Data Quality Best Practices

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WISCONSIN DEPARTMENT OF
PUBLIC INSTRUCTION
Carolyn Stanford Taylor, State Superintendent

Why Spend All This Time On Data Quality?

The big idea: When students, parents, and educators have the right information to make decisions, students excel.

What does it mean to use *data* in service of student learning?

Data is one of the most powerful tools to inform, engage, and create opportunities for students along their education journey—and it's much more than test scores. Data helps us make connections that lead to insights and improvements. Everyone has an important role to play in helping all students succeed in their own individualized ways. Here's what it will look like when data is working for all students.

STUDENTS
"I know my strengths and where I need to grow. I can shape my own education journey."

MY EDUCATION JOURNEY

GUIDANCE COUNSELORS

RESOURCE SPECIALISTS

INSTRUCTIONAL LEADERS

SUPERINTENDENTS

PRINCIPALS

TEACHERS
"I know where my students are succeeding and struggling right now. I can help them grow."

AFTERSCHOOL PARTNERS
"I know what's happening with these kids before 3:00 p.m. I can help families and communities create more opportunities for students to succeed."

YOUTH CENTER

PARENTS
"I know what actions to take to help my child on her path to success. I can be a better champion for her."

SCHOOL LEADERS
"I know what's working and what isn't in my school. I can make timely decisions and make sure resources support great teaching and improve student learning."

Piece by piece, this ideal is becoming a reality for students. But how can we complete the picture for all students? See DQC's *Time to Act: Making Data Work for Students* for a roadmap to how states can foster this change.

Use The Power of Data!

When you combine the power of compassionate teachers, counselors and administrators with quality data and a systematic approach for review, our children win

Data Quality Best Practices

Now that we better understand the power of data, we need to make sure it is of high quality so the right conclusions are made

Data Teams

Collaborate with School and Data Experts for High Quality Data Reporting

Create Data Teams

The Department of Public Instruction recommends districts cultivate a team of people who understand the programs, data, business rules, use of the data for state and federal reporting, and local policies to coordinate data reporting. Data teams can offer insight and expertise in their data area, be involved in clarifying data submission guidelines, and assist with data review and issue resolution. Collaborating with the currently designated WISEdata contact on these efforts will increase awareness at the local level and help to ensure better quality data.

Insight and Expertise

Gather a team of experts, one lead per data area, to ensure comprehensive and accurate data submissions.

Involvement

Additional help with data submission guidelines and access for data entry reduces the workload for smaller schools or districts.

Review and Issue Resolution

Meet at the start of each term and several times throughout the year to review the data, tend to data quality, and address any technical issues like validation errors.

WISE
Wisconsin Information System for Education

Data Teams

- At least one person, the steward or main contact, for each data area.

    Example: CTE Coordinator for the CTE data.
- Create a plan for annual training, data entry and review based on the DPI checklists and calendars.
- Understands the business rules or data submission guidelines.
- Can help with data entry to share the workload.
- Meet throughout the year to review data quality.
- Prepare for snapshot.

