Effectiveness of Health Coaching on Health Outcomes and Health Services Utilization and Costs

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Health Coaching

Background
Objective
Data Sources/Study Setting
Study Design
Data Collection
Principal Findings
Implications for Practice and Policy
Why Health Coaching?

- US has experienced dramatic increases in health care costs.
- Conventional approaches have not led to significant or sustainable changes in health-related behaviors.
- HRA approach does not foster self-management strategies or lead to behaviors that impact both current and future risk.
- ROI
Health Coaching

- Relatively new field.
- Distinctly different from health education.
- Lack of clarity in role, educational preparation and use of the title “coach”.
- Academic programs and continuing education programs.
Health Coaching

• Change Theory
• Self-Efficacy
• Positive Psychology
• Motivational Interviewing
• Patient Activation
Disease Management

- Coordinated and comprehensive care
- Clinical guidelines, pathways and algorithms
- Financial incentives
- Dominant focus – the disease itself.
Health Coaching

• Client identified priorities and goals
• Supporting health behavior change specific to the patient/client and their goals.
Health Coaching

- Relationship-Based
- Process of empowerment
- Client directed lifestyle and behavioral change
- Augmented with health education and promotion.
Focuses on increasing the client’s self-motivation
Self-efficacy
Self-management skills
Objective
To evaluate the effectiveness of health coaching in improving
• health outcomes
• reducing health services utilization
• reducing costs
U of MN Center for Spirituality & Healing developed a custom program to prepare health coaches in 2008.

- 200 hour program
- Minimum of BA degree – many fields – nursing, medicine, psychology, social work, nutrition, exercise physiology.
- Initial training as well as professional development.
Data Sources/Study Setting

- Primary health questionnaire data were collected from January 2009 to December 2010
- Secondary administrative claims data were collected from June 2008 to June 2011
- Study participants were members of a health insurance plan who were offered a telephonic health coaching program to assist in managing their health and healthcare needs
Study Design

High risk health plan enrollees were invited to participate in a health coaching intervention designed to

• improve participants’ health and wellbeing
• motivate behavior change
• increase motivation and self-efficacy
• manage health conditions
Study Design

Health coaching participants were either identified via claims data, physician referral, or self-enrolled. Health coaches had degrees in:

- Nursing
- Psychology
- Social Work
- Exercise Physiology
- Nutrition Education
- Health Education
Study Design

Health coaching participants chose to participate in either an *active or self-directed* track.

Active participants voluntarily filled out a health inventory @baseline & program completion assessing:

- lifestyle, health
- stress levels, quality of life
- readiness to make lifestyle & behavior changes
- patient activation levels
Study Design

*Experimental group:* Health coaching participants

*Control group:* Non-participating health plan members who were otherwise eligible to participate in health coaching
Inclusion Criteria

• Age - 18 and 80
• Completed surveys measuring QOL, motivation, confidence and readiness for change.
• Participated in coaching for a minimum of 28 days.
Inclusion/Exclusion Criteria

- Members Identified as High Risk/Eligible for Health Coaching
  \[ N = 114,615 \]

- Coaching Participants
  \[ N = 9,718 \]

  - One Health Coaching Case
    \[ N = 9,048 \]
      - Active Participants
        \[ N = 6,940 \]
        - Filled out pre and post QOL surveys
          \[ N = 1,082 \]

  - Multiple Health Coaching Cases
    \[ N = 670 \]
      - Self-Directed
        \[ N = 2,108 \]
        - Filled out pre and post PAM surveys
          \[ N = 570 \]

  - Non-Participants
    \[ N = 104,897 \]
Data Collection

Health coaching participants completed health inventories at
• baseline and
• program completion

Administrative claims data were examined for the experimental and control groups
• six months prior to and
• six months post participation
Study Design

*Administrative claims data*

- Analyze differences in health services utilization and costs between the experimental and control groups
  - six months prior, and
  - six months post participation in health coaching
- Matched controls
  - assigned pseudo-enrollment dates mimicking the experimental group’s distribution of the pre and post periods
Participation & Survey Response Rates

- **Active Participation**: Less than 6% (6,940/114K) of potential candidates actively participated in health coaching.
- **QOL survey**: Approximately 16% (1,082/6,940) of active participants filled out both pre and post QOL surveys.
- **PAM survey**: Approximately 8% (570/6,940) of active participants filled out both pre and post PAM surveys.
Health Coaching

**Intervention**

- Dedicated health coach
- Client identified health goals
- Process of health coaching – self-discovery and empowerment
- Scheduled coaching sessions
- Number of sessions varied but included at a minimum 8 phone sessions. (initial assessment, 6 coaching sessions and one evaluation session)
- Personalized educational mailings
- Workbook that addressed health behavior change, stress management and healthful living tips.
Participants (n=1,082)

- 81% were between 40 and 65 years old
- 70% were female
- 80% lived in urban areas
- 79% were privately insured
- 19% were on Medicare/Medicaid
- 95% had at least one chronic condition
**Principal Findings – Participants**

