The Rubber and the Road: Evidence-based Practices and Reality

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Science and dogma

- The Federal government has issued mandates to states to use evidence-based practices for treating substance abuse.

- The states are also mandating this to its providers as well.

- In fact, evidence-based practices are now a part of the National Outcomes Measures (NOMS) that CSAT is mandating for its Block Grant.
The Emperor’s New Clothes

- An emperor of a prosperous city who cares more about clothes than military pursuits or entertainment hires two swindlers who promise him the finest suit of clothes from the most beautiful cloth.

- This cloth, they tell him, is invisible to anyone who was either stupid or unfit for his position. The Emperor cannot see the (non-existent) cloth, but *pretends that he can* for fear of appearing stupid; his ministers do the same.

- When the swindlers report that the suit is finished, they dress him in mime. The Emperor then goes on a procession through the capital showing off his new "clothes".

- During the course of the procession, a small child cries out, "But he has nothing on!" The crowd realizes the child is telling the truth. The Emperor, however, holds his head high and continues the procession.
The New Emperors

- Science, in the hands of government, masquerades as Truth.

- However, real science consists not so much of answers as it does with questions.

- Before we leap into a belief in evidence-based practices perhaps we need to check out our questions.

- Is our confidence warranted?
What has been learned?

- Generally, treatment is better than no treatment or placebo (Clark, 2009).

- However, for most conditions no single treatment works indisputably better when compared to other carefully researched approaches (Clark, 2009).

- The active use of self-help is associated with better treatment outcomes short-term and long-term (Moos, & Moos, 2003; 2006; Moos, Shaefer & Andrassy, 1999; Moos, Shaefer, Andrassy & Moos, 2001).
What’s less clear

- Research on the outcomes of substance abuse treatment approaches are not the same as for medical conditions.
  - Behavioral health disorders are far less discrete than most medical conditions
  - Behavioral health problems are generally a cluster of disturbances – multiple co-occurring conditions
  - Some medical conditions are also this way and research into effective treatments for these is also muddled
Example

- Most of the medical conditions for which there is a well-researched treatment are discrete conditions like Type 1 diabetes – insulin clearly treats the condition.

- But for more complex, less discrete conditions like asthma – there are many conflicting ideas about evidence-based treatments.
  - Plus, this is an evolving process – 60% of asthma cases were “known” to be a result of reflux disease – that is, stomach acid that creeps up the esophagus and is then aspirated into the lungs. Reflux drugs costing millions ($4,000 per pt. per year) have been prescribed to treat reflux to get at asthma.

- It has now been shown that the reflux drug has no effect on asthma symptoms after all – the intuitive logic did not pan out.
Effectiveness versus efficacy

- It is one thing to say a treatment is effective – that is measuring client conditions before treatment and after treatment shows a positive change.

  - Effectiveness research does not show HOW a person got better, just that they DID get better.

  - In these cases, the treatment is a black box – client goes in, comes out and is changed but we cannot see what happened inside the black box to make change happen.

  - Almost all of the “evidence-based practices” have effectiveness research to support them. However, some have only the developer’s own minimal effectiveness research.
Clinical research among medical conditions usually goes toward efficacy – that is showing exactly HOW the intervention results in change.

- Cholesterol plaques in arteries were known to be associated with heart attacks and heightened stroke risk.

- Drugs were developed to reduce those plaques.

- Research was done to examine the efficacy of the drug in reducing plaques and the research was positive – clear gains.

- Other drugs reduced LDL cholesterol and the pharmaceutical company decided to put them together for a double whammy.

- So, in this case, the specific action of the interventions on the clinical disorder was measurable and the black box was made visible.
It takes both

• However, it was found that put together, there were no real health gains (effectiveness) for patients (Kastelein, Akdim, Stroes, Zwinderman, Bots, Stalenhoef, et al., 2008).

  • EVEN THOUGH there was evidence of EFFICACY in terms of cholesterol being lowered.

  • Plain old statins by themselves were more EFFECTIVE than the combination of the two drugs.

  • One must show BOTH effectiveness AND efficacy to have really robust evidence that a practice is genuinely helpful.
It’s also more complex when…

- Your interventions are WORDS.
- Drugs are processed by the body through known and measurable chemical processes.
- Words are processed by people in idiosyncratic ways that are very difficult to understand or measure.
PLUS, most behavioral health problems have multiple spin-off effects throughout the body and mind.

- This is due to the many interactions between the central nervous system and the entire body

- All substances that are abused alter the arousal system of the brain – either upwards or downwards

- Subtle changes in the arousal system cause cascade events throughout the CNS and the body – some positive, some negative

- These cascade events are roughly predictable but there are huge individual variations – can any one intervention address these variations?
Behavioral health treatments...

- Go in through the human ear.
- Get understood and processed – maybe.........
- Get applied to self......
- Then the client begins to use the information and MAYBE things start to change.
The trouble is.....

- The words you use must begin to make change in brains.

- Behavioral interventions are dependent on words affecting brain chemistry and brain anatomy.

- Thus, there is a complexity to any evidence-based practice that we must be sensitive to.

