A NEW APPROACH TO SMOKING CESSION
ENGAGING PEERS IN COMMUNITY BASED SETTINGS

Payam Sheikhattari, MD, MPH
On behalf of the CEASE partnership
Background and Overview

- Tobacco use is the major cause of preventable death in the U.S. (480,000 deaths yearly)
- Adult smoking rate in U.S. is 15.1% (CDC 2015)
- Tobacco smoking involves issues related to health, economics, and the environment
Tobacco Use in Maryland

MARYLAND KEY FACTS

- In 2015, 27.6% of Maryland high school youth reported currently using any tobacco product, including e-cigarettes. Among Maryland high school youth, 8.7% reported currently smoking cigarettes.
- 15.1% of adults smoked cigarettes in 2015.
- 7,500 adults die from smoking-related illnesses each year.
- $2.7B was spent on healthcare costs due to smoking in 2009.
- Between 2005 and 2009, Maryland averaged 7,490 deaths each year due to smoking.

OTHER CAUSES OF MARYLAND DEATHS:

- 1,286 Accidental
- 498 HIV/AIDS
- 479 Suicide
- 478 Homicide
- 2,742 Combined Total

Maryland residents suffer from one or more chronic diseases as a result of smoking.
Problem Statement

Interventions to address tobacco have been implemented:

- Raising community’s and policymakers’ awareness of the health consequences of smoking
- Increasing tobacco taxes
- Limiting tobacco advertising
- Providing nicotine replacement therapy (NRT) to help smokers quit, etc.

- The rate of tobacco use decreased from 42.4% in 1965 to 15.1% in 2015.
Cigarette smoking overall among adults in the U.S. is down.

Yet cigarette smoking remains high among certain populations.

Low education, males, young adults, south and midwest, lesbians, gays, and bisexuals, below poverty level, disabled, certain races/ethnicities.

We can put an end to tobacco use.

Implement smoke free laws, raise tobacco prices, increase funding for tobacco control programs.
Problem Statement

- African Americans are more likely to die from smoking-related diseases than Whites
- People with only a GED certificate have a smoking prevalence near 40%
- Smoking prevalence for Baltimore City 33% while Maryland is 15.1%
- Not completely clear from existing research what approaches work best for the communities most affected by these disparities
Historically, research has rarely directly benefited and sometimes actually harmed the communities involved.

Those communities most impacted by health problems are least likely to be involved in the research process.

Resulted in understandable distrust of, and reluctance to participate in, research.
Definition of Community-Based Participatory Research

- A partnership approach to research
- Equitable involvement of the community
- Enhancing a common understanding
- Integrating knowledge with actions
Background

CEASE: Communities Engaged and Advocating for a Smoke-free Environment

✓ CEASE is a community driven smoking cessation initiative that evolved through a collaboration between Morgan State University and residents of the Southwest Baltimore communities with a mission to educate, encourage, and support individuals to choose a smoke-free lifestyle.

✓ CEASE especially focuses on underserved and low-income populations that lack affordable, consistent, or accessible community health related resources.
Baltimore, Maryland, USA
Baltimore, Maryland, USA
Baltimore, Maryland, USA
Purpose

To find methods that most effectively support higher quit rates among the residents of poor and underserved neighborhoods of Baltimore City.
CEASE Model

1. Building partnerships
   - Identifying local assets & stakeholders
   - Building relationships
   - Forming community action board
   - Defining mission and strategic goals

2. Responses and interventions
   - Needs assessment and asset mapping
   - Designing interventions
   - Implementation with reflections
   - Revising interventions

3. Peers as providers
   - Recruiting peer motivators
   - Educating and obtaining certifications
   - Partnerships with community
   - Identifying sites

4. Institutionalizing CEASE
   - Creating policies and procedures
   - Enhancing quality and accountability
   - Registration as NGO
   - Creating new chapters elsewhere
Target communities
## Neighborhood Profiles

