

# Investing in Innovation (i3) Fund Evidence & Evaluation Webinar

## 2016 Update

Jonathan Jacobson and Tracy Rimdzius

National Center for Education Evaluation and Regional Assistance

Note: These slides are intended as guidance only. Please refer to the official documents published in the *Federal Register*.

# Agenda

- Evidence Standards—eligibility requirement
  - Requirements
  - Review process
  - What Works Clearinghouse (WWC) Evidence Standards
- Independent Evaluation—program requirement
  - Guidance on qualities of high-quality evaluation plans
- Questions & answers
  - Live—submission via the Webinar chat function
  - Post-webinar: E-mail to [i3@ed.gov](mailto:i3@ed.gov)

# Evidence Standards— Eligibility Requirement

## i3 Evidence Eligibility Requirements

- All applications **must meet** the applicable evidence requirement to receive a grant award.
- Applications that do not meet the evidence requirement **will not** be eligible for an award, regardless of scores on the selection criteria.
- If an application does not meet the evidence standard of the grant type under which it was submitted, it **will not** be considered for a different type of i3 grant.
- Applicants must either ensure that all evidence is available to the Department from publicly available sources and provide links or other guidance indicating where it is available; or, in the application, include copies of evidence in Appendix D.

# i3 Scale-up Grant Evidence Standard: “Strong Evidence of Effectiveness”

<u>Characteristics of the Cited Prior Evidence</u>	<u>Option 1</u>	<u>Option 2</u>
<b>Number of Studies of the Intervention Being Proposed</b>	At least 1	At least 2
<b>Study Findings on a Relevant Outcome</b>	Statistically significant favorable impact with no statistically significant and overriding unfavorable impacts	
<b>What Works Clearinghouse (WWC) Standards*</b>	Meets without reservations (RCT)	Meets with reservations (RCT or QED)
<b>Study Sample Size</b>	Large sample	
<b>Number of Study Sites</b>	Multi-site sample	
<b>Similarity of Population</b>	Overlaps with the populations and settings proposed to receive the i3 intervention	

\*See What Works Clearinghouse (WWC) Procedures and Standards Handbook, which can currently be found at the following link: <http://ies.ed.gov/ncee/wwc/DocumentSum.aspx?sid=19>.

## Scale-up Grant Evidence Eligibility Requirements

- To be eligible for an award, an application for a Scale-up grant must be supported by strong evidence of effectiveness.
- An applicant should identify up to four study citations to be reviewed against WWC Evidence Standards for the purpose of meeting the i3 evidence standard requirement.
- An applicant should clearly identify these citations in Appendix D, under the “Other Attachments Form,” of its application. The Department will not review a study citation that an applicant fails to clearly identify for the evidence review.

# i3 Validation Grant Evidence Standard: “Moderate Evidence of Effectiveness”

<u>Characteristics of the Cited Prior Evidence</u>	<u>Option 1</u>	<u>Option 2</u>
<b>Number of Studies of the Intervention Being Proposed</b>	At least 1	At least 1
<b>Study Findings on a Relevant Outcome</b>	Statistically significant favorable impact with no statistically significant and overriding unfavorable impacts	
<b>What Works Clearinghouse (WWC) Standards*</b>	Meets without reservations (RCT)	Meets with reservations (RCT or QED)
<b>Study Sample Size</b>		Large sample
<b>Number of Study Sites</b>		Multi-site sample
<b>Similarity of Population</b>	Overlaps with the populations or settings proposed to receive the i3 intervention	

Note: Greyed-out cells indicate criteria on which the standards are silent.

\*See What Works Clearinghouse (WWC) Procedures and Standards Handbook, which can currently be found at the following link: <http://ies.ed.gov/ncee/wwc/DocumentSum.aspx?sid=19>.

