Diabetes Intervention and Employment: A Randomized Controlled Mixed Methods Study

Rebecca Rude Ozaki, PhD
Thomas W. Christ, PhD
Jean Isip Schneider, MEd, SPHR

2010 U.S. Public Health Service Scientific and Training Symposium
May 26, 2010
San Diego, CA
Presentation Outline

1. Learning Objectives
2. Motivating Factors
3. Mixed Methods approach & study design
4. Participant profile
5. Intervention component usage
6. Preliminary results and implications
7. Recommendations and next steps
Learning Objectives

• Articulate the different methods used to evaluate the data.
• Describe the different aspects of the DMIE *Live healthy…Work well* research design, intervention.
• Describe the preliminary results and implication for future research.
Motivating Factors

**Issue (Problem)**
Potentially disabling condition: Diabetes

**Intervention Development**
- Life Coaching
- Pharmacist Counseling

**Question of Interest**
Is the intervention a solution to the problem?
# Demonstration to Maintain Independence and Employment (DMIE)

<table>
<thead>
<tr>
<th>Hawaii</th>
<th>Kansas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>High Risk Pool</td>
</tr>
</tbody>
</table>

- **National Evaluation**
  - Mathematica Policy Research, Inc (MPR)

<table>
<thead>
<tr>
<th>Minnesota</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Illness</td>
<td>Mental Illness</td>
</tr>
</tbody>
</table>
Mathematica Policy Research, Inc (MPR)

To learn more about the Demonstration to Maintain Independence and Employment Projects please go to:

Overarching DMIE Research Question

Can a program of Life Coaching, Pharmacist Counseling and other supports *forestall* or *prevent* the loss of employment and independence due to a potentially disabling and medically determinable chronic condition – Diabetes?
Quantitative Hypotheses

There will be a difference in outcomes between the intervention and control group in the following areas:

1) Improved health status
2) Continued employment
3) Maintain independence from SSI/SSDI
# Quantitative Measures

<table>
<thead>
<tr>
<th></th>
<th>Federal</th>
<th>Hawaii</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td>• Well being</td>
<td>• Diabetes self-efficacy</td>
</tr>
<tr>
<td></td>
<td>• Functioning</td>
<td>• Diabetes management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Weight loss</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td>• Hours worked</td>
<td>• Effect of diabetes on work productivity</td>
</tr>
<tr>
<td></td>
<td>• Earnings</td>
<td>• Diabetes related absences</td>
</tr>
<tr>
<td><strong>Disability</strong></td>
<td>• Government program participation</td>
<td></td>
</tr>
</tbody>
</table>
Qualitative Research Question

What are the participant’s perceptions of the value, usefulness, and challenges of a person-centered program designed to improve health and employment.
Qualitative Data Collected & Analyzed

- Exit interviews
- Focus Group
- Satisfaction Surveys

Participant Perceptions
Data Merging

• Quantitative and qualitative data strands collected and analyzed concurrently
• Each strand analyzed separately
• Results from the strands compared and merged (triangulation)
Study Design: Experimental

- Enrollment (190)
  - Baseline Data Collection
  - Random Assignment

- Treatment Group (128)
- Control Group (62)

- Tracking: 12 mos
- Tracking: 6 mos
- Tracking: 18 mos

Intervention
Control Group received Usual Care, reimbursements for health assessments, and incentives for completion of evaluation surveys.
Eligibility Criterion

• Diagnosed with diabetes or HbA1c ≥ 6.5
• Between the ages of 18 – 62
• Live on the island of O`ahu in Hawaii
• Work at least 40 hours per month at the federal minimum wage or higher
• Not receiving Supplement Security Income or Social Security Disability Insurance
# Participants: Baseline

*Study sample was fairly healthy and well employed at baseline*

<table>
<thead>
<tr>
<th>Diabetes Type</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2: 86%</td>
<td>Female: 63%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years since diagnosis</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean: 8 yrs</td>
<td>Mean: 48 yrs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hemoglobin A1c</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean: 7.8%</td>
<td>Bachelor’s degree or higher: 50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Body Mass Index (BMI)</th>
<th>2007 Annual Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight or Obese: 86%</td>
<td>Mean: $44K</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthcare Coverage</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insured: 97%</td>
<td>Mean hrs worked - past mo: 38 hrs</td>
</tr>
</tbody>
</table>
Most participants had good to moderate control of their diabetes