Data Teams

- Commit to understanding the data **'pipeline'** and **'toolbox'**
- Understand what data is sent to the SEA from the SIS, the process, and timing for transfer.
- Utilize tools available at every level.
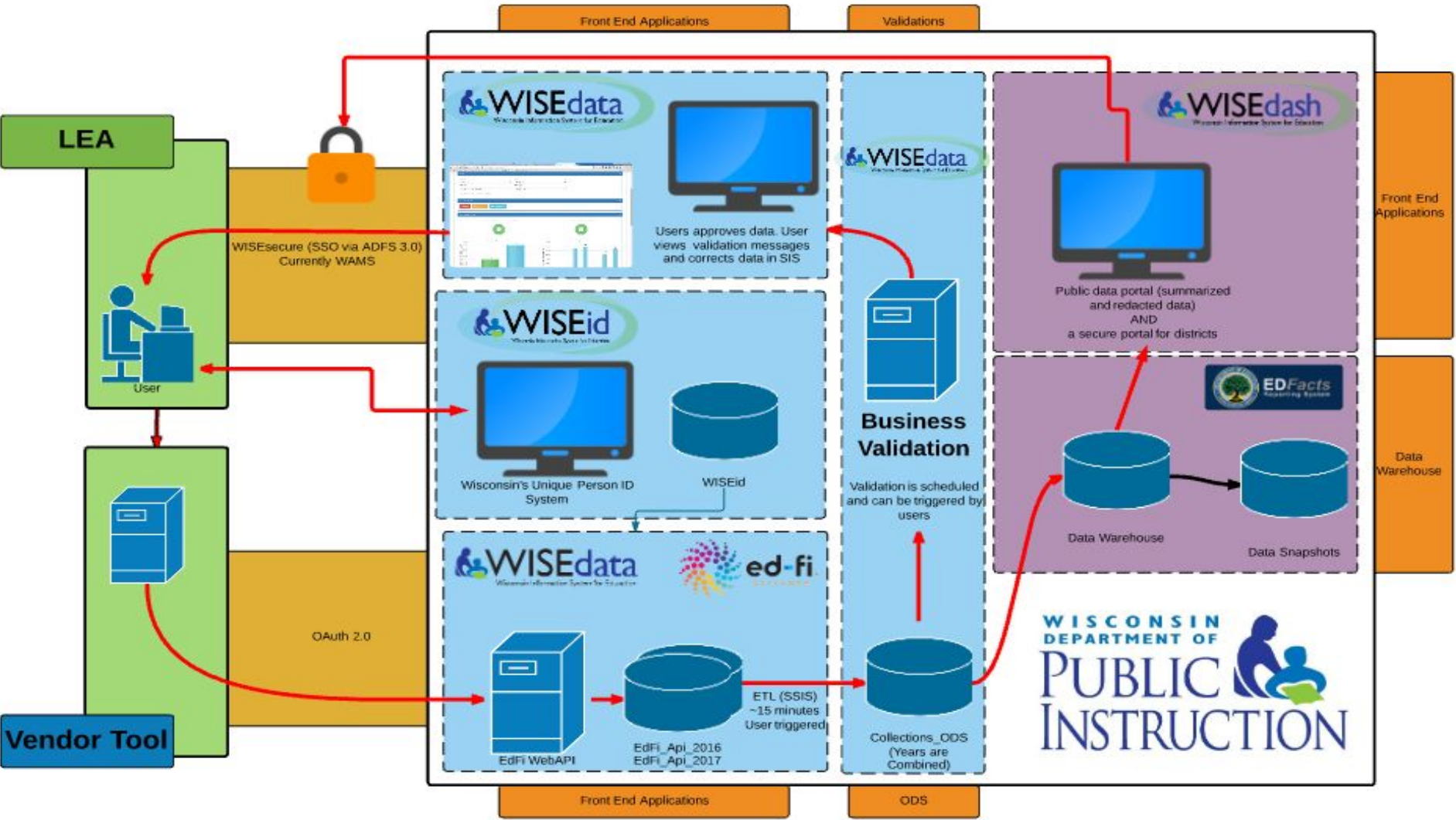- Work as a user group to **provide vendors with fix and enhancement priorities**

Best Practice #2:
Understand the <u>flow of your data</u> and <u>review the data quality</u>

Data Quality Tools

A core role we have as an SEA is to build tools that help LEAs have high quality data so we can put all the great things we spoke about at the beginning of the presentation into motion!

WISEdata Data Quality Toolbox

- **WISEdata Portal**
  - Data Quality Alerts
  - Home Page
  - Data Quality Metrics
  - Data Quality Validations
  - Student Detail and API View
  - Exports

- **WISEdash for Districts**

- **Tools for consideration:** sync to WISEdash status; links to WISEdash snapshot dashboards

WISEdata Data Quality Portal

Goal: Provide LEAs with a set of tools to allow them to:
- Verify the data is landing in WISEdata that the vendor is sending
- Execute data quality checks and correct at the source
- Alert LEAs of targeted notices
- **Solution? The WISEdata Portal**

DATA QUALITY ALERTS

- Targeted notices from DPI.
- Available approximately 6 weeks prior to snapshot.
- Provide guidance on review and data correction, if necessary.
- Fall 2021, public school alerts will be introduced.

HOME PAGE | DATA QUALITY METRICS | VALIDATIONS

% STUDENTS WITH ERRORS OR UNACKNOWLEDGED WARNINGS

What percentage of my students have errors or unacknowledged warnings? Good gauge of progress. Try to stay < 5%

3.0%

Data Pipeline Status

School Years: ☑ 2020 - 2021   ☐ 2019 - 2020

Vendor(s)

☑ Include API Read (GET) transactions

2020 - 2021	EduClimber	PowerSchool SIS	SEEDS ✓
Last request to WISEdata Api	2/17/2021 11:04:24 AM	2/24/2021 11:36:03 AM	3/9/2021 8:51:47 AM

When is the last time my vendor software sync'd with WISEdata and are there errors causing data not to land?

