2018–19 OCTAE Customized Technical Assistance to States

Final Summary Report for the Washington Workforce Training and Education Coordinating Board

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RTI International
1618 SW First Avenue, Suite 300
Portland, OR 97201

Contact
Jon Boyette
jboyette@rti.org
503-428-5679

Sandra Staklis
sstaklis@rti.org
503-428-5676

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Introduction

The U.S. Department of Education, Office of Career, Technical, and Adult Education (OCTAE) provides technical assistance (TA) to state agencies that provide or oversee career and technical education (CTE) to help them meet accountability requirements under the Strengthening Career and Technical Education for the 21st Century Act (Perkins V). Each year, states submit requests for assistance in resolving technical challenges around data collection and reporting, and OCTAE selects a group of states to receive TA. RTI International provides this TA under contract to OCTAE.

Washington State’s Workforce Training and Education Coordinating Board (WTB) requested TA in 2018 on ensuring that data submitted by local education agencies (LEAs) for Perkins reporting and accountability processes accurately reflects student participation and performance in CTE programs. RTI researchers (“the TA team”) consulted with Chris Dula, Research Investigator; Dave Pavelchek, Assistant Director; Colleen Seto, Perkins Fiscal and Research Analyst; Dave Wallace, Research Director; and Stacy Wyman, Administrator, from WTB on October 31 to discuss the request. Based on this conversation and a follow-up conversation to review interim findings on March 7, 2019, RTI’s TA activities addressed the following areas:

- **Codebook and reporting guidance for Perkins secondary data reporting**—The TA team drew upon previous TA work that resulted in the development of CTE data submission reference materials, including a codebook, data collection template, and set of instructions for LEAs. The TA team also consulted with state-level CTE data analysts and administrators from Colorado, Iowa, Kentucky, and Nevada to learn about the types of data reference materials they provide to local data staff prior to and during the local data submission.

- **Training and support for subgrantees on secondary CTE data collection**—During the interview process, the TA team gathered information on training and TA practices in-use in the states mentioned above.

- **Validating CTE data submitted by schools and districts**—The TA team conducted interviews with state data analysts on data validation practices at the state level; that is, following LEAs’ submission of CTE enrollment and performance data.

The state practices in these areas revealed that states take a broad view of CTE data validation, incorporating guidance and training into the overall data validation process. In
this report, the cross-state findings are organized by the steps comprising states’ data validation processes. The team also developed a set of recommendations for Washington to consider as it improves the quality and accuracy of Perkins student enrollment and performance data.

Technical Assistance Activities

Data collection for the 2018–19 Washington TA project proceeded in two phases: document review of publicly available CTE data collection and validation materials and interviews with representatives of CTE agencies from four states: Colorado, Iowa, Kentucky, and Nevada. The TA team began to review documentation on state data collection and validation practices in late January 2019, after narrowing the scope of research to the topic areas described above and establishing a set of criteria for selecting states as potential sources of promising practices. Size was the principal state selection criterion. Nearly 300 secondary LEAs receive Perkins funding in Washington, and data validation processes that are practical in small states may not be scalable to a large state like Washington. The same consideration applied when considering methods for providing TA to LEAs. The degree of interaction with and support practicable in a small state would be difficult to sustain in a large state.

The TA team initially focused its documentary research on states with a similar Perkins administrative structure, which proved too limiting. Washington’s use of a workforce agency to administer Perkins funding is unique (figure 1), so the TA team relaxed this criterion in selecting states for an initial review and subsequent interviews. However, the TA team did consider WTB’s indirect access to education data when developing its recommendations.