# Validation Grant Evidence Eligibility Requirements

- To be eligible for an award, an application for a Validation grant must be supported by moderate evidence of effectiveness.
- An applicant should identify up to two study citations to be reviewed against WWC Evidence Standards for the purpose of meeting the i3 evidence standard requirement.
- An applicant should clearly identify these citations in Appendix D, under the “Other Attachments Form,” of its application. The Department will not review a study citation that an applicant fails to clearly identify for the evidence review.

# i3 Development Grant Evidence Standards

Strong Theory

Evidence of Promise

Option 1

Option 2

Option 3

<i>Number of Studies</i>	Not Applicable; Logic Model Only	At least 1	At least 1	At least 1
<i>Statistical Significance</i>		Statistically significant or substantively important (0.25 standard deviation or larger) positive association or impact		
<i>WWC Standards*</i>		Not Applicable; Correlational study with statistical controls for selection bias	Meets with reservations	Meets without reservations

Note: Greyed-out/shaded cells indicate criteria on which the standards are silent.

\*See What Works Clearinghouse (WWC) Procedures and Standards Handbook, which can currently be found at the following link: <http://ies.ed.gov/ncee/wwc/DocumentSum.aspx?sid=19>.

# Evidence Standards— Eligibility Review Process

## Responsibility for the Evidence Eligibility Reviews

- OII assess whether Development applicants meet the “strong theory” standard.
- The Institute of Education Sciences (IES) conducts the other evidence reviews.
  - IES sends evidence citations to What Works Clearinghouse (WWC) reviewers.
- IES provides the WWC reviews, as well as information about the intervention, sample, and setting for each study reviewed to OII.
- OII makes a determination about the relevance of the intervention, sample, and setting of the study compared to what the applicant has proposed.

## Evidence Citation Reminders

- ED will limit reviews to evidence explicitly cited in Appendix D of the application as supporting the eligibility requirement.
- Applicants must ensure evidence is available to ED from publicly available sources and provide links or other guidance indicating where it is available.
  - Or an applicant may include copies of evidence in Appendix D.
- Include only citations that are relevant to the intervention being proposed.
- For evidence that will go through WWC review, include only citations that are primary analyses of the effect of the intervention being proposed.

# What Works Clearinghouse Evidence Standards

<http://ies.ed.gov/ncee/wwc/references/idocviewer/doc.aspx?docid=19&tocid=1>

# How Does the WWC Assess Research Evidence?

- Type of design: does the study design allow us to draw causal conclusions?
- Strength of data: does the study focus on relevant outcomes and measure them appropriately?
- Adequacy of statistical procedures: are the data analyzed properly?

# WWC Standards Apply to Causal Designs

## Eligible Designs

- Randomized controlled trials (RCTs)
- Quasi-experimental designs (QEDs)

## Potentially Eligible Designs

- Regression discontinuity (RDD)
- Single case (SCD)

