Enhancing Evidence Based Assessment and Treatment of Substance Use Disorders in Adolescents and Adults

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3 Pronged Approach: SAMHSA Approved Plan

- 1. Reduce barriers to evidence based care: LOCI
- 2. Implement MET-CBT
- 3. Implement CAT-SA Assessments

Part 1: Reduce Barriers to EBP Implementation: LOCI





Leadership and Organizational Change for Implementation

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Why LOCI (lo-sī)

- A large proportion of EBP implementation efforts fail
 - After training, EBPs no longer used
 - EBPs used, but not well enough to get results
 - Poor alignment of system, service organizations, and clinic leadership

EPIS is Our Implementation Framework

• Focused on Inner Context and Preparation and Implementation Phases of EPIS Framework

EXPLORATION 📃	PREPARATION	IMPLEMENTATION	SUSTAINMENT
OUTER CONTEXT • Sociopolitical Context • Funding • Interorganizational networks • EBT Fit • Internet use • Insurance availability	OUTER CONTEXT • Sociopolitical • Leadership at policy level • Funding • Interorganizational networks • Availability of EBT materials	OUTER CONTEXT • Sociopolitical • Funding • Intervention developer engagement • Leadership • Interorganizational networks • External ratings/report cards	OUTER CONTEXT Sociopolitical Funding Leadership
 INNER CONTEXT Organizational characteristics Individual adopter characteristics EBT fit with client characteristics Fiscal viability 	 INNER CONTEXT Organizational culture and climate Leadership Staffing and staff characteristics EBT Fit EBT Adaptation Fiscal viability & resources Medication dose control Training availability 	 INNER CONTEXT Organizational culture and climate Leadership Staff attitudes to EBT Individual adopter characteristics Incentivizing providers Fiscal viability Fidelity monitoring & support 	 INNER CONTEXT Organizational culture and climate Training EBT fit Fidelity monitoring/support Staffing Child & parent outcomes Fiscal viability Technology supported practice

What is LOCI (lo-sī)

- Leader Development
 - Usually focuses on top executives
 - First-Level leaders interact directly and can influence staff
 - Leaders at multiple levels can create organizational climate to support EBP





What is LOCI (lō-sī)

- Developing leaders and climate for EBP implementation takes time, timing, and ongoing support
 - DMHA Strategies
 - CMHC Strategies
 - CLINIC level leader training
 - + coaching
 - + org strategy

LOCI Leadership Condition



Sample LOCI Timeline



*OSM = Organizational Strategy Meeting

TEAMS LOCI NORWAY







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Part 2: Implement MET-CBT

MET + CBT

- MET=Motivational Enhancement Therapy
- CBT=Cognitive Behavior Therapy
- Manualized interventions: FREE
- Typically 12 weeks of sessions
- Strongest data supporting it's efficacy of any SUD intervention
- Should be combined with MAT, peer recovery coaching, contingency management, case management
- Applies to a myriad of drugs of abuse
- Well studied in youth and adults

Implementation + Fidelity Plan

- Year 1: 12 CMHCs
- Year 2: 12 CMHCs
- Each year staff are paid to attend 16 hours of training, expenses covered
- Train the trainer
- Attend Zoom call every other week for supervision and fidelity monitoring (divided into small teams), time is covered
- GOAL: EVERY CLIENT WITH A SUD IS ENROLLED IN HIGH FIDELITY MET/CBT

Part 3: Implement CAT-SA Assessment

Assessment Challenges in Behavioral Health

- How do you quickly and effectively assess behavioral health problems?
- How do you assess multiple, correlated domains?
- How do you do it with limited staff resources?
- How do you do it with limited patient burden?

What is Computer Adaptive Testing (CAT)?





Arithmetic Algebra Calculus

Imagine a 1000 Item Math Test

What is the CAT-MH[™] ?

- The CAT-MH[™] is a computerized adaptive test (CAT) based on a multidimensional item response theory.
- Developed by Robert Gibbons (Univ. of Chicago) and David Kupfer (Univ. of Pittsburgh).
- More information: <u>http://adaptivetestingtechnologies.com/</u>

How Does the CAT-MH[™] Work?

- Administer a question with medium severity.
- Estimate severity based on the response to the question (symptom).
- Select the next most informative question out of the remaining symptoms-item questions.
- Stop when we reach the desired precision of measurement (e.g. 5 points on a 100 point scale).
- For example, an average of 10 adaptively administered depression items maintains a correlation of r>=0.95 with the 400 item test score.

Measurement versus Diagnosis

CAD-MDD – Decision Tree



Gibbons et.al. JCP, 2013

What can the CAT-MH[™] Measure?

- Adult (English & Spanish)
 - Depression*
 - Anxiety*
 - Mania/Hypomania*
 - Suicidality*
 - Substance Abuse*
 - Psychosis
 - Functional Impairment
 - Quality of Life
 - PTSD
 - Functional status and well being (Thyroid Cancer Survivors)

- Perinatal (English & Spanish)
 - Depression*
 - Anxiety*
 - Mania/Hypomania*
- Child & adolescent (parent & child ratings, ages 7-17)
 - Depression
 - Anxiety
 - Mania/Hypomania
 - ADHD
 - Conduct disorder
 - Oppositional defiant disorder
 - Suicidality

* Completed, validated and commercially available today

Why is this So Important?

