Measurement Based Care (MBC) Comes to DSM5
Peter Roy-Byrne, MD

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- Founding Partner, Psychiatric Medicine Associates
Peter Roy-Byrne, MD

- **Grant/Research Support**: NIDA, Brief Intervention for Primary Care Drug Use and Abuse; NIMH, Optimizing Treatment for PTSD
- **Ownership or Stock Options**: Valant Medical Solutions – Behavioral Health EMR Company
Learning Objectives

• Describe the rationale for measurement based care
• Identify the studies that have established the utility of measurement based care
• Discuss the best ways to implement measurement based care
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INTRODUCTION

• MY SURGICAL COLLEAGUE TALKS ABOUT PSYCHIATRISTS
OUTLINE

• Definition
• Rationale/Advantage
• History of MBC
• Evidence Base
• Drawbacks Perceived by Clinicians
• How To Do It
• What Does DSM5 Have?
Definition
Measurement-Based Care

- Specific assessments of individual characteristics, symptoms, side effects, functionality, rather than unstructured global judgments ("story-based care")
- May sharpen the initial assessment of a patient by identifying all possible problems and allowing rank ordering by severity (worst to least)
- Essential for determining response to treatment and deciding whether to continue or change.

How to recognize the moods of an Irish setter.
What we really know…

"…as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns — the ones we don’t know we don't know."

Donald Rumsfeld, 2001
• Rationale/Advantage
Measurements in Medicine

- Diabetes and Glucose Monitoring
- Hypertension and BP Monitoring
- It would be unthinkable to treat these chronic medical conditions merely by asking patients “how are you feeling” or if the symptoms due to these were getting a bit “better”.
- Qualitative inquiry IS important but it should complement measurement, rather than replace it!
PSYCHIATRY IS A BRANCH OF MEDICINE

• Now more than ever—see CPT coding changes to “medicalize” what we do
• See coming emphasis on outcomes, “pay for performance”
• See “medical homes”, “integrated care”
• Psychiatry’s more limited understanding of disease mechanisms limits WHAT we do (it is hard to say “this treatment, for this patient, under this circumstance”)
• But it does not have to limit HOW we do it!
Who’s Watching You?

- National Committee for Quality Assurance (NCQA) [www.ncqa.org](http://www.ncqa.org)
  - Programs in accreditation, certification, physician recognition
- Issue Report Cards
- Healthcare Effectiveness Data and Information Set (HEDIS)
  - tool used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service
Clinical Practice: The WHAT and HOW

- “Evidence-based Care” tells us WHAT works—but we know little about “comparative effectiveness” (selection is now based on preference or side effects)
- “Measurement Based Care” tells us HOW the WHAT is working—it allows us to “personalize” and “tailor” care to a specific individual (even if we are limited in personalizing the WHAT beyond accommodating preference)
The Quality of Care Chasm

- Institute of Medicine’s Landmark 2006 Report on uneven medical care in the US
- The HOW of care is much more important than the WHAT of care and is the core part of “patient centered care”
- Patients suffer from not getting the care they receive delivered OPTIMALLY more than they suffer from receiving one treatment vs another
### Treatment History

**Subject ID:**

**Enrollment Date:** 7/18/2007

#### Diagnoses
- **CAD**
- **SAD**
- **PTSD**
- **PD**
- **MDD**
- **Dysthymia**

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#### Patient Progress

- OASIS
- PHQ-3
- OASIS Target
- PHQ-3 Target

**Next Follow-up with:**

Date: 5/27/2008  Time: 1:00 PM  By phone
THE BEST RATIONALE

- DSM5 HAS NOW MADE MBC A CORE RECOMMENDATION—THIS HAS NEVER BEEN DONE BEFORE IN ANY DSM MANUAL!
History of MBC
History of Measurement-Based Care

- Collaborative Care for MDD (Katon 1995)
- IMPACT Study (Unutzer 2003)
- TMAP (Trivedi 2005)
- STAR-D (Rush 2007)
- Most efforts focused on depression
- Measurement just ONE of several components of these interventions
Figure 3. Adjusted mean symptoms for all patients according to the 30-item Inventory of Depressive Symptomatology–Clinician-Rated scale (IDS-C$_{30}$) during 12-month algorithm-guided treatment (ALGO) compared with treatment as usual (TAU) (N=350).