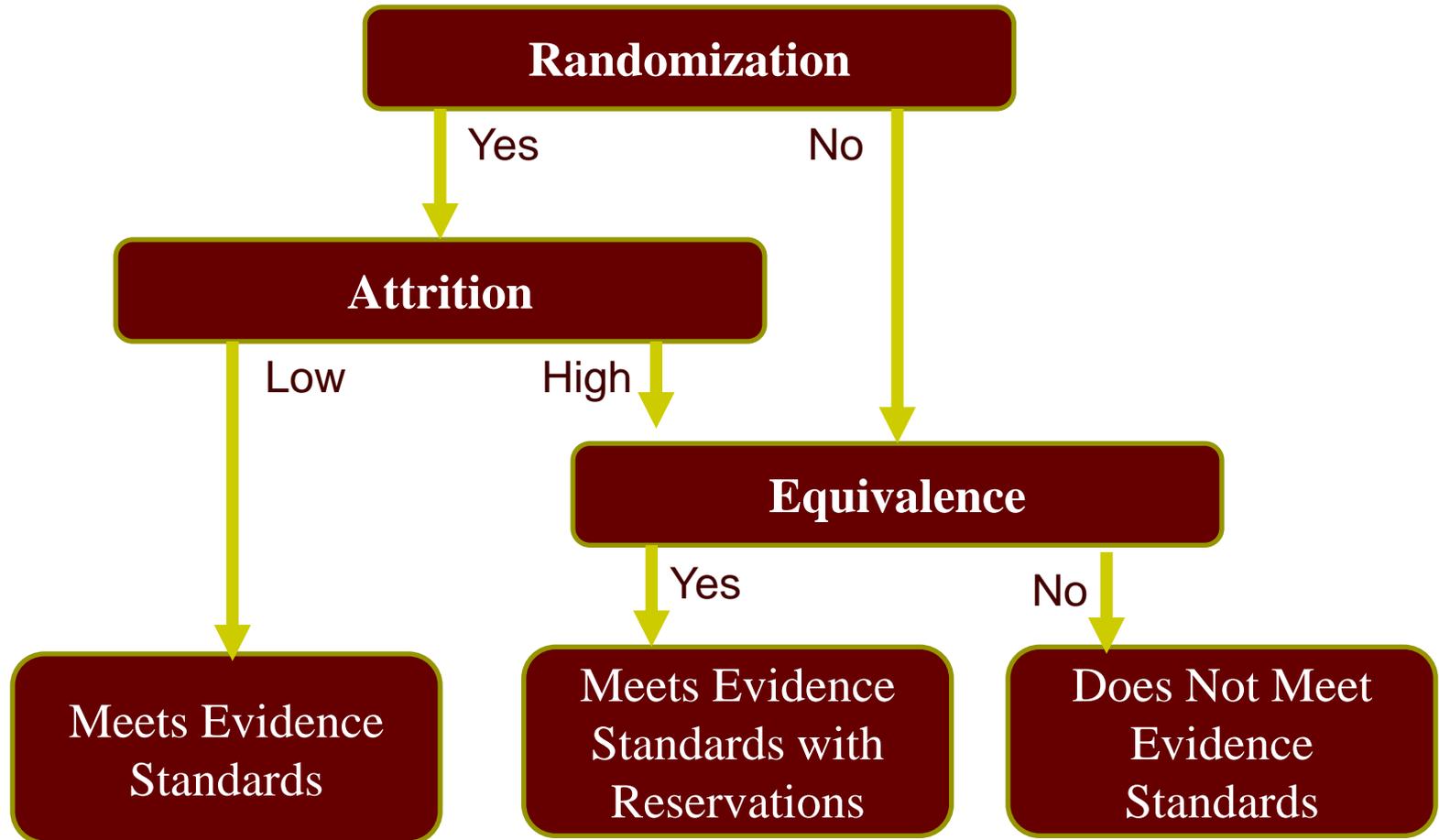
## Ineligible Designs

- Anecdotes and testimonials
- Case studies
- Descriptive studies
- Correlational studies without equivalent comparison groups