Differences between final survey sample and non-responders

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Active</th>
<th>Non-responders</th>
<th>Pre/Post QOL</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size (n)</td>
<td>6,940</td>
<td>5,858</td>
<td>1,082</td>
<td></td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (average for those age &lt; 65 yrs)</td>
<td>48.8</td>
<td>48.0</td>
<td>52.9</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>18-25</td>
<td>5.1%</td>
<td>5.7%</td>
<td>1.6%</td>
<td>&lt;.0001</td>
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<tr>
<td>26-29</td>
<td>4.6%</td>
<td>5.1%</td>
<td>1.9%</td>
<td>&lt;.0001</td>
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<tr>
<td>30-39</td>
<td>13.7%</td>
<td>14.6%</td>
<td>9.1%</td>
<td>&lt;.0001</td>
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<tr>
<td>40-49</td>
<td>22.3%</td>
<td>22.9%</td>
<td>18.6%</td>
<td>0.002</td>
</tr>
<tr>
<td>50-59</td>
<td>34.2%</td>
<td>33.2%</td>
<td>39.5%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>60-64</td>
<td>15.6%</td>
<td>14.3%</td>
<td>22.7%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>65 and older</td>
<td>4.6%</td>
<td>4.2%</td>
<td>6.8%</td>
<td>0.0003</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>29.6%</td>
<td>29.3%</td>
<td>31.0%</td>
<td>0.28</td>
</tr>
<tr>
<td>Rural/urban (% rural)</td>
<td>15.5%</td>
<td>14.7%</td>
<td>20.0%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Commercial (private) Insurance</td>
<td>65.3%</td>
<td>62.7%</td>
<td>79.1%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Government (public) Insurance</td>
<td>33.2%</td>
<td>35.9%</td>
<td>19.0%</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

*Our final survey sample tended to be older - over age of 50, living in rural areas, and carrying private (commercial) vs public insurance*
Principal Findings – Session Participation and Goals

Of the 1,082 active participants with pre/post QOL surveys:

• On average, participants attended eight telephonic coaching sessions over a period of six months.

• Approximately 89% of the 1,075 people who set goals met at least one of their identified goals.
Principal Findings – Health Outcomes

• 12% reduction in stress levels
• 18% improvement in healthy eating
• 21% improvement in exercise levels
• 12-15% increase in the percent reporting good physical and emotional health
Principal Findings - Patient Activation Measure (PAM):

- Individuals realized an average 8-9 pt increase in PAM scores
- 60% reporting a clinically significant improvement >= 5 points
Health Coaching

Principal Findings – PAM Scores & Stages

- 42% moved up one or more stages
- Significant increase in percent achieving stage 4

![Bar chart showing pre and post changes in PAM scores and stages.]

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>May not believe the patient role is important</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacks knowledge, skills, or confidence to take action</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning to take action in own health and wellness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintaining healthy behaviors over time</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

pre | post | 40% | 64% |
Claims Analyses - Inclusion/Exclusion Criteria

Decision rules:
• Focus - commercially insured population with continuous coverage; exclude state public program enrollees (on/off coverage)
• Exclude top ~1% cost outliers
➢ sample reduced from 9,048 health coaching participants to 5,101

Health coaching inclusion/exclusion criteria:
• minimum length of health coaching participation = 4 weeks
• minimum amount of time in the pre and post periods = 6 months
➢ sample limited to 1, 161 active participants + matching controls
### Principal Findings – Health Services Utilization

Compared to controls, the percent of health coaching participants with an inpatient, outpatient, or prescription claim was significantly lower in the post period.

<table>
<thead>
<tr>
<th></th>
<th>Sample Size (n=1,161)</th>
<th>Experimental</th>
<th>95% CI</th>
<th>Matched Controls</th>
<th>95% CI</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% with Claim</td>
<td>SE</td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Inpatient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claim was Pre HC</td>
<td>20.3%</td>
<td>0.012</td>
<td>18.0%</td>
<td>22.6%</td>
<td></td>
</tr>
<tr>
<td>Claim was Post HC</td>
<td>11.5%</td>
<td>0.009</td>
<td>9.6%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>&lt; 0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claim was Pre HC</td>
<td>99.1%</td>
<td>0.003</td>
<td>98.5%</td>
<td>99.6%</td>
<td></td>
</tr>
<tr>
<td>Claim was Post HC</td>
<td>96.1%</td>
<td>0.006</td>
<td>95.0%</td>
<td>97.2%</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>&lt; 0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claim was Pre HC</td>
<td>96.9%</td>
<td>0.005</td>
<td>95.9%</td>
<td>97.9%</td>
<td></td>
</tr>
<tr>
<td>Claim was Post HC</td>
<td>93.8%</td>
<td>0.007</td>
<td>92.4%</td>
<td>95.2%</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>&lt; 0.01</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Principal Findings – Total Costs

Relative to controls, health coaching participants' combined inpatient, outpatient & prescription expenditures were significantly lower in the post period.

| Log Total Costs       | Coef. | SE  | P>|t| | 95% CI       |
|-----------------------|-------|-----|------|-------------|
| Group                 | (omitted) |     |      |             |
| Post                  | 0.112 | 0.025 | 0.000 | 0.062 - 0.162 |
| Group * Post          | -0.172 | 0.035 | 0.000 | -0.240 - -0.104 |
| Months in Health Coaching | 0.066 | 0.005 | 0.000 | 0.056 - 0.075 |
Conclusions
This study finds evidence of improvements in health and behavior outcomes and reduced health care expenditures following health coaching.

Particular high risk subpopulations such as patients with diabetes and cardiovascular disease may warrant further study.

While still in its initial stages of program development, this health coaching program has the potential to expand its outreach and enrollment efforts.
Implications for Healthy Academic Communities

Health behavior of faculty, staff and students contribute significantly to the health care cost burden of universities.

Evidence that health coaching may be a cost effective approach for improving health outcomes and reducing costs.

Health coaching may be a relatively low-cost strategy.

Additional research is needed to evaluate the impact of health coaching within academic communities.
Wellbeing

COMMUNITY

ENVIRONMENT

HEALTH

RELATIONSHIPS

PURPOSE

SECURITY
QUESTIONS?
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