REGIONAL *EDUCATIONAL* LABORATORY
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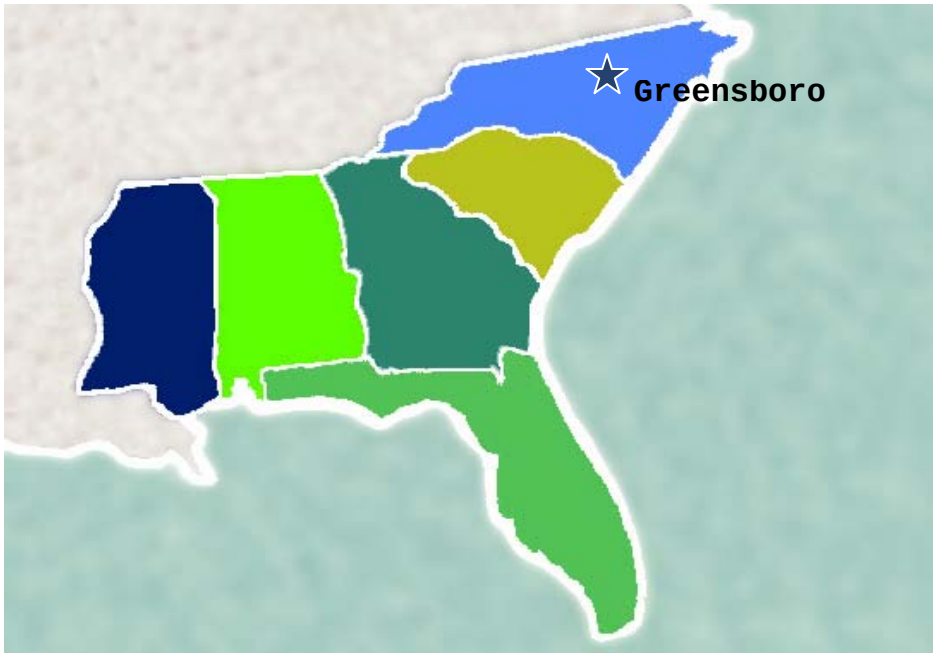
August 2011, EBE # 833A

EVIDENCE BASED EDUCATION REQUEST DESK

OUR GOAL

To assist educators and policymakers in their efforts to apply the evidence base to decisions about policies, programs, and practices they encounter.



REQUEST:

Indicators of success/dropout K–12:

- Early warning system indicators that students are at risk of dropping out of high school (9th grade and throughout high school)
- Early warning system indicators at the elementary and middle school level
- Table showing information on states and districts in the Southeast (and beyond the region if identified during search) that have existing success factors/early warning databases

RESPONSE

K-12 research and literature on early warning and success indicators

On-Track/Success Indicators Movement

Over the past decade, research on dropout prevention has become focused on using evidence-based practice, and data-driven decisions, to mitigate students' dropping out of high school and instead, support and prepare students for career and college. *Early warning systems* or *on-track indicators*, in which readily available student-level data are used to predict whether a student is likely to drop out, are being harnessed by schools, districts, states, and support organizations nationwide to help prevent

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students from falling off the track to graduation and offer additional educational and support services to those who need them (Pinkus, 2008). Initiatives to create early warning systems are aligned with the What Works Clearinghouse Dropout Prevention Practice Guide recommendation that "utilizing data systems that support a realistic diagnosis of the number of students who dropout and that help identify individual students at high risk of dropping out" is a "critical first step" in effective intervention (Dynarski et al., 2008, p. 12).

Indicator systems have been developed or adopted in Baltimore (Mac Iver, Plank, Durham, Farley-Ripple, & Balfanz, 2008), Boston (The Parthenon Group, 2007; Pinkus, 2008), Chicago (Allensworth & Easton, 2005, 2007), Dallas (Weir, 2008; Oakeley & Weir, 2010), Los Angeles (Lim & Pirone, 2007), Philadelphia (Neild & Balfanz, 2006; Neild, Balfanz, & Herzog, 2007), and Portland (Cielo & Leveen, 2007). Publications from the National High School Center provide guidance and tools to states, districts, and schools on constructing an early warning system that is effective for that district or school population, and recommend that an on-track indicator be considered for inclusion in such a system (Heppen & Therriault, 2008, p. 5).

How are they constructed?

To create indicator systems, states, school districts, and/or researchers have identified key student-level variables or a combination of key student-level variables (most commonly during grade 9) associated with high school graduation and dropping out of school. Most on-track or early warning systems use student-level administrative district and/or state data to construct indicators. Using this data, indicators are typically developed based on which variable(s) in the data best predict a student's likelihood of graduating from high school. Therefore, successful early warning systems track multiple variables that are shown to be related to students' likelihood of not graduating on time (Heppen & Therriault, 2008), such as poor grades in core subjects, low attendance, failure to be promoted, and disengagement in the classroom (Kennelly & Monrad, 2007). Sometimes, indicator systems use a single variable. However, typically the use of multiple variables increases the predictive yield (or accuracy) of the indicator.

An on-track indicator is typically a "yes/no" variable indicating whether a student is "on-track = yes" or "not on-track = no" to graduate from high school. Students are categorized as either "on-track" or "off-track" for graduation based on this one indicator. Consequently, an on-track or success indicator is the inverse of an off-track or early warning indicator.

The most commonly used student-level variables to make up an indicator are:

- Attendance
- Course failures in core courses (English, mathematics, social studies, and science)
- Grades/credits earned in core courses
- Disciplinary actions (e.g., suspensions)

Less common, but noted in the literature are:

- Transferring into, out of, or within the district
- Withdrawing from school, returning to school
- Standardized Test Scores

- Race/ethnicity
- Gender
- Poverty level/FRPL status
- ESL or IEP categorization

Benchmarks or a “red flag” for each of these variables, alone or in combination, is then established. For example, a threshold of 10% of instructional time missed during a school year might be indicated as a “red flag” for attendance. These benchmarks are usual empirically derived in that they are established based on the threshold that best distinguishes those students who drop out from those who graduate from high school.

Which ones are most predictive of high school graduation?

The most powerful predictors of whether a student will complete high school include course performance and attendance during the first year of high school (Allensworth & Easton, 2005; 2007). Past research has shown that course-taking and school engagement behaviors in grade 9 are "gateways" to advanced coursetaking in high school, which leads to high school graduation and postsecondary success. Studies have shown that graduation rates can be more highly correlated with such indicators than with standardized achievement test scores or student demographic characteristics (Allensworth & Easton 2005; Jerald 2006; Rumberger 2004).

Most indicators have been developed during grade 9 because it is a critical transition period in the education pipeline (Heppen & Therriault, 2008) when the number of course failures and behavioral problems peak, and academic achievement declines (Hartman, Wilkins, Gregory, Gould, & D’Souza, 2011). However, because distress signals and patterns of behaviors emerge long before dropout occurs (Neild, Balfanz, & Herzog, 2007), there is increasingly a movement to create indicators for middle and elementary grades so that educators can early identify students at risk of not graduating.

Researchers in Baltimore, Philadelphia, and Portland have examined indicators for students in grades 6–8. These studies have generally shown a similar pattern of findings with final grades in core courses, attendance patterns, academic achievement, and unsatisfactory behavioral marks predicting high school dropout (MacIver, 2011; Neild et al., 2007; Cielo & Leveen, 2007). In one study, student grade point average and class ranking as early as grade 4 predicted school dropout between grades 7 and 9 (Roderick, 1993).

While the majority of indicator systems to date have been developed in large urban areas, there are increasingly efforts to develop indicators across urban, suburban, and rural populations. Evidence thus far suggests that similar indicators are useful at distinguishing students who do and do not graduate, but that the particular predictive yield or ability of specific indicators to differentiate students who do and do not graduate may vary based on the characteristics of the populations served (Hartman et al., 2011). For example, one study found that attendance was not as strong of a predictor as was found in prior studies in Philadelphia and Chicago (Johnson & Semmelroth, 2010). However, the authors comment that it may be because attendance data was not as reliably collected. In constructing an on-track indicator system it is therefore important to

consider both the characteristics of the populations served by specific districts or states as well as the reliability and availability of the data elements collected in those locales.

Indeed, a key issue in developing early warning indicators is availability and quality of data used (Heppen & Therriault, 2008; Balfanz, Wang, & Byrnes, 2010). A systematic collection of student attendance and course performance data can be used to develop an effective early warning system that can also be tailored to local contexts. However, it should be noted that any indicator will, in practice, misidentify some students. This means that some students who are identified as on-track will fail to graduate on time, and that some students who are identified as off-track will graduate on time. The goal is to select an indicator that minimizes these misidentifications.

Annotated Bibliography

Indicators that students are at risk of dropping out of high school (9th grade and throughout high school)

Allensworth, E.M., & Easton, J.Q. (2005). ***The ontrack indicator as a predictor of high school graduation.*** **Chicago: University of Chicago, Consortium on Chicago School Research. http://ccsr.uchicago.edu/publications/p78.pdf**

CCSR website description: This indicator identifies students as ontrack if they earn at least five full-year course credits and no more than one semester F in a core course in their first year of high school. Ontrack students are more than three and one-half times more likely to graduate from high school in four years than offtrack students. The indicator is a more accurate predictor of graduation than students' previous achievement test scores or their background characteristics.

Perhaps the most important finding from this report is that failures during the first year of high school make a student much less likely to graduate. Based on their findings, the authors believe that parents and teachers should carefully monitor students' grades, especially in the first semester of freshman year, when there are still many opportunities to improve grades. Helping students make a successful transition to high school during the first semester could make students more likely to graduate.

This report also finds that ontrack students are not necessarily the students with the highest achievement test scores. Many students with strong achievement fail to graduate, and many students who have demonstrated weaker achievement succeed in graduating.

Finally, this report concludes that the particular school a student attends plays a large role in

whether the student is on-track. While we expect schools to have students with differing levels of preparation for high school, differences in the number of students ontrack at each school remained even when the authors controlled for students' eighth-grade test scores and socioeconomic status. This suggests that school climate and structure play a significant role in whether students succeed in high school.

Schools can use the ontrack indicator, which makes use of readily available data on course credits and failures, to understand what aspects of the school may be leading students to drop out.

Allensworth, E., & Easton, J. (2007). ***What matters for staying on-track and graduating in Chicago public high schools: A close look at course grades, failures and attendance in the freshman year.*** **Chicago: Consortium on Chicago School Research.** **http://ccsr.uchicago.edu/publications/07%20What%20Matters%20Final.pdf**

CCSR website description: This report found that freshman year course performance—more than background characteristics such as race, gender, socioeconomic status or prior achievement—predicts which students with disabilities are most at risk for dropping out of high school.

