Pilot Study

Does F&V consumption among children and their caregivers increase as a result of participating in F2F?

(Schmidt, Hoffman & Shiyko, under review)
Study Participants & Study Design

- Pre-/post-test design with two groups, no random assignment
- Data collected from F2F participants (parents with a child enrolled in programming) and non-F2F participants from 2 sites in Boston, MA
- Data collected before and during F2F
- Participants compensated $15 @ each time point.
- Participants who provided complete data:
  - F2F $N = 10$
  - Comparison Group $N = 19$
Measures

• Demographic information

• Parent self-confidence about healthy eating and cooking with vegetables ($\alpha = .76$)
  • 7 items; “How confident are you that you could...eat healthy foods, like fruits or vegetables, when you are tired?
    (1 = not confident at all; 5 = very confident)
  • 3 items: “I feel confident about cooking vegetables; I like trying new ways of cooking vegetables; I like to cook”
    (1 = strongly disagree; 5 = strongly agree)

• Parent perception of adequate F&V consumption
  • e.g., Does your child eat as many fruits as you think s/he should?

(Schmidt, Hoffman & Shiyko, under review)
Measures

- Children’s Dietary Questionnaire F&V subscale modified (CDQ; Magarey et al., 2009)
  - Internal consistency ($\alpha = .76$)
  - Test-retest reliability (ICC = .75)
- Frequency & variety of F&V in past week & past 24 hours
- Parent self-report & parent report of child consumption

(Schmidt, Hoffman & Shiyko, under review)
Children’s Dietary Questionnaire

Participant ID: ___

Children’s Dietary Questionnaire
Fruit and Vegetable Sub-Scale
Child Version

Please check all of the listed foods YOUR CHILD has eaten over the past 7 days (Today is ________). Please check all foods your child has eaten between last _______ and today.

1. Fruit (fresh, canned, or stewed):

- Fruit Salad
- Peach
- Banana
- Apricot
- Pear
- Nectarine/
- Grapes
- Mandarin/Clementines
- Plum

- Berries
- Strawberries
- Blueberries
- Raspberries
- Blackberries
- Other

- Mango
- Melon
- Watermelon
- Cantaloupe
- Honeydew

- Orange
- Dried Fruit
- Apple
- Pineapple
- Guava
- Kiwi
- Grapefruit
- Papaya
- Other: ____________

2. Vegetables (cooked or raw)

- Pumpkin
- Cauliflower
- Potato (not French fries)
- Peas
- Beans
- Celery
- Bell pepper
- Eggplant
- Vegetables in mixed dishes (soups & stews)
- Tomato
- Zucchini
- Mixed frozen vegetables
- Corn

- Greens
- Lettuce
- Chard
- Collard greens
- Kale
- Spinach
- Other

- Peppers
- Broccoli
- Legumes
- Chickpeas
- Lentils
- Kidney beans
- Beans
- Asparagus
- Olives

- Cabbage
- Brussels Sprouts
- Sweet Potato
- Cucumber
- Mushroom
- Squash
- Onions
- Onion
- Leek
- Scallion
- Other

- Peppers
- Okra
- Turnips
- Other: ____________

Please circle how often YOUR CHILD has had each of the following in the past 24 hours.

3. Vegetables (raw or cooked) (salad in sandwich and vegetables at dinner = twice)

- Never
- Once
- Twice
- 3 times
- 4 times
- 5+ Times

4. Fruit (fresh, canned, stewed or dried) (banana at breakfast and apple at lunch = 2 times)

- Never
- Once
- Twice
- 3 times
- 4 times
- 5+ Times

5. How many different vegetables (raw or cooked)?

- None
- One
- Two
- Three
- Four
- Five+

6. How many different fruits (fresh, canned, stewed or dried)?

- None
- One
- Two
- Three
- Four
- Five+

Please circle the number of times YOUR CHILD had the following items in the past 7 days.

