On-Line Cognitive Behavioral Therapy: The Return-On-Investment For Health Plans

OPEN MINDS Executive Web Briefing
January 29th, 2014
Presentation Agenda

• Demographics & Economic Impact Of Depression & Anxiety
• Role Of Cognitive-Behavioral Therapy (CBT) In Treating Mild/Moderate Depression & Anxiety
• The UPMC Experience with CCBT
• Calculating The Health Plan Return-On-Investment (ROI) Of *Beating The Blues*
Introductions Of Case Study Presenter

Sharon Hicks, MSW, MBA

• Executive at UPMC with multiple leadership roles in the insurance services division
  • COO of Community Care Behavioral Health
    • Community Care is a Medicaid-focused, behavioral health managed care organization (MCO) located in Pennsylvania.
  • CEO of Askesis Development Group
    • Askesis is a software solutions firm specializing in electronic health record (EHR) systems for the behavioral health, addictions treatment, and social service markets.
• Board member of U Squared Interactive
  • U Squared Interactive is a joint venture of UPMC and Ultrasis (UK) that provides health and wellness programs through the internet.
Demographics & Economic Impact Of Depression & Anxiety
Demographics Of Depression & Anxiety

7% of Americans suffer from depression annually

Anxiety affects 18% of Americans annually

Depression is 3rd leading world-wide cause of disease burden and the leading cause of disability in people ages 15 to 44
Depression & Anxiety – In Physical Health

60% of patients who have a chronic physical illness also have a depression or anxiety
- 6-10% of primary care patients
- 20-50% of patients with co-morbid medical conditions (CVD, DM, cancer, x-plant)
- 20% of non-medically ill population report anxiety symptoms

One PCP estimated that of his patients who have chronic physical illnesses, close to 85% of their office visits are likely related to somatic complaints caused by an underlying affective problem, rather than being related to their PH issues.
Economic Impact

Depression cost the U.S. economy $52+ billion annually (in Year 2000 dollars)

Half of the economic impact is from medical expenses, half in lost productivity

Anxiety costs U.S. economy $40+ billion annually

Majority of anxiety expenses associated with general medical costs, not psychiatric treatment
‘Ripple Effects’ Of Depression & Anxiety

• Combination of depression and anxiety is common and increases associated substance abuse, attempted suicides, and hospitalization rates
• Rates of intentional and non-intentional injuries are 2-6 times more common than general population
• Complicates and worsens outcomes in heart disease, diabetes, obesity, cancer, asthma, and epilepsy -- result of lower use of medical care and poor treatment adherence for other health conditions
• Depression is the primary reason for disability claims for > 50% of applications -- associated with a 27% increase in early retirement in men
Depression & Anxiety: How Effectively Diagnosed & Treated?

- Only 50% correctly identified in primary care
- Only 33% of cases accurately recorded in medical records
- Only 20% of patients receive care meeting evidence-based guidelines
- Medication increasingly used as sole treatment
- 2/3 of patients respond adequately to medication
- Success rate of psychotherapy (2 to 3 month course) is comparable to medication for mild/moderate depression
- 2/3 of primary care physicians report inadequate access to therapy and mental health specialists
Barriers To Adequate Care Of Depression & Anxiety

1. Inadequate identification and diagnosis
2. Access to trained practitioners
3. Treatment is highly variable and not sufficiently based on evidence-based methods
4. Stigma of mental illness
5. Geographic limitations of practitioners (highly concentrated in urban areas)
6. Costs to health plans and to individuals
Role Of Cognitive Behavioral Therapy (CBT) In Treating Mild/Moderate Depression & Anxiety
Cognitive Behavioral Therapy

- Cognitive behavioral therapy (CBT) is an evidence-based treatment intervention which has been proven to be an appropriate first-line intervention for depression and anxiety.
- CBT is supported by over 30 years of clinical research and proven to be as effective, or more effective, than medication-alone for mild to moderate levels of depression and anxiety.
Computer-Delivered Cognitive Behavioral Therapy

Computer-delivered cognitive behavioral therapy (CCBT) has been used around the world for years as replacement for in-person delivered CBT

- Multiple studies show equivalent clinical outcomes and drop-out rates compared to in-person care
- CCBT has been utilized as primary treatment, as an alternative to waiting list placement, or as an adjunct to pharmacologic treatment
- CCBT has been primarily delivered in organized health care settings, coordinated by a primary care provider, with options to use as stand alone or adjunct treatment
The UPMC Experience With CCBT
About UPMC

- $12 billion health care organization headquartered in Pittsburgh
- Facilities in Western and Central Pennsylvania, Italy, and Ireland
- Contract relationships in multiple overseas locations
- Four major divisions: hospital, physician, commercial, and insurance
  - Insurance division is around $6 billion annually with 2 million covered lives in insurance, carve-out, EAP, and Leave Management products
UPMC Selection of *Beating The Blues*

