Nashville Children Eating Well (CHEW) for Health

Principal Investigator:
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Tennessee State University

Co-Principal Investigators:
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Pamela Hull, Ph.D. (Vanderbilt University)
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This Project was supported by Agriculture and Food Initiative Grant #2011-68001-30113, from the USDA National Institute of Food and Agriculture, Integrated Research, Education, and Extension to Prevent Childhood Obesity program – USDA-NIFA-AFRI-003327
Long-term Goal

• Reduce childhood obesity among ethnically-diverse, low-income children participating in the USDA WIC (Women, Infants & Children) supplemental nutrition program

• Using science-based strategies at multiple levels
  • Individual/family (WIC families)
  • Institutional (WIC program, academic programs)
  • Environmental (WIC-authorized grocers)
  • Human capital (students and healthcare providers)
Three Components

- Research
- Extension (Outreach)
- Education
Research: Outputs

• Developed a prototype version 1.0 of the CHEW smartphone application
  • Culturally-appropriate nutrition education intervention for our target population (English & Spanish)

• Main features:
  • **WIC shopping tools**: make easier, maximize vouchers
  • **Nutrition education**: healthy snacks & beverages

• Pilot tested feasibility, usability, and effects with 80 WIC families
Usability and Perceived Benefits of WIC Shopping Tools (N=64)

<table>
<thead>
<tr>
<th>Agreement with Statement</th>
<th>Easy to Use</th>
<th>Helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Shopping Tools</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>Scanner Tool</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>FV Calculator Tools</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Yummy Snack Gallery</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Overall Shopping Tools</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
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<tr>
<td>Yummy Snack Gallery</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Healthy Snacking Tips</td>
<td>4.5</td>
<td></td>
</tr>
</tbody>
</table>
Research: Outcomes

• **Demonstrated feasibility** of using with ethnically-diverse WIC families with preschool-aged children

• **Usage:** 89% used the app features, on average 3.7 times per month, 4.8 min per session

• **Usability:** High ratings of ease and benefits related to WIC shopping and feeding practices, almost all would recommend

• **Outcomes:** Prototype demonstrated potential impacts on food environment (# fruits/veggies in home) and parental snack feeding (offering variety)

• Future plans to enhance/expand app
Extension: Grocery Store Tastings 2013-2015

• Partners stores: 19 small- to mid-sized non-chain WIC vendors

• On-site food tastings reached 3,065 customers

• 216 total number of contact hours with the stores

• 110 total number of visits to the grocery stores

• 90% of participating store owners reported that CHEW food tastings increased healthy snack purchases
Extension Output: Stores Healthy Foods Guide

Neighborhood Stores Healthy Food Guide:
1. Making Good Food Choices Related to Your Customers
2. Display of Produce
3. Value Added Product
4. Food Tastings
5. Nutrition Education

CHEW Extension Video:
1. Interviews with participating store owners
2. Interviews with community health promoters
3. Interviews with community advisory board members
4. Available at NashvilleCHEW.org
Education: Outputs

• Undergraduate curriculum modules for nutrition classes developed and available at NashvilleCHEW.org

• Medical students and residents’ nutrition curriculum developed with anticipation of continuation at Meharry Medical College

• Nutrition and Physical Activity Toolkit created and disseminated statewide through workshops and available on CHEW & ASTHO (Assoc. State & Territorial Health Officials) websites
## Education: Trainee Hours

**Objective 1:** Implement curriculum for Meharry medical students, residents and practicing physicians on childhood obesity prevention.

<table>
<thead>
<tr>
<th>Types of Trainees</th>
<th>Number of Trainees</th>
<th>Trainee Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Students (Third Years)</td>
<td>399</td>
<td>598.5</td>
</tr>
<tr>
<td>Graduate Physicians (Residents)</td>
<td>25</td>
<td>2,266.25</td>
</tr>
<tr>
<td>Practicing Physicians and Nurses</td>
<td>320</td>
<td>489.25</td>
</tr>
<tr>
<td>Total for Objective 1</td>
<td>744</td>
<td>3,354</td>
</tr>
</tbody>
</table>

**Objective 2:** Implement curriculum for TSU students and post-doctoral fellows on obesity prevention, nutrition-related chronic diseases and non-pharmacologic approaches to their prevention and management.

<table>
<thead>
<tr>
<th>Types of Trainees</th>
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<th>Trainee Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduates in Health Sciences</td>
<td>410</td>
<td>1,515</td>
</tr>
<tr>
<td>Post-Doctoral Fellows</td>
<td>2</td>
<td>1,200</td>
</tr>
<tr>
<td>Other Students</td>
<td>128</td>
<td>127.25</td>
</tr>
<tr>
<td>Total for Objective 2</td>
<td>540</td>
<td>2,842.25</td>
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</tbody>
</table>

**Grand Total**

|                               | 1,284 Trainees | 6,196.25 Trainee-Hours |
Education: Highlights of Outcomes

• Third year medical students showed significant pre-post training increases in the following areas:
  
  • Knowledge of when to suggest lifestyle modifications for patients \((P<.05)\)
  
  • Knowledge of dietary recommendations needed for appropriate weight maintenance \((P<.0001)\)
  
  • Comfort level discussing and providing advice on nutrition topics \((P<.0001)\)
Scientific Dissemination


- **2015** Emerson, Janice S; Townes, Darnell; Jones, Jessica L.; Cain, Van A.; Hull, Pamela C. “Racial/ethnic and weight status differences in food preparation among WIC participants.” *Journal of Healthcare for Poor and Underserved*, 26(2).


- Three manuscripts in process of completion and submission before December 2016.
CHEW Team Members

Tennessee State University:
- Baqar Husaini, PhD (PI)
- Janice Emerson, PhD (Co-PI)
- Chiquita Briley, PhD (Extension Lead)
- Barbara Canada, PhD (Extension)
- Van Cain, MA (IT Manager)
- Jessica Jones, MS (Research Assoc.)
- Corrine Vaughn, MBA (Fiscal Analyst)
- Meghann Quirk, PhD (Post-Doc)
- Jacquelyn Favours, MPH
- Calvin Harris, BS
- Princess Gordon-Patton, M.Ed.
- Graduate Students: 50+ trained in Research Methods including data collection & analysis

Community Partner:
- Juan Canedo (Progreso Community Ctr.)

Meharry Medical College:
- Courtney Kihlberg, MD (Co-PI)
- Robert Levine, MD
- Mukhtar Aliyu, MD, MPH, DrPH
- Preventive and Occupational Medicine Resident Physicians

Vanderbilt University:
- Pamela Hull, PhD (Co-PI)
- Students: Violetta Vylegzhanina & Pankaj Chand
- Doug Schmidt, PhD, & Shelagh Mulvaney, PhD, Collaborators

Consultants:
- David Schlundt, PhD, Vanderbilt
- Bettina Beech, PhD, University of Mississippi