Figure 4. Adjusted mean symptoms for all patients according to the 30-item Inventory of Depressive Symptomatology–Self-Report scale (IDS-SR$_{30}$) during 12-month algorithm-guided treatment (ALGO) compared with treatment as usual (TAU) (N=350).
Measurement Based Care in STAR*D
Citalopram Treatment of Depression

- Response and remission rates in this highly generalizable sample with substantial axis I and axis III comorbidity closely resemble those seen in 8-week efficacy trials
- Systematic use of easily implemented measurement-based care procedures may have assisted in achieving these results

Clinician vs Self-Rating for Assessing Depression Severity in STAR*D

- Compare performance of 4 symptom assessment tools
  - Clinician administered: QIDS-C16 and HSRD-17
  - Patient administered: QIDS-SR16 and QIDS-IVR16
- Conclusion: all are adequate depression assessment tools

QIDS=Quick Inventory of Depressive Symptomatology; QIDS-C16=QIDS clinician rating; QIDS-SR16=QIDS patient self-report, QIDS-IVR16=automated, interactive voice response telephone system of QIDS

• Evidence Base
Does Measurement Improve Care?

- Cartier et al 2012—45 RCTs showed: faster treatment adjustments, improved MD-patient communication and improved outcomes (small effect)
- Knaup et al 2009—12 studies in MH settings—small effect, only short term
- Yeung et al (in press)—RCT in primary care, monthly PHQs vs not, produced increased odds response at 6 months
- Zimmerman and Posternik 2007—more measures (6/6wks vs 3-5/6 wks) in RCTs increases response
Perceived Drawbacks
OBJECTIONS TO MEASUREMENT

• It damages the psychiatrist-patient relationship (studies in Primary Care do NOT support these concerns)
• It is dehumanizing by reducing the patient to a set of symptoms (so include measures of work, social, and personal function, and quality of life)
• The attitude of the psychiatrist toward this is most important—do we want to improve on what we do, or just assume we are great already
LIMITS OF SYMPTOMS MEASUREMENT

• Patients with symptom remission who do not think they are “remitted” from their depression have significantly worse work, social, personal function and quality of life (Zimmerman 2012)

• Patients without symptom remission who think they are remitted from their depression have significantly better work, social, personal function and quality of life (Zimmerman 2012)

• CONCLUSION: measure function & QOL!
PROBLEMS WITH USING MEASURES

• Takes too much time—use self ratings
• Cost too much---use public domain measures
• Have to use different sets of measures for initial assessment vs treatment monitoring—NOT TRUE
• Measures are arbitrary—NOT TRUE—many have been carefully validated with “gold standards” of clinical interviews and clinical treatment assessments
• How To Do MBC
SELECTION OF MEASURES

• It would be best to use the SAME measure for both initial assessment and treatment monitoring
• This is heresy in psychometric research because the characteristics needed for each purpose are different
• But for PRACTICAL use, this needs to be done
• Measures do exist with acceptable diagnostic qualities, severity levels AND sensitivity to change
Two Main Goals for Measurement

• Help identify what problems are present and how severe they are (Diagnosis and Assessment)—allows sharper inquiry

• Help monitor the effects of any selected treatments and determine whether to persevere, change course, substitute or add different treatments or treatment modalities

• This is complementary to your careful clinical inquiry and acumen—don’t rely on measurement alone!
IMPORTANCE OF SEVERITY LEVELS

• Many guidelines and treatment algorithms use severity levels to guide level of care and treatment selection

• These are by no means perfect but are much preferable to arbitrary clinical judgement

• Examples: level of depression to require hospitalization, ECT, to enter a clinical trial, to receive drug treatment, to just use “watchful waiting”
Choice of Specific Measures