The report, a joint effort of the Consortium on Chicago School Research and the National High School Center, found that absences, course failures, course credits, and GPA all can be used to accurately predict whether ninth-graders with disabilities will graduate from high school.

Identifying these early warning indicators is especially crucial for students with disabilities, who drop out of high school at very high rates. Only 50 percent of CPS students with disabilities graduate in five years, compared with 70 percent of CPS students without disabilities. The national graduation rate of students with disabilities hovers around 57 percent, according to the U.S. Office of Special Education Programs.

The new report builds on the findings of a 2007 CCSR report, What Matters for Staying On-Track and Graduating in Chicago Public High Schools, which showed that students who accumulate at least five semester-long credits and fail no more than one core course during their freshman year were nearly four times as likely to graduate. CCSR researchers incorporated those measures into an on-track indicator, adopted by CPS and other urban districts as part of their accountability systems, which proved more helpful in predicting graduation rates than either background characteristics or previous achievement.

The report released today demonstrates that this ontrack indicator can be applied to the special education population as well. Students with disabilities who are "ontrack" are three- to six-times more likely to graduate than their offtrack counterparts, according to the report.

Most of the analyses in the report concern students who were first-time freshmen in 2004. Researchers separately analyzed five groups of students with different types of special needs: students with learning disabilities, mild cognitive disabilities, emotional disturbances, speech/language disabilities,
and physical/sensory disabilities. In addition, researchers considered the course performance and academic behaviors of students who do not receive special education services but enter high school two or more years below grade level.

Balfanz, R. (Jan 30, 2008). ***Three steps to building an early warning and intervention system for potential dropouts.*** **(PowerPoint presentation). Baltimore, MD. Johns Hopkins University, Everyone Graduates Center. http://www.every1graduates.org/west-chris/item/95-three-steps-to-building-an-early-warning-and-intervention-system-for-potential-dropouts.html**

EGC website description: Most dropouts are identifiable years before they dropout, struggle in, or disengage from school for three to four or more years before they dropout. These dropouts are preventable, and ultimately they want to graduate from high school.

This PowerPoint offers three steps toward reducing dropouts in your community.

Step 1: Understand the dropout problem in your community.

Step 2: Build an early warning, prevention and intervention system.

Step 3: Involve the community.

Balfanz, R., Bridgeland, J. M., Moore, L. A., & Fox , J.H. (2010). ***Building a grad nation: Progress and challenge in ending the high school dropout epidemic.*** **Civic Enterprises; Everyone Graduates Center at Johns Hopkins University; America's Promise Alliance. http://www.edweek.org/media/14grad_civicmarshallplan.pdf**

Executive Summary: The central message of this report is that some states and school districts are raising their high school graduation rates with scalable solutions in our public schools,

showing the nation we can end the high school dropout crisis. America made progress not only in suburbs and towns but also in urban districts and in states across the South.

Progress in states and school districts has often been the result of rising to a standard of excellence—with clear goals and expectations from the state to the classroom, by challenging all students with a more rigorous curriculum to obtain a meaningful diploma that prepares them for college and work, and through a targeted approach sustained over time that provides extra supports to the school leaders, teachers, and students who need them the most. Progress was not the result of a magic bullet but a weave of multiple reform efforts, sustained, integrated, and improved over time.

Important progress is being made on a range of reforms, policies, and practices at all levels that will help ensure more students graduate from high school, ready for college and productive work. Although this is producing real results, including an increase in the national graduation rate, the pace is too slow to meet the national goal of a 90 percent high school graduation rate by 2020. We must calibrate our educational system to the greater demands of the 21st century through a Civic Marshall Plan to make more accelerated progress in boosting student achievement, high school graduation rates, and college- and career-readiness for our nation to meet national goals and fulfill the promise of the next generation.

Balfanz, R., & Byrnes, V. (2010). ***Dropout prevention through early warning indicators: A current distribution in West Virginia schools*** **Baltimore: Johns Hopkins University Center for Social Organization of Schools.**
https://www.wvhepc.org/resources/Drop_Out_Prevention_Report.pdf

Authors' abstract: This report provides a snapshot of the 2008–09 school year's individual student level data for the 6th and 9th graders across the state of West Virginia. In particular, it focuses on indicators of students' academic behaviors: attendance rates, behavioral problems (e.g., suspension, other disciplinary actions), and course marks (course failure or GPA). It then examines how 6th and 9th grade students exhibiting key behavioral warning signs that have been shown by research in other states and districts to be good predictors of future dropout are distributed across the state's schools in concentration and number. The purpose of examining the distribution of students with these academic behaviors is to identify which schools most need additional resources in order to reduce the number of dropouts state-wide. In addition, we identify the high schools where the lowest proportions of 12th graders receive diplomas. Finally, the report examines the concentration of students with early warning indicators at the district level. The research in this report was funded by and conducted in conjunction with the National Governors Association Center for Best Practices dropout prevention and recovery state grants.

Balfanz, R., Wang, A., & Byrnes, V. (2010). ***Early warning indicator analysis: Tennessee.*** **Baltimore, MD. Johns Hopkins University, Everyone Graduates Center.**

http://www.state.tn.us/education/safe_schls/dropout/doc/FinalEarlyWarningIndicatorAnalysis.PDF

Introduction excerpts: The purpose of this analytics project was to identify early warning indicators of dropout for the Tennessee Department of Education. Early indicators are "flags" or "distress signals" that are sent by a very large percentage of eventual dropouts years before they actually leave school. These "distress signals" indicate that a student is having trouble keeping up with schoolwork or is disengaging from schooling….

Early indicators of dropout are powerful tools at the K–12 level because they can potentially alert educators to students who need some level of intervention to stay on track to graduation. Identifying the relevant indicators is just a first step, and the step that is arguably the easiest. Indicators do no good if they are not followed up by action and further assessment to see whether the actions taken have helped to keep students ontrack to graduation. Nevertheless, appropriate action depends in part on a robust set of early warning indicators. A strong indicator set has several characteristics:

1. They are empirically created. Powerful indicators are identified based on analysis of longitudinal data that tracks individual student progress over time. In essence, indicators use the experience of previous cohorts to intervene when students in subsequent cohorts begin to show behaviors associated with dropout among their elder siblings.
2. **They are simple and easily collected.** Early warning indicators use readily available data that are typically maintained by schools—variables such as grades, attendance, and behavior in the classroom. They do not necessarily require complex statistical modeling techniques or access to data from surveys or interviews.
3. **The set of indicators has been refined to include a few key variables.** In indicator systems, a few key indicators are easier for teachers to monitor than a large set of predictors. K–12 analyses have demonstrated that although the underlying issues that produced the poor grade or weak attendance may be complex and may vary from student to student, there is a small number of flags that alerts educators to a student potentially falling offtrack. By extension, a good indicator system also identifies variables that are not the strongest predictors of eventual dropout.
4. **They capture the majority of students who eventually become dropouts.** A good indicator system avoids the "1% problem," or indicators that are highly predictive but only identify a small percentage of dropouts.

Baltimore Education Research Consortium. (n.d.). ***On track and on time: Baltimore Education Research Consortium core analytic projects July 2008–June 2011.*** **http://baltimore-berc.org/pdfs/On_Track_and_On_Time.pdf**

Introduction excerpt: BERC joins City Schools in demonstrating a commitment to *keeping on-level students on track to educational success* (including an on-time high school graduation) and *decreasing the dropout rate*. To further these two goals, BERC will conduct eight projects to identify school and classroom practices that equip students for success at the elementary, middle grades, and high school levels.

BERC research and analysis will address the following key research questions. What school and classroom practices equip students with the academic skills needed to stay ontrack and have successful transitions from first grade through middle school, high school, and postsecondary education? Why do many Baltimore students fall behind grade level, and what can teachers and principals do to help keep them on track? What school and classroom practices facilitate higher middle school and high school student achievement (with comparable incoming populations) among at-risk students who have shown early dropout indicators? What practices lead to higher levels of recovery and eventual on-time graduation?

To answer these questions, BERC will access existing Baltimore City Public Schools data as well as conduct new research. Using a mixed-methods approach, BERC will pursue both quantitative analysis of longitudinal student- and school-level records (including aggregated teacher characteristics) and qualitative studies involving classroom observations ("shadowing" students across multiple classrooms and academic years to study effective instruction), principal interviews, teacher surveys, and focus groups. Samples of students and schools will intentionally include city schools that have proven themselves beacons of hope or excellence by demonstrating educational excellence multiple years in a row or student achievement significantly above other schools serving similar student populations and neighborhoods.

Cielo, M.B., & Leveen, L. (2007). ***The fourth R: New research shows which academic indicators are the best predictors of high school graduation—and what interventions can help more kids graduate*****. Portland, OR: Connected by 25.**
www.connectedby25.org/file_download/46

Article excerpts: This report summarizes the findings of research looking at data for the Portland Public Schools Class of 2004 as it moved through high school to expected graduation in June 2004. The study was undertaken as the basis for determining how to implement support effectively to increase the number of students who graduate from high school. The research focused on learning what indicators best predict which students are at risk for failing to graduate and determining when, by year and quarter, students are most likely to disengage from school.

FINDING 1: Students are more likely to disengage from school at particular times of year and in particular years (a student's likelihood of disengaging from school peaks during the summer and at the end of 12th grade).

FINDING 2: Prior academic achievement (pre-high school) is an important indicator for predicting eventual graduation (students who, as 8th-graders, failed to meet 2 or more standards were 2.6 times more likely to leave school without graduating than their classmates in the 8th grade who met 2 or 3 standards).

FINDING 3: 9th grade is a pivotal year in which academic failure or success can be a powerful predictor of whether students will graduate (students who failed one or more core courses during 9th grade were almost 4 times more likely to leave high school before graduation than students who passed all their 9th-grade core courses).

FINDING 4: Falling behind in course credits does not merely slow a student's progress to graduation; it significantly increases the student's risk of leaving PPS without graduating (A student with insufficient credits at the end of the 9th grade has 4.1 times the risk of leaving school without graduating than a student with sufficient credits; a student with insufficient credits at the end of 10th grade has 5.2 times the risk; and a student with insufficient credits at the end of 11th grade has 5.6 times the risk).

FINDING 5: Examining multiple academic indicators increases the accuracy with which a student's likelihood of graduating can be predicted.

