It Takes a Community to Eliminate Obesity and Diabetes Disparities:
The PILI 'Ohana Project

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Obesity and Diabetes: “Diseases of Westernization”

- Natives of the U.S. and Pacific most affected
  - 3x more likely to have diabetes
- The Pacific Region as an example
  - Changing lifestyle patterns
  - Loss of cultural and economic autonomy
  - Change in social status
- The Social Production of Diabetes (Liburd & Vinicor, 2003)
  - Community and economic redevelopment
  - Cultural revitalization
The Burden of Obesity and Diabetes in Hawai‘i

*Data from the Native Hawaiian Health Project funded by the National Center for Research Resources, National Institutes of Health (RR 03061)

WHO criteria for Asians = recommended cut-offs for overweight is BMI > 23 and for obesity is BMI > 25

The PILI ‘Ohana Project

- A community-based participatory research (CBPR) project aimed at eliminating obesity disparities in Hawai‘i
  - NCMHD funded (R24 MD001660)

- Community-academic partnership
  - Hawai‘i Maoli – Association of Hawaiian Civic Clubs (PIs: Henry Gomes, Charlie Rose)
  - Kalihi-Palama Health Center (PI: Anne Leake)
  - Ke Ola Mamo, Native Hawaiian Health Care System (PI: Donna Palakiko)
  - Kokua Kalihi Valley Comprehensive Family Services (PI: Sheryl Yoshimura)
  - Kula O Nā Po‘e Hawai‘i (PI: Puni Kekauoha)
  - Department of Native Hawaiian Health (PI: K. Kaholokula, M. Mau)
Conceptual Model of Weight Loss Maintenance for Pacific Peoples

Social/Community Influences
- Healthy food and physical activity options/resources
- Cultural eating/weight expectations
- Cost of healthy food options
- Availability of cultural activities
- Community leaders/advocates

Family Influences
- Family dynamics/stress
- Family eating habits
- Availability of certain foods in home
- Family activities
- Household income
- Childcare

Individual Influences
- Self-efficacy/locus of control
- Past weight management attempts
- Weight loss expectations
- Assertiveness
- Stress/time management

Data from 333 NHs and PPs
- 112 focus group participants
- 15 community informants
- 206 survey respondents.
- “Windshield tours”

"Obesogenic" Environments in Hawai‘i

Table 1.— Description of Communities by Sites, O‘ahu, Hawai‘i (2005-2006)

<table>
<thead>
<tr>
<th>Community Sites</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native Hawaiian Population (%)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>55.7</td>
<td>21.0</td>
<td>13.2</td>
</tr>
<tr>
<td>Estimates of Total Population per Site&lt;sup&gt;a&lt;/sup&gt;</td>
<td>23,824</td>
<td>5,845</td>
<td>11,576</td>
</tr>
<tr>
<td>Obesity Prevalence (%)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>39.4</td>
<td>21.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Below Poverty Level (%)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>21.7</td>
<td>5.0</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>Environmental resources&lt;sup&gt;d&lt;/sup&gt;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Fast Food Outlets</td>
<td>29</td>
<td>31</td>
<td>19</td>
</tr>
<tr>
<td>Number of Supermarkets</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Number of Other Food Resources&lt;sup&gt;d&lt;/sup&gt;</td>
<td>18</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Number of Exercise Resources</td>
<td>20</td>
<td>14</td>
<td>32</td>
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</table>

<sup>a</sup>Estimate based on Census 2000 adjusted to 1-mile radius using census tracts and/or GIS software.
<sup>b</sup>Estimate of obesity was based on Behavioral Risk Factor Surveillance System data for 2006 and was defined as body mass index > 30 kg/m².
<sup>c</sup>Ascertainment within defined 1-mile radius.
<sup>d</sup>Other Food Resources defined as all non-Fast Food Resources (including supermarkets).

