Evaluating *Stepping On*, an evidence-based, falls-prevention program

Improving health and maintaining independence of Baltimore city’s older adults

JACQUIE CRONIN
PHASE INTERN
BALTIMORE CITY HEALTH DEPARTMENT
DIVISION OF AGING
MAY 10TH, 2019
Presentation Overview

Background
- Baltimore City Health Department (BCHD)
- Burden of falls in Baltimore
- BCHD Falls Reduction Initiative
- *Stepping On* Program

Evaluation Plan
- Measures
- Methods

Results

Challenges and Limitations

Policy and Practice Implications
Baltimore City Health Department

**Mission:**

The Division of Aging is dedicated to improving the lives and well-being of older adults through coordination of services for older adults, adults with disabilities and their families to maximize safety, health and independence.

**Goal:** To empower older adults to maintain their health and dignity along the continuum of aging
Burden of falls in Baltimore

• 2017: 82,552 citizens 65+ years
  ◦ 13% increase from 2010

• Nationally 55% all unintentional injury deaths due to falls

• Baltimore’s older adults fall 1/3 more
  ◦ 22% more than other Maryland residents

• 5,000 falls/yr resulting in Emergency room visit or hospitalization
  ◦ Est. $60,000,000 in hospital bills
Falls-Prevention and Reduction Public Health Campaign

**Goal:** To decrease the rate of falls-related emergency department visits and hospitalizations in older adults by 20% over the next 10 years

- Health education and promotion materials
- Use B’FRIEND surveillance to identify ‘hot spots’
- Implementing many programs to address falls risk factors
  - Stepping On falls-prevention
  - Vision and Hearing screenings
  - Housing Upgrades to Benefit seniors with Civic Works
  - Medication management
Stepping On: an Evidence-Based Program

Week 1: Introduction and Overview
Week 2: Exercises and Moving about Safely
Week 3: Advancing Exercises and Home hazards
Week 4: Vision and Falls, Footwear, Community Safety
Week 5: Bone Health, Medication and Sleeping Better
Week 6: Getting Out and About
Week 7: Review, Planning Ahead, Certificates of Completion
Evaluation Plan

• Measure changes in average self-efficacy scores
  ◦ Composite score

• Number of people completing the class

• Size of class compared to completion rate

• Demographics of people who complete vs don’t (not shown)

• Statistical analyses - Stata software, v15 and Microsoft Excel, 2013
<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-Program</th>
<th>Post Program</th>
<th>Difference (post- pre)</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fearful of Falling (low value, not at all; high value, a lot)</td>
<td>2.25</td>
<td>2.16</td>
<td>-0.09</td>
<td>0.44</td>
<td>-0.32, 0.14</td>
</tr>
<tr>
<td>During last 4 weeks, how has your concern of falling impacted social life (low- not at all; high-extremely)</td>
<td>1.83</td>
<td>2</td>
<td>0.17</td>
<td>0.38</td>
<td>-0.21, 0.55</td>
</tr>
<tr>
<td>(a) I can find a way to get up if I fall (low, not at all; high- very sure)</td>
<td>2.77</td>
<td>3.2</td>
<td>0.44</td>
<td>0.0001</td>
<td>0.23, 0.64</td>
</tr>
<tr>
<td>(b) I can find a way to reduce falls</td>
<td>2.83</td>
<td>3.03</td>
<td>0.2</td>
<td>0.107</td>
<td>-0.04, 0.44</td>
</tr>
<tr>
<td>(c) I can protect myself if I fall</td>
<td>2.35</td>
<td>2.76</td>
<td>0.4</td>
<td>0.0003</td>
<td>0.19, 0.61</td>
</tr>
<tr>
<td>(d) I can increase my physical strength</td>
<td>2.82</td>
<td>3.33</td>
<td>0.51</td>
<td>0</td>
<td>0.29, 0.73</td>
</tr>
<tr>
<td>(e) I can become more steady on my feet</td>
<td>2.75</td>
<td>3.1</td>
<td>0.31</td>
<td>0.0047</td>
<td>0.10, 0.53</td>
</tr>
<tr>
<td>Combined score for (a) to (e)</td>
<td>12.8</td>
<td>15.3</td>
<td>2.46</td>
<td>0</td>
<td>1.57, 3.36</td>
</tr>
</tbody>
</table>
y = -0.0219x + 0.9531

R² = 0.3955

Session 1:
- Intro, Overview, Choosing topics

Week 2:
- Exercises and Moving Safely

Week 3:
- Advancing Exercises and Home hazards

Week 4:
- Vision, Footwear, Community Safety

Week 5:
- Bone health, Medication, Sleep

Week 6:
- Getting out and about (Weather, outdoors)