Finally, the team identified states that collect secondary CTE data through a separate process from general K–12 student data collection. Few states take this approach. Three of the four states interviewed for the report had already integrated their data collection processes into broader K–12 data collection processes or developed modules to pull the necessary data from the main K–12 system (Iowa, Kentucky, Nevada). The fourth, Colorado, maintains a separate CTE data collection process; however, the Colorado Community College System (CCCS) has a dedicated CTE data collection portal through which local CTE providers upload student-level data. Regardless of collection method, Perkins-eligible agency staff from the states interviewed have access to student- or student-course-level data. By contrast, WTB receives aggregate CTE student data from the state’s OSPI, which limits its ability to identify the source of errors or aberrations observed in aggregate data.
The TA team began researching CTE data validation through a review of CTE accountability documentation in Colorado, the District of Columbia, Florida, Idaho, Iowa, Indiana, Kansas, Kentucky, Nevada, North Carolina, and Utah. The TA team then expanded its initial review by considering documentation on general K–12 data validation practices, for two reasons: First, general K–12 data validation practices tended to be better documented than validation practices specific to CTE. Second, where CTE data collection is integrated into K–12 data collection processes, documentation is similarly integrated—for example, CTE data elements are included in general K–12 data dictionaries. The document review provided information and context on data validation practices that served as groundwork for further research and indicated which states might provide insights into data validation that best suited Washington’s CTE administrative structure and practices. The TA team interviewed data analysts from those states (Colorado, Iowa, Kentucky, and Nevada) in mid-April of 2019 to gather detailed information both on these states’ data collection processes and their data validation practices.
The Data Validation Process

CTE data validation practices can be organized into five principal components: training and guidance, submission, automated review and human review, and follow-up. In addition, all states interviewed included elements of data validation and auditing in program evaluation and monitoring cycles, providing an additional layer of data validation.

Training and Guidance

Each of the four states interviewed for the study provides training sessions and guidance materials to LEA for the data submission process. However, depending on the method of CTE data collection, states differ in the timing of training sessions and the content of those sessions and training materials.

Content

The content of training resources depends on state data collection practices: Colorado, which maintains a CTE-specific data collection portal, provides information and training on how to define key CTE-related concepts (e.g., concentrator and completer) and aggregate credits to compute concentrator and completer status. The state also provides file formatting instructions that are relevant to the CTE data portal. In Iowa and Nevada, CTE data are pulled from the main K–12 data system, and guidance on file and record formatting is provided by the agency that administers the overall K–12 data collection process rather than the agency that administers CTE. Although CTE data in Kentucky are also drawn from the main K–12 data system into the state’s Technical Education Data System (TEDS), the state’s Office of Career and Technical Education does provide a standard set of data validation queries\(^1\) that local CTE data providers can use to validate their CTE data in TEDS.

Timing

The timing of training sessions for CTE data submission differs by state, from multiple times per year to once every two years. There are three CTE data collection periods in Colorado (for enrollment, performance, and follow-up/outcomes data), and CCCS provides training webinars prior to each. Kentucky requires training in TEDS every two years, denying access to the data system to schools that have not completed the training.

\(^1\) See Kentucky’s Recommended Reports for Data Validation at https://education.ky.gov/CTE/edds/Documents/Recommended_Reports_for_Data_Validation.pdf.
**Data Dictionaries**

Data dictionaries are typically included in guidance and reference materials that state agencies distribute to local data providers. The TA team accessed CTE-specific data dictionaries for Colorado, the District of Columbia, and Indiana, states in which CTE data are collected through separate processes from other K–12 data. Where CTE-specific data dictionaries were unavailable, the team reviewed K–12 data dictionaries and similar documents. These data dictionaries were typically Word or PDF documents—Idaho and Indiana were exceptions, providing data dictionaries in Excel and web-based formats.

The metadata included in these data dictionaries fell into seven categories (table 1). Only two states included business rules in the data dictionary: In those cases, the rules specified how data should be entered and gave special handling instructions for unusual or missing data. In other states (e.g., Florida) business rules defining CTE data elements are included in separate documentation.

