MEASURING THE EDUCATION PIPELINE:
CRITICAL DATA ELEMENTS INDICATING READINESS, TRANSITION AND SUCCESS
High School to Postsecondary Education and Work

DATAQUALITY CAMPAIGN
Using Data To Improve Student Achievement
www.DataQualityCampaign.org

There is national momentum around the goal of ensuring students graduate from high school ready for success in postsecondary education and the workplace.
It is critical that policymakers have the necessary information to implement policies and practices that support this goal along the education pipeline from **high school readiness** to **high school success and postsecondary education and work readiness** to **postsecondary education and workforce success**. This requires longitudinal data systems that are linked across the early childhood, K–12, postsecondary and workforce systems.

The Data Quality Campaign (DQC) has identified a set of critical questions in each of these areas and the necessary data and policies that must be in place to answer them. This list is by no means comprehensive and is meant to serve as a starting point for conversation. States should work with key stakeholders to identify additional questions that would address their specific needs.

High School Readiness		
Critical Questions	**Necessary Student-Level Data**	**Related Policy Issues**
1. Are children, birth to age 5, on track to succeed when they enter school and beyond? 2. To what degree does participation in early childhood programs increase high school readiness? 3. Are students achieving at least one year's academic growth every year? 4. What 8th grade achievement levels indicate that a student is on track for success in high school courses that prepare students well for college and careers? 5. What types of students are being lost in the transition between middle and high school? 6. What indicators predict if a student is at risk of dropping out of high school? 7. Is in-grade retention related to subsequent course success or high school graduation? 8. Which elementary and middle schools produce the strongest academic growth among initially poorly prepared students and among initially well-prepared students? 9. Which schools and classrooms best prepare students for high school success?	**P–12 Data** **Student-level enrollment data** to track mobility and attrition. **Student-level demographic and program participation data** collected separately from test data that indicate, for example, socioeconomic status, second language learner status, ethnicity, special education, etc. **Student-level participation in early care and education programs** including child care, special education, preschool, Head Start and other early childhood programs. **State test data at the student level** that indicate academic preparation of students entering high school (benchmark and/or end-of-course exams). **Information on untested students** that captures students who lack 8th grade (or earlier) test scores and the reasons why. **Student-level course completion information** that indicates students' taking rigorous courses, e.g., algebra in 8th grade or earlier. **Data that connect individual teachers and students** to classrooms and subjects.	**A statewide student identifier** is necessary to allow data to follow students as they move from grade to grade, transfer across schools and districts, and transition from early childhood to elementary to middle to high school. **A statewide course classification system** is needed to allow students to transfer across schools and districts with consistent information about their academic preparation. **An early warning indicator system** captures college and career readiness information and indicators of dropouts to allow for interventions. **A state's testing system** needs to assess whether students are learning to high standards so they will be ready for rigorous high school courses. Tests should be administered systematically so the results can provide meaningful information for individual students. Local and state assessment results should be part of an early warning system to identify students who may need targeted assistance. **End-of-course exams** are needed to verify that students learn the content of specific courses (e.g., Algebra 1). **A state data audit process** is needed to identify data that are likely to be in error, randomly spot check information and conduct site visits to audit the accuracy of the data.

High School Success and Postsecondary Education and Work Readiness

Critical Questions	Necessary Student-Level Data		Related Policy Issues

1. What proportion of students who enter 9th grade maintain continuous enrollment and complete high school in a timely manner?
2. Which high schools do the best job of graduating students on time, regardless of socioeconomic characteristics or previous academic performance?
3. What high school performance indicators, e.g., enrollment in rigorous courses or performance on state and college entrance tests, are the best predictors of students' postsecondary admission, enrollment, course placement (need for remediation), first-year retention, completion and time to completion?
4. How does participation in advanced curricular options, e.g., honors, dual credit and Advanced Placement (AP), in high school affect postsecondary admission, enrollment, course placement (need for remediation), first-year retention, completion and time to completion?
5. Do students meeting state standards, end-of-course criteria and high school graduation requirements need remediation or basic training?
6. How do course-taking patterns differ for students who enter the workforce directly after high school and those who enter postsecondary education?
7. What are the employment and earnings patterns for students who enter the workforce directly after high school?
8. How are employment patterns, earnings and employment stability different for dropouts and graduates with different types of graduation credentials?

P–12 Data

Student-level enrollment data to track mobility and attrition.

Student-level demographic and program participation data collected separately from test data that indicate, for example, poverty status, second language learner status, etc.

State test data at the student level that indicate academic preparation of students while in high school (benchmark, end-of-course or exit exams).

Information on untested students that captures those who lack state test scores and the reasons why.

