Evaluation Technical Assistance Brief
for OAH & ACYF Teenage Pregnancy Prevention Grantees

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Understanding the HHS Teen Pregnancy Prevention Evidence Review

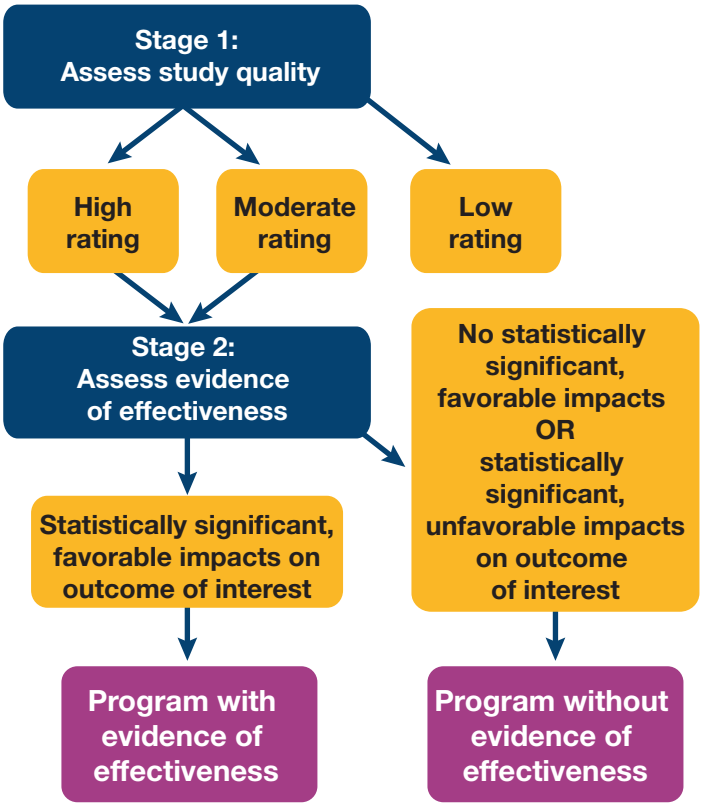
In this brief, we provide an overview of the U.S. Department of Health and Human Services (HHS) Teen Pregnancy Prevention Evidence Review, an ongoing systematic review of the teen pregnancy prevention literature designed to identify programs with evidence of effectiveness in reducing teen pregnancy, sexually transmitted infections (STIs), and associated sexual risk behaviors. This brief is targeted at researchers planning or implementing an evaluation of a teen pregnancy prevention program, to provide information about the review process and requirements.

What is the HHS Teen Pregnancy Prevention Evidence Review?

Since 2009, the U.S. Department of Health and Human Services (HHS) has contracted with Mathematica Policy Research to conduct the HHS Teen Pregnancy Prevention (TPP) Evidence Review. This high-stakes systematic review is a tool to help policymakers, practitioners, and other decision makers identify evidence-based teen pregnancy prevention programs. At the federal level, HHS has used the findings in part to determine eligibility for federal grant funding for teen pregnancy prevention. The review findings are also intended as a broader resource for states and local communities.

The HHS TPP Evidence Review identifies and assesses studies of programs that aim to reduce teen pregnancies, sexually transmitted infections (STIs), and associated sexual risk behaviors. The review process is divided into two key stages (Figure 1). First, trained reviewers assess study quality and assign a *quality rating* to each eligible study to denote the quality and execution of the study's research design. This assessment accounts for five core components of the study and yields a quality rating of high, moderate, or low. In the second stage high- or moderate-quality studies are given a *program effectiveness rating*, which indicates whether the program shows favorable effects on outcomes of interest. This brief describes the core components of the evidence standards, how those components are used to assign study quality ratings, and the criteria used to assign a program effectiveness rating. A more complete description of the review process and standards is available online at http://tppevidencereview.aspe.hhs.gov.

Figure 1. Stages for determining programs with evidence of effectiveness



Only studies that meet the eligibility criteria in the protocol are reviewed against the evidence standards. Some key eligibility criteria are:

- The study must have been conducted in the U.S.
- The study must have been published since 1989.
- The majority of sample members must be 19 or younger.

What are the core components of the study quality assessment?

When assessing the quality of a study, the HHS Evidence review examines five core components of the study: (1) research design, (2) reassignment, (3) attrition, (4) baseline equivalence, and (5) confounding factors. Table 1 presents each of the five components and, for each, includes a brief definition and explanation for why it affects a study rating. In addition, the table provides some considerations for designing and implementing studies to improve the likelihood that a study meets evidence standards. The table also provides a link to additional resources, beyond the evidence review protocol, to learn more about these topics. Finally, the table also indicates whether the component applies to a randomized controlled trial (RCT) or a quasi-experimental design (QED).