**Table 1. Metadata included in education data dictionaries**

<table>
<thead>
<tr>
<th>Metadata included</th>
<th>CO</th>
<th>DC</th>
<th>FL</th>
<th>ID</th>
<th>IN</th>
<th>IA</th>
<th>KS</th>
<th>WA</th>
<th>Total (out of 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element identifier</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>8</td>
</tr>
<tr>
<td>Definition</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>7</td>
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<tr>
<td>Field length</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>6</td>
</tr>
<tr>
<td>Coding/values</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Data collection/reporting process</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Year added/updates</td>
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<td>X</td>
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<td>X</td>
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<td>X</td>
<td></td>
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<td>4</td>
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<tr>
<td>Format</td>
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</tr>
<tr>
<td>Business rules</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

**Data Submission**

LEAs submit enrollment and performance data on secondary CTE students through their states’ general K–12 data collection process in three of the four states interviewed for this study (Colorado was the exception). In those three states, Perkins-eligible agency staff responsible for submitting CTE data for the Consolidated Annual Report extract data directly from the state K–12 data system (Nevada) or from CTE-specific data systems that draw data from the main K–12 system (Iowa’s Secondary Career and Technical Education Reporting Application or Kentucky’s TEDS). These CTE-specific data systems are used for analysis and reporting purposes and to collect a handful of data elements that are not collected through the main K–12 system (e.g., industry-recognized credential attainment). In Colorado, local CTE data are submitted directly to CTE agency staff through a specialized data portal—however; staff also receive data drawn from the secondary data system, which they use to supplement the data submitted and validate data elements shared between the
two systems. Table 2 summarizes Perkins administration and data collection practices in the four states interviewed.

Table 2. Perkins administration and data collection characteristics of interview states

<table>
<thead>
<tr>
<th>State interviewed</th>
<th>Perkins administration and data collection</th>
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<tbody>
<tr>
<td>Colorado</td>
<td>• Postsecondary agency administers Perkins funds</td>
</tr>
<tr>
<td></td>
<td>• Postsecondary agency collects and reports secondary career and technical education (CTE) data</td>
</tr>
<tr>
<td></td>
<td>• Variety of data systems used locally</td>
</tr>
<tr>
<td></td>
<td>• CTE data collection separate from other K–12 data collection</td>
</tr>
<tr>
<td>Iowa</td>
<td>• Postsecondary agency administers Perkins funds</td>
</tr>
<tr>
<td></td>
<td>• Postsecondary agency receives and reports secondary CTE data</td>
</tr>
<tr>
<td></td>
<td>• Variety of data systems used locally</td>
</tr>
<tr>
<td></td>
<td>• CTE data collection linked to other K–12 data collection</td>
</tr>
<tr>
<td>Kentucky</td>
<td>• Secondary agency administers Perkins funds</td>
</tr>
<tr>
<td></td>
<td>• Secondary agency receives and reports secondary CTE data</td>
</tr>
<tr>
<td></td>
<td>• Variety of data systems used locally</td>
</tr>
<tr>
<td></td>
<td>• CTE data collection linked to other K–12 data collection</td>
</tr>
<tr>
<td>Nevada</td>
<td>• Secondary agency administers Perkins funds</td>
</tr>
<tr>
<td></td>
<td>• Secondary agency receives and reports secondary CTE data</td>
</tr>
<tr>
<td></td>
<td>• One data system used statewide</td>
</tr>
<tr>
<td></td>
<td>• CTE data collection linked to other K–12 data collection</td>
</tr>
</tbody>
</table>

Automated Review

In all states interviewed, the initial submission of student data—whether into a main K–12 data system or CTE data portal—triggers an automated data validation process. In the three states in which CTE data collection was integrated into broader K–12 data collection, other agency staff oversee this process and do not directly involve CTE staff. In Colorado, the automated checks verify that data are formatted correctly (e.g., match the prescribed field length). Kentucky compares student credit attainment and student status (e.g., graduation status) against other LEA-reported data to ensure that LEAs report on all CTE students.

Human Review

Following the automated review, state CTE agency staff conduct manual reviews. This process is similar across the four states interviewed: a data analyst will begin with exploratory analyses of aggregate state-, program-, and LEA-level data to identify anomalies or implausible trends in the data, whether longitudinally—through comparison of data trends over time—or cross-sectionally, by comparing LEA or program data with overall state trends within a given year by performance indicator, program enrollment, and so on.
Sampling

Following the exploratory analysis, state data analysts select a “judgmental sample” of the data. Rather than a random sample that satisfies probabilistic criteria or permits the estimation of population parameters, all the states select cases that are roughly representative with respect to school size, district size and setting (e.g., rural vs. urban), number and size of CTE programs, and student demographics.

