



Using Early Warning Data to Keep Students on Track toward College and Careers

A Primer for State Policymakers

June 2013

Executive Summary

Early warning systems (EWS) provide educators, administrators, and policymakers with actionable information that they can use to prepare all students to succeed in college and careers. EWS combine multiple data points, translate them into predictive indicators that are based on research, and proactively communicate them to stakeholders, so they can examine which students are or are not on track for postsecondary success and intervene accordingly.

Although implementing EWS requires school, district, and state collaboration, state policymakers can take action now to get this critical information into the hands of the stakeholders who need it the most:

- ▶ Encourage the use of predictive analysis to inform action by stakeholders.
- ▶ Support the development of research-based indicators for predictive analysis.
- ▶ Ensure that early warning data are timely, high quality, and consistent to inform indicators.
- ▶ Establish a culture in which critical stakeholders have timely access to early warning data.

Providing Actionable Information

Early warning systems (EWS) are one of the best examples of transforming data into actionable information that, when used effectively, can improve student outcomes. EWS, developed around research-based indicators such as student academic performance (grades) and attendance and discipline records, help educators accurately and quickly identify students who are most at risk of academic failure, not being on track to graduate college and career ready, or dropping out of school.

Early identification of students who are at risk enables educators, principals, and counselors to provide students with additional supports in a timely way to help them succeed by addressing their unique academic, social, and emotional needs. While the focus of early warning is to

“catch” students at risk of failure and dropping out, it can also be a valuable tool to ensure that students are on track for success by identifying, for example, when more rigorous courses could be taken. Aggregate data on indicators such as grades and attendance also help school and district leaders identify weaknesses to address in school improvement and turnaround strategies. Through connecting multiple research-based indicators that are communicated to stakeholders, EWS can help parents, educators, and school leaders answer questions such as the following:

- ▶ Are my students on track to complete high school?
- ▶ Which schools are succeeding at graduating students from high school?

- ▶ Is each student on track to be college and career ready when he or she graduates?

EWS are effective only if they are used. States can ensure that these systems have their desired impact by taking the following steps:

- ▶ **Tailoring communication and access.** For stakeholders to use early warning data, states need to raise awareness of the data's existence and provide them in a format and timeframe that is most useful to end users.
- ▶ **Collaborating with districts.** States will meet the diverse needs of their districts, which vary in size, geography, and capacity, only by working with them throughout the

development and implementation process to provide flexible and tailored systems.

- ▶ **Ensuring privacy, security, and confidentiality.** States will balance effective data use and protection of this sensitive student information only by defining and enforcing how data are collected, stored, shared, and accessed.

Although there is no one method for developing and implementing EWS, it is vital that states work to tailor early warning information to meet stakeholders' needs while protecting student privacy. By doing so, they will create a culture in which predictive information is easily accessed and consistently acted upon by all stakeholders to improve student outcomes.

State Role in Developing and Implementing EWS

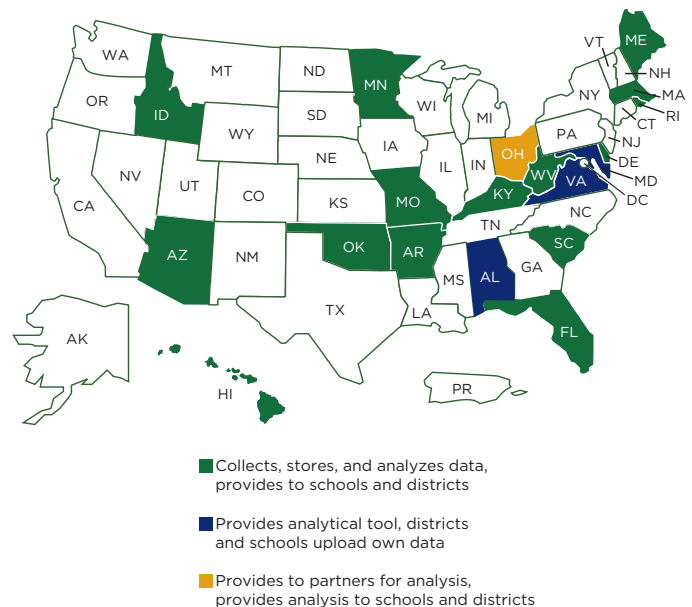
According to the Data Quality Campaign's *Data for Action 2012: State Analysis*, 28 states are producing early warning reports* and taking various approaches in disseminating this information:

- ▶ In **15 states**, the state education agency (SEA) collects, stores, and analyzes early warning data and provides information to schools and districts.
- ▶ In **three states**, the SEA provides an analytical tool that allows districts and schools to upload their own early warning data.
- ▶ In **one state**, the SEA collects early warning data on behalf of local education agencies and provides the data to other partners that conduct the analysis and provide the analysis to schools and districts.