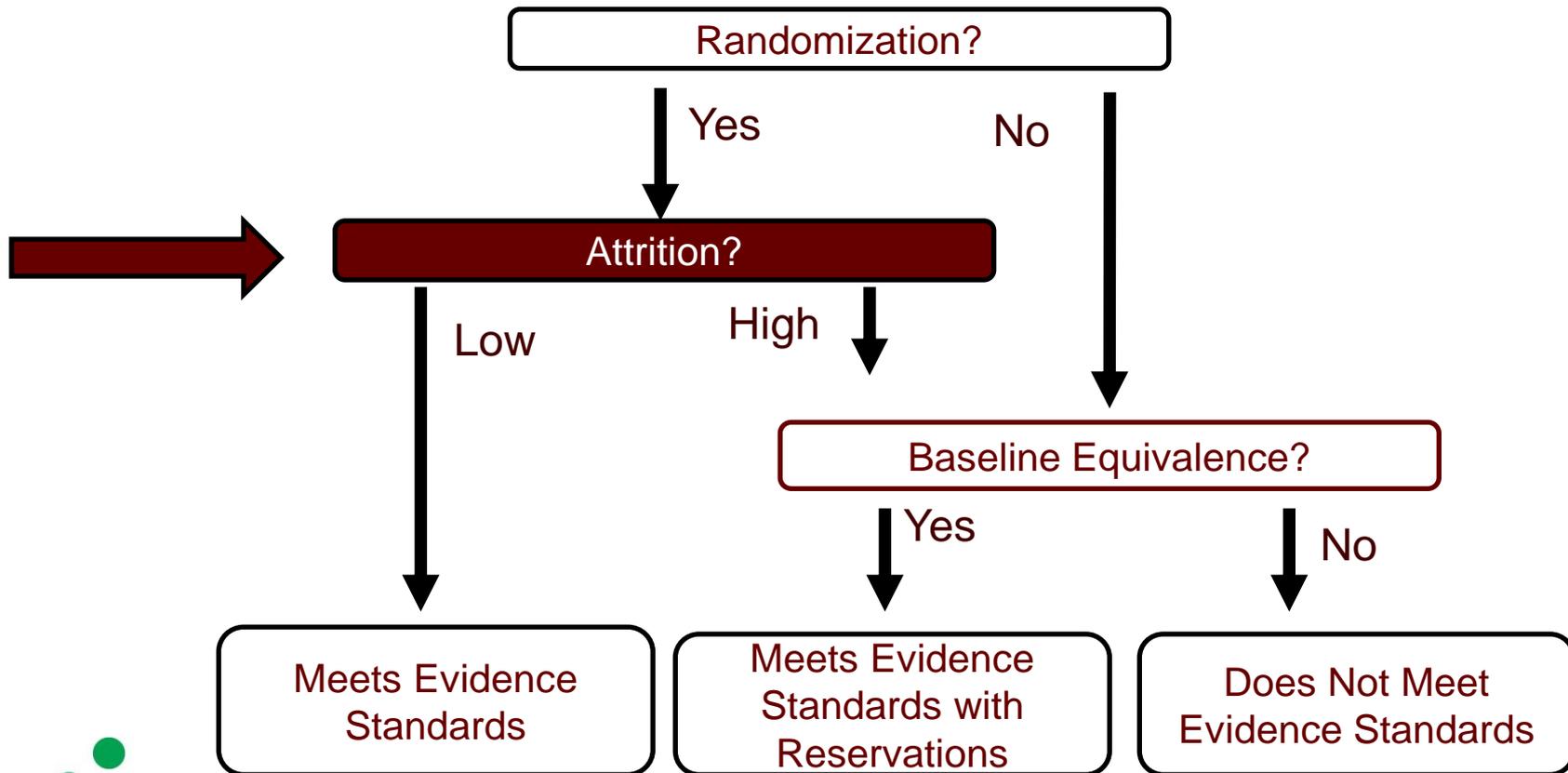
## Protocols for Assessing Research Evidence

- Review protocols guide all WWC reviews  
[http://ies.ed.gov/ncee/wwc/Publications\\_Reviews.aspx?f=All%20Publication%20and%20Product%20Types,5;#pubsearch](http://ies.ed.gov/ncee/wwc/Publications_Reviews.aspx?f=All%20Publication%20and%20Product%20Types,5;#pubsearch)
- If a relevant topic-specific protocol does not exist, the WWC will use a review protocol for individual studies to guide the review:  
<http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=262>
- Protocols specify how recent an original analysis of an intervention needs to be to be reviewed
- In general, *secondary data analyses and research syntheses are ineligible for WWC review*

