Key Measures

This section describes key K–12 and postsecondary education measures developed for the Tracking Postsecondary Outcomes for High Schools pilot.

**K–12 Measures**

Two types of student cohorts were constructed in each school year—first-time 9th graders and high school graduates—and postsecondary education outcomes were presented for each.

A critical component of the pilot was the ability to link postsecondary education outcomes to students’ high school experiences over which policymakers and practitioners have some control. The K–12 pilot data was particularly rich, including measures of pre-existing student achievement on 8th-grade English Language Arts and mathematics assessments; achievement on high school assessments in the same subjects; 9th-grade attendance; high school course taking by core subject area; and participation in honors, advanced placement (AP), and International Baccalaureate (IB) courses. In addition, a wide range of student demographic and school characteristics were available. Measures were constructed from data obtained from the participating states’ data systems.

The following briefly describes key K–12 measures constructed for the pilot. A complete list of measures is provided. Selected measures are described in depth, including their rationale and research base. See the pilot model report and Advance prototype (http://pilot.mprinc.com/NSCPilotProto/) for illustrations of how these measures were presented to users.

**Performance on Standardized Tests**

Proficiency levels are set by states for each test used for federal accountability and other purposes. Performance on state assessments is an indicator of student achievement and the attainment of state-determined academic proficiency. In cases where states calculated more than three proficiency levels, these levels were combined into three categories: below proficient, proficient, and advanced.

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1 Currently, two multi-state efforts are underway to develop new assessments based on the Common Core State Standards: Partnership for Assessment of Readiness for College and Careers (PARCC) and Smarter Balanced Assessment Consortium.
Quartiles were calculated at the state level for each test in each year. Each quartile represents one quarter of the test-taking students statewide for each grade level and subject. Students in specific districts and schools will not necessarily be evenly distributed across the quartiles.

For each of the following tests, both proficiency-level and quartile measures were created. In each case, measures included results from the first administration of the relevant state assessment used to report proficiency for federal accountability purposes.

1. **High school mathematics assessment**

2. **High school English Language Arts (ELA) assessment**

   *Insights:* These measures enabled users to compare postsecondary outcomes—such as remediation rates—for students who performed at the below proficient, proficient, and advanced levels on their state’s high school achievement tests.

3. **8th-grade school mathematics assessment**

4. **8th-grade school ELA assessment**

   *Insights:* These measures enabled users to compare outcomes for students with similar achievement levels at the beginning of high school.

**High School Course Taking**

Student course-taking information is an excellent indicator of preparation for postsecondary studies and demonstrates whether students took challenging coursework during high school. High school course-taking variables were constructed for all students with complete transcripts for the cohorts graduating in 2004 through 2009 and for the 9th-grade cohorts starting in fall 2000 through fall 2006. States considering using course-taking data need to decide how to handle partial and incomplete transcripts. For purposes of the pilot, completeness was defined in terms of Carnegie credits earned in the core subjects of English, math, science, and social studies, as well as total credits earned, based on state graduation requirements. (A Carnegie credit is a standard unit equivalent to one course meeting approximately one hour per day, five days a week, for one year.)

Students whose course records did not meet one or both of the complete transcript criteria were excluded from calculations of course-taking variables. Incomplete transcript records may be due to incomplete submission of data to the state, ambiguous data submission requirements, or unusual credit assignments in some block schedules, among other reasons. Annual course records may not produce a complete high school course-taking record, for

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2 Although only seven Texas districts participated in the Pilot, test quartiles were calculated using data on all students in the state.
example, if one or more years of course records are missing or incomplete. Completeness of records may vary by district and year, and requires careful examination. Students who switched schools or districts during high school may still have a complete transcript.

Courses were coded for level of rigor (basic, regular, honors or advanced, and AP/IB) using the Secondary School Taxonomy.³

The following measures of course taking were created:

1. **Four years of math:** Whether or not the student completed four years (four Carnegie credits) of math including Geometry, Algebra 2, and at least one advanced math course higher than Algebra 2 (including trigonometry or pre-calculus, IB Math, Algebra 3, Calculus, and some other courses).