National assessment data for college admission and placement, including PSAT, SAT, ACT, AP, International Baccalaureate (IB), and SAT II, that indicate student preparation for credit-bearing coursework and eligibility for college credits earned prior to entry.

Course-taking and course completion information (grades earned) that indicates number (four years of math), specific content of courses (Algebra I and II, Geometry, Probability/Statistics) and college credit/dual enrollment credits completed.

High school grade point average (GPA) that indicates cumulative GPA for each student, including method of computing and information on weighted grades/classes.

High school graduation data that capture different types of diplomas and certificates earned, time to graduation, and information on GED completers.

Postsecondary and Workforce Data

Enrollment/employment data that capture each student's next step immediately following high school.

Employment and wage data that provide information about individual quarterly wages.

Student-level demographic data that identify race/ethnicity.

Remediation data (assessment scores on exams to determine need for remediation and remedial course-taking history, such as number and type of credit and noncredit remedial courses) that indicate the degree of preparation.

Course-taking data that describe student-level course completion, e.g., remedial, credit-bearing general education and credits earned at entry for dual credit or demonstrated proficiency on exam (AP or IB).

Postsecondary GPA, especially after the first year, and grades in key academic subjects that indicate cumulative GPA for each student, including method of computing.

Retention data that indicate whether or not students return the following fall after being enrolled as full-time college freshmen and make annual progress toward their degree.

Completion status and time to degree that indicate whether students make annual progress toward their objective and graduate in a timely manner.

A common student identifier and/or crosswalk to postsecondary and workforce data are needed to allow data to follow students as they move from 9th through 12th grades, transfer across schools and districts, and transition from high school into college and the workforce.

A statewide course classification system is needed to provide comparable information about course content across K–12 districts.

A statewide mechanism is needed to ensure the seamless transfer of students from two-year to four-year colleges and from four-year to four-year colleges.

Longitudinal student-level data are needed to get accurate, standard rates, such as the NGA graduation rate. Many estimates of graduation and dropout rates do not reflect the true picture of students' continuous enrollment, transfers, time taken to earn a diploma or transition from high school to college in a way that is comparable from school to school or from state to state. (NOTE: The graduation rate is not equivalent to 100 percent minus the dropout rate.)

P–12 and postsecondary data systems must be linked to facilitate the use of high school students' performance data in postsecondary admission and placement.

Postsecondary institutions must send subject-level data to high schools on first-year college performance and retention of graduates so that high schools may improve coursework and programs.

A state data audit process is needed to identify data that are likely to be in error, randomly spot check information and conduct site visits to audit the accuracy of the data.

Postsecondary Education and Workforce Success

Critical Questions	Necessary Student-Level Data	Related Policy Issues
1. How is remediation in postsecondary education related to postsecondary graduation? 2. Are students academically prepared to enter college and complete their program or degree in a timely manner? 3. In what subject areas do students demonstrate deficiencies that require remediation? 4. What do enrollment and course-taking data indicate about the likely retention and degree completion rates of students who are placed in remedial coursework? 5. How do college remediation, retention and completion rates vary among groups of high school graduates, e.g., by poverty, geography, mobility, ethnic/minority group or second languages? 6. What is the employment rate of high school graduates, and in what industries do they work? 7. What is the employment rate of postsecondary education graduates, and in what industries do they work? How do their benefits differ from those of nongraduates? 8. What information from employers indicates that postsecondary graduates are prepared for high-skilled, quality jobs/professions? 9. How can teacher preparation programs currently evaluate and improve their programs by integrating K–12 student data and evaluations? 10. What percentage of high school graduates enter the workforce directly? What percentage enroll in postsecondary education? 11. What percentage of postsecondary students enter the workforce prior to completing a credential? How are employment patterns, earnings and employment stability different for dropouts and graduates with different types of secondary and postsecondary graduation credentials? 12. For students who do not obtain a postsecondary credential and enter the workforce, in what industries do they work?	**Postsecondary and Workforce Data** **Student-level college enrollment data** that track full- and part-time enrollment, first-to-second-year retention and persistence, time to degree, and degree or credential completed. **Student-level demographic data** that identify race/ethnicity. **Course-taking data** that describe student-level course completion, e.g., remedial, credit-bearing general education and credits earned at entry for dual credit or demonstrated proficiency on exam (AP or IB). **Remediation data** (assessment scores on exams to determine need for remediation and remedial course-taking history, such as number and type of credit and noncredit remedial courses) that indicate the degree of preparation. **First-year college GPA** that describes the cumulative GPA, including method of computing. **Grades in key academic subjects** for comparison to previous preparation exam data and academic preparation in high school. **Postsecondary graduate enrollment /employment rates** indicating each student's next step immediately following college. **Location of employment** that indicates students' mobility when compared to their county of residence before they entered college. **Financial aid awards linked to student success data** to evaluate the success of state, federal and institutional financial aid programs in terms of promoting student access and success. **Teacher preparation data** by certification areas to provide information back to K–12 in terms of meeting future employment needs. **Employment and wage data** that indicate differences between students who graduate from postsecondary and those who do not. **Sector and industry data** that indicate differences in industry employment between students who graduate from postsecondary and those who do not complete their programs.	**A student identifier** and/or crosswalk to P–12 data is needed to gather historical education data on the student throughout his/her postsecondary career and send the data back to P–12. This identifier must remain linked to other identifiers as the student is enrolled in college, completes college and enters the workforce. **A statewide mechanism** is needed to ensure the seamless transfer of students from two-year to four-year and from four-year to four-year colleges. **P–12 and postsecondary data systems** must be linked to provide better data to postsecondary about future students and to provide feedback to K–12 for curricular improvements in a manner that protects individual student confidentiality. A cross-sector data system also provides feedback from postsecondary institutions and employers to various constituency groups about student preparation for college and work. **Feedback from P–12 data about student performance** could be linked to the teacher preparation programs that teachers completed to provide information back to the state's preparation programs to improve the effectiveness of future teachers. **Employment data,** such as industry or field of employment, employer location, wages and licensure, or certification completion in specialized fields, can be linked to postsecondary and K–12 data to provide feedback on their preparation based on student outcomes.