- Emergency Department University of Chicago
 - 1000 patients without a psychiatric indication
 - CAT for depression, diagnosis, and suicidality
 - Average of 2 minutes each
 - 22% MDD positive screens (>90% confidence)
 - 7% MDD Positive + moderate or severe
 - 300% increase in ED visits in previous year
 - 400% increase in hospitalizations in previous year
 - 3% suicide-screen positive (ideation + intent or plan)
- Primary Care Spain and US Latino Samples (n=1000)
 - 25% MDD positive screens (>90% confidence)
 - 9% MDD Positive + moderate or severe CAT-DI

Ongoing Funded Work in EDs

- Substance Abuse (e.g., validate measure)
 - Massachusetts General Hospital, Boston Medical Center in Boston, University of Southern California Hospital, Fundación Jiménez Díaz in Madrid, & Hospital Vall d'Hebron in Barcelona
- Suicidality in Adults (e.g., validate measure)
 - University of Chicago & the University of Massachusetts
- Suicidality in Youth (e.g., validate and develop risk calculator)
 - University of Pittsburgh Medical Center & University of Michigan
- Anxiety (e.g., to differentiate panic attacks from cardiac event)
 - University of Illinois at Chicago

Advantages of the CAT-MH[™]

- Can dramatically increase precision of measurement while eliminating clinician burden and minimize patient burden.
- Quickly obtain diagnostic information comparable to semistructured interview.
- Can assess multiple domains quickly and effectively.
- Receive scores, diagnoses, and estimates of the precision/confidence immediately.
- More reliable than standard assessments.
- The same person gets different items upon repeat testing, reducing response bias.
- The CAT-MH[™] is cloud-based and can be used anywhere.

What are the limitations of the CAT-SA?

- Doesn't break down SUDs according to diagnoses, just gives probability of general substance use disorders.
- What is needed to enhance this: Compare "gold standard" assessment to revised CAT-SA
- Details being confirmed: Likely free access to full suite for IN CMHCs.
- Select people (n=250) receive both FREE telemedicine gold standard assessment and CAT-SA

Scientific Literature

- 1. Gibbons R.D., & Hedeker D.R. Full-information item bi-factor analysis. *Psychometrika*, 57, 423-436, 1992.
- Gibbons R.D., Bock R.D., Hedeker D., Weiss D., Segawa E., Bhaumik D.K., Kupfer D., Frank E., Grochocinski V., Stover A. Full-Information Item Bi-Factor Analysis of Graded Response Data. *Applied Psychological Measurement*, 31, 4-19, 2007.
- 3. Gibbons R.D., Weiss D.J., Kupfer D.J., Frank E., Fagiolini A., Grochocinski V.J., Bhaumik D.K., Stover A. Bock R.D., Immekus J.C. Using computerized adaptive testing to reduce the burden of mental health assessment. *Psychiatric Services*, 59, 361-368, 2008.
- 4. Gibbons R.D., Weiss D.J., Pilkonis P.A., Frank E., Moore T., Kim J.B., Kupfer D.K. The CAT-DI: A computerized adaptive test for depression. *Archives of General Psychiatry*, 69, 1104-1112, 2012.
- 5. Gibbons R.D., Hooker G., Finkelman M.D., Weiss D.J., Pilkonis P.A., Frank E., Moore T., Kupfer D.J. The CAD-MDD: A computerized adaptive diagnostic screening tool for depression. *Journal of Clinical Psychiatry*, 74, 669-674, 2013.
- 6. Gibbons R.D., Weiss D.J., Pilkonis, P.A., Frank E., Moore T., Kim J.B., Kupfer D.J. Development of the CAT-ANX: A computerized adaptive test for anxiety. *American Journal of Psychiatry*, 171, 187-194, 2014.
- 7. Achtyes E.D., Halstead S., Smart L., Moore T., Frank E., Kupfer D., Gibbons R.D. Validation of computerized adaptive testing in an outpatient non-academic setting. *Psychiatric Services*, 66, 1091-1096, 2015.
- 8. Beiser D., Vu, M., Gibbons, R.D. Test-retest reliability of a computerized adaptive depression test. *Psychiatric Services*, 67, 1039-1041, 2016.
- 9. Gibbons R.D., Computerized adaptive diagnosis and testing of mental health disorders. *Annual Review of Clinical Psychology*, 12, 83-104, 2016.
- 10. Kim J.J., Silver R.K., Elue R., Adams M.G., La Porte L.M., Cai L., Kim J.B., Gibbons R.D. The experience of depression, anxiety and mania among perinatal women. *Archives of Women's Mental Health*, 19, 94-100, 2017.
- 11. Gibbons R.D., Kupfer D., Frank E. Moore T., Boudreaux E. Development of a computerized adaptive suicide scale., *Journal of Clinical Psychiatry*, published on-line ahead of print.
- 12. Gibbons R.D., Beiser D., Boudreaux E., Kupfer DJ. Einstein, measurement and prediction. *Journal of Affective Disorders*, published on-line ahead of print.
- 13. Sani S., Busnello J., Kochanski R., Cohen Y., Gibbons R.D. High frequency measurement of depressive severity in a patient treated for severe treatment resistant depression with deep brain stimulation. *Translational Psychiatry*, 7, e1207, 2017.

•Setectradsens/endsers of the CAT-MH™

- Screen all undergraduates at UCLA and triage to iCBT
- Screen 1.8 million to develop a Registry of 100,000 patients
- University of Chicago
 - Emergency Medicine Depression and suicide risk
 - Integrated Primary and Behavioral Health Care
- Rush University Medical Center
 - Orthopedic Surgery Does depression lead to poor outcomes?
- NorthShore University Health Systems
 - Perinatal depression screening and follow-up
- Cook County Health and Hospital Systems
 - Screen all inmates in Bond Court and the Cook County Jail
- Veteran's Administration/Department of Defense
 - Develop new PTSD scale and further validate suicidality scale
- State of Tennessee
 - Foster Care, Juvenile Justice, Detection Centers 300 case workers
- Indiana University
 - Assessment of large cohort in Precision Medicine Grand Challenge
 - Discussions with other agencies, such as Court Systems