# Analysis and Interpretation of Child Outcomes Data Prework:

# Examining the effectiveness of improved practices on child outcomes

Purpose: to explore strategies to examine the effectiveness of *improved practices* through data review and analysis. “*Improved practices*” may be formal Evidence Based Practices (EBPs), DEC recommended practices, or other state identified program improvements.

#### Instructions:

The pre-work and the 3 hour workshop session are organized around five types of data analyses:

1. Data about the quality of child outcomes data
2. Data about practice improvements
3. Child outcome data
4. Comparison data
5. Preliminary / interim effectiveness data analyses

Each section below contains considerations, examples, and questions intended for team discussion within your state, prior to coming to the workshop.

At the end of the pre-work and the 3 hour workshop, participants will have considered various analyses related to determining the effectiveness of their state’s practice improvements.

##### Quality Child Outcome Data

Before you begin to use outcome data to examine the effectives of improved practices, you will want to be sure that you are only looking at quality child outcomes data.

Food for thought:

* Are you implementing methods to determine ongoing child outcome data quality? For example, reviewing program/district level entry data, conducting pattern checking for program/district level data anomalies, building flags into your state data system
* How do you review program/district level data quality?

Which of the following programs would you consider including in an analysis of the effectiveness of intervention on outcomes? What are your criteria?

**Table 1**

**Quality of Program/District Level Child Outcome Data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Program/ District ID** | **N** | **Data Quality FFY 14** | **Data Quality FFY 15** | **Data Quality FFY 16** |
| 1 | 23 | lo | lo | med |
| 2 | 76 | lo | med | med |
| 3 | 59 | med | hi | hi |
| 4 | 145 | hi | hi | hi |
| 5 | 52 | hi | hi | hi |
| 6 | 112 | med | med | hi |
| 7 | 73 | lo | med | hi |
| 8 | 24 | hi | hi | hi |
| 9 | 81 | hi | hi | hi |
| 10 | 35 | lo | lo | med |
| 11 | 56 | med | med | hi |
| 12 | 13 | med | med | med |
| 13 | 15 | med | hi | hi |
| 14 | 165 | med | med | hi |
| 15 | 118 | lo | lo | med |
| 16 | 24 | hi | hi | med |
| 17 | 87 | hi | hi | hi |
| 18 | 69 | med | med | hi |
| 19 | 23 | lo | lo | lo |
| 20 | 48 | lo | med | med |
| total | 1298 |  |  |  |

Do you currently have data to make a similar table of program/district outcome data quality in your state? What data would you include?

##### Data about Practice Improvements

To explore the effectiveness of improved practices on children’s outcomes, you will also need to identify programs/districts/providers which have participated in improvement activities that you expect to improve child outcomes.

Food for thought:

* Are all programs/districts participating at the same time, and at the same level, in practice improvement activities?
* If not, what data will you have regarding the level of program/district/provider participation in improvement activities? For example participation in training and/or coaching, length of time participating in intervention,

And most directly related to changes in child outcomes are changes in the behaviors of those working with children.

* Are you or will you document changes in provider behavior which result from participation in improvement activities? For example, use of practice checklists, fidelity measures

Which of the following programs would you recommend including in an analysis of the effectiveness of intervention on outcomes? What are your criteria? What patterns do you see in the data?

**Table 2**

**Program/District Participation in and**

**Use of Practice Improvements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Program ID** | **Years of Imrovement Activities** | **% Provders trained** | **% Providers Demonstrate use of RPs** | **% Providers at Fidelity** |
| 1 | 0 | 0 | 15 | 0 |
| 2 | 0 | 0 | 10 | 0 |
| 3 | 1 | 54 | 40 | 5 |
| 4 | 3 | 90 | 82 | 75 |
| 5 | 3 | 95 | 64 | 60 |
| 6 | 0 | 0 | 20 | 0 |
| 7 | 2 | 85 | 57 | 45 |
| 8 | 0 | 0 | 17 | 0 |
| 9 | 3 | 98 | 82 | 80 |
| 10 | 3 | 89 | 75 | 70 |
| 11 | 1 | 56 | 50 | 10 |
| 12 | 2 | 88 | 44 | 38 |
| 13 | 2 | 79 | 40 | 26 |
| 14 | 1 | 60 | 35 | 6 |
| 15 | 0 | 0 | 12 | 0 |
| 16 | 2 | 86 | 54 | 37 |
| 17 | 3 | 85 | 85 | 78 |
| 18 | 2 | 88 | 45 | 18 |
| 19 | 1 | 55 | 30 | 12 |
| 20 | 1 | 80 | 25 | 8 |

Are you currently able to make a similar table of program/district participation and practice change in your state? What data would you include?

