

# Policy Brief

## Improving Graduation Rates: Data-Driven Dropout Prevention

More than half of the states are working to raise graduation standards to prepare all students for college and good-paying jobs. At the same time, federal and state policies are putting new pressure on high schools to improve graduation rates. Those dual goals—raising graduation rates while raising graduation standards—are the right ones for America’s high schools. But many educators wonder whether it is possible to achieve both. And policymakers worry about how much it will cost.

Fortunately, the latest research shows that education systems are far from powerless when it comes to keeping more students in school and on track to graduate. It also suggests more cost-effective ways to invest scarce resources in dropout prevention. The key to both is better use of data.

### Saving Students, Saving Dollars

Recent studies in several big cities have revealed the power of analyzing data on individual students over time to discover better “predictors” of dropping out—early warning signs signaling that students are at risk of not graduating.

In Philadelphia, researchers found that 50 percent of all eventual high school dropouts could be identified as early as sixth grade on the basis of just four educational indicators—low attendance, receiving a poor classroom behavior mark from one or more teachers, failing mathematics, or failing English. Among eighth graders with low attendance or a failing grade in math or English, fewer than 75 percent graduate on time. And ninth graders who show no risk factors in eighth grade but have low attendance, earn fewer than two credits, or fail to be promoted also have at least a 75 percent chance of dropping out.

#### **Common Educational Risk Factors**

- Attendance: High absences and tardies
- Behavior: Poor classroom conduct, office referrals, suspensions
- Grades: Failing marks in academic courses
- Achievement: Low test scores
- Progress: Held back at any point, falling behind in credits during high school

By tracking students over time, researchers in Chicago have created an “on-track indicator” that accurately identifies 85 percent of the ninth grade students who will eventually drop out of Chicago’s public high schools. A student is considered on track at the end of ninth grade if he or she has accumulated enough course credits to earn promotion to tenth grade while receiving no more than one F (based on semester marks) in core academic subjects.

The good news is that such “cohort analyses” are relatively inexpensive and can be conducted even in systems that still lack a sophisticated electronic data system—simply by gathering information from the files all school systems maintain on their students and recent graduates. In fact, the Philadelphia study that identified sixth grade risk factors

required only several researchers working over a few months even though the district did not have a sophisticated electronic data system at the time.

But the payoffs are potentially huge—both in terms of improved outcomes and fewer wasted dollars. That’s because more accurate predictors minimize “false positives” and “false negatives”—students incorrectly identified as eventual dropouts or graduates. Reducing false positives is the key to saving money, because it means not spending dollars on students who would graduate on their own without additional help. Reducing false negatives is the key to raising graduation rates, because it means identifying more students who are on the path to dropping out and can benefit from extra help.

A study of federally funded dropout prevention programs found that many were ineffective at raising graduation rates partly because they did not target the right students for interventions. In fact, the researchers wrote that dropout prevention programs often “serve more students who do not need dropout prevention services than students who do need them.”

Taking into account the social toll of high dropout rates, the long-term cost of such mistakes can be staggering. The median earnings of families headed by dropouts declined by nearly a third between 1974 and 2004, and dropouts are more likely to be unemployed, receive public assistance, commit crimes and become incarcerated. At the same time, they are less likely to receive job-based health insurance and pension plans, be healthy and live as long, and vote and make other kinds of civic contributions. Targeting the right students and giving them the help they need to graduate would end up saving millions of taxpayer dollars, greatly expand tax revenues, reduce crime, and improve citizenship.

Of course, no risk factor or set of risk factors can ever be 100% accurate at predicting who will drop out. Say that the Chicago Public Schools decided to provide targeted assistance to all off-track students at the end of ninth grade. Since about 30,000 freshmen enter Chicago high schools each year and about 58 percent of them fall off track, that means the program would provide interventions to over 17,370 students. If the interventions cost an average of \$350 per off-track student, the system would need to budget \$6,079,500 total. Of that, \$1,337,490 (or 22 percent) would have been spent on false positives, students who didn’t need the extra help because they would have graduated even without it.

However, if the program is even halfway effective (i.e., if it achieves a 50 percent success rate for keeping students on track to graduate), Chicago would increase its graduation rate from 47 percent to 69 percent—nearly the national average.

### **Better System-wide Planning**

Data can be useful in many other ways as well. First, by tracking students over time, systems can identify where in the pipeline they need to target the greatest resources. For example, a number of studies have found that “transition years” are big stumbling blocks on the way to graduation for many students. Although a small group of students exhibit early warning signs in elementary school, large numbers develop them either in sixth grade or ninth grade, years when they are transitioning into a less supportive but more demanding school setting.

Second, systems can identify the schools where resources should be targeted—not only the schools with high numbers of at risk students but also the schools which *contribute*

to the problem above and beyond what those individual risk factors would suggest. For example, researchers in Chicago found that dropout rates vary widely across the district's public high schools—even after taking into account students' race, gender, poverty, prior academic achievement, and whether they are overage for grade. They also found that rates of ninth grade failure vary widely across high schools—again even after taking account of individual risk factors—as do rates of *recovery* from ninth grade failure.

Finally, systems can analyze their at risk and dropout populations to craft a set of solutions that recognize the many kinds of needs within them. For example, New York's Office of Multiple Pathways has conducted analyses that have led to different solutions for different populations— from alternative programs for dropouts just a few credits shy of graduating to “transitional high schools” for overage, under-credited students who find it very difficult to recover and graduate in a large, traditional high school setting.

### **How States Can Help**

Districts will be in a much better position to conduct cohort analyses and build “early warning data systems” in states that have taken the initiative to build statewide longitudinal data systems. For example, states can do a better job tracking whether a student who left a district dropped out entirely or enrolled in another district elsewhere. A publication entitled *Creating a Longitudinal Data System*, available online at [www.achieve.org](http://www.achieve.org), provides greater detail on the necessary and desirable features of statewide longitudinal databases. The National Data Quality Campaign provides a wealth of resources, many available online at [www.dataqualitycampaign.org](http://www.dataqualitycampaign.org), that can be helpful to state leaders interested in building a solid data foundation to support both state and local decision making.

States also can provide a range of additional resources to help districts conduct cohort analyses—from start-up funding to technical expertise. And states can broker collaborative arrangements among geographically and demographically similar districts that wish to save time and money by pooling their research and development efforts to identify and employ better risk factors.

Finally, states can provide leadership and incentives to inspire districts to become more data-driven in their dropout prevention efforts. Even though most decisions about what kinds of interventions to provide to which students will be made at the local level, states can use their influence to encourage districts to make such decisions based on solid data and sound judgment.