

## **WWC EVIDENCE REVIEW PROTOCOL FOR DROPOUT PREVENTION INTERVENTIONS, VERSION 2.0**

### **Topic Area Focus**

Dropping out of school continues to be an issue of national concern because of its links with poor labor market prospects, higher rates of public assistance receipt, and higher rates of substance use and incarceration. Recent estimates indicate that 10.5 percent of youth ages 16 to 24 years are not attending and have not completed high school (having earned neither a high school diploma nor a certificate of general educational development (GED)), and the rate is 11.3 percent and 25.7 percent for African American and Hispanic youth, respectively.<sup>1</sup> The rate has been remarkably constant in the last two decades, even as other indicators of risky teen behavior, such as pregnancy, have declined.

The What Works Clearinghouse (WWC) review of dropout prevention interventions will examine secondary school (middle school, junior high school, and high school) interventions, as well as community-based interventions designed to help students stay in school, progress in school, and/or complete school. A systematic review of evidence in this topic area will address the following questions:

- Which dropout prevention programs are effective in keeping students in school or getting them to return to school?
- Which dropout prevention programs are effective in helping youth progress in school?
- Which dropout prevention programs are effective in helping youth complete high school by either earning a diploma or a GED certificate?

### **Key Definitions**

***Dropout Prevention Programs.*** Dropout prevention programs are interventions designed to keep students in school and ultimately improve their likelihood of completing high school. These interventions can include services and activities such as incentives, counseling, monitoring, school restructuring, curriculum design, literacy support, or community-based services to mitigate factors impeding progress in school. They can operate in a public or private school setting, postsecondary institutions, or in a community facility such as a youth center or community-based organization.

The interventions can target middle school students, junior high students, high school students, or youth who have dropped out of school. For middle school students, program goals might be to keep students in middle school or encourage them to complete middle school. For high school students, program goals might be to keep students in high school or encourage them to complete high school either by receiving a diploma or GED certificate. For dropouts, program

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<sup>1</sup> National Center for Education Statistics (2005). "The Condition of Education 2005: Indicator 19 — Status Dropout Rates by Race/Ethnicity." NCES 2005-094. Washington, DC: U.S. Government Printing Office.

goals might be to get students to return to school and work toward a high school diploma or GED certificate.

***The key outcomes are staying in school, progressing in school, or completing school.*** The success of a dropout prevention intervention will be examined by comparing program participants (an intervention group) and a control or comparison group, to assess whether the intervention group was more likely to stay in school, progress in school, or complete school. Staying in school will be measured by school enrollment. Progressing in school will be measured by credit accumulation, grade promotion, or highest grade completed. Completing school will be measured by whether the participant has earned a high school diploma or GED certificate.

### **General Inclusion Criteria and Populations to Be Included**

The general target population of interest includes students who attend middle school, junior high school, or high school, or who are at the age when they could be attending these schools but are not (that is, they have dropped out of school). In addition, programs must serve students considered “at risk” of dropout. The research literature has identified risk factors for dropping out, including being behind grade level, having dropped out in the past, being a member of a racial or ethnic minority, being an English language learner, being a teen parent, growing up in a poverty household, having low grades or poor attendance, and receiving special education services.

### **Types of Interventions That May Be Included**

The interventions to be included will be determined after a search of the published and unpublished literature as well as a review of the nominations submitted to the WWC. To be included in the review, the intervention must focus on dropout prevention or high school completion. Interventions whose primary purpose is to affect behaviors that are correlated with staying in school or completing school—such as violent behavior, drug use, or teen pregnancy—will not be included in the review. The intervention must operate in the United States or its territories or tribal regions.

Examples of the types of interventions to be included are:

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|--------------------------|---|
| Programs:                | Alternative middle schools and high schools<br>Schools within schools (including freshman and career academies)<br>After-school and enrichment<br>Peer tutoring and mentoring<br>College preparation<br>Community service and service learning<br>GED preparation |
| Practices or Strategies: | Counseling and case-management<br>School restructuring  |
| Policies:                | Driver license suspension<br>Welfare payment reductions<br>Financial incentives   |

### **Inclusion and Exclusion Criteria for Studies Collected for Review**

The Dropout Prevention literature search focuses on studies involving programs, practices, and policies for students in middle school, junior high school, or high school, as well as those for youth who have dropped out of school. To be included in the review, a study must meet several relevancy criteria:

- *Topic relevance.* The study should examine the intervention's effects on whether participants stay in school, progress in school, or complete school. The study should not be a correlational study examining relationships between school attendance or dropout behavior and other characteristics.
- *Timeframe relevance.* The study has to be published in 1988 or later.
- *Sample relevance.* The sample must include students in middle school, junior high, or high school, or when they are at the age they could be attending these schools, but are not (that is, they have dropped out of school).
- *Study design relevance.* The study design and focus is limited to manuscripts that are empirical studies, using quantitative methods and inferential statistical analyses, and that take the form of a randomized control trial, a regression-discontinuity design, a quasi-experimental design, or a single subjects design.
- *Outcome relevance.* The study must focus on outcomes related to staying in school, progressing in school, or completing school.