# Key Elements of the WWC RCT/QED Standards



# Caution 1: RCTs with high sample attrition must demonstrate baseline equivalence

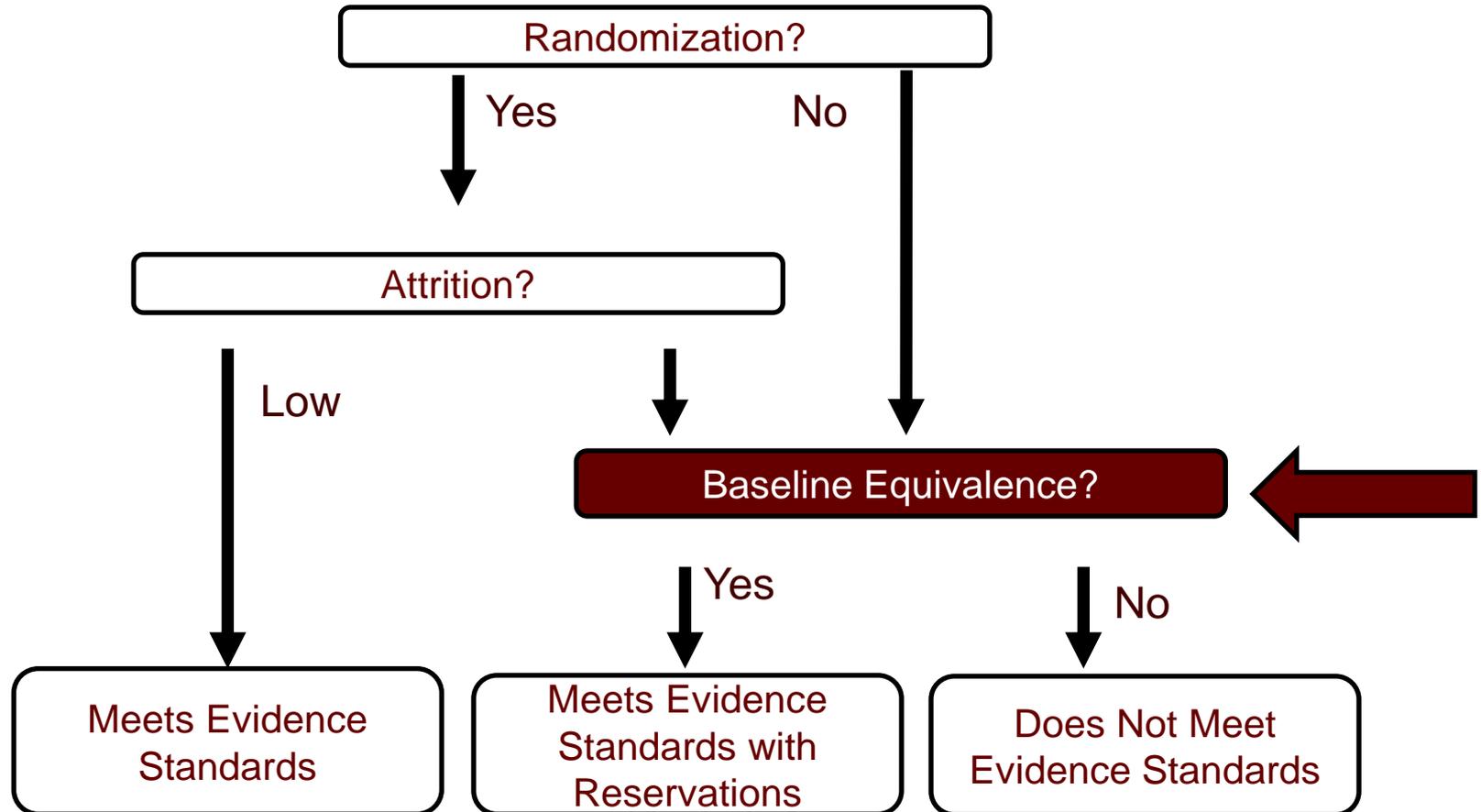


# Standards Account for Overall and Differential Attrition Rates

Sample maximum attrition thresholds for meeting WWC evidence standards

Overall Attrition	Treatment-Control Differential Attrition
15%	10.7%
20%	10.0%
30%	8.2%

