Beyond Treatment as Usual, the Case for Cognitive Remediation in Ohio

13th All Ohio Institute on Community Psychiatry
March 26, 2017

Ray Gonzalez, ACSW, LISW-S

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Bridgehaven Mental Health Services
Louisville, KY CET Video

http://cetcleveland.org/what-is-cetcleveland-2/cetclevelandtestimonials-2/

2011 SAMHSA Award Recipient
Ray Gonzalez, ACSW
Disclosures

• Executive Director of The Center for Cognition and Recovery (CCR) a nonprofit LLC
• The CCR has received contracts from agencies, governments and grants from major foundations for the development and dissemination of CET
• OSU School of Social Work grad with 35+ years as psychiatric social worker
• Optimist with a belief in recovery

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What do. . .
Steven Levitt
Co-Author of Freakonomics

Stephen Dubner
Co-Author of Freakonomics
LeBron James

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...HAVE IN COMMON?

An ability to see, think and act outside of the box of normal expectations
“Insanity is doing the same thing over and over again and expecting different results.”

Einstein
Whatever part of the problem you are trying to solve, make sure you’re not just attacking the noisy part of the problem that happens to capture your attention.

Levitt and Dubner
LeBron James

Went from being a great inside threat to being an all around MVP because he focused on his weaknesses, not just on his strengths.
Active Treatment vs. Maintenance Management

• Do we, as mental health professionals have those abilities, to think outside of the box?

• Or are we too focused on the noisy part of mental illness: the positive symptoms?
Active Treatment vs. Maintenance Management

• What of the more insidious cognitive deficits and negative symptoms of impaired memory, processing speed and lack of social cognition that prevent more complete recovery?
Active Treatment vs. Maintenance Management

• We need to redefine the problem as “Incomplete Recovery” and view it as impaired cognitive and social functioning rather than the noisier, acute psychotic symptoms. Such thinking leads to innovative solutions and not to TAU.
True or False?

- Cognitive problems are due to laziness and lack of effort
- Cognitive problems will go away when symptoms like hallucinations go away
- Cognitive problems are caused by medications
- Cognitive problems are caused by being in the hospital or nursing home or at home too long
Cognitive Deficits Are Very Common in Schizophrenia

- 84% of persons recovering from Schizophrenia meet the criteria for Clinically Significant impairment of cognition, scoring at least one standard deviation below norms in at least two ability areas. Reichenberg et al, Schizophrenia Bulletin 2009, 35 (5): 1022-29

- Up to 98% perform worse on cognitive test than their premorbid functioning or mother’s education level would predict. Keefe et al, Biological Psychiatry, 2005, 57 (6): 688-691
Similar Cognitive Deficits Found in Schizophrenia, Bipolar Disorder, Chronic Depression and ASD

• Attention/Distractibility
• Processing Speed
• Working Memory
• Executive Functioning
• Results in Social Cognition Deficits
  – Problems Taking Another Person’s Perspective
  – How to function in novel social and vocational situations
Old Thinking About the Brain

• The brain does not change.
• Once a brain is damaged, it can not be improved.
• We have a fixed number of brain cells and synaptic connections.
• Old dogs and humans cannot learn new tricks.
• But we now know that improved cognition is possible at all ages, a little slower perhaps, but we can learn.
New Brain Facts

• The average human brain has about 100 billion neurons.

• Each neuron may be connected to up to 10,000 other neurons, passing signals to each other via as many as 1,000 trillion synaptic connections.

• Your hippocampus, the part of the brain that’s super important for learning and memory, actually does create new brain cells during adulthood—about 1400 neurons per day.
Why Cognitive Remediation?