WISEdata

STEP 1 - WISEdata API

2020 - 2021	Enrollment ✗	Program ✓	Discipline ✗	Roster ✗
Data Last Received	2/5/2021 2:21:03 PM	3/8/2021 2:43:22 PM	2/1...	

When is the last time data for a specific data domain landed at WISEdata?

STEP 2 - WISEdata Portal

If any of these are red, click the Queue Import & Validation button

Queue Import & Validation

☐ Notify me when validation is completed   john...@dpi.wi.g...

Run Status - Complete [Completed : 3/8/2021 6:17:52 PM]

2020 - 2021	Enrollment ✓	Program ✓	Discipline ✓	Roster
Data Last Received	2/5/2021 2:21:03 PM	3/8/2021 2:43:22 PM	2/17/2021 11:04:21 AM	

When is the last time data sync'd to WISEdata Portal and validated

Data Quality Indicators

ENROLLMENTS *CURRENT*

Students by Grade Level and Gender

Do these counts look correct? Am I missing an entire grade?

Students by Grade and Gender

Female — Male

Grade Level

Total Enrollment by Grade and Gender 2020

Queue Import & Validation

Validation Run Status - Complete [Completed : 3/8/2021 6:17:52 PM]

Validation Year: 2020-2021   ☐ Notify me when validation is completed   john.raub@dpi.wi.gov

Clear Grid Filter   Expand All   Collapse All   Export

		Code	Message
▶	❶	6499 Q	Credential Type not expected.
▶	❶	6601 Q	Required field is missing: Count Date Receiving Services for October 1 Child Count.
▶	❶	6816 Q	The School Food Service program association has not been submitted by the school.
▶	❶	7052 Q	Missing economic disadvantaged characteristics
▶	⊗	6385 Q	Count Date Receiving Services for 3rd Friday of September is not expected.
▶	⊗	6396 Q	The first name OR last name OR suffix of the student does not match the value in WISEid.
▶	⊗	6469 Q	Enrollment overlap occurred. Review required
▶	⊗	6621 Q	Count Date Receiving Services for October 1 Child Count is not expected.
▶	⊗	6656 Q	The student Special Education Program Association (sSEPA) Begin Date must occur on or before the IEP End Date.
▶	⊗	6719 Q	Exit Type, 'Transfer to another school covered by WISEdata; known to be continuing' (TC), should be used, as DPI has evidence of subsequent enrollment.

Work critical Errors first, don't ignore Warnings. Warnings are POSSIBLE data issues. Leverage WIP indicator and tags feature when working thru validation results.

STUDENT DETAIL

- Data organized by domain
- Error/Warning messages
- API View
- Toggle between current and prior years

EXPORTS

- Allow users to slice the data in various ways.
- Allow mass exports of most prominent data including the 'Mass Enrollment Export' and 'Validation Message Export'.
- Numerous domain specific Validation Message exports now available

Exports

Category Type ↑	Export Type ↑	Description	
StudentCharacteristics	Student Characteristics	Demographic data for enrolled students	Download
Validation Message	Validation Message - Demographics, Enrollment and Academic record	This export shows the validation message code and additional details required to troubleshoot the errors and warnings that fall under demographics, enrollment, year-end, attendance and high school completion. If the rule only requires enrollment information to fix the error this export will only include details for those enrollment columns. If the error or warning may be resolved by changing either enrollment or demographics information, then this export includes details for both the enrollment and demographics related columns	Download
Validation Message	Validation Message - Discipline	This export shows the validation rule number and additional details required to troubleshoot the errors and warnings that fall under discipline incident, student associated to discipline incident and their behavior(s) resulting in discipline, Discipline action.	Download
Validation Message	Validation Message - Other Programs	This export shows the validation rule number and additional details required to troubleshoot the errors and warnings that fall under Homeless, Foodservice, CTE Concentrators, Non Course related Certified/Non-certified programs, Language Instruction program.	Download
Validation Message	Validation Message - School Roster	This export shows the validation rule number and additional details required to troubleshoot the errors and warnings that fall under school level Roster such as course mapping, course offering.	Download

