

National Outbreak Reporting System (NORS) User Training Document — Integrated Data Cleaning



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Introduction

Integrated data cleaning is a feature of the National Outbreak Reporting System (NORS) that was designed to ensure data quality and reduce the burden of annual cleaning by allowing reporting sites more flexibility to review and respond to data cleaning tasks (also referred to as “entry issues”) while entering a report. The feature incorporates data cleaning checks into the user interface for outbreaks of all modes of transmission.

Type of Data Cleaning Task	Short Description	Required before Finalization	Appears within a Report	Appears on the Reports Page
Correction Needed	Cleaning checks that must be addressed before a user is allowed to finalize a NORS report. These checks appear when there are illogical data entered.	Yes	Yes	Yes
Warning	Cleaning checks that show when data are missing. If missing data cannot be provided, there will be a comment field to allow the user to explain why any warning checks were not addressed.	No	Yes	Yes
Verification	Cleaning checks to verify that data were entered correctly.	Yes	No	Yes
Information	Cleaning checks that do not require any action items. These checks provide users additional guidance.	No	Yes	Yes

This training guide provides instructions on how to find and address entry issues in the NORS 3.0 user interface. This guide assumes familiarity with NORS. Additional training guides and resources for NORS can be found on the NORS website (<http://www.cdc.gov/nors/training/index.html>).

For questions, concerns, or more information about integrated data cleaning, please contact the CDC NORS Team at NORSAdmin@cdc.gov.

Finding Reports with Entry Issues

There are two ways to generate a list of reports with entry issues: 1) using the “Reports” page and 2) via the Data Download.

Reports Page

Users may quickly identify reports with entry issues from the “Reports” page.

1. On the “Reports” page, the “Entry Issues” column indicates the number of data cleaning tasks remaining. Users can filter for reports where entry issues exist by searching or selecting reports with 1 or more issues in the “Entry Issues” column.
2. Users can also narrow their search for reports with correction needed entry issues (those that must be addressed before finalizing the report) by adding the “Correction Needed” column using the column chooser button at the top right of the table. The “Correction Needed” column indicates the number of correction needed issues present in each report displayed.
3. To assist with data cleaning, list views created by CDC are also available for NORS users to identify reports with entry issues for recent years. Users can access these views from the “Reports” page by clicking on the dropdown menu next to “All Reports”. See the section “Data Cleaning List Views” on page 10 for more information.

The screenshot shows the NORS Reports page. The left sidebar has a 'Reports' menu item highlighted. The main content area displays a table titled 'All Reports'. The table has columns for CDC ID, State ID, Record Status, Agency, Created, Owner, Mode of Trans., First Ill Date, Entry Issues, and Correction needed. A red box highlights the 'Entry Issues' and 'Correction needed' columns. A callout box labeled 'COLUMN CHOOSER' points to the table's column selection controls.

CDC ID	State ID	Record Status	Agency	Created	Owner	Mode of Trans...	First Ill Date	Entry Issues	Correction needed
		Active		10/25/2023		Person-to-person	1/23/2023	15	2
		Active		10/4/2023		Person-to-person	9/20/2023	20	4
		Active		10/4/2023		Person-to-person	9/20/2023	6	0
		Active		10/4/2023		Person-to-person	9/9/2023	8	4
		Active		10/4/2023		Person-to-person	9/14/2023	18	4
		Active		10/4/2023		Person-to-person	9/18/2023	6	0
		Active		10/4/2023		Person-to-person	9/12/2023	6	0
		Active		10/4/2023		Person-to-person	6/23/2021	6	2
		Active		10/4/2023		Person-to-person	8/31/2023	4	0
		Active		10/4/2023		Person-to-person	9/15/2023	16	4
		Active		10/4/2023		Food	9/3/2023	12	4
		Active		10/4/2023		Person-to-person	8/26/2023	8	4
		Active		10/4/2023		Food	8/12/2023	10	2
		Active		10/4/2023		Person-to-person	8/27/2023	6	0




Data Download

Entry issues, user comments, and corresponding descriptions are downloadable as part of the NORS dataset from the Reports page.

These appear in a "Finalization" tab in the flattened download and a "Finalization_Issues" tab in the relational download. Additional information on downloaded variables can be found in the NORS flat and relational data dictionaries from the download menu.

Download Report data ✕

Select the desired export format:

- Full report (Relational)**
All report data exported to relational format for analysis 
- Full report (Flattened)**
All report data exported to flattened format for analysis 
- NORSDirect format (Flattened)**
Flat data format that can be used with NORSDirect Data Import 

[Download](#)

[Close](#)

Entry Issues within a Report

Report Panel

To view data cleaning tasks within each report, refer to the “Report” panel on the right side of the window. Data cleaning tasks, called entry issues, are organized by form section.

Correction needed issues are logic checks in the interface, designed to prevent users from entering inconsistent data. They will appear with an ‘x’ on the right-side “Report” panel and in pink in the data entry interface. For example, a correction needed issue will appear if a user enters a date the last case became ill that occurs before the date first case became ill.

