Treatment Technology From The Payer Perspective: How UPMC Is Using Computerized Cognitive Behavioral Therapy For Population Health

The 2016 OPEN MINDS Strategy & Innovation Institute
June 8, 2016

Monica E. Oss, Chief Executive Officer, OPEN MINDS
Agenda

1. Changing Treatment Technologies in Today’s Behavioral Health Marketplace
2. Cognitive Behavioral Therapy in the Field
3. Tips for Successful Treatment Adoption
The Range of Technology Deployment in Health & Human Services

- Software and hardware platform for organization operations – E-mail, internet access, Intranet, utility programs
- Billing and revenue cycle management
- Financial management
- Human resource management
- Customer relationship management
- Web site
- Social media (LinkedIn, Facebook, Twitter, etc.)
- Treatment technology
- Telehealth, remote monitoring, and tech-enabled consumer interface/services
- Electronic health recordkeeping system functionality, including consumer personal health records
- Analytics for metrics-based performance management
Treatment Technologies Creating New Delivery System Models

Neurotech: Service delivery mechanism The “What” of Service

Telehealth: Platform for service delivery The “How” of Service

New Service Delivery Paradigm
## Tx Technologies Available All Along The Service Continuum

<table>
<thead>
<tr>
<th>Diagnostics</th>
<th>Consumer Education/Decision Support</th>
<th>Clinical Treatment</th>
<th>Cognitive Function Restoration</th>
<th>Early Detection of Relapse</th>
<th>Relapse Prevention</th>
<th>Remote Monitoring of Patient Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Telepsychiatry using IronWorks™</td>
<td>- Video Doctor</td>
<td>- TMS Therapy®</td>
<td>- My Mood Map</td>
<td>- Automatic Trail Making Tests™</td>
<td>- Technology Enhanced Recovery™</td>
<td>- ViTelCare™ T400</td>
</tr>
<tr>
<td>- M3 (My Mood Monitor™)</td>
<td>- Common Ground</td>
<td>- Beating the Blues</td>
<td>- eCBT Mood©</td>
<td>- fMRI</td>
<td>- REAC-CRM (REAC-lithium)</td>
<td>- SenseWear® Armband System</td>
</tr>
<tr>
<td>- Brain scanning tech</td>
<td>- Virtual Handheld Clinic</td>
<td>- Mystrength.com</td>
<td>- MyBrain Solutions</td>
<td>- ITAREPS</td>
<td>- PSYCHE</td>
<td>- MagneTrace</td>
</tr>
<tr>
<td></td>
<td>- PTSD Coach</td>
<td></td>
<td></td>
<td>- MONARCA</td>
<td>- Personalised Ambient Monitoring (PAM)</td>
<td>- ID-Cap</td>
</tr>
<tr>
<td></td>
<td>- True Colours</td>
<td></td>
<td></td>
<td>- Actiwatch</td>
<td></td>
<td>- Electronic Medication Management Assistant® (EMMA)</td>
</tr>
<tr>
<td></td>
<td>- ChronoRecord®</td>
<td></td>
<td></td>
<td>- Health Buddy®</td>
<td></td>
<td>- Implplantable RF Transceiver ZL70102</td>
</tr>
<tr>
<td></td>
<td>- Health Steps for Bipolar</td>
<td></td>
<td></td>
<td>- OPTIMI</td>
<td></td>
<td>- Motionlogger Actigraph</td>
</tr>
<tr>
<td></td>
<td>- Biomarker: BDNF levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Helius™</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- MOBUS</td>
</tr>
</tbody>
</table>
Cognitive Behavioral Therapy’s Adaptable Service Delivery For Today’s Consumers

**Cognitive behavioral therapy (CBT)**

- A type of psychotherapeutic treatment that helps consumers understand the thoughts and feelings that influence behaviors
- Used to treat a wide range of disorders
- Generally short-term
- Focused on helping consumers address a very specific problem – helping them learn how to identify and change destructive or disturbing thought patterns negatively influence on behavior

**Computerized Cognitive Behavioral Therapy (cCBT)**

- The delivery of CBT therapeutic services using an internet-based interface
- Synchronous (real time with a tech-enabled clinical professional) or automated using expert systems technology
- Relatively new in the U.S. market, but long-established in Europe and other parts of the world
cCBT Services: “The Treatment of Choice”

75% of consumers indicate that they are comfortable with ‘virtual visits’ for receiving direct services

- As consumers increasingly turn to internet-based health information and services, the acceptance of clinical services delivered on electronic platforms will likely increase
- The ability to access behavioral health care in private may also reduce some of the reluctance to access care because of stigma, which remains potent

Use cases and early research have shown ROI of cCBT

180-350% three-year ROI using data from a prototypical health plan, estimated returns calculated for two scenarios, for a health plan with 100,000 covered lives

Duplication of processes decreased from 75% to 40%

CBT has been identified as the treatment of choice – in terms of both outcomes and cost – for a wide range of mental health disorders and stress-related physical health conditions.
Strategic Effects of On-Line Treatment On Delivery System

- Reduced claims cost
- Improved access
- Improved utilization
- Consumer convenience
- Reduced link of geography to access
What Organizations Are Using cCBT To Improve The Treatment Effectiveness?