Baseline Diabetes Control: HbA1c

- In control: 31%
- Moderately controlled: 48%
- Poorly controlled: 20%
Participants: Diverse

Study sample is ethnically diverse

Native Hawaiian / Pacific Islander: 35%
Japanese: 18%
Other Asian: 18%
White: 17%
Other: 12%

Other Asian: (Filipino, Chinese, Other Asians)

Other: Mixed or non-NHPI, Black, Other, AIAN
Intervention: Service Usage

*Life Coaching was the dominant intervention component accessed.*

- Life Coaching Meetings: 1,214
- Pharmacist Counseling Meetings: 449
- YMCA Visits: 104
- Nutrition Counseling Meetings: 80
- Certified Diabetes Education Meetings: 17
Quantitative Data

• Health

• Employment

• Disability
## Results: HEALTH

*Diabetes self efficacy and body mass index changes were significantly better in the treatment than the control group.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>ANCOVA p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes self-efficacy</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Body mass index</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>SF-12 (mental)</td>
<td>.14</td>
</tr>
<tr>
<td>HbA1c</td>
<td>.31</td>
</tr>
<tr>
<td>SF-12 (physical)</td>
<td>.43</td>
</tr>
<tr>
<td>Number of IADLs</td>
<td>.45</td>
</tr>
<tr>
<td>Number of ADL</td>
<td>.85</td>
</tr>
</tbody>
</table>
Diabetes Self-efficacy*

DES-SF: 
- Control
- Treatment

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 Months</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.80</td>
<td>3.92</td>
<td>3.84</td>
</tr>
<tr>
<td>Treatment</td>
<td>3.77</td>
<td>4.09</td>
<td>4.26</td>
</tr>
</tbody>
</table>

p < .001

* Score on the University of Michigan Diabetes Empowerment Scale – Short Form (DES-SF)
Body Mass Index

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 Months</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control</strong></td>
<td>34.26</td>
<td>34.48</td>
<td>34.10</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>32.29</td>
<td>31.72</td>
<td>31.25</td>
</tr>
</tbody>
</table>

\[ p < .001 \]
Results: **DISABILITY & EMPLOYMENT**

*No significant differences between treatment and control groups.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>ANCOVA p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours worked</td>
<td>.08</td>
</tr>
<tr>
<td>Effect diabetes has on work productivity</td>
<td>.70</td>
</tr>
<tr>
<td>Annual earnings</td>
<td>NA</td>
</tr>
<tr>
<td># of govt programs* participating in</td>
<td>.90</td>
</tr>
</tbody>
</table>

* Five programs tracked: Temporary Assistance to Needy Families, Food Stamps, Section 8 or other subsidized housing, Medicaid, Vocational Rehabilitation.
Qualitative Data

• Focus Group Interviews
• Satisfaction Surveys
• Participant Exit Interviews
## Satisfaction with Life Coaching: 12 months

<table>
<thead>
<tr>
<th>How Satisfied are you with your coach’s...</th>
<th>N= 93</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability to answer questions, follow through on commitments, and be supportive and encouraging</td>
<td>3.85</td>
<td>0.46</td>
</tr>
<tr>
<td>Ability to elicit answers, actions, and explore alternatives</td>
<td>3.83</td>
<td>0.46</td>
</tr>
<tr>
<td>Efforts to be non-judgmental and respectful of your views, beliefs, needs, and goals</td>
<td>3.90</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Scale: 1 = Completely Dissatisfied; 4 = Completely Satisfied
Overall Satisfaction with Life Coaching - 12 months

N = 93

1  2  3  4

Completely Dissatisfied

Completely Satisfied

3.80
Feedback about Life Coaching

“Coaching allows me to share concerns about other aspects of my life which affects the way I deal with my health.”

* Satisfaction Survey

“I was lucky to get a life coach, so it’s good because when I was diagnosed, it seemed like this huge thing and she helps me break it down so that there are little goals along the way, so that I’m not looking at it as an insurmountable mountain.”