- The UPMC did a search for a CCBT program that it could use in its various programs.
- We wanted a program that had a strong research base including published outcomes and was a full course of CBT.
  - Full CBT is more than just reframing and challenging one's thoughts.
  - There are plenty of CBT-based programs available, but we don’t know how well they work over time.
  - Why give someone a less than proven dose of CBT?
- Available to health plans @ $0.60 per covered life annually
Beating The Blues Computer-Delivered CBT

- *Beating the Blues* is a computer-delivered CBT program.
  - The program is 8 sessions broken down into a number of 10 minute modules; homework assignments are also part of the program.
  - Generally people can finish the program in 8 to 12 weeks.
- Joint venture between UPMC & Ultrasis, PLC
- Brought to U.S. following a decade of use and research in the United Kingdom
- 12 years of research support to demonstrate that it has 100% fidelity to the model of CBT
Research Support

*Beating the Blues* is one of two CCBT programs currently listed on the SAMHSA National Registry of Evidence-Based Programs and Protocols

- Listed and recognized in the National Registry of Evidence-based Programs & Practices

- Scored 3.0 out of 4.0 for *Quality of Research*

- Scored 3.8 out of 4.0 for *Readiness for Dissemination*
  - Quality of implementation
  - Training and support
  - Quality assurance procedures
Beating The Blues: Research Conclusions

- Patients who complete the full 8 sessions get rapid, significant relief from depression and anxiety
- Clinical outcomes and drop-out rates are comparable to traditional ‘face-to-face’ therapy
- Significant reductions in cost of lost employment
- Significant increase in depression-free days
- Reduction in emergency department and outpatient specialty medical care
UPMC Use Of *Beating the Blues*

- UPMC Health Plan using it in commercial plan
- Community Care Behavioral Health using it in PH/BH projects
- EAP using it as an adjunct to standard EAP services
- Research programs
  - CABG
  - CHF
  - Cancer
  - Post-partum depression
Benefits Of *Beating The Blues*

- Increases options for doctors and consumers
- Can be delivered in clinic settings or at home
- Can be delivered anywhere/anytime internet access is available
- Can be linked to primary care, EAP, employee wellness programs
- Not limited by:
  - Availability of specialist
  - Location of patient or clinic
  - Appointment availability
The UPMC Findings: Treatment Improves Life

- People who had Coronary Artery Bypass Graft (CABG) and CBT reported less pain than people who did not have CBT
- Treating depression reduced hospital admissions post CABG (in men)
- Treating depression resulted in a cost savings from physical health care compared to untreated population (incremental savings of close to $10,000 for episodes of care re: CABG)
Calculating The Health Plan Return-On-Investment (ROI) Of *Beating The Blues*
Simple ROI Framework

• Cost inputs for treatment of mild/moderate depression and anxiety by health plan
• Savings estimates, in terms of treatment of mild/moderate depression and anxiety
• ROI = savings/costs

• Model developed for health plans to estimate likely savings of CCBT
Costs Framework In Model – Health Plan With No CCBT

Expected costs of treatment as usual:

- **Average annual cost for therapy** = $760
  - 8 sessions @ $95
- **Average annual cost for psych medication + management** = $991 (annual average cost of primary care medication management & one year prescription costs)
- **Average annual cost for combined therapy + medication** = $1,751 (average annual therapy costs + medication management)
Cost Inputs In Model – Health Plan With CCBT

- *Beating the Blues* fee of $0.60 per covered life per year
- Year One implementation costs (communication materials, changes to plan documents, etc.) of *Beating the Blues* are estimated at $2.00 per covered life
Return-On-Investment Case Example: 100,000-member health plan TAU costs

- Treatment As Usual (TAU) model based on 100,000-member health plan
- Assumes 25% of adult members have mild/moderate depression or anxiety
- Assumes only 50% with depression and 33% with anxiety will be treated
  - 3% treated with therapy
  - 25% treated with medication
  - 21% treated with medication plus therapy
- TAU treatment utilization at those rates generate $12,290,350 in estimated annual treatment costs
Return-On-Investment Case Example: 100,000-member health plan CCBT costs

- *Beating the Blues* fee is $0.60 per covered life per year
- Year One implementation costs of *Beating the Blues* are priced at $2.00 per covered life

- Year One implementation and software costs = $260,000
- Year Two software costs = $60,000
- Year Three software costs = $60,000
Return-On-Investment Case Example: 100,000-member health plan CCBT savings estimates

- Modeled on 100,000 covered lives @ $0.60
- Assumes 50% treatment rate for depression
- Assumes 33% treatment rate for anxiety
- \textit{BtB} adoption rate: 10\%, 20\% & 35\% over 3 years
- Assumes that \textit{BtB} will be added to existing treatments during early adoption with (\textit{BtB} plus TAU), declining over time: from 75\% to 40\% in three years

- Three-year cumulative savings of $2.8 million or 378\% ROI
# Beating The Blues: ROI Assumptions In Case Example