- 60 + years of research show that there are major cognitive deficits associated with Schizophrenia but no active treatments
- While medication is needed for positive symptoms, negative symptoms are what keep individuals from fully recovering: live full lives including learning, loving and working
- There was and is a need to rethink the problem.
Cognitive Remediation is based on Neuroplasticity

• Neuroplasticity refers to the brain’s ability to re-organize itself through forming new neural connections or by adding cells

• Neuroplasticity allows the neurons in the brain to adjust their activity and organization in response to new situations or to changes in the environment
Plasticity can be a double edged sword

Adaptive plasticity

Maturation, Improved function

Pathology, symptoms

Aberrant plasticity

by permission of M. Keshavan, MD
Environmental enrichment leads to neuronal proliferation

by permission of M. Keshavan, MD
CET is an active treatment that changes our clients’ brains:

- To have increased capacity to learn
- To remember what they learn
- To act in real time
- To improve their social cognition
- To act wisely in novel social and vocational situations
- To have hope
CET Focuses on Negative Symptoms Of Schizophrenia

- Flat or blunted emotion
- Lack of motivation or energy
- Often on Auto Pilot
- Lack of pleasure or interest in things

Cognitive difficulties are also usually present:
- Slow, effortful thinking process
- Concrete thinking
- Poor concentration and memory
What is CETCLEVELAND®?

• CET is an EBP form of cognitive remediation that aims to improve brain functioning
• For stable clients who have plateaued but have not fully recovered
• Combination of specialized computer exercises, social cognition groups and individual coaching
• Utilizes a coaching methodology
• 48 once-a-week sessions
• 70 to 90% attendance and graduation rates
Components of CETCLEVELAND®

1. Specialized computer exercises done in pairs in a group setting
2. Homework reporting in social cognition group, no one can hide
3. Weekly Psycho-ed talks
4. Cognitive Group Exercises done in pairs in front of group with diplomatic feedback by group members
5. Individual ‘coaching’ once a week
Typical Course of Schizophrenia
“It's important for the field to recognize that while we've been waiting now for 30 years for a drug that will improve social outcomes, we've been ignoring the results of many studies showing that psychosocial treatment achieves psychosocial results.

And that most of those results are in some ways more meaningful for patients and their families than just the absence of a relapse.”

William McFarlane, MD, Director of the Center for Psychiatric Research at the Maine Medical Center Research Institute, 9/10/10
Cognition in Schizophrenia
by permission of S. Eack, Ph.D., University of Pittsburgh

Corrigan & Green, 1993; Heinrichs & Zakzanis, 1998; Schneider et al., 2006; Sprong et al., 2007
Effect Sizes of CET & EST (Enriched Supportive Therapy) at 12 and 24 Months by Composite Index

Hogarty, Flesher--Archives of General Psychiatry, Sept. 2004
CET For Chronic Schizophrenia: Lasting Effects \((N = 106)\)


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CET may increase gray matter through the increase in the number of new synaptic connections.

- These differential effects of CET on gray-matter change were significantly related to improved cognitive outcome, with patients who experienced less gray-matter decline and greater gray-matter increases also demonstrating significantly greater cognitive improvement over the two years of the study.

- *Thus cognitive remediation may benefit cognition in people with schizophrenia by preventing or reversing gray-matter loss.*
Goals of CET
by permission of S. Eack, Ph.D., University of Pittsburgh

*Foster Higher Thinking By Becoming:*

Abstract and Gistful vs. Concrete

An Active Thinker vs. Passive Receiver of Information

Cognitively Flexible vs. Following Rigid Rules

More Spontaneous vs. Rehearsed

More of an Initiator vs. Doing Nothing

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**Typical CETCLEVELELAND® Day**

11:00 – 12:00  Computer Exercises

12:00 – 12:30  Break

12:30 – 2:00  Group

Individual coaching session held with each client during the week to work on homework questions
Computer Work

• One hour a week
• Done in pairs
• Pairs support each other
• A chance for socialization
• Prepares participants for group
• Continues during the course of the group
• Progressively more challenging and more abstract
Attention, Memory, Problem Solving

- **Attention**
  - Establish set
  - Maintain set
  - Shift set

- **Memory**
  - Recall, recognition, procedural
  - *Working Memory* is most impaired in mental illness

- **Problem Solving**
Coaching Methodology

- Support
- Challenge
- Be Permissive
- Reward

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Results: The total mean score of the variable time significantly decreased from the pre to post ($p<.001$; The chance that the result happened by chance is only 1 in a thousand.) 80.8% of the clients decreased their variable time ($N=255$).