10 Essential Elements of a Longitudinal Data System

1. A unique statewide student identifier that connects student data across key databases across years *(52 states report having this Element, up from 37 in 2005)*
2. Student-level enrollment, demographic and program participation information *(52 states, up from 40 in 2005)*
3. The ability to match individual students' test records from year to year to measure academic growth *(52 states, up from 33 in 2005)*
4. Information on untested students and the reasons they were not tested *(51 states, up from 27 in 2005)*
5. A teacher identifier system with the ability to match teachers to students *(44 states, up from 14 in 2005)*
6. Student-level transcript information, including information on courses completed and grades earned *(41 states, up from 8 in 2005)*
7. Student-level college readiness test scores *(50 states, up from 7 in 2005)*
8. Student-level graduation and dropout data *(52 states, up from 36 in 2005)*
9. The ability to match student records between the P–12 and postsecondary systems *(49 states, up from 12 in 2005)*
10. A state data audit system assessing data quality, validity and reliability *(52 states, up from 23 in 2005)*

10 State Actions To Ensure Effective Data Use

Expand the ability of state longitudinal data systems to link across the P–20 education pipeline and across state agencies:

1. Link state K–12 data systems with early childhood, postsecondary education, workforce, social services and other critical state agency data systems. *(11 states report taking this Action)*
2. Create stable, sustained support for robust state longitudinal data systems. *(27 states)*
3. Develop governance structures to guide data collection, sharing and use. *(36 states)*
4. Build state data repositories (e.g., data warehouses) that integrate student, staff, financial and facility data. *(44 states)*

Ensure that data can be accessed, analyzed and used, and communicate data to all stakeholders to promote continuous improvement:

5. Implement systems to provide all stakeholders timely access to the information they need while protecting student privacy. *(2 states)*
6. Create progress reports with individual student data that provide information educators, parents and students can use to improve student performance. *(29 states)*
7. Create reports that include longitudinal statistics on school systems and groups of students to guide school-, district- and state-level improvement efforts. *(36 states)*

Build the capacity of all stakeholders to use longitudinal data for effective decisionmaking:

8. Develop a purposeful research agenda and collaborate with universities, researchers and intermediary groups to explore the data for useful information. *(31 states)*
9. Implement policies and promote practices, including professional development and credentialing, to ensure that educators know how to access, analyze and use data appropriately. *(3 states)*
10. Promote strategies to raise awareness of available data and ensure that all key stakeholders, including state policymakers, know how to access, analyze and use the information. *(23 states)*

The Data Quality Campaign (DQC) is a national, collaborative initiative to encourage and support state policymakers' efforts to improve the availability and use of high-quality education data to improve student achievement. The campaign will provide tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.

Visit www.DataQualityCampaign.org for more about the:

- 10 Essential Elements and the 10 State Actions required to establish, maintain and use a quality longitudinal data system;

- Results of *Data for Action 2011: DQC's State Analysis* that show where your state stands on the 10 Essential Elements and the 10 State Actions;

- Tools, materials, meetings and information that can aid states and interested organizations seeking to ensure increased quality, accessibility and use of data; and

- Information on how your organization can partner with the DQC to generate the understanding and will to build and use state longitudinal data systems.

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