Within this overall sampling approach are variations in methods of selection: CCCS staff in Colorado review student records from LEAs and programs of varying sizes because it allows state data analysts to check whether errors vary by data entry method—LEAs either manually enter data into the CTE portal or upload datasets exported from their data system. The latter option is more common among large LEAs. Colorado also selects student records from different student population groups, in terms of grade level, demographics, and so on, allowing analysts to search for systematic variations in data quality by student or program characteristic. Data reviewers in Iowa randomly select two rural and two urban or suburban school districts for review from within each of nine Area Education Agency regions and randomly sample half of the state’s Perkins recipients.

Review

Having selected the sample, analysts review the data for unusual cross-sectional and longitudinal trends. Within a given year, analysts will identify programs, schools, or districts with unusually high or low performance levels on a given metric. In Nevada, data validation routines include verifying program enrollment numbers against information gathered during the program approval process—for example, the state will ensure that approved programs had participants and that the level of courses that the students complete is commensurate with the age of the program. In Colorado, where the data validation sample is designed to include students from each disaggregated population group required under Perkins, analysts will verify that enrollment numbers and performance levels do not vary systematically and unexpectedly by population.

Some of the data queries and review processes are fixed and routinized, however, data analysts from each state noted a strong informal and inductive component in sampling and reviewing CTE data for errors, emphasizing the role of expertise in the process. Experience working with the data leads to a familiarity with the types of errors analysts are likely to find and where they are likely to find the errors. Of course, formal and informal review processes

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2 The expectation for a new program, for example, would be that students would not have had time to complete higher-level courses within that program.
may shade into each other and change over time. Iowa, for example, is currently formalizing some of the queries and review processes that are currently conducted on an informal basis.

Follow-Up

Upon discovering an error, state data analysts initiate a follow-up process that differs depending on how the state receives CTE student data. CCCS (Colorado) receives data directly from LEAs; when data analysts discover an unusual trend in the data, they begin by expanding their sample to check whether the error is isolated or systemic (e.g., if rows in the dataset are misaligned) then follow up directly with the LEA that submitted the data. By contrast, the bulk of the secondary CTE data that Iowa’s Division of Community Colleges and Workforce Preparation receives is drawn from the main K–12 data system; when analysts have a question about the data, they will first query the K–12 database and coordinate with analysts from the state Department of Education’s Bureau of Information Technology Services to verify that the data were pulled correctly. Following that initial check against the main data system, Iowa analysts will follow up with LEAs through the liaison who provides TA during the data submission process.

The Role of Program Monitoring and Research

Data validation is not always a discrete process, separate and distinct from other CTE reporting and accountability processes. In all states reviewed, data validation plays a role in the program monitoring process. Program monitors carefully analyze student enrollment and performance data from LEAs or programs selected for closer review through a risk-based monitoring process in Colorado and Iowa. The relationship between monitoring and validation works in both directions: In Kentucky, for example, three of the nine criteria that trigger closer monitoring of an LEA are related to student performance data.

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3 Risk-based program monitoring is a process by which entities are prioritized for closer review during the monitoring process based on criteria designed to assess their risk of noncompliance with accountability policies. See 2017–18 OCTAE Customized Technical Assistance to States: Final Summary Report for the State of Alabama at https://cte.ed.gov/accountability/technical-assistance-to-states.
Summary and Next Steps

The TA team’s review of state CTE data validation practices suggest five findings with implications for improving CTE data validation processes in Washington:

- **Data validation is a multistage process**—At each stage, the purpose and objectives of data validation activities vary:
  - **Training and guidance**—States provide training webinars and guidance materials to local CTE data providers before data submission.
  - **Data submission**—Local providers submit data and contact state CTE data analysts with questions during the submission process.
  - **Automated review**—Initial submission of the data triggers an automated review to ensure that the data elements are properly formatted and that the data do not violate any logical or business rules.
  - **Human review**—Following the initial submission and automated validation, data analysts review the data for improbable trends (e.g., programs with students from only one subgroup, dramatic changes in performance metric denominators from one year to the next).
  - **Follow-up**—State data analysts follow up on questions or issues during the data collection process or through subsequent program monitoring. They work with local providers to correct or verify current year submissions or, for data validation connected to program monitoring, identify and correct systematic issues in data reporting.