## II. SPECIFIC TOPIC PARAMETERS

### 1. Commonly-shared or theoretically derived characteristics of the intervention that should be reflected in its definition and implementation.

- Suitable interventions for the review will have as their primary purpose an increase in high school completion rates or a reduction of dropout rates.
- The intervention targets students in middle school, junior high, or high school, or out-of-school youth who are the age of students in middle, junior high, or high school.

### 2. Important characteristics of the intervention that must be known in order to reliably replicate it with different participants, in other settings, at other times.

- Services provided and activities that are part of the intervention;
- Duration of the intervention;
- Characteristics and training of those administering the intervention;

In addition to these criteria, the study must describe:

- The target population;
- The institutional setting in which the intervention is implemented

These two additional criteria reflect the fact that dropout prevention programs can target a range of students and be implemented in a range of institutional settings, and some information about the types of students and institutions is needed to replicate the program appropriately.

### 3. Outcome Domains Relevant For This Review.

To be considered relevant for this review, studies must examine outcomes in one of the three domains listed below:

1. **Staying in school.** This domain includes measures such as whether the student has dropped out of school and the number of days the student was enrolled in school.
2. **Progressing in school.** This domain includes measures such as the number of high school course credits the student has earned, whether the student was promoted to the next grade, and the highest grade the student has completed.
3. **Completing school.** This domain includes measures such as whether the student has earned a high school diploma or GED or whether he or she has graduated from a district high school.

For measures to be considered appropriate for this review, they should be defined for all study participants (including dropouts) and should not be examined only for those students who have remained enrolled in school. On this basis, the review does not examine measures of school performance (such as grades, standardized test scores, and school attendance), because they are

not defined for students who have dropped out of school. In addition, this review does not examine intervention effects on behavioral outcomes associated with dropping out, such as delinquency, drug use, or teenage pregnancy.

**4. Evidence sufficient for an outcome measure to demonstrate each type of reliability (internal consistency, temporal stability/test-retest, and inter-rater).**

The outcomes of interest for the WWC dropout prevention reviews are not psychometric measures. Thus, these criteria do not apply.

**5. Interval of time within which studies should have been conducted to be appropriate for an intervention report.**

To be included in this review, studies must have been published or released in the period from 1988 to present.

**6. Characteristics defining the target population.**

For a study to be included in this review, study participants must meet the following criteria:

- Be enrolled in middle, junior, or high school or be between the ages 12 to 21;
- Reside in the U.S.;
- Be “at risk” for dropout based on characteristics such as class performance (e.g., grades), attendance, grade level retention, contact with law enforcement or the legal system, or contact with social services, teen parent status, low-income status, Hispanic or African-American students, students from single-parent households, students classified for special education services.

**7. Relevant subgroups of interest for this review are:**

- Sex
- Age at program entry
- Race/ethnicity
- Initial school enrollment status
- Overage or previously retained in grade
- Low attender or truant
- Low SES family background
- Low prior academic achievement

- Special education status

**8. Appropriate interval for measuring the intervention’s effect relative to the end of the intervention.**

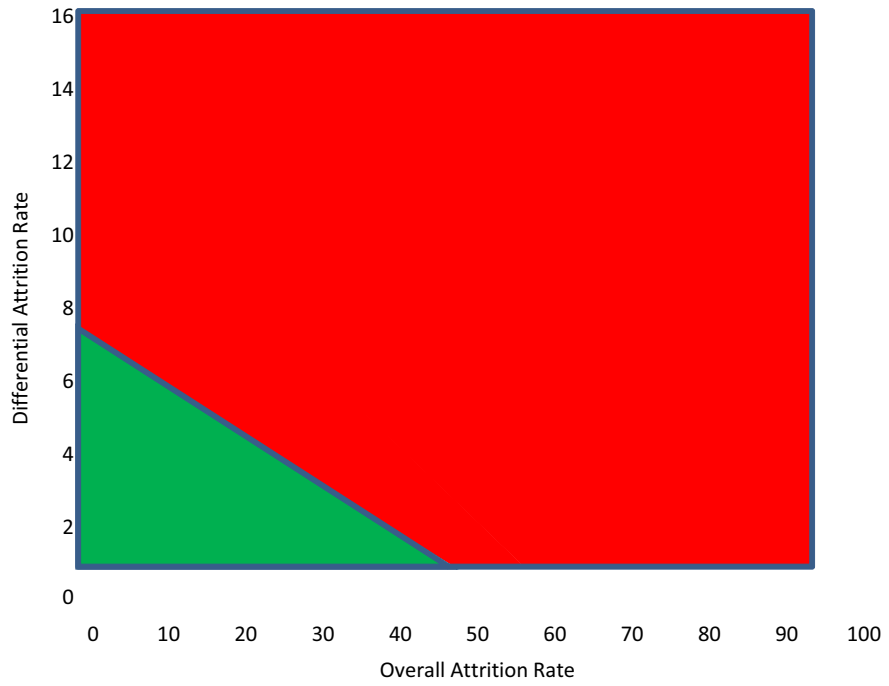
For the purposes of the review, the minimum length of the follow-up period will be six months after program entry. For example, a program that examines whether students have stayed in school using data collected less than six months after entry (a follow-up period of less than six months from baseline) will be dropped from consideration. The length of the intervention itself is not a factor.

