Using Performance and Outcome Measures for Enhancing the Quality of Behavioral Health Care Services

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Knowledge Without Data is Opinion
Healthcare Costs
If other prices had followed the same trend as healthcare…

$55/Doz
$48/Gal
$134/Doz

Source: The Healthcare Imperative. Institute of Medicine
Trends

• Research Based Treatments
  – Evidence Based Treatment
  – Practice Based Evidence
  – Clinical Decision Support

• Primary & Behavioral Healthcare Integration

• Consumer Directed Healthcare

• “Big Data”
  – New Forms of Analysis
Change is coming and it is inevitable

Oh, crap! Was that TODAY?
MEASUREMENT
Nothing Happens Without Measurement
Measurement in behavioral health isn’t new…
Improvement in Therapy
Client Self Report

\[ y = 10.825 \ln(x) + 26.459 \]
\[ R^2 = 0.8934 \]

Meaningful Measurement: The Rubber Ruler Problem
Meaningful Measurement

Metrics that drive organizational performance

- **Financial:**
  - Current Ratio, Days in AR, Cost Per Unit of Service, Cost Per Client

- **Operational:**
  - Residential Census, Outpatient Productivity, Staff Turnover

- **Clinical:**
  - Symptoms, Functioning, Processes, Satisfaction
What to Measure?

Symptomology
- Beck Depression Inventory
- SCL-90

Functionality
- NOMS
- CANS/ANSA

Process Measures
- Hospitalization
- Suicide

Satisfaction
HOW ARE WE MEASURING?
Meaningful Measurement

Beck Depression Inventory

*Please read each group of statements carefully, and then pick out the one statement in the group that best describes the way you have been feeling during the past two weeks, including today.*

**Sadness**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I do not feel sad.</td>
</tr>
<tr>
<td>1</td>
<td>I feel sad much of the time.</td>
</tr>
<tr>
<td>2</td>
<td>I am sad all the time.</td>
</tr>
<tr>
<td>3</td>
<td>I am so sad or unhappy that I can not stand it.</td>
</tr>
</tbody>
</table>
Meaningful Measurement

Item Response Theory (IRT)

• Amount of information available per item, across the full range of the domain of interest

• I felt sad.
  – Never.

• I am so sad or unhappy that I can not stand it.
Meaningful Measurement

Differential Item Functioning (DIF)

- Difference in performance of items across respondents
- Typically demographics
- Throw out or account for DIF
Meaningful Measurement

CAT
Computer Adaptive Testing

• Next item selection based on the response to previous item
• Reduced burden
• Increased precision
Meaningful Measurement

Computer Adaptive Testing (CAT)

“An adaptive test can typically be shortened by 50% and still maintain a higher level of precision than a fixed version”

(Weiss & Kingsbury, 1984).
Meaningful Measurement

What are we going to do with the data once we have it?

- Benchmarking
- Analytics
- Dashboarding
- Clinical Decision Support
Data Capture

• Arguably the most understated problem in health care
• How do you get data into “the system”? 
BENCHMARKING
Why Benchmark?

Focus is *BETWEEN*

Compare Self To Others

Manage By Data Not By Opinion

Improve Performance
Performance Improvement
• Focus is **WITHIN**
• Drill down
• Understand performance
• Discover trends
• “What-if”
Changing the Culture

- Ensure staff are data-driven decision makers
  - Not “data deniers”
  - Make the data meaningful
- Use data to define new practice-based evidence

DATA KNOWLEDGE WISDOM
Facts are stubborn things...
but statistics are more pliable.

Mark Twain
The Future

PERSONALIZED HEALTHCARE
State of the Art…

Every treatment we know of only answers the question:

*What works best for most?*

We want to answer the question:

*What works best for you?*
Big Data
Big Data is Like Big Hair
It’s Something You Stare At
Others are a little tired of it
Question

Can we predict what treatments are likely to be most effective for this individual based solely on data available at intake?
Results

Using only Intake information:

Accurately predicts treatment response for more than 90% of clients
The Goal for EHRs

*Develop EHR that provides to clinicians:* Contextually appropriate, research-based knowledge, that informs their clinical judgments in real time without disrupting their workflow.
In Case You Haven’t Had Enough…

[Image: YouTube TEDxBloomington](http://www.youtube.com/watch?v=zQbtDaJCi0M)
Thank You!

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