PILI ‘Ohana Lifestyle Intervention

- Pilot intervention study
- 2-Arm randomized controlled trial (RCT)

468 Respondents screened
372 Eligible to participate
277 Consented and underwent baseline assessment
197 Received 3-month weight loss intervention
144 Completed 3-month follow-up and underwent randomization
72 Assigned to family/community-focused weight loss maintenance intervention group
72 Assigned to standard phone call follow-up group
49 Completed 9-month follow-up
51 Completed 9-month follow-up
The PILI `Ohana Lifestyle Intervention: Results

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>3-month</th>
<th>9-month</th>
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</thead>
<tbody>
<tr>
<td>Weight in kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family plus community weight loss maintenance program (n= 49)</td>
<td>110.1</td>
<td>108.3*</td>
<td>107.6*</td>
</tr>
<tr>
<td>Standard phone call follow-ups (n = 51)</td>
<td>102.1</td>
<td>101.6</td>
<td>107.6</td>
</tr>
</tbody>
</table>

* Indicates statistical significance ($p \leq .05$) compared to baseline

Change in weight (kg)

Distance (ft) Walked in 6 Minutes

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>3-month</th>
<th>9-month</th>
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<tbody>
<tr>
<td>Family plus community weight loss maintenance program (n= 49)</td>
<td>500</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td>Standard phone call follow-ups (n = 51)</td>
<td>545.6</td>
<td>577.8</td>
<td>659.2</td>
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Change in physical functioning

INTEGRATING SCIENCE, PRACTICE, AND POLICY
The PILI ‘Ohana Lifestyle Intervention: Results (con’t)

<table>
<thead>
<tr>
<th>Characteristic and Interval</th>
<th>Combined Total (N = 100)</th>
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<tr>
<td></td>
<td>Family plus Community Focused Intervention (n = 49)</td>
</tr>
<tr>
<td>% Weight loss at 3-month f/up</td>
<td></td>
</tr>
<tr>
<td>≥ 3% weight loss</td>
<td>30.6% (15)</td>
</tr>
<tr>
<td>&lt; 3% weight loss</td>
<td>69.4% (34)</td>
</tr>
<tr>
<td>% Weight loss maintenance at 9-month f/up</td>
<td></td>
</tr>
<tr>
<td>≥ 3% weight loss</td>
<td>51.0% (25)</td>
</tr>
<tr>
<td>&lt; 3% weight loss</td>
<td>49.0% (24)</td>
</tr>
</tbody>
</table>

Data shown as % (n). Analysis based on Likelihood Ratio Chi-Square.

*p < .05, **p < .01
The PILI ‘Ohana Lifestyle Intervention: Results (con’t)

Change in systolic blood pressure

Change in diastolic blood pressure

* Indicates statistical significance ($p \leq .05$) compared to baseline
Lessons from the PILI ʻOhana Project

- Native Hawaiians and other Pacific Peoples live in obesogenic environments
  - Linked to socio-economic disparities
- Family and community strategies can help to improve weight loss maintenance
- Communities can deliver an effective obesity intervention that is not only community-based but community-led
- CBPR can bridge science and practice
Questions posed by Liburd & Vinicor (2003)*

- “In what instances are cultural, socioeconomic, and political forces more powerful and predictive of health behaviors than individual choice?”

- “What are feasible public health interventions and policies in light of the location of – and inherently political nature of – public health?”

- “How can public health professionals actively engage interdisciplinary social science perspectives in contextualizing the gender, class, and racial distribution of diabetes?”

- “How well have our community-based public health strategies kept pace with the changing demographics and destabilization of many urban communities?”

How do we bridge science, practice, and policy to eliminate obesity and diabetes disparities?

Thoughts:

• Bridging still needs to happen within the scientific community
  • Interdisciplinary research: Biomedical, behavioral, and social sciences
  • Examine contextual, socio-cultural, and acculturation factors that affect individual and personal choice

• CBPR can help to bridge science and practice
  • Efficacy vs. effectiveness of interventions
  • Community involvement makes research more relevant and applicable to the real-world

• Communities can serve as strong advocates for policy
  • Community as the voice for science
What kinds of obesity and diabetes disparities research are needed?

Breaking the chain of disparities:

Social disparities → Obesity disparities → Diabetes disparities

Eliminating Obesity
- “Obesogenic” environments
- Social status/discrimination
  - Socio-cultural factors
  - Community & economic redevelopment
  - Effective policies to promote health

Preventing Diabetes
- CBPR/Translational research
- Community-based diabetes prevention
  - Family, school, work, and church-based
  - Socioeconomic/stress burden
  - Psychological distress
Mahalo nui (Thank you)

• National Center on Minority Health and Health Disparities
• Community partners
  • Hawai‘i Maoli – Association of Hawaiian Civic Clubs (PIs: Henry Gomes, Charlie Rose)
  • Kalihi-Palama Health Center (PI: Anne Leake)
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