

EWS Fundamentals: Examining Intervention Effectiveness

Welcome screen

Welcome back to the EWS implementation modules. The lack of rigorous research on the effectiveness of most interventions makes it essential for districts and schools to examine their own programs. This includes monitoring how interventions are implemented and collecting accurate data about how students respond to a given intervention. The better you do this, the more informed your decisions will be about what works for each student.

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Student performance by indicator: Examining overall performance

After data have been collected over time, it will be possible to view the overall progress of your students. One of the easiest ways to display these trends is with a bar graph. Keep in mind that examining trends in this way does not necessarily imply a sustainable trend. Rather, it merely shows how performance in the indicator has changed over time.

For this activity, open your text editor and create a header entitled, "Overall Performance by Indicator." Document one indicator that your school/district has identified as a priority. Next, document the tracking period that makes the most sense (i.e., a month, a quarter, a semester). The tracking period should be long enough that you would expect a potential change in the data. For data that are updated on a daily basis, such as attendance, the tracking period may be shorter than that of less frequently updated indicators, such as grades.

Now enter the beginning number of flagged students from your initial reports, then the ending number of flagged students from your most recent report. Document whether the number of identified students in this indicator has increased or decreased over time.

Repeat for each additional indicator.

Student performance by indicator: Examining performance by groups of students

Different groups of students (gender, race/ethnicity, language proficiency) or grade levels may need different types of supports.

Comparing trends of flagged students over time by groups of students can help the team make more informed decisions about where to focus resources and identify specific practices that may have resulted in positive movement.

For this activity, create a header entitled, "Group analysis," in your text editor. Common groups include: Male, Female, American Indian, Asian, Hispanic, Black, Pacific Islander, White, Other Race/Ethnicity, Economically Disadvantaged, Limited English Proficient, Special Education, and by grade level. Document the groups you would like to examine more closely.

Create a sub header for each indicator you are focusing on. Under the sub header, document the groups of students you are examining more closely. Now, for each group of students, enter the number of students who were flagged at the beginning of the tracking period, then enter the number of students in each group who were flagged at the end of the tracking period. This is the same process as you just completed for the entire school, but with a closer examination of which groups of students may need additional support.

Intervention data for analysis: Linking interventions with indicators

Changes in the number of students flagged in an indicator represent your expectations about how a given intervention will affect student progress. If you don't have a specific target, how will you know if you're hitting the mark? This exercise will help you document your expectations of each intervention and set appropriate targets for future evaluation.

Intervention expectations

In your text editor, create a header entitled, "Intervention expectations." Type an intervention as a sub header, then fill out the associated information for each one.

- Intervention title
- Targeted indicator for this intervention
- What will we consider to be "regular participation?"
- How will we measure progress?
- How long until we expect to see student progress?

Continue with this documentation for the rest of your interventions.

Intervention data for analysis: Recording intervention data

After you've identified expectations, you need a way to measure progress. Using spreadsheet software, such as Excel, can be an intuitive way for the leader of each intervention to document student outcome data. The following variables can help you pinpoint whether an intervention is moving students toward better outcomes.

Student's name or numeric identifier

Using a student's name can occasionally lead to ambiguities in naming conventions: Does everyone use the student's full name? Does the student go by an alias or middle name? By using a student's numeric identifier instead, you may be able to more accurately link students to other datasets.

Student's beginning indicator data

Record the student's beginning data for each indicator. For example, what was the student's attendance rate when he/she first entered the intervention? You may want to consider including each indicator since interventions may affect multiple indicators.

Student's ending indicator data

These columns can stay blank until you want to evaluate the intervention.

Outcome improved

This is a variable that equals 1 if the student's outcome improved and 0 if the student's outcome stayed the same or got worse.

Regular participation

Similarly, this is a variable that equals 1 if the student regularly participated in the intervention and 0 if the student attended irregularly or not at all. This information will be based on what you've decided is appropriate for each intervention (see previous activity).

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Intervention trend interpretations: Creating cross-tab views

Formatting data for discussion

While data collection is an essential first step, to make informed decisions about student interventions you need a consistent way to interpret the data. One streamlined way to do this is to use cross tabs. The next few activities will walk you through examples of data interpretation, but first you need to know how to set up your own table.

Steps for creating a cross tab with an Excel PivotTable:

1. Using your student-level data, create an "Outcome Improved" variable that equals 1 if the student's outcome improved and 0 if the student's outcome stayed the same or got worse. Similarly, create a "Regular participation" variable that equals 1 if the student attended regularly and 0 if the student attended irregularly or not at all.
2. Select all cells in the sheet that contain student-level data.
3. From the ribbon at the top of the Excel window, click on the "Insert" tab and select "PivotTable."
4. The "Create PivotTable" pop-up will appear. Click on "New Worksheet" to create the cross tab in a separate sheet within your spreadsheet and then select "OK."

5. You should be taken directly to the new sheet with your PivotTable. From the "PivotTable Field List" that appears in a sidebar, click and hold the variable "Outcome Improved" and drag it to the "Row Labels" box below. Then drag the "Regular participation" variable to the "Column Labels" box and to the "Values" box below. The "Values" box will default to "Sum of Attended Regularly." Click on the downward arrow next to this and then select "Value Field Settings" from the menu that pops up. Under "Summarize value field by" choose "Count". Then click on the "Show Values As" tab, select "% of Grand Total" from the dropdown menu, and click "OK".