##### Child Outcome Data

Child outcomes for Part C and Section 619 Preschool can focus on one or more of the child outcome areas:

1. Positive social emotional skills (including social relationships);

2. Acquisition and use of knowledge and skills (including early language/communication and early literacy); and

3. Use of appropriate behaviors to meet needs.

The improved practices implemented in a state may be designed to improve outcomes in one or more particular area of outcomes. For example, TACSEI and CSEFEL focus on promoting prosocial behavior while other EBPs might focus on early literacy, or on multiple areas of outcomes.

* In your state, which area(s) of outcomes are you expecting the improved practices to effect?

There are two types of outcomes data which all states will have, progress data and summary statement data. Either or both can be used to explore the relationship between improved practices and outcomes. See attached definitions of progress categories and Summary Statements.

* In what way are you expecting improved practices to affect child outcomes? For example, are your improved practices intended to
  + Help more children move from progress category B (making gains, but not changing rate of growth) to category C or D (increasing their rate of growth)? If this is your expectation, you will also expect increases in SS1 (the percent of children who change their rate of growth)
  + Help more children move from category C (increasing rate of growth but not catching up to age expectations) to category D (reaching age expectations)? If this is your expectation, you will also expect increases in SS2 (the percent of children who were functioning within age expectations)
* In your state, what are your expectations for the type of outcome data that will be show the effectiveness of your improved practices?

The table below is an example of the outcome data for social relationships for 3 programs/districts with high quality data and at least 75% fidelity to the EBPs implemented in the state.

**Table 3**

**Outcome Data for Programs/Districts with high Quality Data and High Participation in and Use of Improved Practices**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Program ID** | **N** | **% Prog Cat A** | **% Prog Cat B** | **% Prog Cat C** | **% Prog Cat D** | **% Prog Cat E** | **SS1** |
| 5 | 145 | 1.4% | 15.2% | 30.3% | 28.3% | 24.8% | 78.0% |
| 10 | 81 | 2.5% | 9.9% | 25.9% | 48.1% | 13.6% | 85.7% |
| 18 | 87 | 1.1% | 18.4% | 27.6% | 40.2% | 12.6% | 77.6% |
| **cohort** | **313** | **1.6%** | **14.7%** | **28.4%** | **36.7%** | **18.5%** | **80.0%** |

Do you currently have data or plans to collect data to make a similar table of outcome data in your state? What data about your intended outcomes would you want to include?

##### Comparison Data

To interpret the outcomes data for the group with high quality data and participation and/or use of improved practices, you will need to compare their data to other outcome data that represents what the outcomes might have been without the intervention. For a fair comparison, the comparison group should also have quality outcomes data. Possibilities include

* Baseline data from the identified programs/districts
* Data from similar programs/districts which have not yet implemented improvement activities; for example, programs which serve similar populations/ with similar entry data
* Statewide data

The table below is an example of possible comparisons for the high quality data/improved practices cohort shown above.

**Table 4**

**Possible Comparisons for Cohort Outcomes**

|  |  |  |
| --- | --- | --- |
| **Population** | **N** | **SS1** |
| **cohort outcome** | **313** | **80%** |
| cohort baseline | 313 | 73.6% |
| state mean | 1298 | 71.4% |
| programs w quality data and no participation in intervention | 136 | 68% |

What comparison(s) would you recommend for this example state? Why? What comparison makes the most sense in your state?

##### Preliminary / Interim Effectiveness Data Analyses

Identifying milestones towards accomplishing your intended outcomes will provide important early data about whether your practice improvements are making the expected difference in child outcomes. For example, over time, you might examine

* Subsequent cohorts of programs participating in the intervention
* Incremental improvements over time in programs participating in the intervention
* Improvement in designated subgroups of children
* Inclusion in the analysis of additional programs with increased quality of outcome data

What interim analysis of data makes the most sense in your state, given the data that will be available to you?

## BRING TO THE WORKSHOP

Please bring with you to the workshop

* Ideas for how your state could compile program/district outcome data quality in your state. This may be initial ideas, a table shell with only column labels, or may include your actual state data if you have it available. (See Table 1 above for an example.)
* Ideas for how your state could compile program/district participation and practice change in your state. This may be initial ideas, a table shell with only column labels, or may include your state data if you have it available. (See Table 2 for an example).
* Ideas for how your state could display child outcome data for the program/districts in your state with high quality data and experience. This may be initial ideas, a table shell with only column labels, or may include your state data if you have it available. (See Table 3 for an example.)
* Ideas for how your state could display the comparison of outcomes data between programs/districts which have improved practices, and those which have not. This may be a description of the data elements you could include, or ideas for tables or figures. (See Table 4 and Figure 1.)
* Ideas (or your plan) for ongoing interim data analyses.