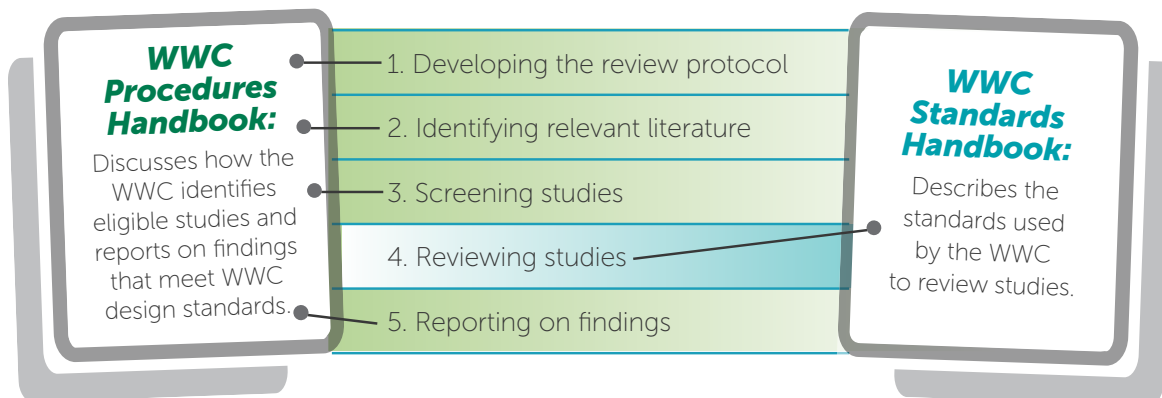


A Summary of Changes to WWC Procedures and Standards

The What Works Clearinghouse (WWC) aims to be a central and trusted source of scientific evidence for what works in education. The WWC identifies existing research on education interventions, assesses the quality of this research, and summarizes and disseminates the evidence from studies that meet WWC design standards. In 2017, the WWC updated the standards and procedures that guide our work. This document describes the changes between the Version 3.0 and Version 4.0 standards and procedures.



The WWC systematic review process is the basis of many of our products, enabling us to use consistent, objective, and transparent standards and procedures in our reviews. The Version 3.0 **Procedures and Standards Handbook** described the five steps of the WWC systematic review process in a single document. For Version 4.0, this information is divided into two documents: the **WWC Standards Handbook** and the **WWC Procedures Handbook**.



Collaborating to update the standards and procedures

The Institute of Education Sciences (IES) consulted with the WWC's Statistical, Technical, and Analysis Team (STAT) – which includes outside consultants as well as key staff from different WWC contractors – on the development of the Version 4.0 **Standards and Procedures Handbooks**. IES also gathered input from anonymous external peer reviewers and from methodology experts on topics including regression discontinuity designs, cluster-level assignment, and missing data. IES also sought comments from members of the public on drafts of updated standards for regression discontinuity designs (posted in December 2015) and for cluster designs (posted in March 2016), as well as on drafts of the entire Version 4.0 **Handbooks** (posted in August 2017).

Experts consulted to revise WWC procedures and standards

WWC's Statistical, Technical, and Analysis Team or Key Contractor Staff: Hanley Chiang, Jill Constantine, Mark Dynarski, J.R. Lockwood, Christopher Lonigan, Dan McCaffrey, Allan Porowski, Neil Seftor, Jessaca Spybrook, Jeffrey Valentine, Natalya Verbitsky-Savitz, and Elias Walsh

Other experts: Russell Cole, Thomas Cook, John Deke, Lisa Dragoset, Roderick Little, Rob Olsen, Terri Pigott, Sean Reardon, Dana Rotz, Peter Schochet, Elizabeth Stuart, Emily Tanner-Smith, Rocio Titiunik, Petra Todd, Wilbert van der Klaauw, and Glenn Wadell

Anonymous peer reviewers

What's new in the Version 4.0 Procedures and Standards Handbooks?

The approaches researchers use to measure the impacts of interventions are constantly evolving with new advances in methodological research. The updates to WWC procedures and standards in Version 4.0 are designed to keep pace with those changes and provide additional clarity to readers of the Handbooks. These updates include:

- **New standards that cover more types of study designs**
 - New standards for studies that use **“fuzzy” regression discontinuity designs**, in which the assignment cutoff imperfectly predicts intervention participation.
 - New standards for randomized controlled trials that present **complier average causal effects** to examine the effects of intervention participation rather than intervention assignment.
- **Updated standards for cluster-level assignment studies and for studies with missing data**
 - Updated cluster-level assignment standards are designed to assess whether some of an intervention's effects may have been caused by **compositional changes within clusters**, rather than effects on individual students. If so, the study is not eligible for the highest rating.
 - Previously, only randomized controlled trials with low attrition could use **approaches such as imputation to include subjects with missing baseline or outcome data** in the analysis. The updated standards allow these approaches in other group design studies, provided they satisfy some additional requirements.
- **Updated standards and procedures to refine the WWC's approach to reviewing studies**
 - **A more flexible statistical adjustment requirement** for studies with moderate levels of differences in key baseline measures. When the outcome and baseline measures are closely related and are measured using the same units, the WWC now considers difference-in-differences adjustments, simple gain scores, and fixed effects for individuals to be acceptable statistical adjustments.
 - Only regression discontinuity designs that use an analytic method called **local bandwidth impact estimation**, which can better reflect the relationship between the forcing variable and the outcome compared to alternative methods, can receive the highest WWC rating for these designs, bringing the WWC up to date with current research.
 - A more detailed set of standards for regression discontinuity design studies focused on **multiple sites** or that analyze subjects assigned to conditions using **multiple assignment rules**.
 - Updated **formulas for calculating statistical significance of findings**, including a new small sample size adjustment for continuous outcomes and a separate formula for dichotomous outcomes.
- **Clarification of existing standards and procedures**
 - Guidance on applying standards to **propensity score analyses and analyses in which subjects are observed in multiple time periods**.
 - Examples of **confounding factors**.
 - Discussion of **how the WWC defines studies and corrects for multiple comparisons within studies**.
 - Additional **clarifications and examples** added throughout both handbooks.

The WWC requested and considered public comments when updating the handbooks, as we are always looking for ways to improve our standards and procedures. The public can always submit comments and questions via the [WWC help desk](#).