Table 1. Core components of the study quality assessment

Component	RCT	QED
Research Design		
Definition: Two types of designs are eligible for the HHS evidence review: (1) randomized controlled trials (RCTs) and (2) quasi-experimental designs (QEDs) with external comparison groups. **Why it affects the study rating:** The research design affects how well differences in outcomes can be attributed to the intervention. RCTs are the stronger design for establishing a causal effect of the program—they ensure that intervention and comparison groups are equivalent on all measureable and unmeasurable characteristics—and thus are the only study design eligible for the high quality rating. **Considerations for studies:** In RCTs, random assignment can be of individual youth to intervention or comparison conditions or of clusters (e.g. all youth in a set of classrooms are assigned to the intervention while all youth in another set of classrooms are assigned to the comparison condition). QEDs need to have an external comparison group to be eligible for a moderate rating; a pre-post design using only one group of (treated) youth would receive a low rating. **Additional Resources:** "Finding Credible Program Impacts" Presentation Slides	X	X
Reassignment		
Definition: In RCTs, reassignment occurs when the randomly assigned units are not analyzed based on their initial assignment status. **Why it affects the study rating:** Moving participants from one study group to another, because of exposure, or lack thereof, or noncompliance, can produce bias in a study's impact estimate. For example, if low-motivation students assigned to the intervention group decide not to attend the program, and are analyzed as if they are in the comparison condition, the program will appear to be more effective than it truly is. **Considerations for studies:** Analyze all units according to their initial assignment status (i.e. conduct an Intent-to-Treat or ITT analysis). For instance, youth who do not attend a program should still be analyzed as part of the treatment group in an RCT. If units are reassigned to condition during the study, or if the impact analysis does not compare individuals based on their initially assigned condition, the study must demonstrate baseline equivalence and is not eligible for the highest rating. **Additional Resources:** "Finding Credible Program Impacts" Presentation Slides	X	

(continued)

Component	RCT	QED
Attrition		
Definition: Attrition occurs when members of the originally randomly assigned sample do not have outcome data (e.g. they do not respond to the follow-up survey). **Why it affects the study rating:** The loss of participants can bias the impact estimates by creating differences in the observed and unobserved characteristics of the treatment and control groups. For example, if all of the sexually active youth in the intervention group drop out of the study and the sexually active youth in the comparison group remain in the study, the program will appear to be effective at reducing sexual activity, but this effect would be solely due to sample attrition. **Considerations for studies:** The evidence review factors in both overall attrition and the difference in the attrition rates between treatment and control groups when determining whether the risk of bias from attrition is so high that baseline equivalence must be established. Therefore, it is important to not only minimize overall attrition (i.e. maximize response rates across the full sample), but also, minimize differences in attrition rates across intervention and comparison groups (i.e. ensure that the response rates across conditions are similar). Non-consent after random assignment may be factored into attrition calculations. The HHS evidence review assesses attrition against thresholds established by the U.S. Department of Education's What Works Clearinghouse. **Additional resources:** "Sample Attrition in Teen Pregnancy Prevention Impact Evaluations" Research Brief	X	
Baseline equivalence		
Definition: QEDs and RCTs with either reassignment or high attrition must show that the intervention and comparison groups are equivalent at baseline (pre-intervention) on age, race, and gender. For studies with sample members at least 14 years old at baseline, the study authors must also establish baseline equivalence on at least one outcome measure. Studies with younger sample members are exempt from establishing baseline equivalence of outcome measures because rates of sexual risk behaviors are typically low for this age group. **Why it affects the study rating:** Well-matched groups helps to minimize the risk of bias from a non-random sample design or sample loss or reassignment in an RCT. Similarly, if groups are very dissimilar at baseline on characteristics that influence outcomes, any post-intervention differences in outcomes may be due to these pre-existing differences at baseline, rather than being due to the intervention being studied. **Considerations for studies:** Collect extensive data at baseline on characteristics of sample participants that are expected to influence outcomes. At minimum, this baseline data collection should include sample demographics and sexual behavior information (if age appropriate). Although not currently required by the review, baseline measures on knowledge, attitudes, and other personal characteristics may also help reduce the risk of bias. **Additional resources:** "Baseline Inequivalence and Matching" Research Brief	X	X
Confounding factor		
Definition: : A confounding factor of the research is not a part of the intervention but aligns with one of the study conditions. **Why it affects the study rating:** It is impossible to tell if differences in the outcomes are due to the intervention or to the confounding factor. For example, if a single school receiving the intervention is compared against a single comparison school not receiving the intervention, it may be the case that the two schools are systematically different in terms of the sexual risk profiles or other related characteristics of the youth that they serve. **Considerations for studies:** Make sure to have more than one group of participants in each study condition. For instance, it may be necessary to recruit additional schools for a QED or cluster RCT. Also, make sure there are no systematic differences in data collection between study conditions (e.g. data on one group is collected via survey and another group via administrative data).	X	X

How does a study get a high or moderate quality rating?