State policymakers play a vital role in each phase of the development and implementation process of EWS, including the following:

- ▶ Encourage the use of predictive analysis to inform action by stakeholders.
- ▶ Support the development of research-based indicators for predictive analysis.
- ▶ Ensure that early warning data are timely, high quality, and consistent to inform indicators.
- ▶ Establish a culture in which critical stakeholders have timely access to early warning data.

States Disseminate EWS Data in Different Ways



*The Data Quality Campaign's [10 State Actions to Ensure Effective Data Use](#) provide a roadmap for state policymakers to create a culture in which quality data are not only collected but also used to increase student achievement. DQC's [Action 6](#) encourages states to create progress reports using individual student-level data, including early warning reports (predictive analysis).

What is the state's role?	Why is there a state role in this work?	What does the state need to consider?	State examples
Encourage the use of predictive analysis to inform action by stakeholders	<p>EFFICIENCY: In September 2009, every state committed to implement DQC's 10 Essential Elements of a Statewide Longitudinal Data System through the 12 America COMPETES Elements and to publicly report this information. As a result, states currently collect the information to conduct predictive analysis on early warning data. According to <i>Data for Action 2012: State Analysis</i> 40 states collect information on behavior or disciplinary infractions, 26 states collect information on course grades, and 26 states collect daily absences. Statewide longitudinal data systems provide an opportunity to examine student progress over time. The potential impact of statewide longitudinal data systems, however, can be maximized only if states use the data.</p>	<p>THINK OUTSIDE THE DROPOUT BOX: Historically, EWS have focused on identifying students who are not likely to graduate from high school. There is potential to use EWS to ensure that students are ready to enter and succeed in college and careers.</p> <p>DON'T FORGET THE SYSTEMS LEVEL: Predictive analyses have focused on student-level interventions. However, aggregated predictive analyses at the classroom, school, or system level can provide significant insights for improvement and professional development efforts. EWS can also be used at the community level to galvanize the broader public toward improving student achievement.</p>	<p>MAINE: In 2010, Maine created the At-Risk Data Mart to identify students who are in danger of dropping out of high school. At the request of the Maine Community College System the tool is also being designed to help identify students at risk of needing remedial or developmental courses. High schools will then be encouraged to deliver these courses during the senior year of high school rather than expecting the students to take them as noncredit courses in college.</p>
Support the development of research-based indicators for predictive analysis	<p>CAPACITY: There is a strong research base to inform state EWS efforts. The following actions provide a starting point for states to examine what indicators are most predictive for keeping students on track toward college and careers:</p> <ul style="list-style-type: none"> • Conduct their own research based on high-quality data in their statewide longitudinal data systems. • Connect with national researchers who can provide guidance on selecting indicators. • Leverage pre-existing relationships with research partners at institutions of higher education and regional educational centers. 	<p>ONGOING VALIDATION: To ensure that indicators are valid, they should be continuously informed by research. Selecting and refining indicators is a process that requires frequent review of the early warning research base.</p> <p>PROVIDE FLEXIBILITY: Given the differences across districts, it is important for states to allow local education agencies flexibility. Because educators use early warning data to develop interventions that guide students back on track, it is important that the system accurately represents the students that districts serve.</p>	<p>MASSACHUSETTS: In 2012, Massachusetts launched its Early Warning Indicator System (EWIS). The state created the EWIS in direct response to educators' requests for indicator data at earlier grade levels and throughout high school. To achieve this goal, the state worked with the American Institutes of Research to develop risk models that informed the development of the EWIS.</p>
Ensure that early warning data are timely, high quality, and consistent to inform indicators	<p>CONSISTENCY: EWS create demand for consistency across indicators, data collection, and analysis efforts. Across schools, districts, and states there are a wide variety of definitions for early warning data. Connecting to national data efforts such as the Common Education Data Standards provides an opportunity to define a uniform vocabulary for early warning data.</p>	<p>GARBAGE IN, GARBAGE OUT: To ensure that data are high quality, it is important to provide training to educators and staff on coding and entering data properly. States must take steps to ensure student privacy by developing policies and practices to protect the confidentiality and security of the data and conducting trainings for school staff that review protocols for collecting, storing, and accessing data.</p>	<p>ARKANSAS: In 2010, Arkansas launched its early warning system to identify students who were off track toward college and careers. To help get early warning data to the stakeholders that need them most, Arkansas provides district staff, principals, counselors, and teachers daily reports and training on how to collect and interpret the data.</p>
Establish a culture in which critical stakeholders have timely access to early warning data	<p>EFFECTIVENESS: To ensure that critical stakeholders can act, they need early warning data in a format they can understand and use. The following conditions provide an opportunity to foster a culture of effective data use:</p> <ul style="list-style-type: none"> • strong P-20/workforce leadership across agencies, garnering the political will to ensure that end users are empowered with data • policies that support data use, identifying who has the authority to act on what the data say and opening the channels of communication across agencies • resources to build the capacity to use data, providing the time, technology, and funding to support ongoing training of stakeholders to use data for continuous improvement 	<p>THE FEEDBACK LOOP: To ensure that districts are able to analyze and interpret early warning data, the reports should make sense for local users. Reaching out to stakeholders at various phases of the development and implementation process provides states with critical insight on the design and utility of early warning reports.</p>	<p>VIRGINIA: The Virginia Early Warning System was developed in 2009 to predict which students are at risk of dropping out of high school. The state provides a tool that educators can use to enter and analyze early warning data. The state also provides an implementation guide to support educators' use of data.</p>