**9. Acceptable levels of overall and differential attrition.**

As described in the *WWC Procedures and Standards Handbook (version 2.0)*, the WWC is concerned about overall and differential attrition from the intervention and comparison groups for RCTs, as both contribute to the potential bias of the estimated effect of an intervention. The attrition bias model developed by the WWC will be used in determining whether a study meets WWC evidence standards (see Appendix A of the *Handbook*).

When the combination of overall and differential attrition rates cause an RCT study to fall in the green area on the diagram shown below, the attrition will be considered “low” and the level of bias acceptable. However, for RCTs with combinations of overall and differential attrition rates in the red area, the attrition will be considered “high” and potentially have high levels of bias, and therefore must demonstrate equivalence. This reflects the assumption that attrition may bias estimates of program effectiveness in studies of dropout prevention because it is often more difficult for researchers to track students who have dropped out and include them in their analysis samples.

Figure: Acceptable and Unacceptable Combinations of Differential and Overall Attrition Rates



**10. Important characteristics that must be equated if a study does not employ random assignment or does employ random assignment but exhibits high levels of attrition.**

If the study design is an RCT with high levels of attrition or a QED, the study must demonstrate baseline equivalence of the intervention and comparison groups for the analytic sample. The onus for demonstrating equivalence in these studies rests with the authors. Sufficient reporting of pre-intervention data should be included in the study report (or obtained from the study authors) to allow the review team to draw conclusions about the equivalence of the intervention and comparison groups. Important pre-intervention characteristics can include measures that are highly related to the outcome measure(s). Other important pre-intervention characteristics can include outcome(s) measured prior to the intervention. However, when the unit of analysis is the student, many outcome(s) of interest for the WWC dropout prevention reviews, such as dropout status or high school graduation status, are not defined or are not informative when measured prior to the intervention.

Studies for which the unit of analysis is the student must show that the groups are equivalent in terms of race/ethnicity and sex. Additionally, they must demonstrate equivalence of the research groups in at least one measure of degree of disadvantage. These measures can include:

- Free and reduced-price lunch status, poverty status, family income
- Being from a single-parent family
- Parent's education
- Immigrant or English language learner (ELL) status
- Special education or disability status
- Teen parent status

Finally, these studies must demonstrate equivalence of the research groups in at least one measure of school performance. These measures can include:

- Standardized test scores
- Whether behind grade level (could be measured by age among students in the same grade)
- Prevalence of school behavior or discipline issues
- Rate of school attendance
- GPA

Because these measures of school performance are not defined or typically not available for students who have dropped out of school, studies of interventions that include students who have dropped out may demonstrate equivalence in school performance based on the proportion of students in each research group who are dropouts.

Studies for which the unit of assignment is the school must show that the groups are equivalent in terms of outcome(s) measured prior to the intervention. Additionally, they



must demonstrate equivalence in race/ethnicity and at least one measure of degree of disadvantage or academic achievement. These measures can include:

- Free and reduced-price lunch status
- English language learner (ELL) status
- Special education or disability status
- Standardized test scores

Groups are considered equivalent if the reported differences in pre-intervention characteristics of the groups are less than or equal to one-quarter of the pooled standard deviation in the sample, regardless of statistical significance. However, if differences are greater than 0.05 standard deviations and less than or equal to one-quarter of the pooled standard deviation in the sample, the analysis must control analytically for any of the pre-intervention characteristic(s) listed above on which the groups differ. If pre-intervention differences are greater than 0.25 for *any* of the listed characteristics, the study does not meet standards. In addition, if there is evidence that the populations were drawn from very different settings (such as rural versus urban, or high-SES versus low-SES), the PI may decide that the environments are too dissimilar to provide an adequate comparison.