## Caution 2: All QEDs must demonstrate baseline equivalence between the treatment and control groups



# Baseline Equivalence Standard

Equivalence must be demonstrated on the **analytic** sample

Baseline Difference: Treatment v. Control	No Adjustment Needed	Adjustment Needed	Does not Meet Standards
< .05 sd	√		
.05 - .25 sd		√	
> .25 sd			√

## Other Criteria

- ❑ Studies must measure impacts on relevant outcomes.
- ❑ Outcome measures must be reliable.
- ❑ Outcomes must not be over-aligned with the intervention.
- ❑ There must not be a confound between the treatment condition and one or more other factors that also could be the cause of differences in outcomes between the treatment and comparison groups.

# Independent Evaluation-- Program Requirement and Guidance

# Evaluation Requirements

All i3 Grantees

**MUST**

1. Conduct an independent project evaluation of the impact of the i3-supported practice (as implemented at the proposed level of scale) on a relevant outcome.
2. Cooperate with technical assistance provided by the Department or its contractors.
3. Provide an updated evaluation plan to the Department within 100 days of grant award.
4. Share the results of any evaluation broadly.
5. Share the data for Validation and Scale-up evaluations.

\* Note: The quality of an applicant's project evaluation is also a selection criterion.

# Selection Criterion: Quality of Project Evaluation

## Evidence of Effectiveness

“The extent to which the methods of evaluation will, if well implemented, produce evidence about the project’s effectiveness that would meet the WWC Evidence Standards without reservations.” *Scale-up and Validation*

“The extent to which the methods of evaluation will, if well implemented, produce evidence about the project’s effectiveness that would meet the WWC Evidence Standards with reservations.” *Development*

# Helpful Evaluation Resources

Designing Quasi-Experiments: Meeting What Works Clearinghouse Standards Without Random Assignment

<http://ies.ed.gov/ncee/wwc/Multimedia.aspx?sid=23>

Designing Strong Studies

<http://ies.ed.gov/ncee/wwc/Multimedia.aspx?sid=18>

# Selection Criterion: Quality of Project Evaluation

## Clarity of Questions and Appropriateness of Methods

“The clarity and importance of the key questions to be addressed by the project evaluation, and the appropriateness of the methods for how each question will be addressed.”

*Scale-up, Validation, and Development*

## Sufficient Resources

“The extent to which the proposed project plan includes sufficient resources to carry out the project evaluation effectively.” *Scale-up, Validation, and Development*

## Selection Criterion: Quality of Project Evaluation (Cont'd)

### Studies Project at Proposed Level of Scale

“The extent to which the evaluation will study the project at the proposed level of scale, including, where appropriate, generating information about the potential differential effectiveness of the project in diverse settings and for diverse student population groups.” *Scale-up and Validation*

### Clear and Credible Analysis Plan

“The extent to which the evaluation plan includes a clear and credible analysis plan, including a proposed sample size and minimum detectable effect size that aligns with the expected project impact, and an analytic approach for addressing the research questions.” *Scale-up and Validation*

### Clearly Articulates Key Components and Outcomes

“The extent to which the evaluation plan clearly articulates the key components and outcomes of the project, as well as a measurable threshold for acceptable implementation.”  
*Scale-up and Validation*

# Guidance on Qualities of High-quality Evaluation Plans

## Evaluation Goals

- ❑ All i3 grantees are required to estimate the impact of the i3-supported practice (as implemented at the proposed level of scale) on a relevant outcome.
- ❑ Aligned with i3 performance measures.
- ❑ Increase strength of evidence on the impact or promise of i3-supported interventions.
- ❑ i3 performance measures set the expectation for all i3 independent evaluations to provide high-quality implementation data and performance feedback.
- ❑ Other expectations vary by grant type.