FINDING 6: Many students experience one or more educational disruptions during high school (starting high school at age 15 or older; transferring into, out of, or within the district; or withdrawing from school and then returning), and these disruptions have different effects on a student's likelihood to graduate. (Students who were late arrivals to PPS were significantly less likely to graduate. These students left school without graduating at three times the rate of students who were already in the district or being classified as a "no show" in 8th grade or who entered the district in 9th grade.)

When two key academic indicators—the number of 8th-grade standards met and the number of core courses passed or failed in 9th grade—are considered together, demographic variables such as race and poverty level cease to be statistically significant.

Dynarski, M., Clarke, L., Cobb, B., Finn, J., Rumberger, R., and Smink, J. (2008). *Dropout Prevention: A Practice Guide* (NCEE 2008–4025). Washington, DC: National Center

for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc.

Excerpt from the Introduction: This guide is intended to be useful to educators in high schools and middle schools, to superintendents and school boards, and to state policymakers in planning and executing dropout prevention strategies. The target audience includes school administrators as well as district-level administrators. This guide seeks to help them develop practice and policy alternatives for implementation. The guide includes specific recommendations and indicates the quality of the evidence that supports these recommendations. In addition, we have provided a description of some ways each recommendation could be carried out. Our examples should not be construed as the best or most effective ways to carry out each recommendation. Rather, the examples illustrate practices that were noted by previously implemented dropout prevention programs as having had an impact on staying in school, progressing in school, or completing school. Readers need to note that the specific ways in which the practices were implemented varied widely based on each school's context.

Gleason, P., & Dynarski, M. (2002). Do we know whom to serve? Issues in using risk factors to identify dropouts. *Journal of Education for Students Placed at Risk, 7*(1), 25–41.

Authors' abstract: This article analyzes the effectiveness of widely used risk factors for identifying students who will drop out of school. The findings indicate that nearly all risk factors are not effective predictors of dropping out. The findings suggest that dropout prevention programs often serve students who would not have dropped out, and do not serve students who would have dropped out, which has implications for program effectiveness. [PDF file]

Gwynne, J., Lesnick, J., Hart, H.M., & Allensworth, E.M. (2009). *What matters for staying on-track and graduating in Chicago public schools: A focus on students with disabilities.* Paper presented at the Consortium on Chicago School Research, Chicago. Available: http://eric.ed.gov/PDFS/ED507419.pdf.

ERIC Abstract: A brief narrative description of the journal article, document, or resource. In this report, the authors look at the freshman year course performance of Chicago Public Schools (CPS) students who receive special education services and ask whether grades, course failures, absences, and on-track status are useful for identifying students who are at risk of dropping out. They also examine how academic behaviors, such as attendance and study habits, affect course failures and grades of students with disabilities. Consistent with the original "What Matters" report, most of the analyses in this report are based on information about the cohort of CPS

students who were first-time freshmen in 2004. When reporting graduation rates, the authors use information about the cohort of CPS students who were first-time freshmen in 2001. They report four major findings: (1) Students with speech/language disabilities and students with physical/sensory disabilities perform similarly to students without identified disabilities in their freshman year courses. Students with emotional disturbances and students who entered high school two or more years below grade level had the lowest level of course performance of any group they studied; (2) Freshman year course performance is a strong predictor of five-year graduation rates for students with disabilities and students who entered high school two or more years below grade level; (3) Higher absence rates are an important factor explaining why students with disabilities fail more classes and have lower grades than students without identified disabilities; and (4) Students with learning disabilities and students with mild cognitive disabilities do not benefit as much from rigorous study habits as students without identified disabilities. Appended are: (1) Study Samples; (2) Special Education Categories; (3) Statistical Models; and (4) Sample Attrition in Statistical Models. (Contains 6 tables, 20 figures, and 33 endnotes.)

Hartman, J., Wilkins, C., Gregory, L., Gould, L.F., & D'Souza, S. (2011). ***Applying an ontrack indicator for high school graduation: adapting the Consortium on Chicago School Research indicator for five Texas districts.*** **(Issues & Answers Report, REL 2011–No. 100). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. http://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL_2011100.pdf**

Article summary excerpt: This study uses a measure of the ontrack or offtrack status of students at the end of grade 9 as an indicator of whether students in five Texas districts would graduate from high school in four years. In all five districts, on-time graduation rates were higher for students who were on track at the end of grade 9 than for students who were off track, both for students overall and for all racial/ethnic groups.

Heppen, J., & Therriault, S.B. (2008). ***Developing early warning systems to identify potential high school dropouts.*** **National High School Center. http://www.betterhighschools.org/pubs/documents/IssueBrief_EarlyWarningSystemsGuide.pdf**

NHSC website description: The information that follows and an accompanying tool developed by the National High School Center can help schools and districts to systematically collect early

warning indicator data so they can identify students at highest risk of dropout. An early warning system can be implemented at the school as well as at district levels. The role of the state is critical for providing support that can help districts and schools collect the key information with relative ease, including the use of integrated longitudinal data systems.

This guide, intended for educators and policymakers at the school, district, and state levels, is designed to provide information about the following:

- Factors that contribute to a student's dropping out
- Research on early warning indicators
- School-level early warning systems
    - Step-by-step instructions for how schools can calculate indicators and identify which students are on track to graduate and which are most likely to drop out while there is still time to intervene and prevent dropouts
- District-level early warning systems
    - Information for districts regarding the development of district-wide early warning systems that begin with a local analysis of graduation and dropout patterns in the district
- States' roles in supporting the development and use of early warning systems

Jerald, C. (2006). ***Identifying potential dropouts: Key lessons for building an early warning data system*** **[white paper]. Washington, DC: Achieve, Inc., American Diploma Project Network. http://www.achieve.org/files/FINAL-dropouts_0.pdf.**

Introduction abstract: This white paper was prepared for Staying the Course: High Standards and Improved Graduation Rates, a joint project of Achieve and JFF funded by Carnegie Corp. of New York. Its goal is to provide policymakers with an overview of research about the dropout problem and the best strategies for building an early warning data system that can signal which students and schools are most in need of interventions.

Johnson, E. (2008). ***REA fact sheet on the CPS freshman on-track graduation rate.*** **Chicago, IL: Department of Applied Research, Chicago Public Schools. http://research.cps.k12.il.us/export/sites/default/accountweb/Research/Fact_Sheets/OnTrack_FactSheet.pdf**

This is a two-page FAQ-style summary of the Chicago Public Schools' Freshmen On-Track rate.

Johnson, E., & Semmelroth, C. (2010). The predictive validity of the Early Warning System tool. *NASSP Bulletin, 94*(2), 120-34.

Authors' abstract: The Early Warning System is a tool developed by the National High School Center to collect data on indicators including attendance, grade point average, course failures, and credits earned. These indicators have been found to be highly predictive of a student's likelihood of dropping out of high school in large, urban areas. The Early Warning System tool was studied in two suburban schools. With the exception of attendance data, findings suggest that the indicators and suggested threshold for risk determination are predictive in suburban contexts. [PDF file]

Kennelly, L., & Monrad, M. (2007). *Approaches to dropout prevention: Heeding early warning signs with appropriate interventions.* National High School Center. http://www.betterhighschools.org/docs/NHSC_ApproachestoDropoutPrevention.pdf

Executive Summary excerpts: There are effective, research-based steps that school systems can readily take to identify likely high school dropouts. Less is known about effective remedies designed to address dropout, though a variety of promising programs and interventions are available….

The key indicators that researchers have identified as indicative of who is most likely to drop out are
• poor grades in core subjects,
• low attendance,
• failure to be promoted to the next grade, and
• disengagement in the classroom, including behavioral problems.
To be most effective in preventing dropout, school systems should focus dropout prevention efforts in the beginning of the middle grades….

School communities interested in building an early warning system should address the following steps:
1. Establish a data system that tracks individual student attendance, grades, promotion status, and engagement indicators, such as behavioral marks, as early as fourth grade.
2. Determine criteria for who is considered offtrack for graduation and establish a continuum of appropriate interventions.
3. Track ninth grade students who miss 10 days or more of school in the first 30 days. The first month of high school provides important information about who is at risk of dropping out. Even moderate levels of absences are a cause for concern. Just one to two weeks of absence per

semester—which was typical for freshmen participating in a key Chicago study—was found to be associated with a substantially reduced probability of graduating.
4. Monitor first quarter freshman grades, paying particular attention to failures in core academic subjects. Receiving more than one F in core academic subjects in ninth grade—together with failing to be promoted to tenth grade— is 85 percent successful in determining who will not graduate on time. Schools can offer immediate academic supports to the students who are failing in the first quarter of freshman year.
5. Monitor Fall semester freshmen grades, paying particular attention to failures in core academic subjects. As first semester grades are posted, schools can develop individual student dropout strategies. By the end of the first semester, course grades and failure rates are slightly better predictors of graduation than attendance because they indicate whether students are making progress in their courses.
6. Monitor end-of-year grades. The end-of-year grades will provide further information about failure rates and reveal grade point averages, providing detailed information about who is likely to struggle in later years and is considered by some researchers to be the best indicator for predicting nongraduates. In general, grades tend to be a more accurate predictor of dropout than test scores.
7. Track students who have failed too many core subjects to be promoted to tenth grade. This provides perhaps the most critical information about which students should receive specialized attention and support. Research has shown that those who fail to be promoted are more likely to drop out. According to Alexander, Entwistle, and Horsey (1997), being held back trumps all for dropout indicators….

Currently, there is not an extensive menu of proven strategies and interventions tailored for key dropout prevention initiatives most appropriate for various risk factors at differing stages across the education pipeline. However, there are a few proven dropout prevention programs featuring key components, such as
• attendance and behavior monitors,
• tutoring and counseling,
• establishment of small learning communities for greater personalization,
• engaging catch-up courses,
• Ninth Grade Academies,
• homerooms,
• benchmarking,
• progress monitoring,
• tiered interventions,
• a focus on equal access to rigorous coursework and high expectations,
• career/college awareness,
• community engagement, and

• eighth-to-ninth grade transition programs.

Some of the common elements shared across numerous programs include attention to school climate in order to facilitate student engagement, rigorous coursework for all students, and the effective use of extended learning time during the school day such as the block schedule….

A lot still is not known about dropout prevention strategies and interventions that make a positive difference. However, interventions that have the capacity to be oriented around individual student needs, and that work in tandem with schoolwide interventions able to adjust around grade-level needs, hold promise as an effective combination for combating the nation's dropout problem.