WISEdata Portal feedback

CHOICE WISEDASH EXPORTS

- Surface data in WISEdash for use by Choice schools
- Note 'Data As Of' date

WISEdash Extracts

Data As Of: 3/3/2021 10:57:40 PM

Category Type	Export Type	Description		
High School Completion	Graduation & HS Completion Rate	This report shows students included in the numerator and denominator of the Graduation Rate (Regular Diploma) and High School Completion Rate. For detailed information on calculating the rate from this report review the 'Details' link to the right of the 'Download' button.	Download	Details
High School Completion	Graduate Future Cohorts	This report shows the cohort for high school completion in which a student is placed based onto grade level and school year of first entry into high school. For detailed information on this report review the 'Details' link to the right of the 'Download' button.	Download	Details
Dropouts	Dropout Rate	This report shows student records which are included in the numerator and denominator of the annual dropout rate. For detailed information on how to calculate dropout rate from this report review the 'Details' link to the right of the 'Download' button.	Download	Details
Attendance	Absenteeism	This report shows student status regarding chronically absenteeism under the WI state definition. For detailed information on the definition of Chronically Absent and calculating the rate from this report review the 'Details' link to the right of the 'Download' button.	Download	Details

Daily Data Use: WISEdash for Districts

Enhanced Improvement Planning

The Data Inquiry Journal allows educators and administrators to document ongoing data investigation and design continuous improvement plans all in one convenient location.

- Includes all essential components for continuous improvement in one tool
- Meets requirements for continuous improvement planning in ESSA and IDEA

Comprehensive Early Warning System

An early warning system provides information to help schools identify students who are not on track for desirable outcomes. The Dropout Early Warning System (DEWS) and the College and Career Readiness Early Warning System (CCREWS) are both available in WISEdash. In addition, Chronic Absenteeism is available, as well as FAFSA Filing Status.

Improved Snapshot Reporting and Data Reporting

Use WISEdash to review your data before a snapshot. WISEdash has additional features to help you check your data as you prepare for the snapshot, such as viewing current and trend data on topic-specific dashboards, as well as advanced analysis snapshot dashboards to view current data and demographics compared to a prior year's snapshot data.

WISEdash
Wisconsin Information System for Education
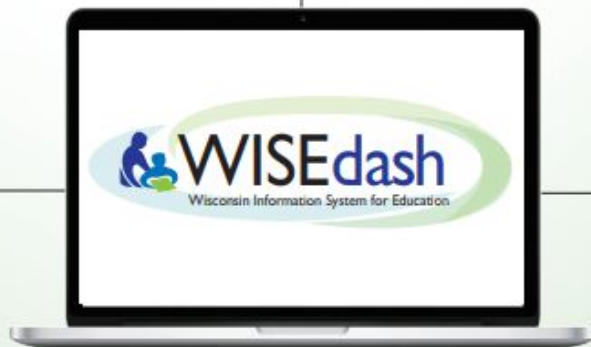
WISEdash Flyer

Improvement Planning
- Data Inquiry Journal (DIJ) - supported by WISExplore

Early Warning Systems
- Dropout (DEWS)
- College & Career (CCREWS)
- Chronic Absenteeism

Pre-Snapshot Review
- Rates (Grad, Dropout, Attendance)
- Compare to prior year snapshots

Best Practice #3: Use WISEdash to Review Your Data Before A Snapshot

Note: It is important that the WISEdata contacts review the snapshot dashboards in WISEdash for Districts, however, we have heard that in some cases access has not been granted to WISEdata contacts in each district since WISEdash contains a lot more data/dashboards. We have a project on our roadmap this year to create a default WISEdash role for all Primary and Secondary WISEdata contacts to access only the snapshot dashboards.

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Annual Data Use: Snapshot

- A snapshot is taken on a predetermined date to capture the data that exists in WISEdash at the time of the snapshot. The picture of the data is used for the following:

  - Federal Reporting, including ESSA
  - Public Reporting in the WISEdash Public Portal
  - Accountability Report Cards
  - Some funding determinations, such as IDEA, high poverty aid, maintenance of effort (MOE), and others.

WISEdash Snapshot Dashboards

- **Snapshots are taken of data in the WISEdash data warehouse.**

- **Use WISEdash to review your reporting data before a snapshot.**
  - Additional charts and graphs
  - Available to public schools only

Reminder! Data is updated nightly from WISEdata Portal to WISEdash for Districts.

WISEdash for Districts Snapshot Dashboards

- **The following snapshot topics are available as Snapshot Dashboards in WISEdash** (Navigation: Product Menu (▦) > Snapshots)

○ Third Friday of September (TFS)

○ Oct 1 Child Count Snapshot

○ Attendance and Discipline

○ YE (Year-End) Completion

○ Career Education and Perkins

○ Spring Demographics (May)

Tip! Be sure to scroll all the way to the bottom of these dashboards so you know all of the types of charts available to you for data review.