## Evaluation Goals: Scale-up & Validation Projects

- ❑ Expectation that evaluations will meet WWC evidence standards without reservations (e.g., well-implemented randomized controlled trial).
- ❑ Provide information on key elements of the intervention for replication or testing in other settings.
- ❑ Reflect changes to the intervention or delivery model.
- ❑ Reflect the nature of sites served, implementation settings, and participants.
- ❑ Document costs/resource use.

## Evaluation Goals: Development Projects

- Expectation that evaluations will meet WWC evidence standards with reservations (e.g., randomized controlled trial, or quasi-experimental design study).
- Provide information on key elements of the intervention for further development, replication, or testing in other settings.

## Evaluation Plan Tips (1 of 6)

- Provide a complete evaluation plan in the application:
  - Maximizes the ability to adequately address key questions.
  - Minimizes the time spent specifying details and negotiating revisions with ED after grant award.
  - Key components of a high-quality evaluation plan include:
    - Logic model (What is the intervention? Who is it intended to serve? What outcomes is it expected to produce? How?);
    - Research questions (What do you want to learn? Who will the results pertain to?);
    - Proposed methods (What is the sampling frame? How will treatment and comparison groups be formed? What is the minimum detectable effect size? What data collection measures and methods will be used? How will the data be analyzed and reported?); and
    - Coherent links among the above components.

## Evaluation Plan Tips (2 of 6)

- Provide a logic model that clearly describes the i3-supported intervention/scaling mechanism, including:
  - Key components of the intervention or inputs;
  - Target population for the intervention;
  - Expected mediators through which the intervention is expected to affect the ultimate student outcomes of interest;
  - Student outcomes; and
  - Expected mechanisms of change—e.g., shows how factors such as content, organization, duration, training, and other procedures are expected to lead to the intended outcomes.

## Evaluation Plan Tips (3 of 6)

- Specify and provide clarity on key research questions in the evaluation plan.
  - Creates shared expectations with partners and ED about what will be learned.
- Specify and provide clarity on aspects of the logic model the evaluation will examine.
- Propose a design (methods, sample, data collection, analysis) appropriate to address the key questions.
  - Be explicit about the population to which the proposed sample generalizes.

## Evaluation Plan Tips (4 of 6)

- Specify proposed methods:
  - For questions about program effectiveness (i.e., causal inference questions):
    - Rely on experimental methods, when possible.  
NOTE: Challenging to meet WWC evidence standards with quasi-experimental methods (as noted above).
    - Describe how treatment and control groups will be formed and monitored.

## Evaluation Plan Tips (5 of 6)

- Summarize data collection and analysis procedures:
  - Describe data sources, samples, data collection procedures and timeline, and analysis methods for each research question; and
  - Ensure critical components of the logic model are represented in the data collection plan.
    - NOTE: ensure measurement of implementation fidelity.
    - NOTE: comparative studies should document the experiences of comparison participants.

## Evaluation Plan Tips (6 of 6)

- Ensure good match among logic model, research questions, proposed methods, and ED's expectations:
  - Sample design should yield a sample representative of the relevant population group for the i3 project & support strong impact analyses (relevant to the intervention as implemented under i3);
  - Analysis plan should be appropriate for addressing the study questions and well-matched to the sample design; and
  - Plan for reporting the findings should be consistent with the evaluation goals and design.

## Other Important Resources

### Investing in Innovation Fund Website:

(<http://innovation.ed.gov/what-we-do/innovation/investing-in-innovation-i3/l>)

- Notices of Final Priorities, Requirements, and Selection Criteria (published in the Federal Register on 3/27/2013)
- Application Packages for each competition (includes the respective Notice Inviting Applications)
- Frequently Asked Questions

### What Works Clearinghouse Website:

(<http://ies.ed.gov/ncee/wwc>)

- Reference Resources, Procedures and Standards Handbook

***All questions about i3 may be sent to [i3@ed.gov](mailto:i3@ed.gov)***

Note: These slides are intended as guidance only. Please refer to the official Notices in the Federal Register.