The total mean score of the constant time significantly decreased from the pre to post ($p<.001$). 78.1% of the clients decreased their constant time ($N=256$). Data as of 3-7-16. The reaction time for the normative (e.g. college students) population is 215.
Welcome Back:  Judy

Selection of Chairperson:

Review of Homework:
a) Describe a recent situation in which you disagreed with another person
b) Describe your perspective
c) Describe their perspective

Psycho-Educational Talk:  Foresightfulness  Speaker: Ray

Exercise:  Word Sort  Coach: Judy
Participants:  Sam and Jo
Feedback:  Everyone

Homework:
Tell about a time when you could have been more foresightful.
Tell how being foresightful would have made the situation different.

Next Group Meeting is Tuesday January 23, 2007
Socialization

• Children are told what to do

• Adults are expected to “get it”
But.....

Suppose your memory is impaired and it’s hard to follow a much less participate in it.

Suppose your thought processing is slowed down and it takes extra effort to process and respond to what is happening around you.

Suppose you can’t trust your judgment.

Then what happens?
Desocialization

- If adults (your clients) don’t “get it” people walk away
- When people walk away
  - Socialization stops
  - Learning stops
  - Strange behaviors grows
  - People become desocialized
Desocialization

- Dysfunctional roles are established
- Others begin to reinforce dysfunctional roles
- Dysfunctional behavior becomes familiar if not always comfortable
- No learning about the generalized other
- The best mental exercise is social interaction
### SOCIAL COGNITION TALKS

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Cognitive Flexibility

- Causes of Inflexibility

- Benefits of Flexibility
MOTIVATIONAL ACCOUNT

A Motivational Account means
• Explaining your actions and your ideas

Tips for giving good Motivational Accounts
• Stop and think
• Tailor your explanation to your audience
• Can you explain yourself?
• What is the context?

Your perspective + Perspective of your audience = Good Motivational Account
Homework on Motivational Account

• Give an example of the situation in which it was important to give a motivational account

• Tell us why it was important to give a Motivational Account

• How could you have given a better Motivational Account?
"White Bread"

25 Words

Sort into five categories (five words each) and then again into another five categories.

motor  Francine  Tom  Wednesday  Thursday
Tracy   Wendy   Monday  Martha           
windshield Fred  Mark   front end    Sue
Wally   milk     Sam    white bread  fish
Sunday  tomato  Friday  spark plug  tire
Accurate and Diplomatic Feedback

- Intellectual
- Emotional
- Teamwork
- Response to Coach
Social Cognition Exercise: Condensed Message

The Facts  An art dealer went to Paris on one of his frequent trips and took up residence at a hotel where he used to stay whenever he was in that city. He was just about to conclude a series of promising deals with some art galleries when he came down with the flu and developed a high temperature.

Since he was such a good customer of the hotel, he received excellent medical care and plenty of attention from the staff. He was quite comfortable, but his business mission was about to fail if help did not arrive within two days at the most. His wife, who currently held another job, had been his able and trusted business partner in previous years.

The art dealer decided to inform his wife of his condition, without alarming her, and to ask her to come and help out with the business.

The Circumstances
1) His wife was not able to take phone calls during the day but she would be able to listen to short voice messages.

Assumptions
1) His wife could get away from her job at a moment’s notice.
2) The couple had an excellent relationship. They communicated with each other in direct and precise language.

What would a 12 word (or less) message be?