7. How many days in the last week did YOUR CHILD have some vegetables (raw or cooked)?

- None
- 1
- 2
- 3
- 4
- 5
- 6
- Every day

8. How many days in the last week did YOUR CHILD have some fruit (fresh, canned, stewed, or dried, excluding juice)?

- None
- 1
- 2
- 3
- 4
- 5
- 6
- Every day

Composite score: (Fruit variety 7 days/7) + (Veg variety 7 days/7) + Veg freq + Fruit freq+ Veg variety + Fruit variety + (7 days veg/7) + (7 day fruit/7)

Possible range: 0 – 31.56
## Participants

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Farm to Family (N = 10)</th>
<th>Control (N = 19)</th>
<th>p value*</th>
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<tbody>
<tr>
<td><strong>Child gender</strong></td>
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<tr>
<td>Male</td>
<td>6(60)</td>
<td>8(42)</td>
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<tr>
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<tr>
<td><strong>Child ethnicity</strong></td>
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<tr>
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<td>Ethnicity not reported</td>
<td>2(20)</td>
<td>3(16)</td>
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<tr>
<td><strong>Caregiver relation to child</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>8(80)</td>
<td>18(95)</td>
<td>.53</td>
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<tr>
<td>Father</td>
<td>2(20)</td>
<td>1(5)</td>
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<tr>
<td><strong>Caregiver highest education</strong></td>
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<tr>
<td>High school or less</td>
<td>9(47)</td>
<td>2(20)</td>
<td>.23</td>
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<tr>
<td>Greater than high school</td>
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<td>8(80)</td>
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<td><strong>Language spoken most at home</strong></td>
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<td>Other</td>
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<td>4(21)</td>
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Note: p<0.05 (Schmidt, Hoffman & Shiyko, under review)
Adult F&V Consumption

ANOVA: main effect of time ($F(1, 25) = 4.83$, $p = .04$, $\eta_p^2 = .15$)

(Schmidt, Hoffman & Shiyko, under review)
Child F&V Consumption

ANCOVA: interaction $F(1, 26) = .27, p = .27, \eta_p^2 = .05$) small effect size, low power (.22) (Schmidt, Hoffman & Shiyko under review)
Parent Perception of Adequate F&V Consumption

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<tr>
<th></th>
<th>Control</th>
<th>Farm to Family</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(N = 19)</td>
<td>(N = 10)</td>
</tr>
<tr>
<td>Parent vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1, n(%)</td>
<td>8(47%)</td>
<td>7(70%)</td>
</tr>
<tr>
<td>Time 2, n(%)</td>
<td>8(47%)</td>
<td>4(40%)</td>
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<td>p value*</td>
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<tr>
<td>Parent fruit</td>
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<tr>
<td>Time 1, n(%)</td>
<td>13(72%)</td>
<td>7(70%)</td>
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<tr>
<td>Time 2, n(%)</td>
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<td>p value*</td>
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</tr>
<tr>
<td>Child vegetables</td>
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</tr>
<tr>
<td>Time 1, n(%)</td>
<td>13(68%)</td>
<td>5(50%)</td>
</tr>
<tr>
<td>Time 2, n(%)</td>
<td>12(63%)</td>
<td>2(20%)</td>
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<tr>
<td>p value*</td>
<td>1.0</td>
<td>.250</td>
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<tr>
<td>Child fruit</td>
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<td></td>
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<tr>
<td>Time 1, n(%)</td>
<td>15(83%)</td>
<td>7(70%)</td>
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<tr>
<td>Time 2, n(%)</td>
<td>14(78%)</td>
<td>6(60%)</td>
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<tr>
<td>p value*</td>
<td>1.0</td>
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</tbody>
</table>

(Schmidt, Hoffman & Shikyo, under review)
Feedback From F2F Participants

• 9 of 10 F2F parents indicated F2F shares increased the amount of F&V in their home while one family indicated that it decreased the amount

• 8 of 10 F2F parents reported that at least one of the F&V in the share was previously unknown to a member of the family

• F2F expanded children’s exposure to produce
  • Exposing children to F&V in early childhood is important because exposure is linked to preferences for foods (Birch & Marlin, 1982; Wardle et al., 2003), which is in turn linked to consumption (Rasmussen et al., 2006).
Limitations

- Use of parent-report of child consumption
  - Alternative of direct measurement (e.g., plate waste) would not have been feasible
  - There is evidence for reliability and validity of CDQ
- Small sample size
- No random assignment
- Only two time points of data on consumption
Summary

• F2F has been implemented for 6 years
  • Model is feasible within early childhood education settings
  • Model is acceptable to families

• Strengths
  • Low income families able to access fresh vegetables easily and affordably
  • Opportunities to link home and school food environments

• Challenges
  • Funding
  • Supporting site coordinators with their duties
Potential Future Directions

• Conducting a larger study
• Enhancing F2F to provide parents with strategies (preparing foods, encouraging child consumption)
• Pairing F2F w/ classroom curriculum (e.g., http://www.harvestforhealthykids.org/)
For more information:

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References


References