Lim, C., & Pirone, J. (2007). ***Using data for dropout prevention: Can we identify at-risk students before it's too late?*** **Planning and Assessment, Los Angeles Unified School District.**
http://www.myfuturemydecision.org/ourpages/auto/2008/5/1/1209652805638/Data%20Driven%20Decision%20Making.ppt#1

This 32-slide PowerPoint presentation discusses the authors' use of indicators from Chicago and Philadelphia research to examine a cohort of LAUSD students who entered 9th grade for the first in 2003. It traced them back to middle school (looking at attendance, math and ELA grades, and GPA) and forward to high school (looking at graduation/dropout/transfer rates, GPA, and credit accumulation). The authors identified their own at-risk indicators:

- Cumulative failures in ELA and/or math in middle school
- Cumulative attendance rates in middle school
- Credit accumulation after the first year of high school

The presentation also discusses systems already in place to identify at-risk students and discusses LAUSD's "Decision Support System."

Mac Iver, M.A. (2010). ***Gradual disengagement: A portrait of the 2008–09 dropouts in the Baltimore City Schools.*** **Baltimore, MD: The Baltimore Education Research Consortium.**
http://baltimore-berc.org/pdfs/Gradual%20Disengagement%20final.pdf

Author's abstract: *Gradual Disengagement: A Portrait of the 2008–09 Dropouts in the Baltimore City Schools* examined eight years of student-level data to paint a collective portrait of the process of disengagement that leads to student dropout. The study found that the majority of

students who eventually drop out of Baltimore high schools enter ninth grade with a pattern of chronic absenteeism that goes back at least several years. A large majority of eventual dropouts are overage for grade by the time they enter ninth grade for the first time, and have increasingly high levels of absenteeism and course failure over their years in high school. The study recommends that interventions be implemented during the early middle grades to prevent most dropout outcomes, and that non-traditional credit-earning options be offered to older enrolled students (17 and older) who already have patterns of chronic absenteeism and course failure.

Mac Iver, M.A., & Mac Iver, D.J. (2009). ***Beyond the indicators: An integrated school-level approach to dropout prevention.*** **Arlington, VA: The Mid-Atlantic Equity Center, The George Washington University Center for Equity and Excellence in Education.** **http://diplomasnow.files.wordpress.com/2011/02/dropout-report-8-11-09.pdf**

Executive Summary excerpt: This report summarizes the research on *why* students drop out of school, explains the research implications for *how* to create an integrated dropout prevention strategy, and highlights an innovative pilot project that yielded results in a matter of months—a *how-to* example that works.

Mac Iver, M.A., & Mac Iver, D.J. (2010). ***Keeping on track in ninth grade and beyond: Baltimore's ninth graders in 2007–08.*** **A Research Report by the Baltimore Education Research Consortium.** **http://baltimore-berc.org/pdfs/3A%20Final%20report_06-15-10.pdf.**

Executive Summary excerpts: Raising the graduation rate in Baltimore City will require specific attention to addressing the behavioral factors identified in previous research that push students offtrack to graduation, particularly chronic absenteeism, suspensions, and course failure in ninth grade. Researchers further hypothesize that interventions to reduce the incidence of these behaviors associated with non-graduation will help to increase graduation rates, though such intervention studies have not yet been underway long enough for graduation outcomes to be measured. Such interventions will often need to address underlying causes of behavioral indicators. A first step, prior to organizing intervention strategies and evaluating their effectiveness, is to describe the extent and concentration of these ninth grade early warning indicators, which is the primary goal of this study.

Analysis of Baltimore City Schools data for the 6,662 first-time ninth graders in 2007–08 indicated that:

- Chronic absenteeism was widespread.
- Core course failure was even more common than chronic absenteeism.
- Suspensions were much less prevalent.

Implications of the Findings

Raising the graduation rate in Baltimore City will particularly require specifically targeted efforts to increase attendance and reduce ninth grade course failure. The large number of students exhibiting these warning signals demands extensive district support to those schools where concentrations are extremely high. Efforts to increase attendance must begin much earlier than high school, since most of those chronically absent in ninth grade had poor attendance patterns already established in prior years.

The district's Master Plan already includes numerous action steps designed to increase attendance. While there is considerable discussion underway of the steps being taken, it is important for the district to consider a more formal analysis of ongoing efforts to increase attendance. Similarly, while the Master Plan also notes the need to address course failure, it is crucial to collect systematic data on what schools are actually doing to prevent course failure as well as to provide credit recovery options for students who need them. This is particularly important given the significant additional costs associated with credit recovery (for nearly 27,000 core courses failed at Baltimore City high schools grades 9–12 in a single academic year). While some course failure is directly linked to students' irregular attendance, other course failure seems to have different roots.

BERC is currently planning a study to analyze school and classroom practices associated with higher levels of ninth grade course passing in Baltimore's schools. An additional BERC study of the district's efforts to increase attendance would provide useful information for future data-driven decisionmaking. We believe that formal analysis of the current efforts underway to address attendance and course failure in particular will also help district leaders to better integrate multiple programs and strategies into a more systematic framework for dropout prevention. Implementation of early warning systems and public health-style tiered prevention models designed to keep students from falling off-track to graduation (particularly in terms of credits accrued) will be an important step to increase the district's graduation rate.

Mac Iver, M., Plank, S.B., Durham, R., Farley-Ripple, E., & Balfanz, R. (2008). ***The challenge of on-time arrival: The seven-year flight paths of Baltimore's sixth graders of 1999-2000. Research Report.*** **Baltimore, MD: Johns Hopkins University. http://www.baltimore-berc.org/pdfs/SIXTH%20pathways5-13-08.pdf**

Executive Summary: This report explores the pathways followed by students who were sixth graders in the Baltimore City Public School System (BCPSS) in 1999–00. By following this cohort of sixth-grade students over the next seven years, through their expected (on-time) graduation year (2005–06), we learn much about patterns of promotion and retention, mobility within BCPSS, transfer out of BCPSS, and graduation rates. In particular:

• A total of 8,560 students were enrolled in sixth grade in BCPSS in 1999–00. Most of these (85.4%) qualified for free or reduced-price lunch, and more than one in five (21.2%) had special education status. About one in twelve (8.4%) was repeating sixth grade in 1999–00. Five percent were new to BCPSS in that year. On average, this cohort scored at the 19th percentile in reading and the 22nd percentile in mathematics in sixth grade. Nearly three in four attended a large middle school.

• This cohort began elementary school before the implementation of districtwide curricular reforms in 1998. The creation of more K–8 schools occurred after these students began the middle grades, and they entered high school before the opportunity to attend smaller, innovation high schools existed for more than a small percentage. This cohort study, therefore, establishes a baseline of student outcomes before the effects of district reforms over the past decade could be expected.

• There was a steady decline year-by-year in the percentage of students enrolled for at least part of the year within BCPSS, with this decline accelerating during the later high school years. At the beginning of 2005–06, just 55.9 percent were still enrolled in the district.

• By the end of 2005–06, more than half of the cohort (54.4%) had left the district. About one in five (19.4%) was a documented transfer to another district or private school; most of the rest had either dropout codes or missing data in the withdrawal code. One in three (33.6%) had graduated from the district, and the rest were still in school.

• Though three-quarters of those still enrolled in the district were ontrack in ninth grade (2002–03), nearly one in five was not promoted the following year. The average ninth-grade attendance rate of students who were retained in ninth grade after 2002–03 was significantly lower than that of those who were promoted after ninth grade, and this rate appeared to be the culmination of a declining pattern of attendance over the previous three years.

• High rates of mobility during the middle grades were associated with lower rates of on-time graduation. Students who attended the same school for sixth grade and the two years following were much more likely to graduate on time (52.2%) than were those students who were still

enrolled in BCPSS in 2001–02, but had changed schools at least once (27.2% on-time graduation rate).

• Chronic absenteeism was the norm for this cohort. A third of the sixth graders in 1999–00 missed at least one-ninth of their days on roll (20 days of a full school year). This percentage increased over time through 2003–04, when 56.4 percent of students were chronically absent. The rate declined somewhat the two subsequent years, undoubtedly because many of these chronically absent students were no longer enrolled in BCPSS.

Chronic absenteeism and student academic struggles in the middle grades are particularly crucial issues to address, given their association with the failure to arrive at on-time graduation. At the same time, another important finding of this report is that many BCPSS students who do manage to successfully graduate on time have also manifested chronic absenteeism and academic struggles (low test scores) that will almost certainly have an influence on their performance in postsecondary education and the workplace. Missed opportunities to learn, as well as more general patterns of absenteeism, have weakened the core foundation of student preparation for the world beyond high school. Increasing student engagement with learning opportunities at the secondary school level remains the foremost challenge for the Baltimore City Public School System in the coming years.

Neild, R.C. (2009). Falling off track during the transition to high school: What we know and what can be done. *The Future of Children, 19*(1), 53–76.

Summary: Ninth grade, observes Ruth Curran Neild, marks a critical juncture in American schooling. Students who manage the academic demands of the transition to high school have a high probability of graduating four years later. But those who do not—who fail to earn as many credits as they should during ninth grade—face a substantially elevated risk of dropping out of high school. Neild examines four theories about why ninth grade poses difficulties for some students. The first is that ninth grade coincides with life-course changes, such as reduced parental supervision and increased peer influence. The second is that in moving to a new school, students must break the bonds they have formed with their middle-school teachers and peers. The third is that some students are inadequately prepared for high school. The final theory is that the organization of some high schools is itself a major source of students' difficulty. Each theory, says Neild, suggests a particular type of policy response.

The strongest evidence, observes Neild, points to inadequate preparation for high school and the organization of high schools. Reform efforts thus far have tended to address high school organization, with or without a focus on instructional quality or helping students to catch up on

academic skills. Evaluations of these reforms, says Neild, suggest that both school organization and instructional improvement are necessary to keep ninth graders on track to graduation.

Neild notes that school districts and state departments of education also are addressing the problem. In addition to supporting comprehensive school reform with a focus on ninth graders, districts have created accountability indicators of how well high schools are keeping ninth graders on track. States are helping districts to develop their capacity to maintain and analyze data on ninth-grade progress, including "early warning indicator systems" that identify students who are falling off track to graduation. [PDF file]

Neild, R., Balfanz, R., & Herzog, L. (2007). An early warning system. *Educational Leadership, 65*(2), 28–33. [PDF file]

This article provides an overview of research findings from Philadelphia, Boston, and Indianapolis. It discusses the national dropout problem; early warning indicators (for 6th grade: failing math; failing English; attendance less than 80%; and an "unsatisfactory" behavior grade in at least one class); the difficulty of the 9th grade transition; and interventions for at-risk middle school students, struggling ninth graders, and students who have already dropped out of school.