• Dictated by the nature of one’s practice
• For an outpatient practice not serving chronic mentally ill, focus on the most common mental disorders (prevalence at least 4%)
  • MDD, Anxiety (PD, GAD, SAD, PTSD), ADHD, Substance Use-- all are widely prevalent and comprise 90% of disorders
• Can add OCD and Eating Disorders
Challenges for Measurement

• Measurement of Psychotic Illness still relies on observer-clinician ratings and so is more time intensive (may also require custom measures for function)

• Measurement of Bipolar Illness is much more difficult because of the changing mood states, need to rate mania by observer-clinician, and absence of good “mixed state” measures

• Advanced customizing is easy to do, but “don’t let the perfect be the enemy of the good”—do what can be done easily first!
Constructing a Tool Kit of Measures

- Make sure you cover: symptoms, function, quality of life, side effects and adherence
- Select public domain measures
- Determine whether you are going to use: paper, computer, telephone services, or a web-based EMR or other application
- Select the measures you want to use
- Review how to explain the rationale for using them to your patients
Evidenced-based Tools for Initial Assessment

- **Good Psychometrics**
  - Sensitivity vs specificity (population perspective)
    - Sensitive scales identify all those who have the disease (low false negative)
    - Specific scales rule out all those without the disease (low false positive)
  - Self report vs. observer rated
    - Reliability—harder for observer rated
    - Practical (clinical) vs. Ideal (research)
    - Symptom based vs DSM based—can get both often
INDIVIDUAL PATIENT PREDICTION

• These scales will all have high negative predictive value (low score means patient does not have it) but modest positive predictive value (higher score may or may not mean they have it)

• These qualities depend on the cut off used (higher will improve positive prediction at expense of negative prediction)

• Also depends on prevalence of condition in practice—positive prediction better and negative worse in psych practice
Which Measures are Best to Use?

- Have to have research showing both diagnostic sensitivity/specificity AND sensitivity to change
- Have to be self-rated to save time
- Have to be public domain
- This will allow coverage of mood, anxiety, alcohol abuse, and eating disorders
- No easy answers for: psychosis, autism, bipolar treatment monitoring, and drug abuse (illegal—patients won’t answer)
- These are doable, but take more time, require clinician-ratings
MEASUREMENT BASED CARE

- PHQ-9
- QUIDS
- PDSS
- GAD-7
- SPIN
- PCLC
- AUDIT-C
- ASRS
- Sheehan

Bipolar—use APPs mood diaries after MDQ screen

ADHD—face valid scales have very poor specificity with non-ADHD people endorsing symptoms—but could use to monitor RX.
SCREENING: USE PARTS OF SCALES?

- PHQ—2 items
- GAD—1 item
- PDSS—2 items from ANS Questionnaire
- SPIN—3 items
- ASRS—6 items
- PCLC—6 items
- AUDIT—3 items
Patient Health Questionnaire 9
PHQ-9

- Excellent psychometric properties
  - Assesses severity by FREQUENCY
- Based directly on the 9 DSM-IV diagnostic criteria—can count # moderate symptoms to get diagnosis
- Optimal diagnostic cut off score of 10
- 5 point change is clinically significant
- Available in multiple languages including Spanish
- Pfizer Inc owns the copyright to the PHQ-9 and makes it available to clinicians at no cost
Over the *last 2 weeks*, how often have you been bothered by any of the following problems?

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<th></th>
<th>Little interest or pleasure in doing things</th>
<th>Feeling down, depressed, or hopeless</th>
<th>Trouble falling or staying asleep, or sleeping too much</th>
<th>Feeling tired or having little energy</th>
<th>Poor appetite or overeating</th>
<th>Feeling bad about yourself - or that you are a failure or have let yourself or your family down</th>
<th>Trouble concentrating on things, such as reading the newspaper or watching television</th>
<th>Moving or speaking so slowly that other people could have noticed. Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual</th>
<th>Thoughts that you would be better off dead, or of hurting yourself in some way</th>
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If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

Note: Add columns: + + +
TOTAL: [Blank]
PHQ-9

**Total Score** | **Depression Severity**
--- | ---
1-4 | Minimal depression
5-9 | Mild depression
10-14 | Moderate depression
15-19 | Moderately severe depression
20-27 | Severe depression

Over the last 2 weeks, how often have you been bothered by any of the following problems?