2. **Highest math course completed:** The highest math course for which the student earned credit, in ascending order: Algebra 1 and below, Geometry, Algebra 2 and Probability/Statistics, Algebra 3 (where relevant), Higher math (Trigonometry/pre-Calculus, International Baccalaureate [IB] Math, Advanced Placement [AP] Probability/Statistics, non-AP Calculus, or other advanced math course), and AP or IB Calculus. See Section 5e for additional information.

3. **Three credits of science:** Whether or not the student completed three credits of laboratory science, including biology, chemistry, and physics.

4. **Number of AP/IB credits:** The total number of AP and IB credits the student earned.

5. **Number of advanced/honors credits:** The total number of credits earned for courses labeled “advanced” or “honors” in state records, where available.

*Insights:* These measures enabled users to examine relationships between highest math course completed, for example, and whether students took remedial math upon entering postsecondary education.

9th-grade Performance
The following measures related to 9th-grade performance were created:

1. **Number of courses failed during freshman year**: The number of courses failed during the student’s freshman (9th-grade) year, where available. The number of courses failed during freshman year has been shown to be related to rates of high school completion and postsecondary enrollment.

2. **Attendance rate**: Percentage of days that students attended school during their freshman year (9th grade). Ninth-grade attendance has been shown to be associated with postsecondary enrollment as well as high school completion. See Section 5f for additional information.

*Insights*: These measures enabled users to compare college-going rates, for example, for students with different 9th-grade attendance rates.

School-Level Characteristics
The following school-level variables were created to compare outcomes for students in similar high schools. Except where noted, school characteristics were based on federal Common Core of Data (CCD) classifications. Percentages of students in each type of school were then calculated from the state data.

1. **Locale**: Urbanicity of the high school that a student attended in 9th grade or graduated from, collapsed into the categories of city, suburban, town, and rural.

2. **School size**: Total enrollment in grades 9–12 for the corresponding 9th-grade or graduation cohort.

3. **Magnet school, charter school, traditional school**: Whether the school was identified as a magnet school, charter school, or neither for corresponding cohort.

4. **Percentage of economically disadvantaged students**: Percentage of school’s students identified as economically disadvantaged (typically based on eligibility for Free or Reduced Prize Lunch).

5. **Percentage of English Language Learners (ELL)**: Percentage of school’s students ever identified as ELL or Limited English Proficient in grades 9–12, from state records.

6. **Percentage of students proficient on 8th-grade ELA/math assessment**: Percentage of 9th-grade students in a high school who scored proficient or higher on the state 8th-grade ELA or math assessment, based on state records. This measure made it possible to compare postsecondary outcomes...
for high schools with similar student populations, based on incoming academic achievement.

Insights: These measures enabled users to examine how their school’s or district’s outcomes compared with schools or districts serving similar populations or with other similar characteristics.

**Postsecondary Measures**

**Postsecondary Institution Characteristics**

Pilot results were presented by selected characteristics of the postsecondary institutions at which students enrolled. The following characteristics refer to the first postsecondary institution that a student attended. Except where noted, all characteristics were derived from the federal Integrated Postsecondary Education Data System (IPEDS).

1. **Level and control of postsecondary institution:** Control categories in pilot reports included public and private; level categories included 4-year and 2-year. Because less-than-2-year institutions represented less than 1% of student enrollments in the pilot states, these institutions were combined with 2-year institutions. In response to requests from state stakeholders in one state, selected in-state institutions that were considered public 4-year colleges in IPEDS, but which predominantly award 2-year degrees, were reclassified as 2-year institutions to reflect state practice.

2. **System of postsecondary institution:** Governing system of institution for in-state public institutions or reporting categories used by the state higher education agency.

3. **Location (in-state/out-state):** Location of first postsecondary education institution attended.