* Fukunaga, L. et.al. Live Healthy Work Well Research Brief #2
## Satisfaction with Pharmacist Counseling: 12 month

<table>
<thead>
<tr>
<th>How satisfied are you with your pharmacist</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respectful, non-judgmental, and concerned</td>
<td>86</td>
<td>3.16</td>
<td>0.92</td>
</tr>
<tr>
<td>Positive environment, supportive and encouraging</td>
<td>86</td>
<td>3.17</td>
<td>0.92</td>
</tr>
<tr>
<td>Collaborates &amp; brainstorm solutions that enable informed decision making</td>
<td>85</td>
<td>3.08</td>
<td>1.00</td>
</tr>
<tr>
<td>Asked about physician visits, and discussed recommendations or health changes</td>
<td>85</td>
<td>3.09</td>
<td>0.96</td>
</tr>
<tr>
<td>Time spent with you</td>
<td>86</td>
<td>3.13</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Scale: 1 = Completely Dissatisfied; 4 = Completely Satisfied
Overall Satisfaction with Pharmacist Counseling – 12 months

N = 86

Completely Dissatisfied

[1 2 3 4]

Completely Satisfied

2.97
Feedback about Pharmacists

“Meeting with my pharmacist, being able to describe to her what kind of medication I’m on, what kind of diet I’m on, and getting her feedback of what I need to stay on top and how to go about doing it and getting her support as well. That I can do it.”

Participant Feedback

HELPFUL:

• Being held accountable
• Goal setting
• One-on-one communications/discussions
• Diabetes and nutrition information from service providers
Participant Feedback

“I think this program that I just completed with the University was very helpful because it had a pharmacist, it had a dietician, and it had a life coach, and all three of them were really able to help me out on a regular basis.”

* Exit Interview
Preliminary Implications

THE INTERVENTION:

• Increased diabetes self efficacy
• Improved health
• More effective for those with poor chronic disease management skills

FUTURE RESEARCH

• Informs federal legislation for potential policy and funding options
• Adds to the literature for future community-based person centered approaches for adults with chronic illness
Recommendations

- Study cost effectiveness of life coaching and pharmacist counseling
- Integrate into health initiatives
- Future interventions
  - Face-to-face: one-on-one support (engagement)
  - Use of goal setting and personal accountability
1. Data Collection
   • Through June 2010

2. Analysis & reporting
   • Measure effects of treatment on
     – Employment
     – Health
     – Access to government benefits
   • Final report – September 2010

3. Intervention components
   • Life Coaching
   • Pharmacist Counseling
Project Team
(current and former members)

- Brandon Arakaki
- Calvin Cheung
- Thomas Christ
- Kriste Colley-Valdez
- Kevin Dierks
- Sreang Heak
- Junko Hashizume
- Jean Isip Schneider
- Courtney Johnson
- Dongmei Li
- Lisa Maetani

- Mary Lou Matsuura
- Adela Mearig
- Nani Picerno-Manrique
- Chin-Chin Minniear
- Corrie Ota
- Rebecca Rude Ozaki – PI
- Kathy Richins
- Crystal Watanabe
- Denise Watanabe
- Patrick Yrizarry
Independent Evaluation Team
(current and former members)

- Gina Cardazone
- Rebecca Chelliah
- Rochelle Dulatre
- Sara Fares
- David Francis
- Landry Fukunaga
- LeeAnna Kobayashi
- Natalya Mekkoyeva
- Mizuho Murakami

- Christy Nishita
- Alice Tse
- Tammy Tom
- Denise Uehara – Coordinator
- Monica Um
- Marisa Watanabe
- Evaluation Advisory Council
- Just Your Type
- UH CRDG
Our Community

- Centers on Medicare & Medicaid Services
- HI Department of Human Services
- HI Department of Health
- Mathematica Policy Research, Inc.
- Hawaii Business Health Council
- Times Supermarket
- Longs Drug Stores
- HECO
- Roberts Hawaii
- Servco Pacific
- University Health Alliance
- Quality Assurance Committee
- American Diabetes Association – Hawaii Chapter
- Project Advisory Council
Mahalo… Thank you!

Contact information:
Becky Ozaki  rozaki@hawaii.edu
Jean Isip Schneider  isip@hawaii.edu
Thomas W. Christ  tchrist@hawaii.edu
Tammy Tom  tmytom@hawaii.edu

Project website:
http://www/manoa.hawaii.edu/livehealthy/