- **TA, data guidance, and data validation are closely connected and mutually reinforcing**—States presented data validation as a more holistic process than the simple review of data for errors, encompassing data review as well as guidance and TA. This is in line with the guidance of the National Center for Education Statistics (NCES) for states on improving data quality. The first recommendation in NCES’ *Examples of Best Practices Regarding Internal Data Audits* is to develop a data dictionary, both as a guidance document and to establish a shared understanding of the definitions and rules that data auditors will use to validate the data.
State approaches to training vary. Colorado provides webinars to state LEAs before the submission period for each of its three rounds of Perkins data collection. Kentucky requires that data specialists be trained in its CTE data system every two years and issues guidelines on data validation practices for districts to carry out on a quarterly basis. Interviewee states also integrate data validation into annual CTE program monitoring.

- *States do not use fixed, standard samples of student records when auditing or reviewing data or use probabilistic sampling techniques*—Sampling techniques for data validation vary by LEA and year, depending on the size of the LEA or program selected and the capacity of the analyst. Records are typically selected following initial, exploratory reviews of aggregate data to form an analytical sample that is designed to reveal errors in the data while remaining roughly representative of the student population, in terms of demographics, LEA, or program size and location.

The following recommendations are based on the information the TA team gathered during its 2018–19 TA project work for Washington:

- *Develop reference materials for local CTE data providers*—These materials should complement, update, and/or clarify existing guidance and reference materials available to local providers. WTB may consider conferring with the state’s secondary CTE director to identify current materials provided to sites, convening a task force of CTE data providers to identify areas where WTB can offer clarification, and working with OSPI to determine how to supplement existing materials it provides. (The TA team provided a modified version of Idaho’s CTE data workbook to WTB as an example of a potential resource that might be distributed to sites.)

- *Work with OSPI to establish data review protocols or partnerships*—Because WTB receives aggregate CTE performance data, its ability to emulate promising data validation practices profiled in this study is limited. In the four states interviewed, data sampling and validation is predicated on access to student-level or transcript data. The TA team recommends that WTB explore options for accessing select student records during the validation process or collaborating with OSPI to analyze those student records.

- *Consider establishing a set of formal criteria for sampling the local CTE provider data*—While sampling techniques in states included in this study were often informal, those techniques depended on the accumulated expertise of data analysts within a specialized domain: CTE data analysis within their respective states. This type of specialized expertise is vulnerable to staff departures and organizational changes. Formalizing sampling criteria helps preserve that expertise within the institution.
• **Compile and continually update a list of criteria that would trigger closer review of data provided by an LEA**—In line with the above recommendation, assembling a running list of data errors will allow WTB to identify and track trends to assist in honing data validation practices over time. These data errors and issues may be distilled into criteria to identify potential data errors in a process of continuous improvement in data validation.
Appendix A: TA Summary Slides

Note: These slides were sent separately to WTB with the modified Idaho CTE workbook reference in the report.

Collecting valid and reliable CTE data: State practices and support for local career and technical education providers
Contents

- Data validation resources
- State practices
  - Colorado
  - Kentucky
  - Iowa
  - Nevada
- The validation process
- Resources for local providers
  - Example: Washington, D.C.
  - Example: Idaho Career and Technical Education (“Idaho CTE”)
Data validation resources
Data validation resources

- **National Center for Education Statistics**
  - Provides a “Forum Curriculum for Improving Education Data”
    - [Part I](#): Foundational Data Improvement Lessons
    - [Part II](#): Data Steward/Coordinator Lessons
- **Includes resources that may be adapted for training local sites**
  - [Lesson](#): Validating and Auditing Data (Part II)
    - Lesson Plan
    - Data Validating Steps
    - Examples of Best Practices
    - Possible Data Errors