Conclusion

States are building the capacity to develop and implement EWS that get data into the hands of the people who need it the most—parents, teachers, and students—so they can act in a timely way to make sure that each student stays on track to graduate college and career ready. States currently have the data and authority and are developing the access tools and research base to meet stakeholders' needs. State-level EWS, however, require coordination between states

and districts. This coordination requires state policymakers to develop clear policies that protect students' personally identifiable information. By creating EWS that empower stakeholders, meet districts' unique needs, and protect student information, states will make strides in supporting effective data use that moves students one step closer to college and career readiness.

Resources

- ▶ *Creating Reports Using Longitudinal Data*, Data Quality Campaign
- ▶ *Supporting Early Warning Systems*, Data Quality Campaign
- ▶ *Education and the Economy: Boosting the Nation's Economy by Improving High School Graduation Rates*, Alliance for Excellent Education
- ▶ *Using Early-Warning Data to Improve Graduation Rates: Closing Cracks in the Education System*, Alliance for Excellent Education
- ▶ *Developing Early Warning Systems to Identify Potential High School Dropouts*, American Institutes for Research
- ▶ *Early Warning System High School Implementation Guide*, American Institutes for Research
- ▶ *Early Warning System (EWS) Middle Grades and High School Tool*, American Institutes for Research
- ▶ *On Track for Success*, Civic Enterprises and the Everyone Graduates Center at Johns Hopkins University
- ▶ *Building a Grad Nation — Progress and Challenge in Ending the High School Dropout Epidemic: Annual Update 2013*, Civic Enterprises, the Everyone Graduates Center at Johns Hopkins University, America's Promise Alliance, and Alliance for Excellent Education
- ▶ *Putting All Students on the Graduation Path*, Diplomas Now
- ▶ *Using Data to Keep All Students on Track to Graduation*, Johns Hopkins University



*Using Data
to Improve
Student
Achievement*

For more information visit www.DataQualityCampaign.org and follow us on [Facebook](#) and [Twitter \(@EdDataCampaign\)](#).

Click or scan the code for DQC's best tools and resources.



The **Data Quality Campaign (DQC)** is a nonprofit, nonpartisan, national advocacy organization committed to realizing an education system in which all stakeholders—from parents to policymakers—are empowered with high-quality data from the early childhood, K-12, postsecondary, and workforce systems. To achieve this vision, DQC supports state policymakers and other key leaders to promote effective data use to ensure students graduate from high school prepared for success in college and the workplace.

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