### Census demographics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>South West Baltimore</th>
<th>The Waverlies</th>
<th>Middle East Baltimore</th>
<th>Baltimore City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average household size</td>
<td>2.8</td>
<td>2.7</td>
<td>2.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Median household income</td>
<td>25,152</td>
<td>35,686</td>
<td>14,418</td>
<td>42,241</td>
</tr>
<tr>
<td>Percent family households living below poverty line</td>
<td>33.0</td>
<td>14.3</td>
<td>44.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Percent households with children under 18</td>
<td>32.1</td>
<td>24.7</td>
<td>27.7</td>
<td>26.4</td>
</tr>
<tr>
<td>Percent population 18-24 years</td>
<td>8.4</td>
<td>9.1</td>
<td>13.4</td>
<td>11.3</td>
</tr>
<tr>
<td>Percent population 25-64 years</td>
<td>53.6</td>
<td>58.2</td>
<td>48.7</td>
<td>55.4</td>
</tr>
<tr>
<td>Percent of residents who are Black/African-American (Non-Hispanic)</td>
<td>74.2</td>
<td>75.8</td>
<td>88.3</td>
<td>62.3</td>
</tr>
</tbody>
</table>

### Children and Family Health

<table>
<thead>
<tr>
<th>Indicator</th>
<th>South West Baltimore</th>
<th>The Waverlies</th>
<th>Middle East Baltimore</th>
<th>Baltimore City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>68.0</td>
<td>72.0</td>
<td>70.4</td>
<td>73.6</td>
</tr>
<tr>
<td>Liquor outlet density (per 1000 residents)</td>
<td>2.2</td>
<td>0.6</td>
<td>0.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>13.9</td>
<td>12.0</td>
<td>12.6</td>
<td>9.9</td>
</tr>
</tbody>
</table>

### Workforce and economic development

<table>
<thead>
<tr>
<th>Indicator</th>
<th>South West Baltimore</th>
<th>The Waverlies</th>
<th>Middle East Baltimore</th>
<th>Baltimore City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent population (25 years and over) with less than a high school diploma or GED</td>
<td>32.6</td>
<td>17.9</td>
<td>32.9</td>
<td>17.5</td>
</tr>
<tr>
<td>Percent population 16-64 employed</td>
<td>49.7</td>
<td>60.9</td>
<td>41.4</td>
<td>60.4</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>15.9</td>
<td>13.6</td>
<td>14.8</td>
<td>11.4</td>
</tr>
</tbody>
</table>
History of the CEASE

- **2002**: Community assessment
- **2006**: Small initiatives
- **2007**: Forming a partnership to address tobacco use
- **2008**: Clinical model (Phase I)
- **2011**: Peer-led Community model (Phase II)
- **2013**: Further adaptations (Phase III)
- **2015**: Different intensities (Phase IV)
Study Conceptual Model

Background variables:
- Age
- Gender
- Race
- Education
- Employment
- Marital Status

Intermediate variables:
- Nicotine dependence
- Intention to quit (stages of change)
- Self-efficacy

Intervention:
- NRT
- Counseling:
  - Motivation enhancement
  - Smoking cessation
  - Relapse prevention

Predictor or modifying variables:
- Setting:
  - Clinic vs. community
  - Intervention intensity
  - Provider
  - Retention

Outcome:
- Smoking cessation

Smoking behavior
Study Design

Quantitative data collection and analysis

Qualitative data collection and analysis

Compare and relate

Interpretation

Mixed method: Convergent parallel design
CEASE Phase I Randomized Trial: A Clinical Model

Federally Qualified Health Center

Recruitment (n= 404)

12 weekly individual counseling by a Physician
12 weekly group counseling by a Nurse

✴ Nicotine Replacement Therapy
✴ Contingency Behavioral Management
✴ Prescription medications as indicated
✴ Freshstart curriculum expanded
✴ Follow-up for 9 months

* Quit rate was measured at three-month follow up
CEASE Phase II Randomized Trial: A Community-based Peer-led Model

**Community Sites facilitated by Peer Motivators**

**Recruitment (n= 398)**

- Peer-led group counseling plus monetary incentives
- Peer-led group counseling plus monetary and non-monetary incentives

**Nicotine Replacement Therapy**

- Incentive for attendance and hallmarks
- 2 weeks motivational enhancement counseling
- 4 weeks smoking cessation counseling
- 3 bi-weekly relapse prevention counseling
- Peer support
- Follow-up for 6 months

* Quit rate was measured at three-month follow up
CEASE Phase III Dissemination Trial: Replication and Expansion

Community Sites and Peer Motivators

Recruitment (n= 163)

