Discussion of Lipsey’s “What works”

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Understanding Levels of Evidenced and How Far We Have Come

**Law**
- Beyond a Reasonable Doubt
- Clear and Convincing Evidence
- Preponderance of the Evidence
- Probable Cause
- Reasonable Suspicion

**Science**
- Meta Analyses (48 to 103 studies, n>10,000)
- Experimental Studies (n=1200/condition)
- Quasi-Experiments (n=29-37/condition)
- Pre-Post (multiple waves)
- Pre-data Theories, Logic Models
- Case Studies, Focus Groups
- Correlation and Observational studies
- Anecdotes, Analogies

Early work up to 1997

2004- First large (n=600) multisite adolescent experiment

2006- First small (n=29-37/condition) experimental evaluation of juvenile treatment drug court (JTDC)

2008- Start to see a growing number of experiments

2010- First large (n=1200/condition) multi-site, independent, replicated, consistency

2010- Meta analyses

2008- Start to see a growing number of experiments for JTDC vs. AOP

Source: Marlowe 2008
What is a Meta Analysis?

• A way of quantitatively combining information across several existing studies or programs

• Represents an average of past research and/or practice

• Can be focused on post test differences only, or on change from intake to post test

• Can use characteristics of studies or programs
  – To create weights used when creating an average
  – As “predictors” of effects
Strengths of Meta Analysis

• Generally accepted as more accurate than narrative literature reviews or simple box counts of published findings
• Can be used to identify practices that seem to be working well or badly on average
• Often identifies a set of practices that are operating in a similar range, even if no one study compared them directly
Limits of Meta Analysis

• Only as good as the studies that go into it
• Limited by the number and characteristics of the studies that have been done to date
• Two meta analyses can come up with different answers if they
  – Use different subsets of studies
  – Focus on different outcomes
  – Look at different types of effect sizes
  – Use different weighting schemes
  – Predictors are not randomly assigned and can have complex relationships in multivariate analysis
Substance Frequency Scale

post-pre effect size d & 95% CI

Red line-average
Pink Box – middle
1/5th sd (d=.2)

All got better
Similar to Small Differences Between
Illegal Activity Scale

Notice how Order Change when Changed to Illegal Activity
...and again when we change to emotional problems
Cannabis Youth Treatment (CYT): Similarity of Clinical Outcomes

Not significantly different by condition.

But better than the average for OP in ATM (200 days of abstinence)

<table>
<thead>
<tr>
<th></th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Days Abstinent</strong></td>
<td>269 (n=102)</td>
<td>251 (n=100)</td>
</tr>
<tr>
<td><strong>Percent in Recovery</strong></td>
<td>0.28**n.s.d., effect size f=0.06</td>
<td>0.23**n.s.d., effect size f=0.06</td>
</tr>
</tbody>
</table>

** n.s.d., effect size f=0.12

** n.s.d., effect size f=0.16

Source: Dennis et al., 2004
<table>
<thead>
<tr>
<th>Service</th>
<th>Average Cost</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET/CBT5</td>
<td>$1,126</td>
<td>(6.8 weeks)</td>
</tr>
<tr>
<td>MET/CBT12</td>
<td>$1,197</td>
<td>(13.4 weeks)</td>
</tr>
<tr>
<td>FSN (w/ family)</td>
<td>$3,322</td>
<td>(14.2 weeks)</td>
</tr>
<tr>
<td>MET/CBT5 (w/ family)</td>
<td>$1,559</td>
<td>(6.5 weeks)</td>
</tr>
<tr>
<td>ACRA (12.8 weeks)</td>
<td>$1,413</td>
<td></td>
</tr>
<tr>
<td>MDFT (13.2 weeks w/ family)</td>
<td>$1,984</td>
<td></td>
</tr>
</tbody>
</table>
**CYT - Moderate to large differences in Cost-Effectiveness by Condition**

- **Cost per day of abstinence over 12 months**
  - MET/CBT5
  - MET/CBT12
  - FSN
  - MET/CBT5
  - ACRA
  - MDFT

- **Cost per person in recovery at month 12**
  - CPDA* $4.91 $6.15 $15.13 $9.00 $6.62 $10.38
  - CPPR** $3,958 $7,377 $15,116 $6,611 $4,460 $11,775

* p<.05, effect size f=0.48
** p<.05, effect size f=0.72

- MET/CBT5 and 12 did better than FSN
- ACRA did better than MET/CBT5; both did better than MDFT
- MET was NOT equally cost-effective across sites

*Source: Dennis et al., 2004*
Treatment Fidelity Matters

Source: Garner et al 2009  Note: Final model only showing paths significant at p < .05; RMSEA = .00 (90% CI = 0 to .03); CFI = 1.00. Relationships between exogenous variables were estimated but not shown. The percentage of variance explained for each endogenous variable is indicated by the bold arrows.
Percentage Change in Abstinence (6 mo-Intake) by level of Adolescent Community Reinforcement Approach (A-CRA) Quality Assurance

<table>
<thead>
<tr>
<th>% Point Change in Abstinence</th>
<th>Training Only</th>
<th>Training, Coaching, Certification, Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>4%</td>
<td>24%</td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
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<tr>
<td>30%</td>
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<tr>
<td>40%</td>
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<tr>
<td>50%</td>
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<td>60%</td>
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<tr>
<td>70%</td>
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<tr>
<td>80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
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</tbody>
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Effects associated with Coaching, Certification and Monitoring (OR7.6)

Source: CSAT 2008 SA Dataset subset to 6 Month Follow up (n=1,961)
What to take a way

• Meta analyses summarizes what we know so far, but have limits and can vary in what they look at and find
• It is less important to think of results as a horse race and more as a way to understand the strengths and limits of what we have evaluated in our tool box so far
• Most interventions evaluated so far had average or a little better than average outcomes, none got worse
• We want to find opportunities to expand the range of tools in the tool box because
  – No intervention is working for all or dramatically better
  – Minor differences vary by which outcome is considered and/or important to you
  – There are real differences in staff requirements, easy of implementations, acceptability to communities and costs