4. **Full-time/part-time status:** Enrollment status in first term of first postsecondary enrollment, based on state and National Student Clearinghouse (NSC) postsecondary education records. Part-time encompassed half-time and less-than-half-time enrollment. See Section 5b for more information.

Insights: These measures enabled users to see what types of postsecondary institutions their students attended, whether different student groups attended different types of institutions, and whether students had different experiences at different institution types.
Postsecondary Outcomes

K–12 policymakers and practitioners were the primary audience for the pilot, so the selection of postsecondary outcomes was limited to those measures for which K–12 experiences were likely to have a demonstrable association. Four primary outcomes were included:

1. **Enrolled in postsecondary education in the term immediately following graduation (immediate enrollment):** For high school students who graduated in January through August, this measure included students who enrolled in postsecondary education before November 1 in the fall following high school graduation. Students who graduated high school between September and December were counted as enrolling immediately if they enrolled by May 1. For students in the 9th-grade cohorts who had no record of high school graduation, this measure included students who enrolled in postsecondary education before November 1 of the year in which they withdrew from school or the year of their expected on-time graduation. Postsecondary enrollment beginning more than two months before high school graduation or ending on or before the month of high school graduation was considered to be dual enrollment and by itself was not considered as immediate enrollment.

   To provide data for the most recent high school cohort, the immediate enrollment measure was based on NSC data only, because the availability of state postsecondary data may lag by several months. For earlier cohorts, immediate enrollment was based on the combination of state and NSC data. See Section 5a for more information.

2. **Enrolled in postsecondary education within one year of graduation:** This measure was calculated for earlier cohorts and was based on a combination of NSC data and state postsecondary data.

3. **Persisted into the second year of postsecondary education at the same institution:** Among students who enrolled immediately in postsecondary education, this measure represented the percentage who remained enrolled continuously in that institution into the second year. Students who did not persist at the same institution may have transferred to another institution or left college completely. This measure was calculated for earlier cohorts and was based on a combination of NSC data and state postsecondary data.

4. **Took at least one remedial course in math or English during the first year of postsecondary education:** This measure was based on state

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4 It is also possible to create a system-wide persistence measure, but this was not done for the pilot.
postsecondary education data only, and was limited to students who enrolled at in-state public institutions. Policies regarding postsecondary remedial education, including placement into and completion of remedial courses, vary by state, postsecondary system, postsecondary institution, and in some cases, by field of study and degree program. Some students who were placed into remedial courses may not have enrolled in remedial courses during their first year. A small number of students who took remedial courses may not have been required to do so; that is, they opted on their own to take remedial coursework. Some states may be able to offer additional information about the need for remediation, remediation in subjects besides English and math, and successful completion of non-remedial college courses to enhance stakeholders’ understanding of postsecondary remediation and its consequences for students. In some states, remedial courses are referred to as “developmental education.” See Section 5c for more information.

*Insights:* These measures enabled users to examine short-term postsecondary outcomes for their students within two years of graduating from high school.

Additional outcomes included:

1. **Completed a postsecondary degree or certificate:** This measure was limited to students who enrolled in postsecondary education. Awards included postsecondary certificates of various lengths, associate’s degrees, and bachelor’s degrees. Data on awards for public in-state institutions were provided by the state; data on awards for private and out-of-state institutions were provided by NSC.

2. **Type of degree or certificate:** Types included Certificates, Associate’s Degrees, and Bachelor’s Degrees or higher. Because of the cohort years included in the pilot, very few students received a degree higher than a Bachelor’s in the span of time analyzed.

3. **Field of degree:** Included the field of study for students who completed a Bachelor’s degree. Fields were constructed from 23 specific categories of undergraduate study from the National Postsecondary Student Aid Study (NPSAS) and then collapsed into seven categories.

4. **Time to degree:** This measured showed the percentage of those students earning a degree within specified spans of time (2 years through 6 years) after high school graduation.

*Insights:* These measures enabled users to examine longer term postsecondary outcomes for their students.