Expanding recruitment to recovery sites and mental health institutions

- Nicotine Replacement Therapy
- Incentive for attendance and hallmarks
- 6 weeks group counseling using toolboxes
- 6 weeks of relapse prevention group counseling in 3 tracks
- Healthy diet, physical activity, relationship management
- Follow-up for 6 months

* Quit rate was measured at three-month follow up
CEASE Phase IV Trial: Integration and Sustainability

Community Sites facilitated by Peer Motivators

Community based and targeted recruitment (n= 842)

- Self-help (n=472)
- Single-session (n=163)
- Four-session (n=207)

- Quit packet with self-help materials
- 1 week Nicotine Replacement Therapy
- Follow-up for 4-6 months

- Quit packet with self-help materials
- 3 months Nicotine Replacement Therapy
- Group counseling
- CEASE curriculum
- Peer support
- Follow-up for 4-6 months

* Quit rate was measured at 4-6 month follow up
### Results (Clinic vs. Community)

#### Quantitative Methods

| **Sampling and recruitment** | • Community surveys, collaborations with community organizations  
| | • Adult current smokers  
| | • Clinic: 404, Community: 561  
| | • Power: 0.99, 1.00 |
| **Data collection** | • Paper-based surveys (baseline, progress, follow up) entered into Epidata |
| **Measures** | • **Outcome**: Verified smoking status: quit (1), didn’t quit (0), retention (6+ sessions)  
| | • **Predictor**: Setting  
| | • Others: sociodemographic variables, Fagerstrom score |
| **Data analysis (Stata)** | • Univariate analysis to describe data  
| | • Bivariate analysis to compare participant characteristics by setting  
| | • Multivariable analysis: compare odds of quitting in different settings adjusting for covariates  
| | • ORs and 95%CIs reported |
Sociodemographic and Baseline Characteristics of Phase I, II and III Participants by Setting

<table>
<thead>
<tr>
<th>Variables</th>
<th>All n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>366 (39.4)</td>
</tr>
<tr>
<td>Male</td>
<td>562 (60.6)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)*</td>
<td>47 (10.7)</td>
</tr>
<tr>
<td>&lt; 48 years</td>
<td>377 (48.0)</td>
</tr>
<tr>
<td>≥ 48 years</td>
<td>409 (52.0)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>597 (73.5)</td>
</tr>
<tr>
<td>White</td>
<td>147 (18.1)</td>
</tr>
<tr>
<td>Other</td>
<td>68 (8.4)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Completed high school</td>
<td>491 (62.5)</td>
</tr>
<tr>
<td>Less than high school</td>
<td>294 (37.5)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>Not employed</td>
<td>531 (71.7)</td>
</tr>
<tr>
<td>Employed (full-time or part-time)</td>
<td>210 (28.3)</td>
</tr>
<tr>
<td>Fagerstrom</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)*</td>
<td>4.1 (2.7)</td>
</tr>
<tr>
<td>&lt;5</td>
<td>484 (50.2)</td>
</tr>
<tr>
<td>≥ 5</td>
<td>481 (49.8)</td>
</tr>
</tbody>
</table>

Multivariable Logistic Regression of Factors Predicting the odds of Quitting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Quit Yes (%)</th>
<th>Quit No (%)</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td>38 (9.4)</td>
<td>366 (90.6)</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>133 (23.7)</td>
<td>428 (76.3)</td>
<td>3.0 (2.0 – 4.4)</td>
<td>2.6 (1.7 – 4.2)</td>
</tr>
</tbody>
</table>

*Adjusted for gender, race, age, education, employment and Fagerstrom score
## Community Interventions (Phase IV)

### Sociodemographic and Baseline Characteristics of Phase IV participants by Intervention Arm

<table>
<thead>
<tr>
<th>Variables</th>
<th>All n= 842 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>464 (55.1)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>50 (11.8)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>697 (82.8)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>627 (74.5)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>621 (73.7)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some high school or less</td>
<td>239 (28.4)</td>
</tr>
<tr>
<td>Graduated high school/GED</td>
<td>399 (47.4)</td>
</tr>
<tr>
<td>Fagerstrom</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>4.8 (2.1)</td>
</tr>
</tbody>
</table>