Note: Links in original slide include the Forum Curriculum for Improving Education Data (Part I and Part II) and the Part II lesson Validating and Auditing Data.
State practices
State practices

- **2018-19 TA project included interviews with state data leads**
  - Colorado
  - Iowa
  - Kentucky
  - Nevada

- **Common Elements**
  - Training in conjunction with data collection periods
  - Combine “automated” validation and “human review”
  - CTE data pulled from main K-12 data system (except CO)
  - Sampling is judgmental or purposive, not probabilistic
State practices: Colorado

- CTE data collection separate from main K-12 data collection
  - Data provided to Colorado Community College System through dedicated CTE data portal
- Validation sampling method: Judgmental
  - Considerations:
    - Mix of large and small districts (each may use different data submission methods)
    - Representation from all student subgroups
- Follow up directly with sites
- Data audit is a component of program monitoring
State practices: Iowa

- Data collection linked to main K-12 data system
  - Secondary Career and Technical Education Reporting Application (SCTERA) draws most CTE student data from K-12 system
  - LEAs submit additional CTE information (e.g., technical skills indicator data) directly to SCTERA
- Sampling method: Judgmental
  - Considerations:
    - Mix of rural and urban districts, past performance
    - Follow up with IT office (administrator of main K-12 system) or secondary CTE provider liaison (who communicates with sites)
State practices: Kentucky

- Data collection linked to main K-12 data system
  - Technical Education Data Systems (TEDS) draws most CTE student data from K-12 system
  - TEDS collects data on industry-recognized credentials, end-of-program assessments
- Sampling method: Judgmental
  - Considerations:
    - Prior performance, errors revealed in automated checks
  - Follow up directly with sites
  - Connected to monitoring: 3/9 indicators that may trigger a desk audit are related to student performance data
State practices: Nevada

- Data collection linked to main K-12 data system
  - All LEAs and the Department of Education use Infinite Campus
- Sampling method: Judgmental
  - Considerations:
    - Performance in the previous year, incorrect course names
- Provides disaggregated data to sites each year as part of continuous improvement process
The validation process
The validation process

- Based on NCES Forum curriculum and synthesis of state practices
- Five components
  - Training and Guidance
  - Data Submission
  - Automated Review
  - Human Review
  - Follow-up
## The validation process

### Training and Guidance

- Timing and content depend on data collection process
  - Colorado (separate CTE data collection)
    - Trainings offered around each data collection period
    - Include information on CTE-specific definitions, data submission process, data formatting
  - Kentucky, Iowa, Nevada: (CTE data collection linked to main K-12 data collection)
    - Data submission/formatting part of training for general K-12 data collection, not CTE
    - Training on topics specific to CTE and collection of few elements not included in main K-12 data

### Data Submission

- Automated Review
- Human Review
- Follow-up
The validation process

- **Training and Guidance**
- **Data Submission**
  - Sites should conduct initial data review and validation prior to submission
  - States offer resources to assist sites
    - Kentucky: Provides standard data validation queries for sites to run
- Automated Review
- Human Review
- Follow-up
The validation process

- Training and Guidance
- Data Submission
- **Automated Review**
  - Follows data submission
  - Review for errors that defy logical or business rules
    - Numerator larger than denominator
    - Missing data
  - States may provide workbooks with built-in data checks (e.g., Idaho)
- Human Review
- Follow-up
The validation process

- Training and Guidance
- Data Submission
- Automated Review

- **Human Review**
  - Data analyst pulls sample and reviews for inconsistencies/errors
    - Major swings in trend data
      - Swing of 30% prompts site follow-up in Nebraska
      - Substantial differences in enrollment or performance data by student population, urbanicity of school district, size of school district

