From CBPR to RCT: Lessons Learned
10+ Years with Interventions in Public Housing

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• **Advisory Groups**
  - Sister to Sister Advisory Board
  - MUSC CCHP CAB
  - MCG Health Disparities CAB
Purpose

• Describe lessons learned after 10+ years of community engaged tobacco cessation interventions in a Southeastern US metropolitan region
Background

- Partnership Formation
- 2001
- Phone call from inner city school counselor
- Mutual interest
- Need for CBPR
- 5 member Steering Committee formed
CBPR Framework to Inform RCT

Problem Identification and Assessment
- Community: Definitions, priorities, contexts, local needs, & scope of problem
- Academic: Literature reviews, databases to identify prevalence, health effects, & significance

Planning and Feasibility/ Pilot Testing
- Community: Local preferences, social contexts, feasibility, cultural competence
- Academic: Evidence-based interventions, scientific rigor, design & methods

Implementation (RCT)
- Community: Intervention delivery
- Academic: Intervention delivery

Evaluation
- Formative: Surveys, key informant interviews, focus groups, community asset mapping
- Process: CBPR partnership
- Outcome: CBPR partnership

Evaluation
- Formative: surveys, key informant interviews, focus groups
- Process: reach, recruitment, fidelity, satisfaction, instrumentation, use of materials, partnership
- Outcome: Short term behavior change (i.e., smoking), CBPR partnership

Evaluation
- Formative: surveys, key informant interviews, focus groups
- Process: reach, recruitment, fidelity, satisfaction, instrumentation, use of materials, partnership
- Outcome: Long term behavior change (i.e., smoking), CBPR partnership, policy, social change

Dissemination:
- Local Community: town hall meetings, newsletters, local media
- National: scientific journals, conferences
# Problem Identification

<table>
<thead>
<tr>
<th>Methods</th>
<th>Community</th>
<th>Academic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windshield Tour Asset Mapping</td>
<td>- Physical Infrastructure</td>
<td>- Recognize and begin with community strengths and assets</td>
</tr>
<tr>
<td></td>
<td>- Social Infrastructure</td>
<td></td>
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<tr>
<td></td>
<td>- Women Leaders</td>
<td></td>
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<tr>
<td>Neighborhood Survey (20% female head of households; n=220)</td>
<td>- 40% women current smokers</td>
<td>- 40-60% public housing residents smoke</td>
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<tr>
<td></td>
<td>- 48% households had at least 1 smoker in residence</td>
<td>- Associated health disparities</td>
</tr>
<tr>
<td></td>
<td>- 62% who smoked interested in quitting</td>
<td>- 60-70% smokers want to quit</td>
</tr>
<tr>
<td>Grounded Theory (n=25 AA female former smokers)</td>
<td>- Transition to cessation is empowerment process</td>
<td>- AA women who have quit are empowered experts and potential CHWs</td>
</tr>
<tr>
<td></td>
<td>- Spirituality</td>
<td>- Spirituality is preferred coping strategy</td>
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</tbody>
</table>
# Planning/Feasibility/Pilot Phase

<table>
<thead>
<tr>
<th>Methods</th>
<th>Community Preferences</th>
<th>Academic (Evidence Based Literature)</th>
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<tbody>
<tr>
<td>Key Informant Interviews (n=30)</td>
<td>- Prefer approach with multiple strategies/multiple levels of influence</td>
<td>- Ecological levels of influence on behavior</td>
</tr>
<tr>
<td></td>
<td>- Testimonials from AA women who had quit smoking</td>
<td>- Indigenous CHWs</td>
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<tr>
<td></td>
<td>- Peer group meetings with food</td>
<td>- “Sister circles”</td>
</tr>
<tr>
<td>Neighborhood Forums x 4</td>
<td>- Involvement of NGHB leaders</td>
<td>- NGHB governance board</td>
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<td></td>
<td>- Presentation of information</td>
<td>- Cultural sensitivity</td>
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<td></td>
<td>- Incorporate evidence from research</td>
<td>- AHRQ guidelines:</td>
</tr>
</tbody>
</table>
Planning/Feasibility Testing

• Community Advisory Board
  – 8 members
  – Named project
  – Co-developed cessation materials
  – Co-developed intervention protocols
  – Co-planned feasibility study
Feasibility Study

• Feasibility study (n=10)
  – 1 group
  – Group behavioral intervention
  – Community Health Workers
  – 6 weeks
Pilot Study

• 2 neighborhoods (n=103 women)

• Treatment (Sister to Sister Condition)
  – Neighborhood level activities/policy
  – Peer groups – weekly x 12 weeks
  – CHW – Individual contact weekly x 12 weeks