_________________________  ___________________  ___________________
_________________________  ___________________  ___________________
Impact of Impaired Cognitive Functioning on Physical Health

• Reduced awareness of own physical health
• Difficulty in communicating with others, esp. primary health care providers
• Poor memory results in poor follow through on medical treatment, e.g. medication compliance, MD appt.’s, diet etc.
• Few social supports and lack of self initiation
CETCLEVELAND® Attendance & Graduation Rates

- Average attendance and graduation rates are 70-85% across all sites
- Much of the attendance success can be attributed to how much participants value the program.
  - “I like coming to CET because they treat me like I have a brain”
  - “We feel that we got our son back after he went through CET.” Marty and Gerry Conway, parents of CET Member
  - “CET was invaluable, I learned to laugh again and it brought out the happy side of me”
A Meta-Analysis of Cognitive Remediation for Schizophrenia
T. Wykes Am. J of Psychiatry, May 2011

• Conclusions: cognitive remediation benefits people with schizophrenia, and when combined with psychiatric habilitation, this benefit generalizes to functioning, relative to rehabilitation alone.

• What is more important than the surface characteristics (e.g., using a computer) is the technique of specific and explicit training of strategies and the use of various transfer techniques, as shown in the improved functioning outcomes for these approaches.
Dissemination Lessons Learned

- CET works best with clients who:
  - Are stable but not fully recovered
  - Have major cognitive deficits
  - Are recovering from schizophrenia or have major social cognition disabilities
  - Are able to read at a fifth grade level or higher
  - Have had some prior vocational or educational successes
  - Are at least marginally interested in recovery although CET is designed to work on amotivation
CET Effects on Early Schizophrenia \((N = 58)\)

Eack et al., 2009. Psychiatry Serv. 60:1468-1476.
Increased Social and Vocational Capacity

- Improved Processing Speed and Increased Working Memory enables clients to process information in real time
- Clients learn how society works
- Clients are taught to be aware of other people’s perspectives, that there are cultural norms in vocational settings and how to deal with them
- Clients learn how to interact wisely with others
- A major goal of CET is to enable clients not only to get jobs but be able to keep their jobs long term
## Effects of CET on Employment Outcomes in Early Schizophrenia; Eack, et al

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<th>CET (N = 24)</th>
<th>EST (N = 22)</th>
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<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Competitively employed</td>
<td>13</td>
<td>54</td>
</tr>
<tr>
<td>Job status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Part time</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>Employment pattern</td>
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<tr>
<td>Achieved employment</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>Maintained employment</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Lost employment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Job category(^a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Clerical/sales</td>
<td>5</td>
<td>23</td>
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<tr>
<td>Skilled manual labor</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Unskilled labor</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Weekly earnings</td>
<td>207.92</td>
<td>337.97</td>
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<tr>
<td>Satisfaction with employment status(^b)</td>
<td>2.46</td>
<td>1.56</td>
</tr>
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\(^a\) Includes full- and part-time jobs

\(^b\) Scores range from 0 (very dissatisfied) to 10 (very satisfied)
Performance Based Training
(for Clients and Coaches)

• Know: Knowledge acquisition
• Know *How*: Skill Acquisition
• *Do*: Skill performance

• Performance-based training includes
  – Deliberate practice
  – Experiential learning
  – Feedback
  – Support

By permission: Sonja K. Schoenwald PhD, Professor of Psychiatry & Behavioral Sciences Medical University of South Carolina

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Toward Evidence-Based Training (for Clients and Coaches)

- One-time workshops can increase knowledge and attitude toward change but not behavior
- Building proficiency appears to require repetitions and active learning
  - One estimate: 20 – 25 implementation attempts to achieve consistent professional behavior change (Joyce & colleagues, 2002)

- Approaches & techniques recently reviewed
  - Academic detailing
  - Coaching
  - Inter-professional learning
  - Reminders
  - Self-regulated learning
  - Problem-based learning

Lyon, Wiltsey Stirman, Kerns, & Bruns (2011)
By permission: Sonja K. Schoenwald PhD
Professor of Psychiatry & Behavioral Sciences
Medical University of South Carolina
Reduces need for psych bed days