Review Data Quality Indicators

Informational indicators highlight important counts or percentages for the topic at hand.	**Caution** indicators show questionable data in need of review.	**Goal: 0** indicators are similar to cautions but suggest a goal such as a school count.

Data Quality Indicators Help - click the numbers for details

2017-2018 4 Year Graduation Rate	2017-2018 Sch w/ No HS Compl.	2017-2018 Grades w/Low Compl. Term	2017-2018 Dropout Rate
Informational	Caution	Caution	Informational
100.0%	1	0	--

Compare Current Data to Prior Years Snapshot Data

The primary use of the Snapshot dashboards is to compare current data to prior snapshot data. The mint Green filters and charts represent the Current View for the selected year, and the light Purple filters and charts represent the Snapshot View for the selected year.

2018-2019 TFS Enrollment Crosstab - Current View

Configuration [Default ▾]   **Save**   *Delete*   Function [Sum ▾]

Available data   **Columns**

[TFS SPED ▾]   **Rows**
[TFS Disability ▾]   [Count Incl TFS ▾]
[ELL ▾]
[Grade ▾]
[Econ ▾]
[Econ Code ▾]
[Gender ▾]
[Homeless ▾]
[Migrant ▾]
[Race ▾]

COUNT INCL TFS	Totals
No	1
Yes	954
Totals	955

2018-2019 (12-06-2018) TFS Enrollment Crosstab - Snapshot View

Use display option "Expand" on above toolbar to expand this chart.

Configuration [Default ▾]   **Save**   *Delete*   Function [Sum ▾]   Measure

Available data   **Columns**

[TFS SPED ▾]   **Rows**
[TFS Disability ▾]   [Count Incl TFS ▾]
[ELL ▾]
[Econ ▾]
[Gender ▾]
[Grade ▾]
[Homeless ▾]
[Migrant ▾]
[Race ▾]
[Acctbl School ▾]

Yes	953
Totals	953

Review Trend Data for Key Topics

Dashboard Name	Navigation	Description
High School Completion Rates	Product Menu (▦) > Topics > Graduation > HS Completion > High School Completion Rates	View 4-, 5-, 6- and 7-year rates to view trends over time. View **HS Completion Rate Cohorts** - especially future cohorts - to review grade level placement accuracy.
Dropout Rate by Subgroup	Product Menu (▦) > Topics > Main > Attendance-Dropouts > Dropout Rate by Subgroup	Verify the 'Dropout Rate by [Demographic] and Year [Selected Schools]'' metric for anomalies. Can also compare to Statewide Rate (the following metric).
Attendance Rate by Subgroup	Product Menu (▦) > Topics > Main > Attendance-Dropouts > Attendance Rate by Subgroup	Verify the last metric - 'Attendance Rate by Year and [Demographic] [Selected Schools]'' metric for anomalies for all students or by the demographic selected in the Group By.

Verify Grad Cohorts

Verify grad cohort determination before it is too late to fix HS entry year and grade level.

Cohort entry will close for update in WISEdata before most students are reported for HS completion.

LEA Leadership Commitment

*Another **role we have as an SEA is to make LEA leaders aware of the importance / best practices of data quality**, the status of their LEA's data quality collection and the tools we provide to enable these efforts.*

WISEadmin Portal

- **Goal:**
  - You asked to for us to better surface the data quality work you are doing to LEA Administrators as well as streamline the Data Errata process
- **What We Did:**
  - Snapshot **Calendar**, Agency **Contacts**
  - District Administrator (Superintendent) **Acknowledgement**
  - **WISEdash KPI** dashboard link
  - Data Errata

WISEadminPortal   **Data Reporting and Snapshot**   Admin   ✉ Cyber Incidents   Local Assessment Exports   John (Fort Atkinson School District) ▾

🏠 Home   ✔ Acknowledgment   📇 Agency Contacts   📅 Snapshot Calendar   ✱ Data Errata   ◀ Local Assessment Data Sharing Agreement

Please go to the Data Reporting and Snapshot page to complete the Acknowledgment for snapshot

📅

Snapshot Calendar

Click Here

Review key deadlines and the official snapshot dates for the school year.

📇

Agency Contacts

Click Here

Review agency staff identified as contacts for WISEid, WISEdata and WISEstaff.