• Comparison
  – 4 group sessions (healthy eating, PA, financial management)
Pilot Outcomes

• 7-day point prevalence
  – 24 week time point
  – 39% vs. 11.5%
  – \( p < .0001 \)

• 6 month prolonged abstinence
  • 27% vs. 5.7%
  • \( p < .0001 \)

• CBPR partnership

• 87.4% retention at 6 months (Andrews et al, 2005; 2007)
Process Evaluation (Handout)

• Design considerations
  – Cluster design, randomization by neighborhood
  – Comparison – useful materials; delayed treatment

• Intervention components
  – Individual
  – Peer group
  – Neighborhood
## RCT Implementation

<table>
<thead>
<tr>
<th>Community</th>
<th>Academic</th>
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<tbody>
<tr>
<td>Assist with recruitment</td>
<td>Assist with recruitment</td>
</tr>
<tr>
<td>CHWs</td>
<td>Protocol development/fidelity/measurement</td>
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<tr>
<td>Space for Peer groups</td>
<td>Employ/train CHWs</td>
</tr>
<tr>
<td>NGHB level activities</td>
<td>Lead groups (Certified cessation specialist)</td>
</tr>
<tr>
<td>-Sociocultural preferences</td>
<td>Technical Support</td>
</tr>
<tr>
<td>(collectivism,</td>
<td></td>
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<tr>
<td>spirituality, story telling</td>
<td></td>
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<tr>
<td>materials)</td>
<td></td>
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<tr>
<td>EBP Guidelines</td>
<td></td>
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</tbody>
</table>
Figure 2. Flow Diagram of Cluster Randomized Controlled Trial

Assessed for eligibility (34 NB in 2 southeastern US metropolitan cities)

Excluded 20 NB
- Senior high rise (6)
- Used previously (4)
- Do not contain at least 100 women (10)

14 Neighborhoods pair-matched according to size and geographical location

Metropolitan City #1

- NB #1
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #2
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #3
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #4
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #5
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #6
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

Metropolitan City #2

- NB #1
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #2
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #3
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #4
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #5
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

- NB #6
  - BDC
  - NB-R
    - TX N = 29
    - CL N = 29

Legend:

BDC = Baseline data collection* (recruit & screen women; enroll 29 eligible per NB)
NB = Neighborhood
TX = Treatment
CL = Control
NB-R = Neighborhood randomization
RCT

- 14 public housing neighborhoods
- 2 metropolitan regions
- 406 women
- Entry into neighborhoods/survey
- Recruitment/information sessions
- Relationship building
- Andrews et al., 2012
RCT

- Sister to Sister neighborhoods
  - Individual Level Strategies
  - Interpersonal Level Strategies
  - Neighborhood Level Strategies
  - NRT
  - Study Specific Written Cessation Materials
RCT

• Control Neighborhoods
  – Pathways to Freedom (CDC) – Baseline
  – Mailouts
    • Week 6 – State sponsored quit line brochure
    • Week 12 – PHS Guideline – You Can Quit Smoking
    • Week 18 – ACS pamphlet – When Smokers Quit
    • Delayed intervention after 12 month data collection
Outcomes

• 409 women recruited
• 91% retention at 12 months
• Cessation outcomes
  • 6 mo 12 mo
    – Intervention 10% 3.4% p = .007
    – Comparison 12% 5.3% p = 0.16
    – Pilot 39% 11.5% p < .0001
Lessons Learned

• We can easily recruit
  – With incentives/Indigenous CHWs
  – $25, $25, $50, $75 Gift Cards
  – Food

• We can retain women (challenging)
  – Multiple phone contacts
  – “Hanging” out to locate
  – Flexible, flexible, flexible scheduling
Fidelity

• Challenging!!!
  – Multi-site; multi-state
  – Neighborhood context
    • High smoking prevalence (up to 60%)
    • Crime
    • Stress, Social Cohesion
  – Staff safety (day and evenings)
  – CHWs in pairs at all times
  – Depression, social norms, other priorities – Impacts motivation?
# Fidelity