- Remind yourself about the key brain structures involved.
Dopamine Pathways

Functions:
- reward/salience
- pleasure, euphoria
- motor function (fine tuning)
- compulsion
- perseveration
ICSS = Intracranial self stimulation

ENK = encephalin

DA = Dopamine

GABA = γ-aminobutyric acid

NE = Norepinephrine

Bowles Center for Alcohol Studies at UNC
http://www.med.unc.edu/alcohol/research/Crews/brain.gif
This is where interventions are aimed
Drug user’s brain from the under side

Drug user’s brain from the top

AMEN CLINIC BRAIN SPECT GALLERY
Side by Side

Healthy - what you are using

Drug User – what you are working with
Underside view of a depressed brain – see the yellow and green areas at the frontal lobe area showing decreased activity there.
Now, for comparison, look at this same view from the underside of a brain that has had frontal lobe injury in an auto accident. The blue colored areas are where there is less brain activity.

Picture courtesy of Dr. William Klindt of Silicon Valley Brain SPECT Imaging, San Jose, California. www.braininspect.com
But brains do change.....

- With abstinence......
- And with exposure to new environments......
- And, perhaps, as a result of treatment.
- As behavior changes, brains change.
- As brains change, behavior changes.
Recovery of Brain Dopamine Transporters in Chronic Methamphetamine (METH) Abusers

Imaging the underside: Extensive HX Alcohol and Cocaine – Before and After TX

Before

After

This set of images, a composite of 13 brains during development, shows how the cortex goes through changes during adolescence. The purple color shows the replacement of gray matter in the cortex throughout development. By age 20, the brain is essentially complete in cortical development. (Science, 2002).
With all this complexity....

- We must be astute consumers of scientific information about evidence-based practices.

- We must read the evidence, not just take it for granted that because CSAT says that a practice is evidence-based it is any better than another practice.

- Also remember that strict reliance on evidence-based practices means using the OLDEST treatments around – innovative ideas do not have lots of evidence.

- Also, unique populations (Appalachian) have never been targeted in clinical trials – be reminded of this in practice.
An example of evidence....

- A convenience sample of 114 patients out of the 500 referred to in the program (Rawson et al. 2002) report was followed at 2-5 years after treatment.

- In this study funded by CSAT, 437 potential study candidates were telephoned by research assistants and asked to come to the clinic for a follow-up interview. When necessary the interview was performed at a neutral offsite location and as a last resort it was done by phone.

- Of the total pool of 437, 183 (42%) were located, contacted and asked to participate.

- Of the 183, 114 (62.3%) agreed to participate in the follow-up interview.

- The participants were similar to the non-participants on demographics; however, they remained in treatment almost twice as long and gave more methamphetamine-free urine samples during the course of treatment.

- This is now 26% of the original pool of recruited and consenting clients.
• The limitations of the study methodology preclude conclusions about the specific impact of the Matrix treatment, and the 114 patients who were followed were not representative of the entire initial sample of 437.

• However, despite these limitations, it was demonstrated that many methamphetamine users are able to discontinue methamphetamine use following treatment with the Matrix Model.

• Subsequent comparison studies of Matrix with treatment as usual in a variety of community based programs showed some differences in the number of dirty urines during treatment but no differences at discharge or 6 month follow-up (Rawson, Marinelli-Casey, Anglin, Dickow, Frazier, Gallagher, et al., 2004).
However,

- Let’s assume that an evidence-based practice is to be “required” for clinical practice. If so then.....
  
  - How will we know it is actually being used?
  
  - How will we know it is being reliably conducted?
  
  - How will we know about adaptation, modifications? (And, if modified is it still evidence-based?)
And, one other thing

- What about the conflict between client-specific treatment planning and a requirement that providers implement evidence-based practices?
  - If, for example, a program adopts the MATRIX Model, that then means that every client gets one treatment approach.
  - Is this an evidence-based way to implement evidence-based practices?

- If we follow David Mee-Lee and Norman Hoffman’s thinking, every client has unique needs that need careful attention in treatment planning which also must be client-directed. What if the client doesn’t like the evidence-based practice?
What about poor little old Kentucky?

- Kentucky has evidence of treatment **effectiveness** for four substance abuse populations.
  - KTOS adult clients (70% follow-up rate 12 months after intake) – overall around 65% - 85% abstinence rates.
  - Adolescent KTOS (70% follow-up rate) – overall around 75% abstinence rates.
  - Criminal Justice KTOS (80% follow-up rate 12 months post release) – 55% - 90% abstinence rates.
  - KORTOS – just beginning with follow-ups every 6 months.
What we don’t know is:

- What treatments are being used.
- How well they are being implemented.
- Whether clinicians are using evidence-based practices or not.
- Anything at all about the kinds of relationships that are formed between clinicians and clients.
- Whether it is treatment *per se* that works or other things surrounding the treatment referral – court, DCBS, etc.
What should we do?

- Think.
  - Remember the ethics of respect for the individual client’s needs and autonomy.
  - Resist becoming an automaton.
  - Resist arbitrary authority.
  - Remember the Scots-Irish background of Kentucky and apply common sense when all else fails.
DISCUSSION