B’More Healthy Communities for Kids, a multilevel obesity prevention program for African American children: Wave 1 process and impact results

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Baltimore City Food Environment

Previous studies, 2004-2012

15 corner stores
- Increase stocking of healthier foods
- Point of purchase promotions
- Store owner training
- Interactive sessions
- Increased stocking and sales of promoted healthier foods
- Increased consumer purchase of healthier foods and healthier food preparation methods

8 carryouts
- Redid menus; increased/promoted healthier sides and beverages
- Lower cost combo meals
- Increased sales of healthier promoted items
- Increased total revenues
- Increased consumer purchase of healthier foods

16 recreation centers and their neighborhoods
- Changing the food environment in neighborhoods (corner stores, carryouts, rec centers)
- Youth peer educators, Rec center staff training
- Decreased BMI in children overweight or obese at baseline

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Questions emerging from previous studies

- What is the best combination of interventions to improve the food environment and impact childhood obesity in Baltimore?
- How to engage parents?
- How to engage community in a MLMC intervention?
- How to assess implementation and impact?
- How to sustain complex MLMC interventions?

BHCK Aims

1. To implement a MLMC community-based obesity prevention program, operating at multiple levels of the Baltimore City food system
2. To increase affordability, availability, purchase, and consumption of healthy foods in 14 low-income minority neighborhoods (with 14 comparison)
3. To examine implementation at each level through a detailed process evaluation
4. To evaluate impact on multiple levels: healthy food pricing and availability; adult food purchasing, preparation and obesity; and child obesity, diet and psychosocial factors

Study Design

- 28 Recreation Center Zones
- Wave 1: 14 Recreation Center Zones (Randomization)
  - 7 Intervention (child-adult dyads)
  - 7 Comparison (delayed) (child-adult dyads)
- Wave 2: 14 Recreation Center Zones (Randomization)
  - 7 Intervention (child-adult dyads)
  - 7 Comparison (delayed) (child-adult dyads)
Community Engagement

- Selection: low-income 28 food desert areas of Baltimore City
- Community engagement: Essential element of MLMC interventions
- Formative research
- Part of each level of the BHCK MLMC program
- Intended to enhance sustainability

Formative Research for BHCK

- **Adult In-Depth Interviews**
  - Focus: foods consumed, food behaviors, intervention development purposes
  - # completed: 12+
- **Child In-Depth Interviews**
  - Focus: foods consumed, food behaviors, intervention development purposes
  - # completed: 20+
- **PhotoVoice**
  - Focus: 'my food environment'
  - # total participants: 18
- **Adult Focus Groups**
  - Focus: interest in social media components, cooking classes; messaging
  - # completed: 3
  - # total participants: 18
- **Child Focus Groups**
  - Focus: promoted foods, messaging, BHCK icon
  - # completed: 4
  - # total participants: 43
- **Policymaker In-Depth Interviews**
  - Focus: experience of working with ABM, ways to expand/enhance ABM
  - # completed: 13
**Process evaluation measures**

<table>
<thead>
<tr>
<th>Process evaluation construct</th>
<th>How defined in BHCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach</td>
<td>% of target population to receive any amount of a specific intervention component (level)</td>
</tr>
<tr>
<td>Dose delivered</td>
<td>% of each intervention component provided to target population</td>
</tr>
<tr>
<td>Fidelity</td>
<td>How well intervention implemented at each level, as a reflection of participant engagement (e.g., by storeowners)</td>
</tr>
<tr>
<td>Dose received (exposure)</td>
<td>Amount of each intervention seen/heard/participated in by children and adult caregivers, via self-report</td>
</tr>
</tbody>
</table>

* Steckler and Linnan

**Process evaluation standards**

- 2-6 measures each for reach, dose delivered and fidelity for each intervention level
- High: >50% of high standard
- Medium: 50-90% of high standard
- Low: <50% of high standard

