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Implementing Early Warning Systems

By Sarah Frazelle and Rhonda Barton

Early warning systems (EWS) can be a powerful tool for identifying students at risk of not graduating from high school in four years. Much like emergency systems that sound a warning of natural disasters, such as hurricanes or tsunamis, educational EWS signal school staff that action is needed to mitigate undesirable outcomes.

Many EWS use predictive indicators, such as attendance, behavioral incidents, and course grades—often called the ABCs of disengagement—that are based on a school or district's longitudinal data to place students into three categories: on track, sliding, or off track. These indicators are often interrelated and have been repeatedly tied to higher probabilities that students will drop out ([Mac Iver & Mac Iver, 2009](#)).

According to Cunningham and Van Alstyne (2012), “when accurate indicators

are aligned with appropriate interventions, students who are off-track can be brought back on-track for graduation” (p. 1). Combining indicators and targeted interventions represents “a collaborative approach among educators, administrators, parents, and communities to using data effectively to keep students on the pathway to graduation” ([Bruce, Bridgeland, Fox, & Balfanz, 2011](#), p. 2). Furthermore:

The best EWS are characterized by a combination of features that enable rapid identification of students who are in trouble; rapid interventions that are targeted to students' immediate and longer-term need for support, redirection, and greater success; the frequent monitoring of the success of interventions; a rapid modification of interventions that are not working; and shared learning from outcomes. ([Bruce et al., 2011](#), p. 2)

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Just the Facts

- Combining indicators and targeted interventions represents “a collaborative approach among educators, administrators, parents, and communities to using data effectively to keep students on the pathway to graduation” ([Bruce, Bridgeland, Fox, & Balfanz, 2011](#), p. 2).
- Most districts use the ABCs (attendance; behavioral incidents; and course grades, particularly in math and English language arts) as a starting point ([Allensworth & Easton, 2007](#); [Balfanz, Herzog, & Mac Iver, 2007](#); [Balfanz, Wang, & Byrnes, 2010](#); [Celio, 2009a](#); [Celio, 2009b](#); [Mac Iver, 2010](#); [Mac Iver & Mac Iver, 2009](#); [Roderick, 1993](#); [Uekawa, Merola, Fernandez, & Porowski, 2010](#)).
- Evaluation of interventions should take place annually ([Therriault et al., 2013](#)), although teams should set their evaluation schedule according to their specific school context and how quickly they expect to see student outcomes improve.
- One rigorous EWS examination by the What Works Clearinghouse, however, reviewed a study of the “[Check and Connect](#)” program and found it “to have positive effects on staying in school and potentially positive effects on progressing in school” ([US Department of Education, 2006](#), p. 1).

[The National High School Center](#) and similar organizations have designed easy-to-use [templates for EWS](#), and in an era of data-driven education reform, districts and schools have been eager to embrace those systems. School leaders, however, often face two challenges in successfully implementing an EWS: One barrier comes in creating a system and the other in helping staff members routinely use it. From a technical perspective, indicators must be valid and identify unique leverage points for intervention. Too often indicators are developed without asking critical questions about whether there is evidence of a strong link between the indicator and the desired outcome. Second, from a practical perspective, indicator systems are not likely to produce the desired improvements in student outcomes unless they are part of a regular cycle of data use by teachers and principals.

Research offers some guidance for developing a dedicated EWS team, choosing and reporting accurate indicators, aligning interventions with indicators, and evaluating EWS effectiveness. To ensure a successful process, school leaders must support practitioners in learning to use multiple types of data to understand their students' progress and difficulties.

Establishing a Team

EWS teams can be established at the district or school level, depending on how centralized the decision-making process is. For example, when schools are highly autonomous and have many different policies and programs, a school-level approach might be most appropriate. In that model, each school works independently. A district-level approach would be most appropriate when the district historically has exercised centralized authority over its schools. For example, an EWS team of school and district representatives convenes to share responsibility for monitoring and assigning students to appropriate interventions uniformly across schools. Researchers from [The National High School Center](#) ([Therriault, O'Cummings, Heppen, Yerhot, & Scala, 2013](#)) suggested a blended approach with school-based teams to monitor and assign students to interventions and a district team to

track overall progress and implementation strategies. Participation from all stakeholders who will interact with the EWS encourages proper feedback cycles and can improve coordination and communication among teams ([Therriault et al., 2013](#)).