## **11. Statistical and analytical issues.**

RCT studies with low attrition do not need to use statistical controls in the analysis, although statistical adjustment for well-implemented RCTs is permissible and can help generate more precise effect size estimates. For RCTs, the effect size estimates will be adjusted for differences in pre-intervention characteristics at baseline (if available) using a difference-in-differences method if the authors did not adjust for outcome(s) measured prior to intervention (see Appendix B of the *Handbook*). Beyond the pre-intervention characteristics required by the equivalence standard, statistical adjustment can be made for other measures in the analysis as well, though they are not required.

For the WWC review, the preference is to report on and calculate effect sizes for post-intervention means adjusted for the pre-intervention measure. If a study reports both unadjusted and adjusted post-intervention means, the WWC review will report the adjusted means and unadjusted standard deviations. If a study adjusted for pre-intervention factors but adjusted post-intervention means are not reported, adjusted post-intervention means will be requested from the author(s).

The statistical significance of group differences will be recalculated if (a) the study authors did not calculate statistical significance, (b) the study authors did not account for clustering when there is a mismatch between the unit of assignment and unit of analysis, or (c) the study authors did not account for multiple comparisons when appropriate. Otherwise, the review team will accept the calculations provided in the study.

When a misaligned analysis is reported (that is, the unit of analysis in the study is not the same as the unit of assignment) the effect sizes computed by the WWC will incorporate a

statistical adjustment for clustering. The default intraclass correlation used for the dropout prevention review is 0.20. For an explanation about the clustering correction, see Appendix C of the *Handbook*.

When multiple comparisons are made (that is, multiple outcome measures are assessed within an outcome domain in one study) and not accounted for by the authors, the WWC accounts for this multiplicity by adjusting the reported statistical significance of the effect using the Benjamini-Hochberg correction. See Appendix D of the *Handbook* for the formulas the WWC uses to adjust for multiple comparisons.

All standards apply to overall findings as well as analyses of sub-samples.

### **III. METHODOLOGY**

#### **Literature Search Strategies**

The What Works Clearinghouse (WWC) literature search is comprehensive and systematic. The search is designed to identify the population of published and unpublished relevant studies. This section contains elements of the literature search specific to the dropout prevention topic area, including search terms, electronic databases, research organizations, dropout prevention organizations, and previously reviewed interventions.

#### **Key Word List**

The following key word list guides searches of electronic databases, journals, and other media. The key words include general concepts likely to appear in studies of dropout prevention, as well as key words derived from outcomes that have been identified in earlier WWC dropout prevention reviews. In addition, the list includes a set of key words designed to identify articles that deal with evaluation studies, including randomized and quasi-experimental designs. Searches of electronic databases are typically based on combinations of these key words using Boolean terms such as AND and OR.

Dropout prevention	Highest grade completed
Dropout program	Total credits earned
Dropout recovery	Credit accumulation
Dropout reduction	Completing school
Reduce dropout	Earned high school diploma
Decrease dropout	Earned GED
Increase high school graduation	Evaluation
Increase high school completion	Evidence
Staying in school	Effectiveness
Continued enrollment	Impact
School persistence	Comparison group
School retention	Control group
School withdrawal	Treatment group
Progressing in school	Random assignment
On track to graduate	

#### **Electronic Databases**

The following electronic databases are searched using the key word list.

Academic Search Premier	Education Research Complete
Business Source Corporate	EJS E-Journals
Dissertation Abstracts International	ERIC
Google Scholar	OCLC WorldCat
EconLit	SocINDEX with Full Text

### **Research Organizations**

The websites of the research organizations conducting studies related to dropout prevention will be reviewed to identify studies for this review. Examples of these research organizations include:

Abt Associates  
American Institutes for Research  
Mathematica Policy Research  
MDRC  
RAND  
Research Triangle Institute  
SRI International  
Urban Institute

### **Organizations with Links to Dropout Prevention**

The websites of organizations with links to dropout prevention work will be reviewed to identify studies for this review and to identify dropout prevention interventions on which studies of effectiveness may have been conducted. Examples of these organizations include the National Dropout Prevention Centers and the National Center on Secondary Education and Transition.

### **Searches Related to Earlier Intervention Reports**

We will seek to identify new research related to interventions included in earlier waves of WWC Dropout Prevention intervention reports. We will identify new studies by searching the websites of the intervention developers and conducting author searches using the authors of studies identified in earlier intervention reports.

### **Research Conference Programs**

We will search electronically available conference programs from the annual meetings of prominent research organizations. Examples of these organizations include:

Association of Public Policy Analysis and Management  
American Educational Research Association  
Society for Research on Educational Effectiveness

### **Personal Contacts**

We will solicit studies directly from experts in the field of education who work on dropout prevention interventions. The PI, deputy PI, and PC will identify these experts.