<table>
<thead>
<tr>
<th>Process Evaluation standards for corner store level</th>
<th>High</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td># of stores participating in BHCK program throughout intervention</td>
<td>&gt;14</td>
<td>≥14</td>
</tr>
<tr>
<td># of child (ages 10-14) interactions during interactive sessions</td>
<td>≥10</td>
<td>≥10</td>
</tr>
<tr>
<td># of adult (ages &gt;18) interactions during interactive sessions</td>
<td>≥20</td>
<td>≥20</td>
</tr>
<tr>
<td># of times BHCK team meets with a store owner per phase</td>
<td>&gt;2</td>
<td>&gt;2</td>
</tr>
<tr>
<td>Length of interactive session</td>
<td>≥75 min</td>
<td>≥75 min</td>
</tr>
<tr>
<td>Average length of time spent with store owner per meeting</td>
<td>&gt;30 min</td>
<td>&gt;30 min</td>
</tr>
<tr>
<td># of times educational display boards are used in interactive session per phase</td>
<td>≥2</td>
<td>≥2</td>
</tr>
<tr>
<td>Total # of promoted food posters positioned by BHCK team per phase</td>
<td>≥3</td>
<td>≥3</td>
</tr>
<tr>
<td># of shelf labels on promoted foods positioned by BHCK team at the beginning of each phase</td>
<td>≥8</td>
<td>≥8</td>
</tr>
<tr>
<td># of correctly positioned shelf labels by the end of each phase</td>
<td>≥75%</td>
<td>≥75%</td>
</tr>
<tr>
<td># of new promoted foods introduced per phase</td>
<td>≥3</td>
<td>≥3</td>
</tr>
<tr>
<td># of training videos watched by the end of the intervention</td>
<td>≥5</td>
<td>≥5</td>
</tr>
<tr>
<td># of structural incentives earned per store by the end of the intervention</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td># of promoted foods stocked in BHCK refrigerator (if applicable)</td>
<td>≥4</td>
<td>≥4</td>
</tr>
</tbody>
</table>

**BHCK Youth-Leader Program**

- 45-60 minute sessions with the youth (ages 10 and up) conducted by youth-leaders
- Nutrition sessions focus on 4 topics:
  1. Healthy drinks
  2. Smart snacks
  3. Breakfasts
  4. Healthy cooking
- Sessions occur every other week for 6 months
Example Standards for Dose Delivered, wave 2 phase 3

<table>
<thead>
<tr>
<th>Standard</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td># handouts distributed/session</td>
<td>&lt;7</td>
<td>7-11</td>
<td>12+</td>
<td>12.1</td>
</tr>
<tr>
<td># giveaways distributed/session</td>
<td>&lt;7</td>
<td>7-11</td>
<td>12+</td>
<td>12.7</td>
</tr>
<tr>
<td># food sampled per session</td>
<td>&lt;7</td>
<td>7-11</td>
<td>12+</td>
<td>12</td>
</tr>
<tr>
<td># types of recipes distributed (phase 2)</td>
<td>1</td>
<td>2</td>
<td>3+</td>
<td>4</td>
</tr>
</tbody>
</table>

Process Evaluation: Youth Leaders

[Graph showing reach, process, fidelity over phases 1, 2, and 3 with percentages and standard met metrics]

Corner Stores
Features

- Increased stocks of healthy foods
- In-store interactive sessions
- Shelf labels, posters and other visual materials
- Video trainings for store owners
- Incentives for store owners
  - Wholesaler gift cards
  - Structural incentives

Process Evaluation: Corner Stores

*6/17 standards utilized for wave 1 data and 17/17 standards used for wave 2

Carryouts

Phase 1: Menu Redesign
Phase 2: Healthy Drinks & Sides
Phase 3: Healthy Combo Meals
Process Evaluation: Carryouts

*3/18 standards utilized for wave 1 data and 18/18 standards used for wave 2

Wholesaler Intervention

- Developed stocking sheets with wholesalers’ managers
- Advertise healthy products in monthly circulars with BHCK logo and modest discounts
- Regular meetings with wholesale managers
- Regular feedback on achievements

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Wholesale Stocking Sheets

Wholesale Process Evaluation Progress

Social Media: Facebook & Instagram

Targeted community
Process Evaluation: Facebook

Process Evaluation: Twitter

Text Messaging
Targeted intervention evaluation sample
Policy Working Group Meetings

10 meetings w/ city stakeholders, since kick-off in July 2013

30+ working group members, representing various sectors:
- City Council
- City Health Department
- Baltimore City Public Schools
- Family League
- Recreation and Parks
- Wholesalers
- Academia

Policy

- Working with key stakeholders:
  - To develop and build the evidence base to support policies for a healthier food environment in Baltimore City
  - To sustain BHCK activities
  - Develop simulation models to aid stakeholder decision-making
BHCK exposure: Wave 1 summary

- Good News: Intervention group more exposed than comparison
- Bad News: Overall low exposure to the program, Comparison group also exposed

Impact analysis plan

- Examine change in intervention children/ caregivers from comparison children/ caregivers
- Difference in difference analysis
- Adjusted for age, sex, income, clustering by recreation center area
- Wave 1 and Wave 2 combined (original plan)
- Secondary: Wave 1 and 2 separately
- Analyze by exposure level
- Preliminary wave 1 impact findings will be presented

Overall Summary and Lessons Learned

- Multi-level engagement needed for MLMC interventions
  - To develop, initiate, sustain, scale up
- Ongoing process evaluation important to monitor implementation
  - Improvements from wave 1 to wave 2
- Importance of setting standards for implementation
- Achieving adequate exposure is critical in MLMC interventions, and for planning analyses
Acknowledgements

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Thank you!

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