Parthenon Group. (2007). *Strategic planning to serve off-track youth: Data review and strategic implications.* (PowerPoint presentation) Boston, MA: Parthenon Group. http://8.12.35.242/files/Parthenon%20complete%20report.pdf

This 37-slide PowerPoint presentation provides a look at Boston Public Schools' (BPS) efforts to identify and assist off track students. It identifies the BPS dropout problem and uses BPS data to create a list of four predictive and comprehensive risk factors:

- ELL students entering BPS for the first time in high school
- All students who are substantially separate SPED at any point in grades 9–12
- Students with one or more 8th grade risk factor (attendance below 80%, two or more years overage, fail two or more core courses)
- Students failing multiple core courses (English, Math, Science, or History) in 9th grade

It also identifies each BPS high school's percentage of at-risk students, discusses the district's "First Chance" intervention system and provides funding and results by high school, and assesses the poor performance of district alternative education schools.

Pinkus, L. (2008). ***Using early-warning data to improve graduation rates: Closing cracks in the education system.*** **Washington, DC: Alliance for Excellent Education.** **http://www.all4ed.org/files/EWI.pdf**

Article excerpt: This brief explores the predictive power of early-warning data, offers examples of current efforts to use such data to guide secondary school interventions across the country, and discusses the policies that can support these efforts.

Ponder, P. (n.d.) ***Graduation pathways: Using freshman year indicators.*** **Doing What Works.**

http://dww.ed.gov/Dropout-Prevention/Rigorous-Relevant-Instruction/see/index.cfm?T_ID=24&P_ID=53&c1=1254

DWW website description: This PowerPoint presentation outlines Chicago Public Schools' (CPS) districtwide effort to prepare all students for postsecondary and employment success. This initiative focuses on building the capacity of principals and Instructional Leadership Teams (ILT) to analyze and use data, set strategic goals, employ targeted strategies, and continuously monitor progress. A key driver of this process is an intensive focus on freshman year ontrack indicators—e.g., attendance and middle school academic performance. The district's Instructional Leadership Council (ILC) and the ILTs work together to use the district's Early Warning Reporting System to develop a Freshman Watch List, a Freshman Success Report, and a Credit Recovery Report for schools. Based on these reports, schools can take immediate action to plan strategies and interventions to keep students ontrack to graduation. Other districts may find this presentation useful as they develop similar initiatives that focus on using data such as the freshman ontrack indicators.

Rumberger, R.W., & Arellano, B. (2007). ***Student and school predictors of high school graduation in California*****. Santa Barbara: California Dropout Research Project, University of California.**

Authors' abstract: Solving the dropout crisis in California requires a better understanding of the nature and causes of the problem. This report analyzes student and school predictors of high school graduation based on a sample of 1,343 California tenth grade students who attended 63 public high schools in 2002. The analysis is based on survey data collected in 2002 from students, teachers, principals, and parents, and transcripts collected one year after students' expected graduation in 2004. This study identified a number of alterable student and school predictors of high school graduation, including student engagement and achievement as well as

school academic climate. In all, the findings from this study support the argument that solving California's high school dropout crisis will take a multifaceted approach—it will require better preparing students *before* they enter high school, addressing their social as well as their academic needs while in high school, and it will require improving high schools themselves. [PDF file]

Silver, D., Saunders, M., & Zarate, E. (2008). *What factors predict high school graduation in the Los Angeles Unified School District*? Santa Barbara: California Dropout Research Project.

Authors' abstract: Because the paths to high school graduation or to dropping out begin years before these events, identifying relevant school-related factors requires a comprehensive analysis of data at the district, school, and student levels. In collaboration with the Los Angeles Unified School District (LAUSD), the authors of this study analyzed district data to track the educational progress of all first-time 2001–02 9th graders, from the 6th grade through to their expected graduation in the spring of 2005. This group consisted of 48,561 students who attended 163 LAUSD middle and high schools. The analysis of transcript records, standardized test scores, and a broad database of student and school characteristics sheds light on the middle and high school factors related to high school persistence and graduation.

The study exposes troubling rates of academic failure, but it also offers reasons for hope, demonstrating that academic experiences and school factors play a much larger role than student demographics in determining graduation rates, and that there is tremendous variation in the extent to which schools can have success with populations of students whose odds of graduation are typically quite poor. [PDF file]

Temple, J., Reynolds, A., & Miedel, W. (2000). Can early intervention prevent high school dropout? Evidence from the Chicago Child-Parent Centers. *Urban Education, 35*(1), 31–56.

Authors' abstract: The authors investigated the effects of participation in the Chicago Child-Parent Center and Expansion Program from ages 3 to 9 on school dropout by age 18 for 1,159 youths. This Title I program provides child education and family support services from preschool through second or third grade in 20 sites in Chicago's poorest neighborhoods. After comparing children in 20 program sites with children who attended schools in similarly poor neighborhoods without the intervention, we found that preschool participation was associated with a 24% reduction in the rate of school dropout and that participation for 5 or 6 years was associated with a 27% reduction in the rate of early school dropout relative to less extensive participation. [PDF file]

Texas Education Agency. (2001). ***How to use the 2003 Early Indicator Reports.*** **http://ritter.tea.state.tx.us/taa/perfreport010309how.doc**

Introduction: This document uses results from the state 2003 Early Indicator Report, Part I, to illustrate analyses that educators may wish to reproduce with local results. In each case, an example expectation is defined and then evaluated. These example expectations are for illustration only; they are not accountability rating standards. As these early indicator reports are designed to focus on preparing students to meet the new exit-level testing requirement, the ultimate goal is for all students to be eligible to graduate.

Weir, D. (2008). ***Development of the Dallas ISD on-track indicator, 2007–08.*** **http://www.dallasisd.org/eval/evaluation/atglance2009/EA08-153-4-At-a-Glance-On-Track-Indicator.pdf**

Indicators at the elementary and middle school level

Alexander, K.L., Entwistle, D.R., & Horsey, C. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education, 70*(2), 87–107.

Authors' abstract: In tracking the educational progress of a sample of Baltimore school-children from entrance into first grade in fall 1982 through early spring 1996, the authors examined the children's personal qualities, first-grade experiences, and family circumstances as precursors to high school dropout. Logistic regression analyses were used to identify predictors of dropout involving family context measures (stressful family changes, parents' attitudes, and parents' socialization practices), children's personal resources (attitudes and behaviors), and school experiences (test scores, marks, and track placements). These various measures were found to influence dropout independently of sociodemographic factors and account for much of the difference in the odds of dropout associated with family socioeconomic status, gender, family type, and other "risk factors." The authors take a life-course perspective on dropout, viewing it as the culmination of a long-term process of academic disengagement. [PDF file]

Balfanz, R. (2008). *Early warning and intervention systems: Promise and challenges for policy and practice*. Prepared for National Academy of Education and National Research Council Workshop on Improved Measurement of High School Dropout and Completion Rates. http://www7.nationalacademies.org/BOTA/Paper%20by%20R.%20Balfanz.pdf

Author's abstract: This paper reviews the work we have done to date on early warning and intervention systems, primarily in the middle grades. It then draws from our findings and experience to illuminate some critical issues and challenges states and school districts will need to address in order to be able to use on and off track indicators for high school graduation in effective and productive manners. The first section examines using off track indicators to build early warning systems. The second section looks at using early warning systems to support successful interventions to keep students on the path to high school graduation. The final section looks at how off track indicators might be used to identify which middle and high schools face the greatest educational challenges, distribute resources based on the degree of educational difficulty, and evaluate the relative success of schools in meeting their educational challenges.

Balfanz, R. (2009). *Putting middle grades students on the graduation path. A policy and practice brief.* Everyone Graduates Center and Talent Development Middle Grades Program.

http://www.nmsa.org/portals/0/pdf/research/Research_from_the_Field/Policy_Brief_Balfanz.pdf

Introduction excerpt: This brief, drawing on our research and field work, illuminates key policy and practice implications of the middle grades playing a stronger role in achieving our national goal of graduating all students from high school prepared for college or career and civic life. The brief is based on more than a decade of research and development work at the Center for the Social Organization of Schools at Johns Hopkins University. It also draws on direct field experience in more than 30 middle schools implementing comprehensive reform and a longstanding collaboration with the Philadelphia Education Fund.

Balfanz, R., & Byrnes, V. (2010). ***Dropout prevention through early warning indicators: A current distribution in West Virginia schools*** **Baltimore: Johns Hopkins University Center for Social Organization of Schools.** https://www.wvhepc.org/resources/Drop_Out_Prevention_Report.pdf

Authors' abstract: This report provides a snapshot of the 2008–09 school year's individual student-level data for the 6th and 9th graders across the state of West Virginia. In particular, it focuses on indicators of students" academic behaviors: attendance rates, behavioral problems (e.g., suspension, other disciplinary actions), and course marks (course failure or GPA). It then examines how 6th and 9th grade students exhibiting key behavioral warning signs that have been shown by research in other states and districts to be good predictors of future dropout are distributed across the state's schools in concentration and number. The purpose of examining the distribution of students with these academic behaviors is to identify which schools most need additional resources in order to reduce the number of dropouts statewide. In addition, we identify the high schools where the lowest proportions of 12th graders receive diplomas. Finally, the report examines the concentration of students with early warning indicators at the district level. The research in this report was funded by and conducted in conjunction with the National Governors Association Center for Best Practices dropout prevention and recovery state grants. [also in high school indicators section]

Balfanz, R., & Herzog, L. (2006). ***Keeping middle grades students on track to graduation: Initial analysis and implications.*** **(PowerPoint presentation) Johns Hopkins University and Philadelphia Education Fund.** http://philaedfund.org/sites/default/files/media/dropoutresearch_4.06.pdf

This 40-slide PowerPoint presentation summarizes research in Baltimore and Philadelphia. The authors identify four 6th grade predictors of falling off track to graduation: attending school less than 80% of the time; poor behavior; failing math; and failing English. Poverty and adolescence increase the likelihood of having a risk factor. They suggest three levels of intervention—school-wide, targeted, and intensive—and provide numerous examples of each.

Balfanz, R., Herzog, L., & Mac Iver, D.J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist, 42*(4), 223–235.