Establishing specific roles and responsibilities sets clear expectations for each member and provides accountability for tasks. Although EWS teams vary in their composition, many include the following positions: information technology staff; school- and district-level leaders; program coordinator; school counselor; and representatives of such groups as teachers, parents, equity coordinators, parent organizations, student organizations, and specialists (e.g., ELL or special education instructors). [Therriault, Heppen, O'Cummings, Fryer, and Johnson](#) (2010) emphasized that team members should have “the authority to make decisions about staff and students” and “know a diverse array of students” (p. 4).

A first order of business for the team is to agree on realistic goals, objectives, and strategies. The SMART (i.e., specific, measurable, achievable, relevant, and time-bound) framework can be used to establish goals and objectives and time frames to achieve them. School-level meetings should focus on individual students, with discussion centering on each new student who is flagged as struggling and on how interventions are working for students previously identified by the EWS. District-level meetings should examine each school's trends and look at interventions overall. Frequency of meetings can vary: school-based teams in the [Houston \(TX\) Independent School District](#) (2012) meet weekly, and school teams in the joint program of [Big Brothers Big Sisters of Eastern Missouri and ABC Today!](#) supplement weekly meetings with monthly principal meetings and quarterly district meetings ([Bruce et al. 2011](#)). The [Diplomas Now](#) program holds biweekly meetings of teachers who share students in common and other support staff members who work together to analyze data and design interventions ([Herzog, Davis, & Legters, 2012](#)). The bottom line is that the meeting schedule should reflect the school's needs and how often indicator data are updated.

Team members may need professional development in using the EWS system, particularly in accessing the data and interpreting results. The [Sioux Falls \(SD\) School District](#) provides examples of professional development through a list of “Action Initiatives,” which its EWS committee established (Hauser & Koenig, 2011). These emphasize training student assistance teams in a tiered, response to intervention model and training staff members to recognize risk-factor subgroups and related triggers for intervention.

Selecting and Reporting Accurate Indicators

Focusing attention on a small set of indicators allows EWS teams to allocate their time and efforts most efficiently. Most districts use the ABCs (attendance; behavioral incidents; and course grades, particularly in math and English language arts) as a starting point ([Allensworth & Easton, 2007](#); [Balfanz, Herzog, & Mac Iver, 2007](#); [Balfanz, Wang, & Byrnes, 2010](#); [Celio, 2009a](#); [Celio, 2009b](#); [Mac Iver, 2010](#); [Mac Iver & Mac Iver, 2009](#); [Roderick, 1993](#); [Uekawa, Merola, Fernandez, & Porowski, 2010](#)). Although other measures may also predict student success, each additional indicator requires a change in reporting format, more data to analyze, and the design of additional interventions to help students improve in the indicator area. Over time, EWS teams can assess whether additional indicators actually led to significant increases in accurately identifying more students who were off track.

EWS teams should set thresholds to flag students who are struggling, on the basis of local, historical patterns of dropping out. National recommendations for thresholds may not have the same predictive power in every school as indicator reliability can vary by school context and the precise definition a school uses for its indicator ([Therriault et al., 2013](#)).

Although compiling data to identify student needs is an important role for the EWS team, members must also create a way to alert other staff members when the data indicate a student is falling

Merging RTI Efforts with EWS

Many districts have invested in an RTI framework that emphasizes a tiered approach to supporting student success. According to the [American Institutes for Research, National Center on Response to Intervention](#) (2010), the RTI model consists of three levels of intervention:

- The primary level focuses on all students and involves “district curriculum and instructional practices that are evidence-based; aligned with state or districts standards, and incorporate differentiated instruction”
- The secondary level focuses on identified at-risk students and provides “targeted, supplemental instruction delivered in small groups”
- The tertiary level focuses on students who struggle after receiving primary and secondary interventions and provides “intensive, supplemental instruction delivered individually or to small groups.” (p. 4)

The RTI framework can provide EWS teams with a way to conceptualize their interventions. Likewise, EWS can provide RTI programs with a strong system for monitoring data. (See [Mac Iver & Mac Iver](#) [2009, p. 3] for a description of how the two frameworks can map together.)

Sources: American Institutes for Research, National Center on Response to Intervention. (2010). *Essential components of RTI: A closer look at response to intervention*. Retrieved from www.rti4success.org/pdf/rtiessentialcomponents_042710.pdf

Mac Iver, M. A., & Mac Iver, D. J. (2009). *Beyond the indicators: An integrated school-level approach to dropout prevention*. Retrieved from George Washington University, Center for Equity and Excellence in Education, Mid-Atlantic Equity Center website: http://maec.ceee.gwu.edu/sites/default/files/Dropout%20report%208.11.09_0.pdf

Tracking Interventions

It's important for the EWS team to monitor how frequently students attend their assigned interventions. At a minimum, the key student data to track include:

- The interventions prescribed for the student
- How often the student has participated in each intervention
- Student performance in the indicators that were flagged.

