Office of Adolescent Health
Teen Pregnancy Prevention Evidence Review: The Standards

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Presentation at the TPP Tier 2 Orientation Meeting
November 10, 2015
Overview Presentation

- Introduction to the HHS Teen Pregnancy Prevention Evidence Review
- How the TPP Evidence Review affects you
- How the TPP Evidence Review does its work
  - General process
  - Standards
  - How evaluation TA liaisons will help you
Purpose of Evidence Review

- Started in 2009 by U. S. Department of Health & Human Services
- High-stakes systematic review
  - Identify evidence-based teen pregnancy prevention programs
  - Used by federal government to determine federal grant funding for teen pregnancy prevention
- Broader resource for states and local communities
Overview of Ratings

Valid Randomization

Yes → Attrition

High → Equivalence (Analytic Sample)

No → Confounding Factor

Yes → Low Rating

Low → High Rating

Moderate Rating

Cluster RCT with low cluster attrition AND high subcluster attrition OR added sample members
• Grantees with rigorous evaluation requirement (Tier 2B) will receive technical assistance to help design and implement evaluations that will be reviewed positively by the Evidence Review

• First cohort of grantees are being reviewed by Evidence Review
General Process

Figure 1. Stages for determining programs with evidence of effectiveness

Stage 1: Assess study quality
- High rating
- Moderate rating
- Low rating

Stage 2: Assess evidence of effectiveness
- Statistically significant, favorable impacts on outcome of interest
  - Program with evidence of effectiveness
- No statistically significant, favorable impacts OR statistically significant, unfavorable impacts on outcome of interest
  - Program without evidence of effectiveness

Understanding the HHS Teen Pregnancy Prevention Evidence Review, Brief 8, June 2015
Randomization

- Necessary components of randomization
  - Assign youth entirely by chance
  - Each youth has a non-zero probability of being assigned to each condition

- Actions that bring randomization into question
  - Moving youth from their assigned condition
  - Adding youth who were not randomly assigned
  - Removing youth from the sample after randomization
  - If CRCT with assignment of class to condition, selection of youth after assignment of class to condition
Attrition in RCTs

- Attrition introduces threat to unbiased impact estimate because it may cause differences in distribution of characteristics in the intervention and comparison group.

Sample Attrition in Teen Pregnancy Prevention Impact Evaluations, Brief 5, November 2014
Example of Calculating Attrition

2,100 Students

**Intervention**
- 1,000 students assigned
- 900 students contribute posttest data

**Comparison**
- 1,100 students assigned
- 927 students contribute posttest data
If an RCT, must have low attrition to receive high rating, otherwise must demonstrate equivalence to receive moderate rating.
Cluster RCTs

- Attrition will be assessed at both the cluster and the subcluster levels.

- If the analytic sample includes individuals added after randomization, then the cluster RCT may not receive a high rating.
The TA Liaison Support for Attrition

Table 1. Example of assessing youth attrition when there is cluster-level attrition

<table>
<thead>
<tr>
<th>Cluster attrition calculation</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of clusters in initial random assignment</td>
<td>20</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Number of clusters observed at follow-up</td>
<td>19</td>
<td>20</td>
<td>39</td>
</tr>
<tr>
<td>Cluster attrition rate</td>
<td>5% = (20 – 19) / 20</td>
<td>0% = (20 – 20) / 20</td>
<td>2.5% = (40 – 39) / 40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Youth Attrition Calculation</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of youth randomly assigned in all clusters</td>
<td>2,000</td>
<td>2,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Number of youth randomly assigned in clusters that did not attrite</td>
<td>1,900</td>
<td>2,000</td>
<td>3,900</td>
</tr>
<tr>
<td>Number of youth observed at follow-up</td>
<td>1,520</td>
<td>1,600</td>
<td>3,120</td>
</tr>
<tr>
<td>Youth attrition rate</td>
<td>20% = (1,900 – 1,520) / 1,900</td>
<td>20% = (2,000 – 1,600) / 2,000</td>
<td>20% = (3,900 – 3,120) / 3,900</td>
</tr>
</tbody>
</table>

Sample Attrition in Teen Pregnancy Prevention Impact Evaluations, Brief 5, November 2014
Analytic Sample

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Sample members at time of random assignment</th>
<th>Sample members who were observed at follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Diagram of intervention sample]</td>
<td>![Diagram of follow-up sample]</td>
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Analytic Sample

*Sample Attrition in Teen Pregnancy Prevention Impact Evaluations, Brief 5, November 2014*
Equivalence

- Characteristics at minimum: age/grade, gender, race/ethnicity
  - If sample is over 14, or 8th grade or higher, at least one behavioral outcome
  - Recommendation: other key variables that are expected to influence outcomes
- Statistically control for age/grade, gender, race/ethnicity in analyses
- Must demonstrate equivalence for a moderate rating
Inequivalence if statistically significant difference.

Use a two-tailed test and if $p < 0.05$, then statistically significant difference.
- **Goal:** have non-significant differences between groups

- **Method:** Matching methods
  - Exact matches
  - Propensity score methods
Table 1. Analysis Sample ($N_i = N_c =$): Summary Statistics of Key Baseline Measures, by Study Group

<table>
<thead>
<tr>
<th>Baseline Measure</th>
<th>Intervention Group</th>
<th>Comparison Group</th>
<th>Baseline Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (or %)</td>
<td>Standard deviation*</td>
<td>Mean (or %)</td>
</tr>
<tr>
<td>Age or Grade Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral measure, such as sexual initiation (for studies with youth at least 14 years old)</td>
<td></td>
<td></td>
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</tbody>
</table>

Table notes: [Describe the analytic procedure used to test the intervention-comparison group difference in baseline means]

* Include if a continuous measure.
Outcomes

- Included: measures of sexual risk behavior or its health consequences (sexual activity including initiation, frequency, or number of partners); contraceptive use; STIs; pregnancies; or births.

- Excluded: measures with limitations related to quality or interpretation – reports from males of female partners’ use of contraception, scales of behavioral risk – combine multiple measures into a single “black box”
Confounding factors are observed factors that are not a component of the intervention but is completely aligned with one condition.

- If there are confounding factors, then it is impossible to isolate the effect of the intervention.
- One of the most common confounding factors: “N = 1” which means there is a single unit in one of the conditions for the analytic sample.

A study with a confounding factor will receive a low rating.
Overview of Ratings

- **Valid Randomization**: Yes -> **High Rating**, No -> **Attrition**
- **Attrition**: Low -> **High Rating**, High -> **Equivalence (Analytic Sample)**
- **Equivalence (Analytic Sample)**: Yes -> **Moderate Rating**, No -> **Low Rating**
- **Confounding Factor**: Yes

Cluster RCT with low cluster attrition AND high subcluster attrition OR added sample members
Resources

- Identifying Programs That Impact Teen Pregnancy, Sexually Transmitted Infections, and Associated Sexual Risk Behaviors, Version 4.0

- Understanding the HHS Teen Pregnancy Prevention Evidence Review (Brief 8, June 2015)

- Sample Attrition in Teen Pregnancy Prevention Impact Evaluations (Brief 5, November 2014)

- Baseline Inequivalence and Matching (Brief 4, November 2014)
For More Information

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