Authors' abstract: This article considers the practical, conceptual, and empirical foundations of an early identification and intervention system for middle-grades schools to combat student disengagement and increase graduation rates in our nation's cities. Many students in urban schools become disengaged at the start of the middle grades, which greatly reduces the odds that they will eventually graduate. We use longitudinal analyses—following almost 13,000 students from 1996 until 2004—to demonstrate how four predictive indicators reflecting poor attendance, misbehavior, and course failures in sixth grade can be used to identify 60% of the students who will not graduate from high school. Fortunately, by combining effective whole-school reforms with attendance, behavioral, and extra-help interventions, graduation rates can be substantially increased. [PDF file]

Baltimore Education Research Consortium. (2011). *Destination graduation: Sixth grade early warning indicators for Baltimore City Schools. Their prevalence and impact.* Baltimore, MD: Author.
http://baltimore-berc.org/pdfs/SixthGradeEWIFullReport.pdf

BERC website description: A new report from the Baltimore Education Research Consortium has examined the 2000–01 cohort of sixth graders from the Baltimore City Schools in search of reliable indicators of eventual dropout that would justify intervention. The report found four prevalent early warning indicators of non-graduation: chronic absence (defined as missing 20 or more days of school); failing English, math, or both, and/or a failing average of English, math, science, and social studies; being at least one year over-age for grade; and being suspended for three or more days. Overall, researchers found that only a third of students with at least one early warning indicator in the sixth grade went on to graduate within one year of expected graduation. Students with no warning indicators graduated at more than double the rate. However, looking at more recent cohorts, researchers found that the prevalence of some indicators have decreased. In comparison with sixth graders in 2000–01, those in 2008–09 had substantially less chronic absence, course failure, and suspension of three days or longer. Given the impact of retention on

graduation outcomes, the report recommends the district continue to monitor retention policies and practices.

Durham, R.E., & Plank, S.B. (2010). ***Maintaining high achievement in Baltimore: An overview of the elementary grade trajectories of four recent city schools first grade cohorts.*** **Baltimore, MD: Baltimore Education Research Consortium.** **http://baltimore-berc.org/pdfs/1A%20Issue%20Brief_FINAL_06-21-10.pdf**

BERC website description: To address success at the elementary school level, BERC has produced the following report, *Maintaining High Achievement in Baltimore*, which examines the performance of four successive first grade cohorts spanning the years 1999–00 through 2008–09. The results of this study show that City Schools students are scoring Proficient and Advanced on the Maryland School Assessment with increasing frequency. Further, improvements in City Schools student achievement in grades three to five represent a faster rate of acceleration than what has occurred among Maryland students as a whole. The study explores the relationships between students' initial first grade achievement and subsequent performance in reading and math in grades three, four, and five. The study also addresses patterns of out-migration from City Schools, and acknowledges the changing educational policy environment in Baltimore over the past decade.

Gleason, P., & Dynarski, M. (2002). Do we know whom to serve? Issues in using risk factors to identify dropouts. ***Journal of Education for Students Placed at Risk, 7*****(1), 25–41.**

Authors' abstract: This article analyzes the effectiveness of widely used risk factors for identifying students who will drop out of school. The findings indicate that nearly all risk factors are not effective predictors of dropping out. The findings suggest that dropout prevention programs often serve students who would not have dropped out, and do not serve students who would have dropped out, which has implications for program effectiveness. [PDF file] [also in high school section]

Herzog, L. (2009, Spring). Two schools use 'early warning system' to avert dropouts. ***Philadelphia Public School Notebook, 16*****(3), 26–27.**
http://www.thenotebook.org/spring-2009/091091/two-schools-use-%E2%80%98early-warning%E2%80%99-system-avert-dropouts

This brief article describes the Philadelphia Public Schools' *Keeping Middle Grades Students On-Track to Graduation: The Early Warning Indicators Project.* The project applies the four early warning indicators identified by Johns Hopkins researchers—poor attendance, repeated behavior problems, failing English, and failing math— to target 6th-8th grade students in need of additional support, then uses City Year and Community in Schools workers to provide the interventions to keep the students on track for graduation.

Kurlaender, M., Reardon, S., & Jackson, J. (2008). ***Middle school predictors of high school achievement in three California school districts.*** **Santa Barbara: California Dropout Research Project. http://cdrp.ucsb.edu/dropouts/pubs_reports.htm.**

Authors' abstract: This paper explores early predictors of high school graduation and success. Employing 7th grade cohorts from three large California school districts (San Francisco, Fresno, and Long Beach), we investigate the role of several key middle school academic performance measures in identifying diploma receipt, passing the California High School Exit Examination on the first attempt, and students' 11th grade academic performance. We find that standardized assessments, timing of algebra, and course failures in middle school provide useful indication of students' high school academic success. Our aim is not to identify any causal mechanism by which middle school achievement leads to high school success or failure, but rather to describe important associations that may aid policymakers and school leaders to develop strategies early in students' educational pursuit of the high school diploma. [PDF file]

Mac Iver, M., Plank, S.B., Durham, R., Farley-Ripple, E., & Balfanz, R. (2008). ***The challenge of on-time arrival: The seven-year flight paths of Baltimore's sixth graders of 1999–2000. Research Report.*** **Baltimore, MD: Johns Hopkins University. http://baltimore-berc.org/pdfs/SIXTH%20pathways5-13-08.pdf**

BERC website description: To better understand and address the significant decline in achievement or engagement that occurs for many of Baltimore's middle school students, *The Challenge of On-Time Arrival* study retrospectively followed a cohort of students forward from sixth grade to several years past their on-time high school graduation year. It identified characteristics of middle grades environments associated with the most encouraging student trajectories or those associated with declines in achievement levels, attendance, or educational progress.

Morris, J.D., Ehren, B.J., & Lenz, B.K. (1991). Building a model to predict which fourth through eighth graders will drop out in high school. *Journal of Experimental Education, 59*(2), 286–293.

Authors' abstract: The classification accuracies of models for predicting later high school drop-out from data available in grades 4 through 8 were examined. The objective was to construct an actuarial dropout screening model to serve as part of an overall drop out identification paradigm for the state of Florida. Subjects were 503 dropouts and 282 persisters from six geographically representative school districts in Florida. Separate superior prediction models were identified for each grade level and yielded cross-validated classification accuracies ranging from 73% to 88% for the dropout group and 73% to 86% for the persister group. All classification accuracies for each grade for both the dropout and persister groups and for the combination of the two were significantly greater than chance expectation and were considered of practical importance as well. [PDF file]

Plank, S.B., Durham, R.E., Farley-Ripple, E., & Norman, O. (2008). *First grade and forward: A seven-year examination within the Baltimore City Public School System*. Baltimore, MD: Baltimore Education Research Consortium. http://baltimore-berc.org/pdfs/FIRST%20pathways%205-13-08.pdf

BERC website description: The *First Grade and Forward* study analyzed a cohort of students who entered first grade in 1999 through their expected (on-time) seventh-grade year to track patterns of promotion and retention, attendance, mobility within City Schools, and transfer out of City Schools.

(2010). Early warning: Why reading by the end of third grade matters. *The Education Digest, 76*(1), 27–31.

Abstract: An article condensed from a summary based on a 2010 KIDS Count Special Report. Millions of American children complete third grade without learning to read proficiently. The problem is particularly noticeable among low-income children, but reading proficiently by the start of fourth grade is a vital indicator in a child's educational development. A lack of proficiency is associated with higher rates of school dropout, which limits individual earning potential as well as the nation's competitiveness and general productivity. [PDF file]

Table 1: States and districts that have existing success factors/early warning databases[1]

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
Alabama	Pre-K–12th grade	• Attendance (absences; students who miss more than 10% of instructional time are flagged) • Behavior (teacher referrals, suspensions, and more) • Course Credits (total number of F's in all courses and total number of F's in core academic courses, especially in the area of Language Arts/Reading and Math; Two or more F's in core academic courses and/or fewer than one-fourth of the credits required to graduate **minus one** indicate that a student is off track to graduate with identified cohort.) Local education agencies have the option to include additional indicators at their discretion.	In 2011, ALSDE partnered with a software development company (STI) to create a Graduation Tracking System to support the state's "Every Child a Graduate" Dropout Prevention Awareness Campaign. The system is available to all schools, districts, and local education agencies in the state at no additional cost. The system provides alerts to counselors, graduation coaches, administrators, response-to-intervention coordinators, and other educators as needed for students who are at risk of school failure.	Alabama State Department of Education, Prevention and Support Services (December 2009). *The Development and Implementation Guide for the Alabama Graduation Tracking System (AGTS).* [file attached] *Alabama Department of Education Partners with STI to Provide Graduation Tracking System to Schools.* http://www.cblohm.com/news/STI/STI_110428/ *Every Child a Graduate: Executive Summary.* Alabama Select Commission on High School Graduation and Student Dropouts. http://media.al.com/bn/other/High%20School%20Dropout%20Commission%20Official%20Report.pdf

[1] "Civic Enterprises in partnership with the Everyone Graduates Center at Johns Hopkins University will release a report to the nation on early warning and intervention systems in summer 2011. This nationwide study is currently underway to evaluate, among other things, the quality and operation of many different systems, the costs and benefits of each, and their scalability" (http://www.americaspromise.org/Our-Work/Grad-Nation/~/media/Files/Our%20Work/Grad%20Nation/Building%20a%20Grad%20Nation/Building%20a%20Grad%20Nation_FullReport_FINAL%2011-30-10.ashx, p.45).

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
Louisiana	9th grade	• Student attendance • Student course achievement • Student behavior • Student age	"Louisiana is a trailblazer in utilizing its early warning system, balancing the need to report on risk factors identified at the state level with the flexibility to adjust risk factors at the local level. At the state level, the system flags students who are absent at least 10 percent of the days they are enrolled, are over-age for their grade level, or whose grade point averages have decreased by at least 0.50. Because the specific trigger points can vary by district and school, both can make modifications as needed. To ensure that staff can use the data to develop and deliver effective interventions for identified students, the system automatically emails results to district and school leaders twice a month. The state also provides incentives for districts and schools to use this system in order to improve outcomes for students. Schools can receive state grants and technology for developing intervention programs and producing student reports." (http://application.jff.org/dropout/view_state.php?id=901).	Jobs for the Future. *Dropout Prevention and Recovery: Louisiana.* http://application.jff.org/dropout/view_state.php?id=901 Pinkus, L. (2008). *Using early-warning data to improve graduation rates: Closing cracks in the education system.* Washington, DC: Alliance for Excellent Education. http://www.all4ed.org/files/EWI.pdf Data Quality Campaign. (2009). *Louisiana Dropout Early Warning System (DEWS).* http://www.dataqualitycampaign.org/files/EWI_-_DEWS-Presentation_Webinar_.pdf