👍

Administrator Acknowledgment

Click Here

Acknowledge agency responsibility for the submission of timely and accurate data.Additionally acknowledge data sharing for value added services.
Snapshot Acknowledgment ❗   Data use for research ❗   Immunization data sharing ❗

🌐 **WISE**dash

WISEdash Key Performance Indicators

Click Here

Review multi-year education data about Wisconsin schools via WISEdash data portal dashboards.

✱

Data Errata

Click Here

Notify the Department and provide description and evidence of misreported or erred data included in

◀

Local Assessment Data Sharing Agreement

Click Here

Acknowledge the local assessment single data sharing agreement. By acknowledging the agreement

Customer Services

A dedicated support network of regional staff and SEA staff provides customer support and technical assistance for our data collections to our districts and schools.

Create a [Help Ticket](#) for Case Management via CRM

Customer Services

- Weekly User Group Calls and Regional Meetings

- Subscribe to Google Currents

- Review Knowledge Base Articles (KBAs)

- Review WISEdata help and information for schools including mini tutorials

LEA Success Story: Bringing it all together

LEA Example

- A Large WI LEA
  - **Created a data team** that worked **collaboratively** to address each area that was snapshot related.
  - **Used the tools available** in **WISEdata** such as validation messages, and exports. Also used **WISEdash** to compare what is in WISEdata and Infinite Campus to make sure that all 3 systems matched.
  - Set aside **specific dates and times** to work on errors/warning/corrections to data.

LEA Example

- Example (con't):
  - **Developed error reports to help schools identify data quality issues** and assisted with making those corrections.
  - Developed an internal document that indicated who was **specifically responsible** for all WISE warnings and errors.
  - **Monthly retreats** that were used to troubleshoot and identify issues with errors and warnings with DPI and Infinite Campus sending the right people to assist in clearing errors and warnings.
  - **Open and collaborative dialogue** between LEA and DPI.

Feedback Items

Pipeline Metric

Would it be helpful to you if we created a visualization in the WISEdata portal to show you which data flowed 100% to WISEdash and the data that did not flow due to an error that needs to be fixed before it can flow to WISEdash?

WISEdata Portal Health Check Tool

Would it be helpful to you if we created a WISEdata Portal Health Check Tool?

- Possible topics would include Graduation, Dropouts, or Attendance.

- In the checklist we can address the L2 errors and warnings to focus on first and which order to work out issues if needing to prioritize or divide workload.

- We can display base data elements that feed into the calculations, so an LEA can understand what they are comprised of, why it is important to fix something, what they need to look at in WISEdash/Choice extract files, and any other relevant information.

- It might also be useful to include a check-off when complete with review or error resolution, as well as a snooze function to remind the user to come back to the issue.

Helpful Links: WISEdata

WISEdata Reference Guide for Administrators: Reference guides for District Administrators on the WISEdata, WISEdash, and ASM tools.

WISEdata Flyer: High level overview describing how WISEdata has improved our data collection process, data quality, and system integration.

Info for Schools: Basics of getting started with WISEdata

WISEdata Help: Links to WISE help pages and useful resources

Data Elements: List of links to all WISEdata data elements and their descriptions, uses, and codes

Annual Checklist: Guide for helping you ensure you complete the necessary tasks and prepare the necessary data elements for each of these collections or snapshots.

Knowledge Base Articles: Useful articles on validations and other related topic

Mini Tutorials: Training for WISE tools.

Google Currents: WISEdata community to view and post questions and comments to fellow users

Helpful Links: WISEdash

WISEdash Reference Guide for Administrators: Reference guides for District Administrators on WISEdash.

WISEdash Flyer: High level overview of features included in WISEdash for Districts.

WISEdash for Districts Information: Training and videos for WISEdash for Districts.

Data Inquiry Journal At-A-Glance: Overview guide for users of the data inquiry journal.

WISEdash Public Portal

WISEdash Download Files: Link to statewide download files.

WISEdash Public Portal Information: Training and supporting documentation for the WISEdash Public Portal.

GIS and Maps: Curated collection of web mapping applications that foster exploration of school, district, library, and/or community data in Wisconsin.

Helpful Links: Snapshot Prep

Snapshot Preparation Guidance: Specific webpage with snapshot resources including Snapshot Preparation Guidance, About the Data Snapshot Dashboards, and a Snapshot Reference Guide for WISEdata Contacts.

Data Teams Flyer: High level overview describing information about data teams.

WISEdata Events Calendar: View deadlines, trainings, webinars, etc.

WISE Home: WISE intro video, basics about WISE

Data Privacy: Student Data Privacy Main Menu Page and Resources

Thank you!