Outcome-based Measures for Mental Health: Lessons from the Real World

Jeb Brown, Ph.D.

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Additional material related to this presentation can be viewed at www.clinical-informatics.com
Objectives

• Describe method for managing outcomes
• Suggest a stage developmental model for organizations implementing an outcomes management program
• Illustrate model with examples from two large scale multiyear outcomes initiatives
• Present commonalities in findings and experiences
Two Outcomes Initiatives

   - Tests: OQ-45 (adults) and YOQ (children)
   - Clinical Information System (CIS)
   - 17 large group practices, >500 solo providers

2. PacifiCare Behavioral Health: 1999 – present
   - Tests: LSQ (adults) and YLSQ (children)
   - ALERT System
   - >100 groups, >4000 solo providers
Measurement vs. Management

Outcomes management seeks to improve the *effectiveness* and *value* of the treatment services. Outcomes measurement is a means to this end. Outcomes measurement is concerned with improvement of the individual patient, outcomes management with the improvement in outcomes across an entire system of care.
Effectiveness (effect size)

- Effectiveness of the services is measured by the amount of improvement seen in the patients.
- Average improvement is reported as effect size.
- *Effect size* = \( \text{Intake score} - \text{post treatment score} \) divided by standard deviation of the test
- Effect size permits aggregation of results from different measures.
Value

- Value of the services is a function of both effectiveness and cost.
- \( \text{Value} = \frac{\text{Improvement}}{\text{Cost}} \)
- An outcomes management program is judged by the improvement in both \textit{effectiveness} and \textit{value} of the treatment services for the entire system of care.
Benchmarking outcomes

• Definition: The practice of comparing treatment outcomes from one sample to another much larger normative sample

• Requirement: Case mix adjustment methodology to predict expected outcome based on normative sample

• Purpose: Provide a valid method of evaluating outcomes across sites/providers
Four Stages of Development

1. Preparation
2. Implementation
3. Performance feedback
4. Managing outcomes
Stage one: Preparation

- Choice of measures
- Development of case mix model
- Prototyping of reports and decision support tools
- Training materials
- Education of providers and consumers
Example: Case mix adjustment

Diagnosis and Outcome

Effect Size

LSQ Intake Score

Anxiety
Bi-Polar
Depression
Psychotic
Substance Abuse

PacifiCare Behavioral Health project
Example: Targeting at risk cases

- Change in early sessions highly predictive of outcome
- This can be used to target at risk cases
- Most likely outcome is patient terminates prematurely
- Provide immediate feedback to provider – seek to prevent premature termination
Monitoring trajectory of change

Patient Name: Sample case

Case at risk!
Stage two: Implementation

- Pilot system with sub set of high volume providers and clinics
- Refine reports and decision support tools based on feedback from users
- Monitor and provide feedback on data quality compliance with data collection protocols
- Validate and refine case mix adjustment model
Example: Data quality monitoring

Percentage of cases with two data points

- Site 1: 15%
- Site 2: 35%
- Site 3: 10%
- Site 4: 5%
- Site 5: 30%
Stage 3: Performance feedback

- Provide performance feedback on continuous basis
- Make direct comparisons across sites or providers; identify top performers
- Institute remedial measures as necessary to improve data quality
- Disseminate results; respond to concerns re data quality, validity of methods, etc.
Provider ID: Psycare Inc.  
Graph ID: 1  
Date of report: 4/2/02

*Cases included in this report began treatment during 2001*

### Age Group

<table>
<thead>
<tr>
<th>Severity at intake</th>
<th>Adults</th>
<th>Total Cases</th>
<th># cases with &gt; 1 data point</th>
<th>Change (effect size)</th>
<th>Change Index (actual-expected)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>actual</td>
<td>expected</td>
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<tr>
<td>Normal range</td>
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<tr>
<td>Moderately distressed</td>
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<td>210</td>
<td>0.59</td>
<td>0.47</td>
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<tr>
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<tr>
<td>Combined Adult</td>
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<table>
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<th>Severity at intake</th>
<th>Children &amp; Adolescents</th>
<th>Total Cases</th>
<th># cases with &gt; 1 data point</th>
<th>Change (effect size)</th>
<th>Change Index (actual-expected)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>actual</td>
<td>expected</td>
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<tr>
<td>Normal range</td>
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<td>84</td>
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<td>29</td>
<td>1.28</td>
<td>0.94</td>
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<tr>
<td>Combined Child/Adolescent</td>
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<td>269</td>
<td>129</td>
<td>0.54</td>
<td>0.25</td>
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</tbody>
</table>