Suggestion!

You can take this approach one step further by adding filters for different groups. To display the table for a subset of the students, drag the variable that specifies these groups (e.g., "Grade" or "Gender") to the "Report Filter" box. A dropdown menu for that variable will then appear above your PivotTable and you can select from this dropdown menu to display the table for all students or for one or more groups.

Intervention trend interpretations: Looking at a good example

Analyzing cross-tab data is not an exact science. It requires thinking about the data in a few dimensions rather than making a single comparison. While you may see patterns quicker the more you look at data, the next set of activities will walk you through a few examples and their most probable interpretations. Like most holistic analysis, the process will require looking at the numbers and then following up with questions.

A "good" example

Assume in this example:

- 40% of the students who were flagged yellow and red were given the intervention and regularly participated. Of these students:
 - 35% of the flagged students regularly participated and showed improvement in their outcome
 - 5% of the flagged students regularly participated but did not show improvement in their outcome
- 60% of the students who were flagged either did not receive the intervention or did not participate. Of these students:
 - 10% of the flagged students did not participate but DID show improvement in their outcome
 - 50% of the flagged students did not participate and did not show improvement in their outcome

Interpretation:

This is an example of a potentially promising intervention because it confirms our expectations: The majority of students who participated improved their outcome, and the majority of students who did not participate did not improve.

Two discussion questions:

- Why didn't the 5% improve? Are there common themes that the leader of the intervention can help identify?
- Why did 10% of the students improve even without participating in the intervention? Are there common trends that can be identified? Are these students in other interventions?

A “bad” example

Assume, again, in this example:

- 40% of the students who were flagged yellow and red were given the intervention and regularly participated. Of these students:
 - 20% of the flagged students regularly participated and showed improvement in their outcome
 - 20% of the flagged students regularly participated but did not show improvement in their outcome
- 60% of the students who were flagged either did not receive the intervention or did not participate. Of these students:
 - 22% of the flagged students did not participate but DID show improvement in their outcome
 - 38% of the flagged students did not participate and did not show improvement in their outcome

Interpretation

This is an example of a potentially failing intervention because it goes against our expectations. Participation does not seem to make a difference.

Two discussion questions:

- Is the intervention being implemented as intended?
- Why are so many students showing improvement in this outcome? Have any schoolwide interventions or changes been implemented?

An “ambiguous” example

Assume for this final example, that again:

- 40% of the students who were flagged yellow and red were given the intervention and regularly participated. Of these students:
 - 36% of the flagged students regularly participated and showed improvement in their outcome
 - 2% of the flagged students regularly participated but did not show improvement in their outcome
- 60% of the students who were flagged either did not receive the intervention or did not participate. Of these students:
 - 22% of the flagged students did not participate but DID show improvement in their outcome
 - 38% of the flagged students did not participate and did not show improvement in their outcome

Interpretation

This is an example of an intervention that needs closer examination because some of the information goes against our expectations. While we do see that most of the students who participated improved, we also see a rather large percentage of students who improved even without participating.

Two discussion questions:

- Why are so many students improving in this outcome? Have any schoolwide interventions or changes been implemented?
- For all students, are there certain characteristics that seem to be different between the students who are improving and those who are not?

Consistent implementation framework: Understanding implementation drivers

Implementation drivers

According to Dean Fixsen, co-director of the National Implementation Research Network (NIRN), interventions need three types of staff members (or “drivers”) to be involved in the planning and implementation process for it to be successful. Below is an explanation of a diagram adapted from NIRN’s work

Fixsen describes efficient implementation as a triangle and on each point is one of the following:

Organizational drivers: These staff members manage the interventions, scheduling, human capacity, meetings, and consistency of information.

Leadership drivers: These staff members leverage authority so that the initiative is supported both “top down” and “bottom up.” These leaders are adaptive to context and keep everyone focused on the goal.

Competency drivers: These staff members are focused on serving as specialists and are able to provide solid content knowledge.

Teams are encouraged to think about these three implementation drivers for each of the interventions they are conducting in their school/district before changing or getting rid of the intervention.

Consistent implementation framework: Checking implementation for interventions

A short checklist for implementation

Examining how an intervention is implemented can help answer questions that may arise while looking at the data. For example, if an intervention seems to be making a difference, what are the key aspects that can be shared with others who are trying to implement it in a different context? If an intervention isn’t having the desired effect, is it being carried out with fidelity? Below is a short checklist that can improve the consistency of your implementation.

In your text editor, create a header entitled, “Intervention implementation.” Type an intervention as a sub header, then fill out the associated information for each one.

- Intervention title
- Clearly define the objectives of the initiative
- Check that the initiative fits within the needs of the school
- Define what resources are needed in terms of expertise, training, and staffing per student. Ensure that the resources are appropriately allocated
- Define what "success" will be if the program works

- Define the data that will be used to measure implementation fidelity
- Provide tools to help staff easily collect implementation data. Try to leverage existing tools to minimize creating additional work for staff

We hope that this series of modules has been helpful.

If you have any questions or feedback, feel free to reach out to the REL Northwest EWS lead, Sarah Frazelle (sarah.frazelle@educationnorthwest.org) or the Director of REL Northwest, Chris Mazzeo (christopher.mazzeo@educationnorthwest.org) for more information.