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<td>Trouble falling or staying asleep, or sleeping too much</td>
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<td>Feeling tired or having little energy</td>
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<td>Poor appetite or overeating</td>
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**TOTAL:**

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

Available at [http://www.depression-primarycare.org/clinicians/toolkits/](http://www.depression-primarycare.org/clinicians/toolkits/)
Quick Inventory of Depressive Symptomatology (QIDS)

- Excellent psychometric properties
  - Assesses severity by ANCHORED DESCRIPTIONS
- 16-items assess (several versions of ) the 9 DSM-IV criteria —but no diagnostic data, not a tool for this
- Patient version and clinician version
- Remission score is less than 6.
- Can be converted to the Hamilton Depression Rating Scale (HDRS) and Montgomery Asberg Depression Rating Scale (MADRS)
- Available in multiple languages including Spanish.

QIDS-16

- Falling asleep
- Sleep during the night
- Waking up too early
- Sleeping too much
- Feeling sad
- Decreased appetite
- Increased appetite
- Decreased weight
- Increased weight
- Concentration/decision making
- View of myself
- Thoughts of death and suicide
- General interest
- Energy level
- Feeling slowed down
- Feeling restless
QIDS-16
Assessing severity

- Energy Level
  - There is no change in my usual level of energy
  - I get tired more easily than usual
  - I have to make a big effort to start or finish my usual daily activities (for example, shopping, homework, cooking or going to work)
  - I really cannot carry out most of my usual daily activities because I just don't have the energy
QIDS-16

- 6-10--mild
- 11-15 moderate
- 16-20 severe
- 21 and over—very severe
- May provide measure of severity that is less affected by transient distress since anchors are required to endorse the most severe severity levels
Panic Disorder Severity Scale (PDSS)

• Excellent psychometric properties--7 items
  – Assesses 0-4 severity by ANCHORED DESCRIPTION

• Based on five core panic syndrome components—PA frequency & intensity, anticipatory anxiety, avoidance and fear body sensations + work/social disability

• Patient and clinician versions highly correlated

• Cut-off of 10; clinical samples average 14

• 40% decrease required for some response

• Developed for Seminal Multi Center Collaborative Panic Study—Shear et al 1997
GAD7 for Generalized Anxiety Disorder

- Excellent psychometric properties—modeled on PHQ9
  - Assesses 0-3 severity by FREQUENCY
- Based on 5 general symptoms of anxiety & worry, one irritability item, one panic like item (NO avoidance!)
- Developed by PHQ9 originators
- Good diagnostic sensitivity for panic, GAD, SAD, PTSD
- Cut-off of 10 suggests need for treatment; score of 15 indicates more severe clinical condition
- Same 5 point clinically significant change
## GAD-7

**Over the last 2 weeks, how often have you been bothered by the following problems?**

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<thead>
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<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
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<td>1. Feeling nervous, anxious or on edge</td>
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<td>2. Not being able to stop or control worrying</td>
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<td>3. Worrying too much about different things</td>
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<td>3</td>
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<td>4. Trouble relaxing</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>5. Being so restless that it is hard to sit still</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>6. Becoming easily annoyed or irritable</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Feeling afraid as if something awful might happen</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Score** = **Add Columns**

If you checked off any problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

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SPIN for Social Anxiety Disorder

- Excellent psychometric properties
  - Assesses 0-4 severity by INTENSITY
- Taps fear of criticism/embarrassment, fear of authority, discomfort with physical symptoms, fear of social gatherings/strangers and being the center of attention
- Samples have scores around 40, controls <20
- Use response criterion of 30% for this diagnosis
- Short 3 item version has cut off score of 6
PCL-C for PTSD