- Follow-up
The validation process

- Training and Guidance
- Data Submission
- Automated Review
- Human Review
- **Follow-up**
  - Follow-up depends on data collection method
    - Iowa pulls CTE data from main K-12 data, will follow up first with state IT office
    - Colorado collects CTE data directly from sites, follows up with sites
  - May occur at various points in the data collection/review process (e.g., after automated review, after human review, or through the annual monitoring process)
Resources for local providers
Resources for local providers: Training and guidance materials

- Data dictionary: Common point of reference to promote reliability across sites
- Business rules and indicator definitions
- Data collection/validation workbooks
  - District of Columbia: Includes basic data validation macros to highlight missing data
  - Idaho: Clear, detailed indicator definitions and formulas to compute performance levels
  - RTI modified Idaho’s workbook to combine some functionality of the D.C. and Idaho workbooks
    - Included in report materials
Resources for local providers: DC Data Collection Workbook

Clicking the “Inspect Data” button activates a macro that highlights missing data.
Resources for local providers: Idaho’s Data Validation Workbook

<table>
<thead>
<tr>
<th>PERKINS PERFORMANCE MEASURES (FY2018)</th>
<th>1P1 a) Technical Skill Attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution:</strong> Sample</td>
<td></td>
</tr>
<tr>
<td><strong>Mailing Address:</strong> 123 Main St., Place, ST 60009</td>
<td></td>
</tr>
<tr>
<td><strong>Phone:</strong> 555-555-5555</td>
<td><strong>Date:</strong> January 32, 2019</td>
</tr>
<tr>
<td><strong>Name:</strong> Data Steward</td>
<td><strong>E-mail:</strong> <a href="mailto:datasteward@sample.edu">datasteward@sample.edu</a></td>
</tr>
</tbody>
</table>

**Students to be Measured:** A postsecondary matriculated CTE participant who has completed at least 18 CTE credits in a single program area, OR completed a program of between 12-17 credits that terminates in an industry recognized credential, certificate, or degree.

**Definition of Denominator:** The number of CTE concentrators who TOOK a state approved technical skill assessment during the reporting year (July 1, 2017 to June 30, 2018).

**Definition of Numerator:** The number of CTE concentrators who PASSED a state approved technical skill assessment during the reporting year.

**Data For This Measure:** This data would be available from the source that administers and scores the technical skill assessments or self-reported by the student.

**Other Instructions:**
- A. This measure includes concentrators in all CTE funded programs at your institution.
- B. PLEASE fill in all of the YELLOW cells. If there are no students in a category, enter 0.

### Run Data Check

<table>
<thead>
<tr>
<th><strong>Total Concentrators</strong></th>
<th><strong># Meeting Standard</strong></th>
<th><strong>Percent</strong></th>
<th><strong>90% of Goal</strong></th>
<th><strong>Was the Performance Level Achieved?</strong></th>
<th><strong>Are you required to submit an improvement plan for this measure?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>13</td>
<td>12</td>
<td>92.3%</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>6</td>
<td>5</td>
<td>83.3%</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>7</td>
<td>7</td>
<td>100.0%</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Do Gender Totals Equal Grand Totals? Yes Yes

*Modified version provided with this report for demonstration purposes.*
Resources for local providers: Idaho, con't.

- **TA Team Modifications to the Idaho Workbook**
  - Array formulas to compute numerators and denominators from student-level data based on business rules
    
    ```
    =SUM((Data[Concentrator]="Yes")*(Data[Took Assessment]="Yes")*(Data[Passed Assessment]="Yes"))
    ```
  - **Advantages:**
    - Provides sites an initial look at performance levels
    - May prompt revisions prior to data submission
    - Could provide an initial formatting check
  - **Considerations**
    - Raw, student-level data would need to deleted if tables are shared externally
    - Formulas would need to be updated if dataset is changed
Resources for local providers: Idaho, con’t.

- Modifications, con’t.
  - Automated data checks
    - Example: The “Run Data Check” button activities a macro that performs a basic logic check on the sample data—e.g., verifies that students who didn’t take an assessment are not marked as passing the assessment (or failing)
Contacts

For further information:

Jon Boyette
jboyette@rti.org

Sandra Staklis
sstaklis@rti.org