Recording these variables will help the team or case manager determine how the student is progressing and whether modifications in the interventions are needed to help the student stay on track. The team should determine how frequently to expect updates on student progress in the same way they receive indicator update data.

off track. School summary reports may be most helpful for administrators, and classroom-level reports may provide more insights for teachers. Similarly, student-level reports are useful for teachers, counselors, students, and their families. The [University of Chicago Consortium on Chicago School Research](#) (2007) has created a series of *What Matters* briefs that specifically explain to freshman students and their parents how grades and attendance affect the students' chances of graduating from high school.

Connecting Indicators and Interventions

After the school or district has established a strong foundational base for the EWS team and team members have agreed on indicators and reporting structures, the next step is to align intervention programs with the chosen indicators. Typically, districts have already adopted a wide variety of interventions that range from district policies to IEPs. Teams may find it easier to catalogue interventions already in place to help students succeed rather than begin by adopting new strategies. For example, the Louisiana

Dropout Early Warning System includes a list of more than 50 interventions to which EWS teams can assign off-track students (Louisiana Department of Education, 2009). Those interventions include tutoring programs, home visits, and moving students to alternative schools. Many schools have invested in a response to intervention (RTI) approach that can be combined with the EWS.

The National High School Center (Therriault et al., 2010) suggests the following series of questions to consider when conducting an inventory of interventions:

- What are the features of the available interventions and supports, and what strategies do they include?
- What other needs do the interventions seek to meet, and which students are best suited for the interventions?
- What does the evidence say about the intervention's effectiveness?
- Are any at-risk students currently receiving these interventions, and if so, how long have they been participating and what indicators of success are documented in their records? (p. 18)

Once the team has compiled a list of interventions, the next step is to identify which indicator that intervention can best accommodate. For example, a peer mediator group may help students who are flagged for behavioral incidents. Then, the team works to assign the students who have been identified to the various interventions. EWS team members can investigate a student's needs by talking to the student directly and conferring with the student's family and school staff members (e.g., teachers, coaches, and counselors) who may be able to provide insights into why the student is off track.

In the [Sioux Falls School District](#), all students who are identified as needing interventions are assigned to a student engagement case manager who works with the student on a daily basis. Further interventions can be implemented depending on which indicator was flagged: if the issue is academic performance, the student may be sent to after-school

tutoring; a student with 10 or more absences is assigned to a social worker or counselor advocate who investigates the cause of the poor attendance (Hauser & Koenig, 2011).

Evaluating the System

Many districts encounter difficulties in assessing their interventions, regardless of how many they have or how well-funded each is. Districts and schools need to know which interventions have the greatest impact and whether they need to adopt new programs to address gaps in student services. Proper implementation of an EWS and a record of student progress by intervention can help teams examine trends and make decisions that are based on student needs (see Tracking Interventions). Evaluation of interventions should take place annually ([Therriault et al.](#), 2013), although teams should set their evaluation schedule according to their specific school context and how quickly they expect to see student outcomes improve.

To date, there have been few rigorous studies of the effectiveness of EWS intervention strategies. One reason why there is relatively little national information on the effectiveness of either interventions or EWS as a whole may be that districts and school have only recently adopted EWS on a wide scale. One rigorous EWS examination by the What Works Clearinghouse, however, reviewed a study of the “[Check and Connect](#)” program and found it “to have positive effects on staying in school and potentially positive effects on progressing in school” ([US Department of Education](#), 2006, p. 1). [A Statewide Longitudinal Data Systems Spotlight](#) ([US Department of Education](#), 2011) reported on efforts in Massachusetts, Maine, and South Carolina.

Conclusion

Effective implementation of an EWS can be a powerful system-wide approach to proactively assisting students when they first begin to struggle. An EWS can help districts maximize dropout prevention initiatives by catching students at the onset of their struggles and providing them with the most appro-

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priate interventions.

Large districts that have found EWS helpful report that carefully considering EWS team members' roles, the data they collect and analyze, and the alignment of indicators and interventions are all important factors in helping keep their students on track for graduation.

By “having better data, an understanding of why and where students drop out, a heightened awareness of the consequences to individuals and the economy, a greater understanding of effective reforms and interventions, and real-world examples of progress and collaboration” our schools, districts, and states can continue to make progress in solving the dropout crisis ([Balfanz, Bridgeland, Bruce, & Fox](#), 2013, p. 1).

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