- Excellent psychometric properties
  - Assesses 0-4 severity by INTENSITY
- 17 items correspond to DSM IV criteria—what will now happen with DSMV?
- Cut off 30-40 (lower will identify more cases but also provide more false positives)
- PCLC-6 uses 2 items from each of three DSM I domains and has good diagnostic properties and sensitivity to change (cut off 6 for Dx, 5 point change significant)
- CAVEAT-query in response to STRESSOR not generally
AUDIT for Alcohol Use Disorders

- Excellent psychometric properties
  - Assesses severity with 0-4 FREQUENCY plus 2 yes/no items
- Three item version (AUDIT-C) measure frequency and amount of drinking and frequency of heavy drinking (over the past year)
- For AUDIT-C, score of 5 indicates problem drinking, score of 8 indicates serious drinking problems, likely dependence
- AUDIT-C is adequate for screen and for monitoring
- Full AUDIT taps craving, problems, withdrawal etc
ASRS for ADULT ADHD

- Excellent psychometric properties
  - Assesses 0-4 severity by FREQUENCY
- Items correspond to DSM criteria but are geared to adult rather than child behaviors
- Developed in NCS Epidemiologic Study so less clinically derived—gold standard interview less validated
- Short 6 item (4 attention, 2 activity) form has algorithm for diagnosis (4/6 items with high frequency required)
- Sensitive to change?
- May miss milder cases and over-diagnose others
Sheehan Disability Scale

- Excellent psychometric properties
  - Has three different single items for work, social and family disability
  - Assesses 0-4 severity by INTENSITY
- No anchors so good WITHIN subjects (to measure change) but across subjects much less reliable
- Developed for use in clinical trials so an ideal measure of treatment effects
MDQ FOR BP ILLNESS

- Excellent psychometric properties
  - Assesses presence of symptoms as yes/no
- 13 items correspond to mania-hypomania symptoms
- For Diagnosis only, not for monitoring treatment
- More sensitivity as you go from community, to primary care, to psychiatric outpatient but will miss cases
- CAVEAT—many other conditions will produce positive score—clinical interview a MUST
- Much better for BP I than BP II
- Use analogue scale diary for treatment monitoring?
# Medication Rating Scale

Name: ________________________________

Start Date: __________________________

Write in number using scale below as guide

| Symptom/Behavior | Mon | Tue | Wed | Thu | Fri | Sat | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

**SCALE FOR SEVERITY JUDGMENT**

0 1 2 3 4 5 6 7 8 9 10

not ↔ mild ↔ moderately ↔ markedly ↔ very severely
WHAT HAS DSM5 ADDED TO THE PICTURE?

- Level 1 Cross –Cutting Measure
- Has 1-3 items from multiple domains (depression, anger, anxiety, OCD, somatization, dissociation, sleep, suicide, mania, psychosis, memory, substance use, personality)
- Some of above items from familiar scales like PHQ 9 and GAD 7
- Frequency option like PHQ9 but adds a category of “rare, very few days”
WHAT HAS DSM5 ADDED TO THE PICTURE?

- Level 2 Measures
- One for most of the Domains from Level 1 but provides more items and depth
- No measures for psychosis; personality; dissociation; memory.
- Some derived from PROMIS set of measures; others from standard scales
- Most have not been validated/studied in specialty psychiatric populations
WHAT HAS DSM5 ADDED TO THE PICTURE?

• Disorder-specific measures for further study
• Panic, GAD, social anxiety, agoraphobia, separation anxiety, specific phobia, acute stress disorder; PTSD; dissociation; personality disorder
• DISABILITY measured by the WHO-DAS 36 which has extensive data in multiple cross cultural populations
CONCLUSIONS

• Measurement of Outcomes is Coming!
• MBC may be used/required to: validate “medical necessity”; to assess quality of care delivered; perhaps even to litigate “standard of care”
• DSM5 adopted sound MBC principles: use same measure for intake and follow up; use self rated; use brief measures; measure multiple domains
• It is much more important to MEASURE than to argue about WHICH measure!