<table>
<thead>
<tr>
<th>NEIGHBORHOOD</th>
<th>Name</th>
<th>#</th>
<th>Contacts With CHW % (95% CI)</th>
<th>Length of CHW contact (minutes) N (95% CI)</th>
<th>Group sessions attended % (95% CI)</th>
<th>Weeks on Nicotine Patch N (95% CI)</th>
<th>Proportion of patch use % (95% CI)</th>
<th>Proportion of book use % (95% CI)</th>
<th>Cessation Outcomes 12 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Mills</td>
<td></td>
<td>2</td>
<td>61% (53, 68)</td>
<td>17.6 (16.0, 19.2)</td>
<td>58% (47, 68)</td>
<td>3.44 (2.45, 4.43)</td>
<td>78.1% (60.1, 90.7)</td>
<td>81.3% (63.6, 92.8)</td>
<td>19%</td>
</tr>
<tr>
<td>Wraggborough</td>
<td></td>
<td>3</td>
<td>46% (38, 53)</td>
<td>13.5 (11.9, 15.2)</td>
<td>59% (49, 70)</td>
<td>1.77 (0.75, 2.79)</td>
<td>63.3% (43.9, 80.1)</td>
<td>73.3% (54.1, 87.7)</td>
<td>0% *3% at 6 mo</td>
</tr>
<tr>
<td>Olmstead Homes</td>
<td></td>
<td>10</td>
<td>81% (73, 89)</td>
<td>12.4 (10.7, 14.0)</td>
<td>76% (65, 87)</td>
<td>3.27 (2.25, 4.29)</td>
<td>58.1% (39.1, 75.5)</td>
<td>96.8% (83.3, 99.9)</td>
<td>6%</td>
</tr>
<tr>
<td>Allen Homes</td>
<td></td>
<td>14</td>
<td>99% (91, 100)</td>
<td>8.6 (6.8, 10.3)</td>
<td>76% (65, 88)</td>
<td>1.22 (0.15, 2.30)</td>
<td>37.0% (19.4, 57.6)</td>
<td>92.6% (75.7, 99.1)</td>
<td>0% *3% at 6 mo</td>
</tr>
<tr>
<td>Fairwinds</td>
<td></td>
<td>17</td>
<td>52% (43, 60)</td>
<td>16.0 (14.3, 17.8)</td>
<td>56% (44, 67)</td>
<td>3.22 (2.15, 4.30)</td>
<td>64.3% (44.1, 81.4)</td>
<td>67.9% (47.7, 84.1)</td>
<td>4%</td>
</tr>
<tr>
<td>Parkway Village/ Haven Oaks</td>
<td></td>
<td>18</td>
<td>45% (36, 54)</td>
<td>15.8 (13.8, 17.7)</td>
<td>64% (52, 77)</td>
<td>3.71 (2.49, 4.93)</td>
<td>77.3% (54.6, 92.2)</td>
<td>63.6% (40.7, 82.8)</td>
<td>0% (9%)</td>
</tr>
<tr>
<td>Barton Village</td>
<td></td>
<td>19</td>
<td>99% (91, 100)</td>
<td>6.7 (5.1, 8.4)</td>
<td>76% (65, 86)</td>
<td>3.10 (2.08, 4.12)</td>
<td>56.7% (37.4, 74.5)</td>
<td>96.7% (82.8, 99.9)</td>
<td>20%</td>
</tr>
<tr>
<td>Overall Neighborhoods</td>
<td></td>
<td>70% (66, 74)</td>
<td>12.8 (12.0, 13.6)</td>
<td>66% (62, 70)</td>
<td>2.80 (2.40, 3.20)</td>
<td>62.0% (54.9, 68.8)</td>
<td>82.5% (76.5, 87.5)</td>
<td></td>
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</tbody>
</table>
Lessons Learned - Time

- 2001 – 2002 Partnership Formation
- 2003-2004 Pilot
- 2009 – 2013 RCT
- PI relocation
- Change in administration in public housing/neighborhoods
- Advisory Board
- Funding
Lessons Learned – Context over Time

• Situational Context of Public Housing
  – Increasing Poverty
  – Recession 2008/2009- ??
  – Crime
  – Policies in public housing/Welfare reform
  – Power imbalances between residents/administration
  – Navigation
  – Marijuana use
  – More women working; diverse work schedules
## Neighborhood characteristics