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
Maine	9th grade	Academic Performance • State Assessment – Math • State Assessment – Science • State Assessment – Writing • State Assessment – Reading Educational Engagement • Number of out of school suspensions • Expulsions Student Background • Repeated one or more grades • Transfers • ACCESS for ELLs Score • Special Education • Free or Reduced Lunch • 2 or more years over age for entering 9th grade	At-Risk Data Mart A tool that educators can use to identify, address, and manage a problem, opportunity or strategy. Maine is using the tool to create a dropout early warning and management system: • Identify students at risk • Allow educators to create, assign, and manage programs for at-risk students and track student performance in the programs • Provide data for analysis of model results as well as analysis to improve the model and programming The At Risk Data Mart contains two main areas of reporting: • Model Roster—a quick link with Access to all students Model Scores • Reports—contains	Hurwitch, W., & Stefanakos, M. (2010). *Using SLDS data to improve student achievement—The Maine Growth Model and at-risk students data marts.* STATS DC 2010 NCES Summer Data Conference, Bethesda, MD. http://nces.ed.gov/whatsnew/conferences/statsdc/2010/session_V.asp

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
			Data Snapshots and Data Tables for deeper analysis	
Massachusetts	9th grade	• The student's spring grade 8 MCAS mathematics score • The student's spring grade 8 MCAS English language arts (ELA) score • The student's spring grade 8 attendance rate	The Commonwealth's Early Warning Indicator Index uses statewide data from the most recent graduating cohort as the starting point for helping local school districts identify students who may be at risk of not graduating on time from high school. Incoming high school freshmen are assigned one of five risk levels (*Very High Risk*, *High Risk*, *At Risk*, *Borderline*, or *Low Risk*) based on their middle school academic performance and attendance record the previous school year. Detailed rosters for these students—the majority of whom are likely to be enrolled in grade 9 the upcoming school year—are provided to the Commonwealth's 24 urban school districts in a Microsoft Excel workbook via the Department's online Security Portal.	Massachusetts Department of Elementary and Secondary Education. (March 2010). *2009–10 Early Warning Indicator Index.* http://www.doe.mass.edu/dropout/fy10earlyindicator.pdf
Rhode Island	6th grade	• Total number of freshmen who have personal literacy plans; • Total number of students who have failed Algebra I or ninth grade math; • Total number of students who are	Based on HB 5351 (2007), the Department of Elementary and Secondary Education is required to work with the school districts that have the	*Deye', S. (April 2010). Going to scale: Working with state legislators to prevent and re-engage dropouts.* National Conference of State Legislatures Grad Nation Spring Training: Going to

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
		repeating the ninth grade; and • Total number of students receiving remedial programming in the ninth grade.	lowest high school graduation rates and incorporate progressive support and intervention with specific dropout prevention strategies and targeted resources. The department is to develop or identify specific methods of targeted intervention for school districts that have a dropout rate higher than 15 percent.	Scale. (PowerPoint presentation). [file attached]
South Carolina	8th–12th grade	**PACT Results** are displayed for grades 3, 6, and 8. Results are listed **'BELOW BASIC'** are flagged as an at-risk characteristic. **Credits Earned** are flagged as at-risk indicators if there are <5 for grade nine, <11 for grade ten and <17 for grade eleven. **Years Overage** indicates the years a student is overage for the grade; >=2 years is flagged as an at-risk characteristic. **Total Discipline Events** is the total discipline events for a specific enrollment period. **At-Risk Discipline Events** is a total of the discipline events coded as 150, 151, 152 and = (500–743). **Total Disposition Events** is a total of all disposition events for a specific enrollment period. **Suspension/Expulsion Events** is a total of the at-risk disposition events that are coded as SUS, SUPX and EXP for a specific enrollment period. **Absence Days** is a total number of the days	SC Department of Education has developed the statewide *Student Potential Performance Snapshot* early warning system.	Student Potential Performance Snapshot. EEDA At-Risk Committee –IT Initiative. Data Quality Campaign Webinar. August 26, 2009. http://dqcampaign.org/files/EWI_-_DQC_SPPS_Presentation.pdf

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
		a student was absent during a specific enrollment period; >8 absences is flagged as an at-risk characteristic. **Times Retained** indicates a student did not advance to the next grade; >=1 is flagged as an at-risk characteristic. **Multiple Enrollments** if flagged at-risk, indicates a student was enrolled in multiple schools during the same school year. **Homeless** is an indicator recorded for a student if a counselor learns the student is without a home. **Single Parent** indicates the student is a single parent. **Displaced Homemaker** indicates the students' parent is now in search of a job outside the home due to death, divorce or abandonment. **9thGrade Math** is the lowest math grade received by the student for a math course for credit. If the grade is <=69 then the value is flagged as an at-risk characteristic. **9thGrade English** is the lowest English grade received by the student for an English course for credit. If the grade is <=69 then the value is flagged as an at-risk characteristic		
Tennessee	9th grade	• Attendance under 85% • Failed two or more courses • Suspended two or more times	Tennessee is currently developing a statewide early warning system. The Everyone Graduates Center at Johns Hopkins	National Governors Association meeting. (October 2010). Tennessee Dropout Prevention and Recovery Action. http://www.nga.org/Files/pdf/1010GRADUATIONTN.PDF Balfanz, R., Wang, A., Byrnes, V. (2010). *Early warning indicator analysis:*

State	When indicator is administered	Indicators	Details (excerpted from websites or articles)	Sources
			University conducted the study and developed the indicators for the Tennessee Department of Education as part of its early warning system development.	*Tennessee*. Baltimore, MD. Johns Hopkins University, Everyone Graduates Center. http://www.state.tn.us/education/safe_schls/dropout/doc/FinalEarlyWarningIndicatorAnalysis.PDF

District	When indicator is administered	Indicators	Details	Sources
Baltimore City Public Schools, MD	6th grade 9th grade	• Chronic absence (defined as missing 20 or more days of school) • Failing English, or math, or both and/or a failing average for English, math, science, and social studies • Being at least one year overage (suggesting an earlier retention) • Being suspended for three or more days • Chronic absenteeism • Core course failure	Baltimore Education Research Consortium (BERC) is a partnership between Morgan State University, Johns Hopkins University, & Baltimore City Public Schools.	Baltimore Education Research Consortium. (2011). *Destination graduation: Sixth grade early warning indicators for Baltimore City Schools. Their prevalence and impact.* Baltimore, MD: Author. http://baltimore-berc.org/pdfs/SixthGradeEWIFullReport.pdf Mac Iver, M.A., & Mac Iver, D.J. (2010). *Keeping on track in ninth grade and beyond: Baltimore's ninth graders in 2007-08.* A Research Report by the Baltimore Education Research Consortium. http://baltimore-berc.org/pdfs/3A%20Final%20report_06-15-10.pdf.
Charleston County School District, SC	All grade levels	**Attendance** Number of missed instruction days	At-Risk Alert System (ARAS): •Helps identify students	Stevens, B. *(*September 25, 2009*). ARAS Charleston County At-Risk Alert System.* REL-SE EEP presentation. [file attached]

District	When indicator is administered	Indicators	Details	Sources
		Age Comparing age to current grade level **Grades** Passage of current ELA and Math courses **Lunch** Student's FRPL meals status **Suspensions (ISS)** Total number of incidents **Suspensions (OSS)** Total number of incidents **PACT/HSAP ELA** Performance Level **PACT/HSAP Math** Performance Level	potentially at-risk by using existing academic & behavior data. •Transforms data into reports to support effective decision making. •Provides composite views of magnitudes of risk factors existing for students and schools. •Supports a variety of student support models The reports assign a risk level for each student based on the student's score on each of the 8 indicators: Low, Moderate, or High Risk.	Also see: Charleston County School District. (November 2008). *At-Risk Alert System (ARAS) 2007-08 Survey Results.* Brief No. 08-047. Department of Assessment and Accountability. http://www.ccsdschools.com/Reports_Statistics/documents/AT-RISK_ALERT_SYSTEM_ARAS2007-08REPORT.pdf
Charlotte-Mecklenburg Public Schools, NC	9th–12th grades	The district developed a dropout prediction model based on certain data, including: student demographic and achievement information (grade, race, SPED, and Gifted status, overage-for-grade, Algebra I and English I performance), as well as attendance, retention, mobility, and withdrawal code information.	Microsoft Excel rosters were created for each school that contained pertinent information and their associated risk. The School Social Work office will share these rosters with school counselors prior to the start of the 2008–09 school year. Counselors will use these rosters and the information contained within them to focus efforts on those students most	Charlotte-Mecklenburg School. (2008). *Research Brief: 2007–08 Dropout Prediction Model.* Center for Research & Evaluation http://www.cms.k12.nc.us/cmsdepartments/accountability/cfre/Documents/2007-08%20Dropout%20Prediction%20Model.pdf

District	When indicator is administered	Indicators	Details	Sources
			in need in the hopes of keeping students engaged in school.	
Chicago Public Schools, IL	9th grade	First-time freshman students are considered On-Track at the end of their freshman year if they have accumulated at least five course credits and failed no more than one semester course in a core subject (English, math, social science, or science) during the school year.	Publicly available on-track rates for every CPS school from 1997–2010, at http://research.cps.k12.il.us/cps/accountweb/Reports/allschools.html.	High School Score Card http://research.cps.k12.il.us/cps/accountweb/Reports/allschools.html On-Track Fact Sheet [file attached] Allensworth, E., & Easton, J. (2007). *What matters for staying on-track and graduating in Chicago public high schools: A close look at course grades, failures and attendance in the freshman year.* Chicago: Consortium on Chicago School Research. http://ccsr.uchicago.edu/publications/07%20What%20Matters%20Final.pdf Ponder, P. (n.d.) *Graduation pathways: using freshman year indicators.* Doing What Works. http://dww.ed.gov/Dropout-Prevention/Rigorous-Relevant-Instruction/see/index.cfm?T_ID=24&P_ID=53&c1=1254
Colorado (5 LEAs)	9th grade	• Poor attendance • Behavior problems • Course failure	A project of the Colorado Graduates Initiative, this partnership with Johns Hopkins University works with five of Colorado's school districts to help them understand both the behavioral patterns of recent dropouts in the years prior to leaving	Mac Iver, M.A., Balfanz, R., & Byrnes, V. (October 2009). *Advancing the "Colorado Graduates" agenda: Understanding the Dropout Problem and Mobilizing to Meet the Graduation Challenge.* The Center for Social Organization of Schools Johns Hopkins University. http://www.schoolengagement.org/truancypreventionregistry/admin/Resources/Resourc

