NACDD National Mentorship Program in Applied Chronic Disease Epidemiology

2013 CSTE Conference, Pasadena, CA
June 10th, 2013
Topic: Evaluation of Individual-level Outcomes and Activity Measures from Twelve Texas Community Diabetes Projects

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Florida International University, Herbert Wertheim College of Medicine
Current Job Responsibilities

• Asthma Epidemiologist
  – Surveillance of asthma, risk factors, and other chronic conditions in Texas
  – Data analysis
  – Design and write reports, fact sheets, presentations
  – Contribute to public health science through conference abstracts and manuscripts for publication
  – Address data requests from internal and external partners
Overview & Background

• In the US in 2011, diabetes affected 25.8 million people, 8.3% of the population¹.
  – Diagnosed: 18.8 million people
  – Undiagnosed: 7.0 million people

• Estimated national cost of diabetes in 2012: $245 billion²
  – Direct health care expenditures attributed to diabetes: $176 billion (72%)
  – Lost productivity from work-related absenteeism, reduced productivity at work and at home, unemployment from chronic disability, premature mortality; $69 billion (28%)

Community Diabetes Projects site locations and 2011 adult diabetes prevalence by Public Health Region, Texas

Data Source: Texas Behavioral Risk Factor Surveillance System (BRFSS), 2011. Center for Health Statistics, DSHS.

Quantiles were used for breaks.
Community Diabetes Projects (CDPs)

- Funded since 2011
- Target: diabetics and at-risk for diabetes
- Provide diabetes self-management education (DSME): Series of classes, not one-time classes

Individual-level measures

- Standard participant information sheet: English or Spanish
- Individualized, self-reported health status, behaviors
- Clinical measures (height, weight, waist circumference, BP)
- Lab data (HbA1c, fasting blood glucose, LDL, HDL, triglycerides)
Community Diabetes Projects (CDPs)

Activity measures

• Type of class
• Number of classes in a series
• Language used to teach class
• Curriculum
• Target audience
• Participant retention
MY PROJECT

Build evaluation skills

– Use individual-level data to assess initial and intermediate outcomes among participants of DSME classes.
– Evaluate activity measures; determine how to link individual outcomes with activity measures.
– Lessons learned
– Recommend next steps for future evaluations.
Methodology

MY EXPERIENCE

1. Gathered background research on CDPs and data collection processes
2. Determined what questions stakeholders (Texas Diabetes Program, Texas Diabetes Council, CDP sites, legislators, CDC) want answered
3. Invested plenty of time on data management/cleaning to obtain the most accurate database and to determine what questions could be answered with available data
4. Decided to use population of participants from series of classes occurring between October 2011 to February 2013
5. Analyzed baseline data collected from participant information sheets
6. Learned unique characteristics of longitudinal data and how to use linear mixed models
Results

Preliminary Results

• Activity measures by course type

• Baseline individual-level measures and demographic information over all and by follow-up status (not shown)
## Activity measures by class type, Community Diabetes Projects, Texas, October 2011 to February 2013

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course Type</td>
</tr>
<tr>
<td></td>
<td>DSME</td>
</tr>
<tr>
<td>Project sites providing classes</td>
<td>12 (100)</td>
</tr>
<tr>
<td>Class series</td>
<td>62 (80.5)</td>
</tr>
<tr>
<td>Participant information sheets collected</td>
<td>1,006 (81.7)</td>
</tr>
<tr>
<td>Participants</td>
<td>611 (81.1)</td>
</tr>
<tr>
<td>Participants attending only 1 class (% within class type)</td>
<td>263 (43.0)</td>
</tr>
<tr>
<td>Participants attending 2 or more classes (% within class type)</td>
<td>348 (57.0)</td>
</tr>
</tbody>
</table>
Activity measures by class type, Community Diabetes Projects, Texas, October 2011 to February 2013

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number (%)</th>
<th>Course Type</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DSME</td>
<td>Nutrition</td>
<td>Physical Activity</td>
<td>Total</td>
</tr>
<tr>
<td>Project sites providing classes</td>
<td>12 (100)</td>
<td>4 (33.3)</td>
<td>4 (33.3)</td>
<td>4 (33.3)</td>
<td>12</td>
</tr>
<tr>
<td>Class series</td>
<td>62 (80.5)</td>
<td>7 (9.1)</td>
<td>8 (10.4)</td>
<td></td>
<td>77</td>
</tr>
<tr>
<td>Participant information sheets collected</td>
<td>1,006 (81.7)</td>
<td>88 (7.1)</td>
<td>137 (11.1)</td>
<td></td>
<td>1,231</td>
</tr>
<tr>
<td>Participants</td>
<td>611 (81.1)</td>
<td>51 (6.8)</td>
<td>91 (12.1)</td>
<td></td>
<td>753</td>
</tr>
<tr>
<td>Participants attending only 1 class (% within class type)</td>
<td>263 (43.0)</td>
<td>19 (37.3)</td>
<td>77 (84.6)</td>
<td></td>
<td>359 (47.7)</td>
</tr>
<tr>
<td>Participants attending 2 or more classes (% within class type)</td>
<td>348 (57.0)</td>
<td>32 (62.8)</td>
<td>14 (15.4)</td>
<td></td>
<td>394 (52.3)</td>
</tr>
</tbody>
</table>
Baseline characteristics among DSME participants, Community Diabetes Projects, Texas, October 2011 to February 2013

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 65+ years</td>
<td>27.0</td>
</tr>
<tr>
<td>Speak Spanish only</td>
<td>41.9</td>
</tr>
<tr>
<td>Female</td>
<td>79.6</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>72.0</td>
</tr>
<tr>
<td>9th grade education or less</td>
<td>36.2</td>
</tr>
<tr>
<td>Medical insurance</td>
<td>43.9</td>
</tr>
<tr>
<td>Currently use tobacco</td>
<td>7.6</td>
</tr>
<tr>
<td>Personal history of diabetes</td>
<td>52.7</td>
</tr>
<tr>
<td>Family history of diabetes</td>
<td>64.2</td>
</tr>
<tr>
<td>Obese (BMI &gt;30.0)</td>
<td>60.4</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>37.4</td>
</tr>
</tbody>
</table>
Conclusions

• Majority of participants attending DSME courses; 53% report having diabetes

• Baseline characteristics do not vary by whether or not participants have follow-up data

• Need to: Improve evaluation data collection / entry / management / database

• Need to: Implement link of participant → activity-level data

• Future results: change in clinical and lab measures from baseline to final class among DSME participants
Reflections

• Lessons learned

• Longitudinal data analysis for evaluation of initial and intermediate outcomes among DSME participants

• **End Product:**
  – Recommendations for the Texas Diabetes Program
  – Protocol for useful and appropriate evaluation of CDP participant outcomes and activity measures
Acknowledgements

• For their continued support and guidance, thank you to:
  – Dr. Juan Zevallos, mentor
  – Dr. Lisa Wyman, OSER manager, Texas DSHS
  – And NACDD!

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