<table>
<thead>
<tr>
<th></th>
<th>N = (total # homes)</th>
<th>n = (# surveyed)</th>
<th>Smoking Prevalence</th>
<th>Mean Social Cohesion Scale (SCS)</th>
<th>Mean City Stress Index (CSI)</th>
<th>Total # crimes/annual</th>
<th>Crime Proportion (# crimes/# homes)</th>
<th>12 month Cessation Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>272</td>
<td>54</td>
<td>55.6%</td>
<td>4.5</td>
<td>44.8</td>
<td>69</td>
<td>.25</td>
<td>19%</td>
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<tr>
<td>2</td>
<td>257</td>
<td>53</td>
<td>34.0%</td>
<td>7.2</td>
<td>32.7</td>
<td>43</td>
<td>.17</td>
<td>0%</td>
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<tr>
<td>3</td>
<td>178</td>
<td>35</td>
<td>54.3%</td>
<td>6.1</td>
<td>36.2</td>
<td>27</td>
<td>.15</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>201</td>
<td>40</td>
<td>60.0%</td>
<td>5.3</td>
<td>38.4</td>
<td>113</td>
<td>.56</td>
<td>0%</td>
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<tr>
<td>5</td>
<td>61</td>
<td>20</td>
<td>25.0%</td>
<td>7.7</td>
<td>31.6</td>
<td>13</td>
<td>.21</td>
<td>0%</td>
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<tr>
<td>6</td>
<td>356</td>
<td>70</td>
<td>28.6%</td>
<td>6.9</td>
<td>33.7</td>
<td>52</td>
<td>.15</td>
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<tr>
<td>9</td>
<td>74</td>
<td>20</td>
<td>25.0%</td>
<td>9.2</td>
<td>29.6</td>
<td>49</td>
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<tr>
<td>10</td>
<td>254</td>
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<td>6.9</td>
<td>32.6</td>
<td>91</td>
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<tr>
<td>11</td>
<td>100</td>
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<td>45.0%</td>
<td>5.9</td>
<td>35.1</td>
<td>73</td>
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<td>13</td>
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<td>50</td>
<td>26.0%</td>
<td>6.5</td>
<td>33.3</td>
<td>166</td>
<td>.68</td>
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<tr>
<td>14</td>
<td>149</td>
<td>30</td>
<td>26.7%</td>
<td>6.3</td>
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<td>76</td>
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<td>0%</td>
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<td>38.6%</td>
<td>5.6</td>
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<td>6.4</td>
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<td>82</td>
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<td>450</td>
<td>30</td>
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<td>5.7</td>
<td>35.0</td>
<td>293</td>
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<td>20%</td>
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<tr>
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<td>166</td>
<td>33</td>
<td>27.3%</td>
<td>9.0</td>
<td>25.7</td>
<td>18</td>
<td>.11</td>
<td>0%</td>
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<tr>
<td>21</td>
<td>150</td>
<td>30</td>
<td>40.0%</td>
<td>3.8</td>
<td>36.6</td>
<td>68</td>
<td>.45</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL/Mean (SD)</td>
<td>3552</td>
<td>663</td>
<td>37.1% (SD=11.2)</td>
<td>6.4 (SD=4.1)</td>
<td>33.9 (SD=4.1)</td>
<td>88.6 (SD=68.5)</td>
<td>.45 (SD=27)</td>
<td>0%</td>
</tr>
</tbody>
</table>
Lessons Learned - Relationships

• Pilot - Partnership for over 2 years prior to pilot testing
• RCT – 1 month relationship building, then recruitment, intervention starts within 3 months
• CAB for pilot studies later evolved to Academic Center CAB
Lessons Learned – CBPR Partnership Readiness

– Goodness of Fit
  • Shared values, compatible climate, mutual benefit, dedicated commitment

– Capacity
  • Leadership, inclusive membership, complementary competencies, adequate resources

– Operations
  • Congruent goals, transparent communication, complementary competencies, adequate resources
    – Andrews et al., 2010, 2011
Lessons Learned – Community Readiness

• Community readiness - the degree to which a community is prepared to take action on an issue. (Donnermyer et al, 1997; Plested et al., 2006)

• The theory is grounded in the assumption that a community can be moved through a series of stages to develop and implement effective prevention programs.

  • community efforts
  • community knowledge of the efforts
  • leadership
  • community climate
  • community knowledge about the issue
  • resources related to the issue
Summary

• A social, culturally appropriate intervention was developed and tested in two states
• Overall, positive results
• Long term relationships
• Has led to additional partnerships/resources
  – Communities linked with resources; additional health promoting programs, students
  – Academics linked with additional partners/additional studies
Summary

- CHWs in studies continued education, new employment opportunities, broadened experiences
- We can recruit and retain participants in public housing
- Additional measures to understand context and readiness
- Motivation to change behavior in context of life in public housing?
Summary

• CBPR partnerships
  – With who? Grassroots vs. organizations
  – CAB for RCT in multiple states

• Time

• Funding

• Fidelity in “real life” community settings

• Alternative designs/pragmatic trials

• Is CBPR with one community scalable to others?
Next steps

• New study with community based education (Diabetes Prevention Program) with linkages to Primary Care/Community Clinics

• New formative assessments/problem identification

• Process Evaluation

• Informing new intervention