InterAct Michigan, Kalamazoo MI

- 156 hospital bed days for the 17 CET Graduates for the year prior to CET (7 of 17 clients)
- 10 bed days for the CET treatment year (1 client)
- 20 bed days for the 13 months after graduation, (2 clients, data as of 1/1/15; a 87% reduction in bed days; 146 less bed days times $1,565\(^A\) cost per bed day, equals $228,490 in reduced costs)
- 41 bed days for 3 clients from 1-15-15 to 4-1-16, a continuing 74% reduction in bed days usage from the year prior to CET treatment year

\(^A\) The average national cost of a psychiatric bed day as reported in an article in USA Today http://www.usatoday.com/story/news/nation/2014/05/12/mental-health-system-crisis/7746535/
Reduces need for urgent, high demand services

• Bridgehaven MHS, Louisville KY

CETCLEVELAND® Program

– Reduction of 104 hospital bed days for the 13 CET Graduates from the year prior to CET (5 clients)
– to 0 bed days for the CET treatment year
– to 28 bed days for the 15 months after graduation, (1 client, data as of 1/1/15; 76 less beds or a 73% reduction from the year prior to CET; 76 less bed days times $1,565 (cost per bed day) equals $118,940 in reduced costs
CETCLEVELAND in Ohio: a report from the field.

Experience of establishing CETCLEVELAND at Ohio sites

Training

Response from Clients

Results
CETCLEVELAND® trained staff at the following agencies:

Jewish Family Services Assoc. Beachwood, OH
Mercy Behavioral Health, Pittsburgh, PA
PLAN of Southwest Ohio, Cincinnati, OH
Northcoast Behavioral Healthcare, Northfield, OH
Chestnut Ridge Hospital, Morgantown, WV
JEVS, Philadelphia, PA
City Mission of Washington, PA
Bridgehaven MHS, Louisville, KY
South Bay LACDMH, Los Angeles, CA
InterAct Michigan, Kalamazoo, MI
Spindletop Center, Beaumont, TX
Lake Shore BHS, Buffalo, NY
Didi Hirsch, Los Angeles, CA
Veterans Affairs, Cleveland, OH
Lakes Regional Center, Terrill, TX
The Mental Health Coop, Houston, TX
Gulf Coast Center, Galveston, TX
Harbor CMHC, Toledo, OH
Unison Behavioral Health, Toledo, OH
Zepf Center, Toledo, OH
A Renewed Mind, Toledo, OH
Easter Seals of MI, Auburn Hills, MI
Region Ten CSB, Charlottesville, VA
Beech Brook, Pepper Pike, OH
Coleman Professional Services, Lima, OH
Hegira Programs Inc., Westland, MI
Detroit Central CMHC, Detroit, MI
Prince William County, Manassas, VA
University of New Mexico, Albuquerque, NM
Mental Health Resources, Clovis, NM
Guidance Center of Lea County, Hobbs, NM
Jefferson MHC, Wheatridge, CO
1. 265 CET groups completed as of December 2016 with 2,155 CET Graduates

2. 49 CET groups currently running

3. Current Disseminations: Truman Medical Center, Kansas City, MO 12/15; Mental Health Partners, Boulder, CO 1/16; Southeast Inc., Columbus, OH 5/16; Hidago Medical Services, Silver City, NM 5/16; Central Michigan CMH, Midland and Mt. Pleasant MI; CNS, Farmington Hills MI; Easter Seals, Pontiac, MI, 6/16; TTI Training & Treatment Innovations, Inc. Oxford MI 1/17; Chautauqua County DMH, Jamestown NY 1/17

4. 12 new CET sites in development in AZ, KY, MA, MI, NJ, OH, OK, OR, VA, WI
2011 SAMHSA Award Recipient
Beyond Treatment as Usual: The Case for Cognitive Remediation

• Active Treatment vs. Maintenance Management

• Neuroplasticity: the brain is designed to respond to changes but most clients are not challenged

• Cognitive Remediation reactivates learning and social cognition

• CET: curriculum based, 48 weeks long

• One time intervention with long term results

• In a wide range of sites and states
Center for Cognition and Recovery, LLC

2011 SAMSHA Science and Service Award
Treatment of Mental Illness and Recovery Support Services
Center for Cognition and Recovery, LLC

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