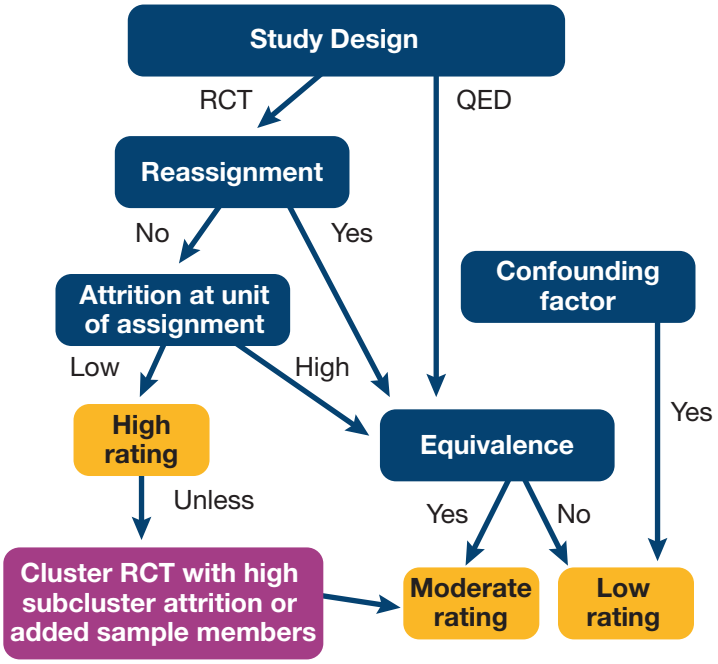
Figure 2 presents how each component factors into a study's quality rating. Only RCTs assessed as having low attrition, no reassignment, and no confounding factors can receive a high quality rating. QEDs and RCTs assessed as having high attrition at the unit of assignment or reassignment that demonstrate baseline equivalence and have no confounding factors, can receive a moderate quality rating. Studies that do not meet either the high or the moderate standards receive a low rating.

How does a program demonstrate evidence of effectiveness?

A program that has at least one eligible study with a high or moderate quality rating is assessed for evidence of program effectiveness. If any of the studies rated high or moderate demonstrate statistically significant, favorable impacts on any outcomes of interest, and the analysis meets the criteria (see box below), the program is noted as effective. Outcomes of interest include sexual activity, contraceptive use, STIs, pregnancy, or birth.

There have been a growing number of programs with multiple studies, often under different implementation contexts, sometimes with conflicting results. The HHS Evidence review is currently developing standards to support the comparison and synthesis of findings across studies of a particular program, as the rigorous evidence base grows. The review will be updated periodically to identify new evaluations and to improve upon the review criteria as best practices evolve.

Figure 2. Decision rules for the HHS Evidence Review quality ratings



References

Mathematica Policy Research. "Identifying Programs That Impact Teen Pregnancy, Sexually Transmitted Infections, and Associated Sexual Risk Behaviors Review Protocol Version 4.0." Retrieved from http://tppevidencereview.aspe.hhs.gov/pdfs/Review_protocol_v4.pdf.

Analytic criteria for the program effectiveness ratings

- Outcomes must be measured for either the full analytic sample or a subgroup defined by (1) gender or (2) sexual experience at baseline.
  - Subgroups should not be defined by a post-random assignment characteristic (e.g. looking at a subset of those who had sex at the one year follow-up) because that can bias the impact estimate.
- Statistical significance must be assessed with a two-tailed hypothesis test and a specified alpha level of $p < .05$
  - Because only statistically significant findings contribute to ratings of program effectiveness, it is important to ensure sufficient study power when designing your evaluation.
- Intra-cluster correlation adjustments are required for cluster RCTs and QEDs.

Additional Resources: "Estimating Program Impacts for a Subgroup Defined by Post-Intervention Behavior: Why is it a Problem? What is the Solution?" Research Brief

"Calculating Minimum Detectable Impacts in Teen Pregnancy Prevention Impact Evaluations" Research Brief

"Frequently Asked Questions About The Implications of Clustering in Clustered Randomized Controlled Trials (RCTs)" Evaluation Update

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