### Multivariable Logistic Regression of Factors Predicting the Odds of Quitting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Quit yes n (row %)</th>
<th>Quit no n (row %)</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-help</td>
<td>11 (2.3)</td>
<td>461 (97.7)</td>
<td>Ref</td>
<td>3.0 (1.2 - 7.5)</td>
</tr>
<tr>
<td>Single session</td>
<td>10 (6.1)</td>
<td>153 (93.9)</td>
<td>2.7 (1.1 - 6.7)</td>
<td>6.3 (3.1 - 12.9)</td>
</tr>
<tr>
<td>Four session</td>
<td>27 (13.0)</td>
<td>180 (87.0)</td>
<td>6.5 (3.0 - 13.9)</td>
<td></td>
</tr>
</tbody>
</table>

*Note: * Adjusted for gender, age, race, employment, marital status, education, Fagerstrom score.
CEASE Outcomes

- **Traditional Clinic-Based Setting**
  - Retained in Program: 13.8%
  - Quit Smoking: 9.4%

- **Community-Based Setting**
  - Retained in Program: 51.9%
  - Quit Smoking: 21.1%

- **Expanded Community-Based Setting**
  - Retained in Program: 67.9%
  - Quit Smoking: 30.1%

**Further Improved Community-based Setting (Participant’s quit rate)**

- Self-Help Group: 2.30%
- Single-Session Group Counseling: 6.10%
- Four-Session Group Counseling: 13.00%
Overall Qualitative Findings

- Reasons for Smoking
- Reasons for Wanting to Quit/Quitting
- Benefits of Quitting
- Reasons for Attending Class
- Impact of the classes
- Drawbacks/Difficulties of Quitting
- Alternatives to Smoking/Stress Management Tools
- Class Feedback/Recommendations

"I was wondering why I was having more money. (Laughter) I didn’t realize it was the cigarettes till ‘bout at least three months."

"...gonna’ give it my all and so I stopped smoking probably about less than a couple weeks or something once I started the class and ever since then, I haven’t picked it back up."

"That’s my fear. My fear, I am gonna’ be on that oxygen. I’m gonna’ be that woman dragging the oxygen tank down the street. I am so scared of that, but not scared enough to stop. Tell me how crazy that is."

"What really helped me because [Peer Motivator] kept popping up at my house like ‘I know you ain’t smoking, I know you ain’t smoking.’"

"If it was something that we had to do again, we would have made it a little longer than 12 weeks, and that was the truth about it."

"If it was something that we had to do again, we would have made it a little longer than 12 weeks, and that was the truth about it."
Lessons Learned

Setting
• Community
• Clinic
• Providers

Providers
• Peers
• Professional

Interventions
• Self-help
• Single-session
• Four-session
Cease Today Tobacco Cessation Manual

MODULE 1: Motivating and Preparing
Module 1 will increase your knowledge about smoking and will help you get motivated to quit.

Lesson 1: Facts about tobacco
Lesson 2: Facts about quitting
Lesson 3: Deciding to quit

Activities

MODULE 2: Quitting
Module 2 will teach you more about nicotine dependence and present different options for stopping. You will develop your own quit plan to master the first few days of being smoke-free.

Lesson 4: Quitting with help
Lesson 5: Planning to quit
Lesson 6: Your quit-smoking day

Activities

MODULE 3: Preventing Relapse
Module 3 will introduce you to resources that can help you maintain a smoke-free lifestyle.

Lesson 7: Staying smoke-free

Activities
Strengths and Limitations

• Strengths
  • Strong long-term partnership
  • Increased capacity building due to engagement of all stakeholders
  • Sense of ownership crucial for sustainability
  • Iterative progressive method of developing interventions
  • Using mixed method design with triangulation

• Limitations
  • Recruiting, retaining and following up participants
  • Maintaining scientific rigor (randomization)
Conclusion

- Smoking is a social event therefore should be addressed in the community
- CBPR as an effective approach to achieve smoking cessation in underserved populations
- The CEASE model can be applied to other health issues
Future goals and opportunities

- Training tobacco-cessation workforce
- Public and scientific presentations
- Tobacco-cessation classes
- Providing technical assistance
- Collaboration with research institutions and conducting more research
THANK YOU!

Acknowledgment
CEASE research projects received financial support from the National Institute on Minority Health and Health Disparities (grants MD000217 and MD002803), the National Institute on Drug Abuse (Grants DA012390 and DA019805), and Pfizer Inc.