District	When indicator is administered	Indicators	Details	Sources
			school, and who is currently at risk of dropping out of school (by looking at data from today's students in earlier grades).	es/Advancingthe.pdf Mac Iver, M.A., Balfanz, R., & Byrnes, V. (April 2009). *Dropouts in the Denver Public Schools: Early warning signals and possibilities for prevention and recovery.* The Center for Social Organization of Schools, Johns Hopkins University. http://extras.mnginteractive.com/live/media/site36/2009/0515/20090515_122610_Denver_Dropout_Report_Final.pdf
Dallas Independent School District, TX	9th grade	• The student has accumulated five full course credits • The student has no more than one semester F (that is, one-half of a full credit) in a core subject (English, math, science, or social studies).	Uses the Consortium on Chicago School Research's (CCSR) on-track indicators.	Weir, D. (2008). *Development of the Dallas ISD on-track indicator, 2007-08.* http://www.dallasisd.org/eval/evaluation/atglance2009/EA08-153-4-At-a-Glance-On-Track-Indicator.pdf
Los Angeles Unified School District, CA	High school: CST English/ Language Arts (yearly) CST Mathematics (yearly) Attendance (monthly) Periodic Assessment Data Mathematics (quarterly) Language Arts (quarterly) Grade Point Average (by grading period) Work Habits (by grading period) Middle school	High School indicators: • Age minus grade index (students at grade level, average value = 6) • Attendance rate • Cumulative grade point average • Number of Unsatisfactory" Marks in Work Effort • Number of Fails on Achievement Marks Middle School indicators: • Creates a flag when students fall below a certain threshold: • Far Below Basic in CST in ELA or Math • Two or more "F" marks in last	LAUSD's "Decision Support System."	Lim, C., & Pirone, J. (2007). *Using data for dropout prevention: can we identify at risk students before it's too late?* Planning and Assessment, Los Angeles Unified School District. http://www.myfuturemydecision.org/ourpages/auto/2008/5/1/1209652805638/Data%20Driven%20Decision%20Making.ppt#1 Silver, D., Saunders, M., & Zarate, E. (2008). *What factors predict high school graduation in the Los Angeles Unified School District*? Santa Barbara: California Dropout Research Project. [file attached]

District	When indicator is administered	Indicators	Details	Sources
		semester • Cumulative GPA below 1.5 • Far Below Basic in latest ELA or Math Periodic Assessment • Attendance rate below 90% • One or more suspension incidences		
New York City (63+ schools)	9th –12th grade	Uses New York State's graduation requirements (a combination of course credits and pass grades in a series of end-of-course state Regents exams) to map out the progress students need to make each year to graduate with a regular diploma in four years. In addition, the metric includes indicators of college readiness that go beyond the state's high school requirements.	Developed by New Visions for Public Schools, an education reform organization in New York City (NYC) that supports more than sixty-three of the city's public schools, and based partially on CCSR research and findings from NYC's Department of Education's Office of Multiple Pathways. Using this metric, each student's status is described through the use of color-coded categories: on track to college readiness (blue); on track to graduation (green); almost on track to graduation (yellow); or off track to graduation (red). New Visions analyzes the data for each school and provides administrators with a school-wide report on student performance based on the metric.	Pinkus, L. (2008). *Using early-warning data to improve graduation rates: Closing cracks in the education system.* Washington, DC: Alliance for Excellent Education. http://www.all4ed.org/files/EWI.pdf
Philadelphia,	6th –8th grade	• Attending less than 80% of the time	Based on research conducted	Herzog, L. (2009, Spring). Two schools use

District	When indicator is administered	Indicators	Details	Sources
PA (2 schools)		• Receiving a poor final behavior mark in a course • Failing Math • Failing English	by Robert Balfanz, co-director of the Center of Social Organization of Schools at Johns Hopkins University, and the Philadelphia Education Fund, the *Diplomas Now*[2] project applies the four early warning indicators identified by Johns Hopkins researchers—poor attendance, repeated behavior problems, failing English, and failing math— to target 6th–8th grade students in need of additional support, then uses City Year and Community in Schools workers to provide the interventions to keep the students on track for graduation.	'early warning system' to avert dropouts. *Philadelphia Public School Notebook, 16*(3), 26-27. http://www.thenotebook.org/spring-2009/091091/two-schools-use-%E2%80%98early-warning%E2%80%99-system-avert-dropouts http://diplomasnow.org/results/philadelphia/ Neild, R.C., & Balfanz, R. *Unfulfilled promise: The dimensions and characteristics of Philadelphia's dropout crisis, 2000–2005* (Baltimore: Center for Social Organization of Schools, Johns Hopkins University, 2006). [file attached] Balfanz, R. (2008). *Early warning and intervention systems: Promise and challenges for policy and practice*. Prepared for National Academy of Education and National Research Council Workshop on Improved Measurement of High School Dropout and Completion Rates. http://www7.nationalacademies.org/BOTA/Paper%20by%20R.%20Balfanz.pdf

[2] "Diplomas Now, a school turnaround model, works with 10 school districts including Chicago, Los Angeles, New Orleans, Detroit, Washington, D.C., and San Antonio on building and enhancing early warning indicators and deploying the resources of City Year, a national service organization dedicated to reducing high school dropout, Communities in Schools, a youth serving organization that provides high-needs students with community supports to complete their educations, and Talent Development, which reforms curriculum, instruction, school climate, and school leadership, to ensure that students get all of the supports they need to graduate from high school. Early results in multiple sites show significant reductions in absences and behavior problems and increases in student academic achievement in reading and math" (http://www.americaspromise.org/Our-Work/Grad-Nation/~/media/Files/Our%20Work/Grad%20Nation/Building%20a%20Grad%20Nation/Building%20a%20Grad%20Nation_FullReport_FINAL%2011-30-10.ashx, p. 45).

District	When indicator is administered	Indicators	Details	Sources
				Balfanz, R. (2009). *Putting middle grades students on the graduation path. A policy and practice brief.* Everyone Graduates Center and Talent Development Middle Grades Program. http://www.nmsa.org/portals/0/pdf/research/Research_from_the_Field/Policy_Brief_Balfanz.pdf
Portland Public Schools, OR	1st, 3rd, 6th-8th, 10th, & 12th grades	Enter 1st Grade: Ready to Read • Students recognize letter names and sounds and parts of words. End of 3rd Grade: Reading to Learn • Students are able to exceed the benchmark on the state reading test. Middle Years: Ready for High School • Student attendance is 90%or greater. • Students meet the benchmark on the state writing test. • Students take and pass 8th grade algebra. Enter 10th Grade: On Track to Graduate • Students complete 9th grade with 6 credits and C grade in core subjects 12th Grade: Graduating on Time Ready for Work & College • Students graduate on time. • Students meet college-ready benchmark on at least 3ACT tests.	Portland Public Schools' Milestones Framework	Portland Public Schools. *Measuring Results: The Milestones Framework.* http://www.pps.k12.or.us/departments/milestones/1777.htm Portland Public Schools (September 2010). *2009–10 Milestones Update.* Student Achievement Committee http://www.pps.k12.or.us/files/milestones/MilestonesUpdate.pdf Cielo, M.B., & Leveen, L. (2007). *The fourth R: New research shows which academic indicators are the best predictors of high school graduation—and what interventions can help more kids graduate.* Portland, OR: Connected by 25. www.connectedby25.org/file_download/46

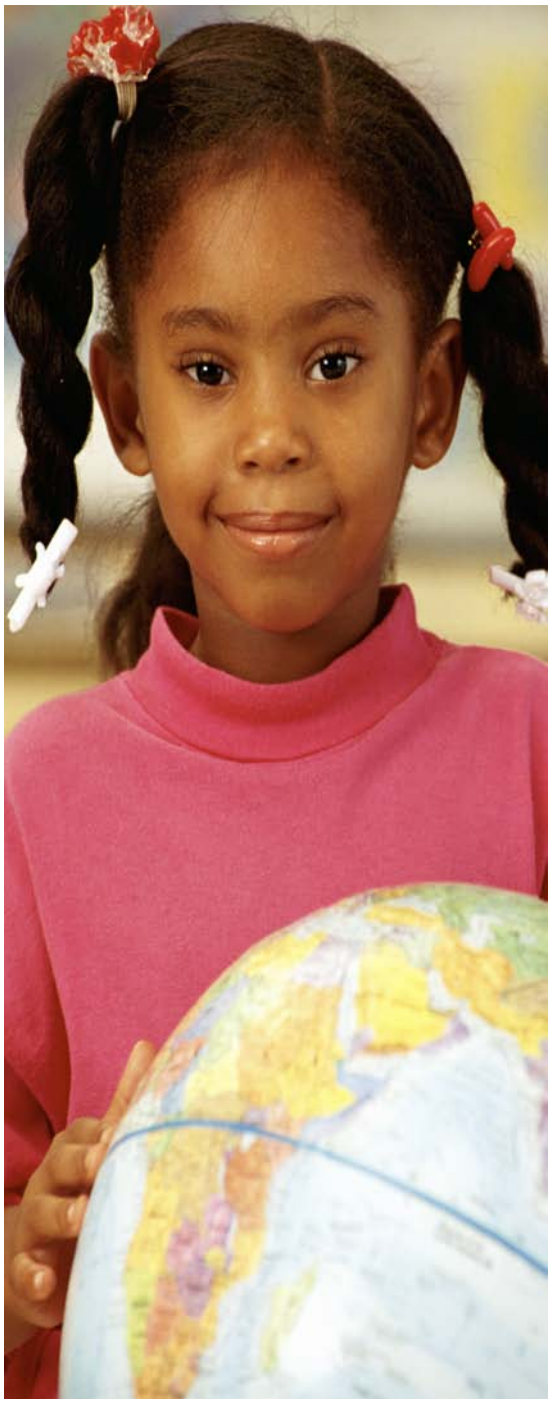
The Regional Educational Laboratories have been involved in several efforts to research the effectiveness of various early warning indicators. See:

Uekawa , K., Merola, S., Fernandez, F., & Porowski, A. (January 2010). *Creating an early warning system: Predictors of dropout in Delaware.* Regional Educational Laboratory Mid-Atlantic. http://www.doe.k12.de.us/infosuites/ddoe/p20council/docs/MA1275TAFINAL508.pdf

Hartman, J., Wilkins, C., Gregory, L., Gould, L.F., & D'Souza, S. (2011). *Applying an ontrack indicator for high school graduation: adapting the Consortium on Chicago School Research indicator for five Texas districts.* (Issues & Answers Report, REL 2011–No. 100). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. http://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL_2011100.pdf

Also, Regional Educational Laboratory Southeast is currently conducting similar work in Broward County, FL, at the request of Broward County Public Schools (Fast Response 1.2.50: *Early Indicators of High School Student Failure in a Large Urban District in Florida*).

REGIONAL EDUCATIONAL LAB August 2011, EBE # 833A



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