### Aggregate Results for All Age Groups

<table>
<thead>
<tr>
<th>Change</th>
<th>Change Index</th>
<th>Total number of cases:</th>
<th>Number of cases with &gt; one data point:</th>
<th>% of cases with &gt; one data point:</th>
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<tbody>
<tr>
<td></td>
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<td>1454</td>
<td>814</td>
<td>56%</td>
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<tr>
<td></td>
<td>(actual-expected)</td>
<td></td>
<td></td>
<td>0.18</td>
</tr>
</tbody>
</table>

Above average
Example: Comparing Results

Severity Adjusted Effect Size

Effect Size

All cases

Combined clinics (n=6752)
Solo Providers (n=10459)
Clinic #1
PBH ALERT high risk case report
(provided immediately to treating professional)

Patient Name: DOB: 8/8/47
Most recent session #: 3  Session date: 11/17/01

Date of most recent clinician assessment: 12/16/01
Diagnoses: 296.89
Life time hospitalizations: 2
Provider assessment of CD problem: No
Provider assessment of risk of harm to self: Mild

Provider Data

Most recent hospitalization:

Test results

Target score: 68
Severity Range: Severe
Change Index: -27

Critical items

I have thoughts of ending my life: Always
I feel hopeless about the future: Always
I use alcohol or a drug to get going in the morning: Always
People criticize my drinking (or drug use): Never
I have trouble at work/school or other daily activities because of drinking or drug use: Never

ALERT™ Notes

The patient’s rate of improvement is significantly worse than expected, indicating a high risk for premature termination. The patient reports a high frequency of suicidal ideation while provider assessed no or mild risk. The patient reports possible substance abuse problem while provider assessment indicates no substance abuse problem. Treatment history indicates risk for hospitalization.
Recent Research Support

• Michael Lambert Ph.D and his colleagues at the Brigham Young University Comprehensive Clinical have performed a series of controlled studies into the effects of feedback.

• All patients administered the OQ45 at every session

• Half cases are randomly assigned to feedback condition. Thus therapists receive feedback on the trajectory of change for approximately half of their cases.
BYU Research Findings

- Patients with poor initial response to treatment receive significantly more sessions and have a better outcome in the feedback condition.
- Patients with good initial response to treatment have similar outcomes regardless of feedback, but cases in feedback condition receive slightly fewer sessions.
- Feedback with additional decision support and coaching results in better outcome than feedback alone.
Clinical Support Tools Decision Tree
Red or Yellow Feedback Cases

Assess therapeutic alliance with HAq-II. Does the client report concerns with the therapeutic alliance?

YES \rightarrow See Therapeutic Alliance Interventions handout.

NO \rightarrow Assess readiness to change with the SCS. Does the client report being in a precontemplation or contemplation stage of readiness to change?

YES \rightarrow See Readiness to Change Interventions handout.

NO \rightarrow Assess social support resources with the MSPSS. Does the client report low social support?

YES \rightarrow See Social Support Interventions handout.

NO \rightarrow Reassess the diagnostic formulation. Is there an effective treatment option that has not been attempted?

YES \rightarrow Consult relevant resources and alter the treatment plan.

NO \rightarrow Is medication an effective treatment option?

YES \rightarrow Refer for psychiatric consultation.

NO \rightarrow See Therapeutic Alliance Interventions handout.

See Readiness to Change Interventions handout.

See Social Support Interventions handout.

Consult relevant resources and alter the treatment plan.

Refer for psychiatric consultation.