<table>
<thead>
<tr>
<th>ROI Model Variables</th>
<th>TAU</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>3 Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Covered Lives</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td></td>
</tr>
<tr>
<td>% Of Patients Whose Depression Is Both Diagnosed &amp; Treated</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>% Of Patients Whose Anxiety Is Both Diagnosed &amp; Treated</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>% Adoption Beating The Blues</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>% Clients With Combined Care (Therapy And/Or Medication)</td>
<td>100%</td>
<td>75%</td>
<td>60%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>% Of Population Under 18 Years</td>
<td>23.5%</td>
<td>23.5%</td>
<td>23.5%</td>
<td>23.5%</td>
<td></td>
</tr>
<tr>
<td>% Of Population Illiterate Of Unable To Access Computer</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
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</tr>
<tr>
<td>Total Annual Treatment Costs For Depression &amp; Anxiety</td>
<td>$12,290,350</td>
<td>$11,764,754</td>
<td>$11,373,206</td>
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<tr>
<td>Projected Annual Savings From Beating The Blues</td>
<td>0</td>
<td>$425,596</td>
<td>$817,144</td>
<td>$1,632,144</td>
<td>$2,874,884</td>
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<tr>
<td>ROI: Beating The Blues</td>
<td>0</td>
<td>63.7%</td>
<td>410%</td>
<td>857%</td>
<td>378%</td>
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</tbody>
</table>
Alternate Return-On-Investment Case Example: 100,000-member health plan

Assumptions in alternate ROI case example:

• Lower 3-Year CCBT adoption rate
  • Scenario #1: 10%, 20% & 35% over 3 years
  • Alternate case example: 8%, 15% & 20% over 3 years

• Higher rate of combined treatments (CCBT plus TAU):
  • Scenario #1: from 75% to 40% in 3 Years
  • Alternate case example: from 85% to 60% in 3 years

• Three-year cumulative savings of $1.6 million or 180% ROI
# Beating The Blues: ROI Assumptions In Alternate Scenario

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<tr>
<td>% Adoption <em>Beating The Blues</em></td>
<td>0%</td>
<td>8%</td>
<td>15%</td>
<td>20%</td>
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<td>% Clients With Combined Care (Therapy And/Or Medication)</td>
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<td>$12,290,350</td>
<td>$12,047,761</td>
<td>$11,728,564</td>
<td>$11,473,206</td>
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<td>Projected Annual Savings From <em>Beating The Blues</em></td>
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<td>$-17,411</td>
<td>$401,786</td>
<td>$817,144</td>
<td>$1,201,519</td>
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<td>ROI: <em>Beating The Blues</em></td>
<td>0</td>
<td>-6.7%</td>
<td>251%</td>
<td>410%</td>
<td>180%</td>
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Estimated Impact On Treatment Costs: *Beating The Blues*

**Annual Treatment Costs per 100,000 Covered Lives**

- **Scenario #1**
  - Year 1: $12,000,000
  - Year 2: $11,500,000
  - Year 3: $11,000,000

- **Scenario #2**
  - Year 1: $12,500,000
  - Year 2: $12,000,000
  - Year 3: $11,500,000

**Estimated Impact On Treatment Costs:**

- **Beating The Blues**
  - Year 1: $9,500,000
  - Year 2: $10,000,000
  - Year 3: $10,500,000
  - Year 4: $11,000,000
  - Year 5: $11,500,000
  - Year 6: $12,000,000
  - Year 7: $12,500,000
Estimated 3-Year Net Savings From *Beating The Blues*

**Net Savings from Three Year Implementation of Beating The Blues**

- **Scenario #1**
- **Scenario #2**

<table>
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<tr>
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<th>Scenario #2</th>
</tr>
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<tbody>
<tr>
<td>TAU</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Year 1</td>
<td>$200,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>Year 2</td>
<td>$600,000</td>
<td>$800,000</td>
</tr>
<tr>
<td>Year 3</td>
<td>$1,000,000</td>
<td>$1,400,000</td>
</tr>
</tbody>
</table>

Estimated 3-Year Net Savings:

- $200,000
- $400,000
- $600,000
- $800,000
- $1,000,000
- $1,200,000
- $1,400,000
- $1,600,000
- $1,800,000
Estimated 3-Year Return-On-Investment: *Beating The Blues*

3 Year Return-On-Investment for Beating the Blues

- Scenario #1
- Scenario #2
Additional Estimated Savings Health Plans Can Add To Model

- Decreased utilization of primary care visits
- Increases primary care physician options for prescribing evidence-based psychotherapy
- Improves outcomes with comorbid medical illnesses and depression/anxiety
- Reduced hospital readmissions
- Improved consumer access
- Improved consumer satisfaction

*Beating The Blues* – harnessing the power of research-based interventions with the convenience of the internet...
References

2. Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, Mental Illness Surveillance Among Adults in the United States, 60(03), 1-32, September 2, 2011