### Payer Organizations & Health Plans
- Expand access to care for high-cost, complex consumers
- Provide a low-cost treatment for mild to moderate depression and anxiety
- Improve health plan ratings such as NCQA’s HEDIS and CMS STARS ratings

### Behavioral Health Provider Organizations
- Expand access to care
- Useful addition to face-to-face treatment to improve health outcomes of individuals receiving care
- Strategy for serving uninsured consumers where clinical resources are limited

### Users of cCBT

### ACO/Health Home
- Provide an essential, cost-effective tool for consumer health management
- Provide immediate access to services when waiting lists or access barriers exist
- Improve quality scores

### EAP
- Provide a low-cost treatment for employees with mild to moderate depression and anxiety
- Improve employee well-being and work performance
- Increase participation rates in EAP services
- Improve employee health outcomes
Ellen Beckjord, Ph.D., MPH
Director, Population Health Program Design & Engagement Optimization, UPMC Health Plan
Treatment Technology from the Payer Perspective

Ellen Beckjord, PhD, MPH
Director, Population Health Program Design and Engagement Optimization
• $12 billion Integrated Delivery and Finance System headquartered in Pittsburgh, PA with facilities in Western and Central PA, Italy, Ireland and multiple international contract relationships

• **Insurance Services Division**
  – Nearly 3 million members served
  – A network including more than 125 hospitals and other facilities and more than 11,500 physicians
  – Provides services to more than 10,000 employers
  – Behavioral health services provided by more than 2,300 clinicians in nearly 300 facilities
Global Analysis of the Burden

Scaling-up treatment of depression and anxiety: a global return on investment analysis

Dan Chisholm, Kim Sweeney, Peter Sakura

Summary

Background Depression and anxiety have an enormous amount of human suffering and lost productivity costs. There is a strong case for a scaled-up treatment system.

Methods In this global return on investment analysis, we calculate treatment costs and benefits on a global scale, including lost productivity and quality of life costs. We use a standard of living per person (GDP) per worker in 2010 US dollars as the basis for our calculations.

Findings The net present value of the return on investment for treatment coverage for depression and anxiety varies depending on the proportion of patients treated. For example, if the treatment coverage for depression is 66%, the net present value of the return on investment is $310 billion.

Interpretation Return on investment analysis shows that investing in depression and anxiety treatment is highly cost-effective. The benefits of treatment outweigh the costs, with a benefit:cost ratio of 5.3 for depression and 4.0 for anxiety.

1. Estimated global prevalence of depression: 3.2% (men); 5.5% (women)
2. Estimated global prevalence of anxiety: 7.3%
3. Account for 12 billion days of lost productivity every year = $925 billion US dollars
4. Treatment gap: 72% to 93%
5. If treatment scaled to reduce gap to 66% to 50%:
   - Cost for scaling depression treatment: $1.50 pp
   - Cost for scaling anxiety treatment: $0.88 pp
   - Benefit:Cost, depression = 5.3
   - Benefit:Cost, anxiety = 4.0

The Lancet Psychiatry, 2016
Technology-Mediated Treatment

- Technology-mediated mental health treatment (TMMHT) can be effective
  - TMMHT can reduce symptoms of depression and anxiety
  - TMMHT can increase use of adaptive coping skills
  - Long-term follow-up data are sparse

- There are practical benefits of TMMHT beyond its impact on health outcomes
  - TMMHT costs less than usual care
  - Users can access treatment at any time
  - Users can access treatment more quickly
  - TMMHT can increase access to mental health treatment for people living in rural areas only when Internet access is sufficiently robust in the rural area


Technology-Mediated Treatment

- **TMMHT can be delivered as a compliment to usual care**
  - The participation of a health care provider can increase the effectiveness of TMMHT
  - Their participation can be a billable intervention
  - Provider type can vary (e.g., MD; PhD; NP; unlicensed)

- **TMMHT may have a central role in ACOs**
  - ACO owners may leverage TMMHT and other Internet-based support groups to support population health management
  - Use of TMMHT in ACOs should be data driven with respect to identifying patients who would benefit from TMMHT and measuring the impact of TMMHT


Advantages
• Cost
• Efficiency
• Increased access to tx
• Standardization
• Psychoeducation
• Data capture
• Enhanced learning
• Consumer preference

Challenges
• Lack of human connection
• UX/UI
• Scaling from a prototype
• Clinician adoption
• Ethical concerns
• Legal concerns

• Beating the BluesUS is an 8-session **Computerized Cognitive Behavioral Therapy** (cCBT) program

• **Enrollment:** Self-guided or coach-assist

• **Easy to use:** Access the program via computer, laptop, or tablet

• **Free:** all members 18+ are eligible and commercial incentives may also apply depending upon employer benefit plan.