Week 7:
- Review and Plan ahead

Percent Completion:
- Session 1: 90%
- Week 2: 85%
- Week 3: 66%
- Week 4: 66%
- Week 5: 61%
- Week 6: 53%
- Week 7: 58%
Conclusions and Recommendations

• Increased self-efficacy in Baltimore city residents
• Smaller class size, higher completion
• Second week- key for engaging participants

• Recommendations:
• Participant follow-up 3 or 6 months post-program
• Fidelity measures
• Qualitative feedback
Challenges and Limitations

• Limited data collected at time of program (2017)

• Data limitations
  • No zip code information for participants

• Context/ Resources
  • 1 BCHD health educator
  • Difficult to recruit volunteers as peers for teaching

• *Stepping On* Licensing
Policy and Practice Implications

- Builds awareness of falls-prevention in medical community
- Establishes protocol and data measures for future evaluations
- Evidence for this program to secure new funding sources
- Target prevention efforts in conjunction with surveillance tool
Acknowledgements

• Elizabeth Briscoe, Division Chief of Advocacy, BCHD
• Kelsie Ostergaard, Epidemiologist, BCHD
• Heang Tan, Deputy Commissioner, Division of Aging, BCHD
• Darcy Phelan-Emrick, PhD, Chief Epidemiologist, BCHD

• Paulani Mui, PHASE Co-faculty
• Beth Resnick, DrPH, PHASE Co-faculty
Thank you for your time!
Questions?
References


6. Text adapted from the Baltimore City Health Department draft proposal, “ACL Grant 4 25 2018”, submitted to Administration for Community Living, date written 25 April 2018.


<table>
<thead>
<tr>
<th>Demographics</th>
<th>Number who completed 5+ classes</th>
<th>Total Number participants</th>
<th>Percent of each category whom completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>7</td>
<td>13</td>
<td>54%</td>
</tr>
<tr>
<td>Black</td>
<td>65</td>
<td>103</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>67</td>
<td>106</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>2</td>
<td>5</td>
<td>40%</td>
</tr>
<tr>
<td>Some high school</td>
<td>11</td>
<td>16</td>
<td>69%</td>
</tr>
<tr>
<td>High school graduate or GED</td>
<td>24</td>
<td>42</td>
<td>57%</td>
</tr>
<tr>
<td>Some college or vocational school</td>
<td>22</td>
<td>31</td>
<td>71%</td>
</tr>
<tr>
<td>College graduate or higher</td>
<td>13</td>
<td>22</td>
<td>59%</td>
</tr>
</tbody>
</table>
**Inputs**
- *Stepping On Staff:*
  - Trained Leader,
  - identified Peer
  - Leaders,
  - Community Guests
- Engagement with:
  - older adults,
  - physicians, trained
  - staff, BCHD,
  - community
  - partners (Keswick, other senior
  - centers, MAC),
  - EMTs
- Track medical
  - records pertaining
to falls from
  - hospitals, EMTs
- Maintaining
  - B’FRIEND falls
  - reduction Coalition
- Secure funding
  - through Baltimore
  - City Health Dept
  - budget or external
  - grants

**Activities**
- Organize and hold
  - *Stepping On* programs
- Advertise and Recruit
  - eligible adults
  - Provide
  - workout
  - equipment for
  - participants
- Identify most at risk
  - older adults:
  - Using the
    - CRISP data/
    - dashboard
  - Conduct pre/post
    - program surveys
  - 6 month follow ups
    with previous
    - program participants
  - Trainers complete
    - self-feedback survey
  - Generate
    - sustainability plans
    with partner
    - organizations

**Outputs**
- Complete 8 *Stepping On* programs/year
- Reach 100-200
  - eligible
  - individuals/year
- Achieve 50%
  - completion rate for
    the entire 7 weeks
- Increase participants
  - physical activity
  - levels
- Implemented routine
  - program evaluation
- Achieve/monitor
  - program fidelity
- Partner organizations
  - conduct additional
    *Stepping On*
  - Programs

**Short-Term Outcomes**
- Increased falls
  - prevention self-
    efficacy in
  - participants from
    pre- to post-
    program
- Increased
  - knowledge 6 mo.
    Post-program
- Increased
  - physician
  - awareness
- Increase
  - participants’
  - strength and
  - balance
- Reduction in self-
  - reported falls
  - rate after
  - program

**Long-term Effects**
- Increase falls
  - prevention awareness in all at
    risk elderly
  - individuals
- Achieve city-wide
  - 20% reductions in
    falls related
    emergency
    department visits,
    hospitalizations
- Enable aging
  - residents to remain
    independent
- Reduce morbidity
  - in elderly
  - associated with
    falls