Stage 4: Managing outcomes

- Continued data analysis to explore opportunities for quality improvement
- Communicate clear expectations for performance improvement for sub par performers
- Provide additional support in form of consultation, data analysis, reporting and decision tools as needed
- Reward top performers with recognition, incentives, increased referrals, etc.
Results: What have we learned?

• At least two data points on 45% of cases is realistic target
• Most of the change occurs in the first few sessions
• Organized groups of providers are getting better results than solo providers
• Top providers get results quickly – better outcomes are associated with shorter lengths of treatment
• Feedback works!
Group practices had benefit of decision support tools while solo practitioners did not.

* Brown GS, Lambert MJ: Tracking patient progress: decision making for cases who are not benefiting from therapy. Presented at the 29th Annual Meeting of the Society for Psychotherapy Research at Snowbird, Utah, 1998
Initiative two results

Severity Adjusted Effect Size

Effect Size per Session

High volume group practices (n=4175 patients)

Individual providers (n=4196 patients)
Dose benefit: For better or worse

Patients with higher levels of distress are much more likely to show benefit with longer lengths of treatment than patients with scores in the “normal range”.
Feedback works!

- In 2001 PBH initiated ALERT high risk case reports sent directly to the treating professional.
- During 2001 length of treatment and outcomes for targeted at risk cases increased significantly from 1999-2000 baseline levels.
- Improved suicide risk assessments: 28% decline in “probable assessment errors”
- PBH annual outcomes report available online
Increased length of treatment for at risk cases

At risk cases and length of treatment

- Clinic at risk
- Clinic not at risk
- Solo not at risk
- Solo at risk
Outcomes are improving!

PacifiCare Behavioral Health
ALERT Outcomes Management Project

Effect Size

1999 (Group=1634; Solo=582)  2000 (Group=2294; Solo=2871)  July-Dec; 2001 (Group=2123; Solo=4142)
Next Steps

• PBH ALERT system receives > 7000 outcome questionnaires per month; number increasing.
• A panel of outside experts asked to analyze the data and advise future research.
• Increase referrals to group practices that meet expectation for data collection and outcomes management
• Increase the length of treatment for at risk cases and cases with severe symptoms
Definition of terms

• Benchmarking outcomes: The practice of comparing treatment outcomes from one sample to another much larger normative sample

• Case mix adjustment: Statistical adjustment to account for differences in the mix of diagnoses and severity of symptoms from one sample to another

• Change score: Difference in test scores from intake to later assessment point

• Effect size: standardized change score (raw score change divided by standard deviation)

• Change Index: a residualized effect size, i.e. the difference between predicted change (using case mix adjustment model) and actual measured change. Scores above 0 indicate above average effect size.

• Severity Adjusted Effect Size: Average effect size for the entire population sample plus Change Index for that particular subgroup of cases for a site, provider, provider type, etc.
About the presenter

G.S. (Jeb) Brown is a licensed psychologist with a Ph.D. from Duke University. His twenty plus year career he has taken him from full time clinician to clinician/administrator/researcher and finally to full time researcher and consultant.

He served as the Executive Director of the Center for Family Development from 1982 to 19987. He then joined United Behavioral Systems (an United Health Care subsidiary) as the Executive Director for of Utah, a position he held for almost six years. In 1993 he accepted a position as the Corporate Clinical Director for Human Affairs International (HAI), at that time one of the largest managed behavioral healthcare companies in the country with 23,000,000 covered lives.

Dr. Brown was the primary driver behind HAI’s successful outcomes management initiative, and in 1996 his title was changed to Director of Clinical Informatics. In 1998 he left HAI (then part of Magellan Health Services family of companies) to found the Center for Clinical Informatics.

His present projects include the development of the ALERT outcomes management system for PacifiCare Behavioral Health (4,000,000 covered lives). Dr. Brown continues to provide direct clinical care a few hours per week in a behavioral health clinic in Salt Lake City, Utah.
http://www.clinical-informatics.com
jebbrown@clinical-informatics.com

1821 Meadowmoor Rd.
Salt Lake City, UT 84117
Voice 801-541-9720
Fax 801-278-2329