• **Assessment:** individual progress & symptoms are tracked through evidence based questionnaires embedded in the program (PHQ9 and GAD7)
Results (2014-2016)
Results (2014-2016)
Results (2014-2016)

Question 1: In the last 7 days how much have you felt that stress, tension, anxiety or depression have impacted your daily activities?

![Graph showing the average score over sessions]

UPMC Health Plan
Results (2014-2016)

Question 2: In the last 7 days how much have you felt able to manage your negative feelings by using the skills you’ve learned in Beating the Blues?
Results (2014-2016)

Question 3: How close do you feel you are to what successful recovery looks like to you?

Average Score

2.54 4.21 5.07 5.74 6.34 6.77 7.19 7.77

Session

1.1 2.4 3.5 4.5 5.4 6.4 7.4 8.4
The Real “Problem”

- Expecting individuals struggling with depression and/or anxiety to participate in and complete cCBT, or any technology-mediated treatment program, is unrealistic.
The target population represents roughly 10 percent of our total membership.

Nearly one-third of the target population has one or more chronic conditions:
- Cancer
- COPD
- CAD
- CHF
- Diabetes
- Osteoarthritis

These members have a PMPM spend that is more than twice as high as the general target population.
We define engagement in terms of choice.

Efforts to increase engagement are about efforts to affect the probability of an individual making a preferred choice.

Because choices are often sequential or related, engagement efforts must be iterative and dynamic.

With respect to Beating the Blues US, we consider several preferred choices:
- That members initiate the program
- That members complete the program
- That members provide feedback about the program
Solving for Engagement

Identify and characterize populations by risk status

Identify associated preferred choices

Optimized decisional architecture

Continually update risk status, preferred choices, and engagement success

Relevance
Convenience
Reinforcement
Support

Engagement

UPMC Health Plan
### Relevance

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Relevance is the process of convincing a health care consumer that the preferred choice is important.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we promote it?</td>
<td>Marketing efforts, educational campaigns, informational interventions</td>
</tr>
<tr>
<td>How are we optimizing it?</td>
<td>Appreciating that depression and anxiety are still stigmatized conditions, approach the choice to receive treatment as a choice to increase resilience, particularly for chronically ill</td>
</tr>
</tbody>
</table>
## Convenience

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Convenience is making the preferred choice as easy as possible.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we promote it?</td>
<td>Pointing the target population to Beating the BluesUS at multiple touchpoints</td>
</tr>
<tr>
<td>How are we optimizing it?</td>
<td>Single Sign On functionality; development of a mobile-optimized interface and mobile product; placement within our broader solution ecosystem</td>
</tr>
</tbody>
</table>
# Reinforcement

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Reinforcement is making the preferred choice acutely rewarding.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we promote it?</td>
<td>Offering incentives to eligible members who participate in and complete Beating the BluesUS</td>
</tr>
<tr>
<td>How are we optimizing it?</td>
<td>Strategic timing of incentives given patterns of attrition and developing microincentives to reward incremental progress</td>
</tr>
<tr>
<td>What is it?</td>
<td>Support is helping consumers to make the preferred choice.</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>How do we promote it?</td>
<td>Assisting members with health coaching and actively referring members to the program</td>
</tr>
<tr>
<td>How are we optimizing it?</td>
<td>Integrating Beating the BluesUS into clinical care by providing a mechanism for health care providers to “prescribe” the program through a function called “Prescription for Wellness”</td>
</tr>
</tbody>
</table>
Physician discusses w/patient

Patient given printout and instructed to call

Physician enters order

Same-day electronic notification

HC tries to reach patient

HC engages/coaches Pt

Patient calls HC

HC note transmitted to provider

Health Coach enters order results

UPMC Health Plan
• Internal R&D: Prospective evaluation using a sequential multiple assignment trial (SMART) design
  – Optimize engagement
  – Optimize outcomes

• Internal R&D: Derivative development to tailor the solution for high-priority populations

• Mobile component and mobile solution
  – Integrating just-in-time adaptive functionality

• Clinical integration
  – Providing a prescribe-able solution for positive depression screening in primary and specialty care
Questions & Discussion