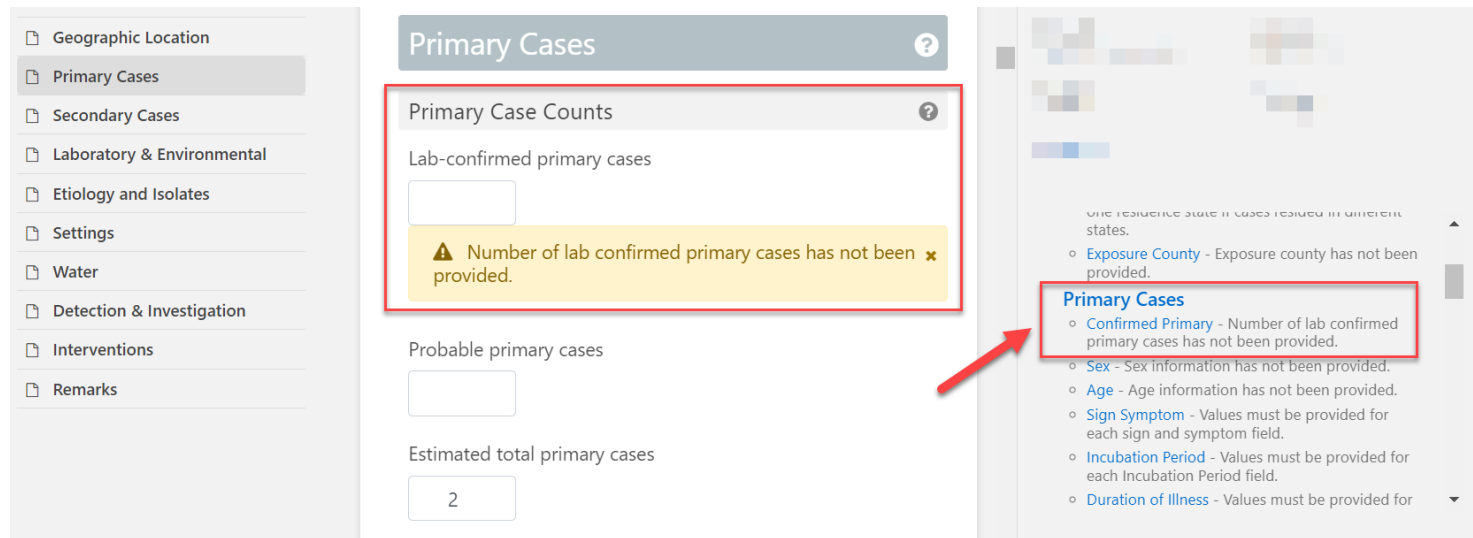
The screenshot displays a software interface for managing reports. At the top, there are tabs for 'REPORT', 'AGENCY', and 'STATUS Active'. A search bar labeled 'REPORT SEARCH' contains the text 'CDC or State ID'. On the left, a sidebar lists various report sections: Outbreak, Geographic Location, Primary Cases, Secondary Cases, Laboratory & Environmental, Etiology and Isolates, Settings, Food, Traceback & Recall, Detection & Investigation, Interventions, and Remarks. The main content area is titled 'Outbreak' and contains a 'Primary Mode of Transmission' field with the value 'Food' and a 'Dates' section. The 'Dates' section has two input fields: 'Date first case became ill' with the value '7/16/2023' and 'Date last case became ill' with the value '7/15/2023'. A pink error message is displayed below the second field: 'Last ill date cannot be prior to first ill date.' On the right, a 'Report' panel shows sharing options and a list of entry issues. One issue is highlighted with a red box: 'Outbreak' with a sub-item 'Last Ill Date - Last ill date cannot be prior to first ill date.' Another issue is partially visible: 'Geographic Location' with the sub-item 'Exposure County - Exposure county is required.'

Warnings are checks that appear when recommended data fields are missing. These are not required but recommended to be completed before finalizing a report. They will appear on the right-side “Report” panel and in yellow in the data entry interface. For example, a warning will appear if a user does not enter any information about sex or age of cases.

Most entry issues need to be addressed by editing or completing the fields in the report. For **verification issues**, the user is asked to check a box to verify information or provide an explanation in a free text box when the user finalizes a report. For example, if a death is reported, the user will be prompted upon finalization to verify the number of deaths caused by the outbreak.

When addressing entry issues, there are two ways to quickly navigate to the relevant section or fields:

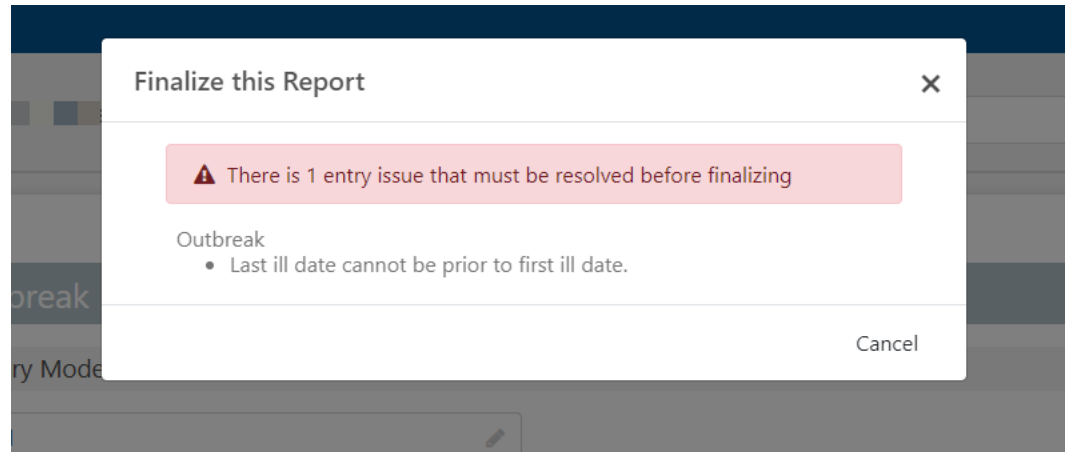
1. Clicking on the hyperlinked section header on the right-side “Report” panel (e.g., Primary Cases) will take the user to that section in the report.
2. Clicking on the hyperlinked entry issue name (e.g. Confirmed Primary) will take the user to the relevant field in the report. The issue description will be displayed next to the question (see screenshot to the right).



Addressing Issues while Finalizing the Report

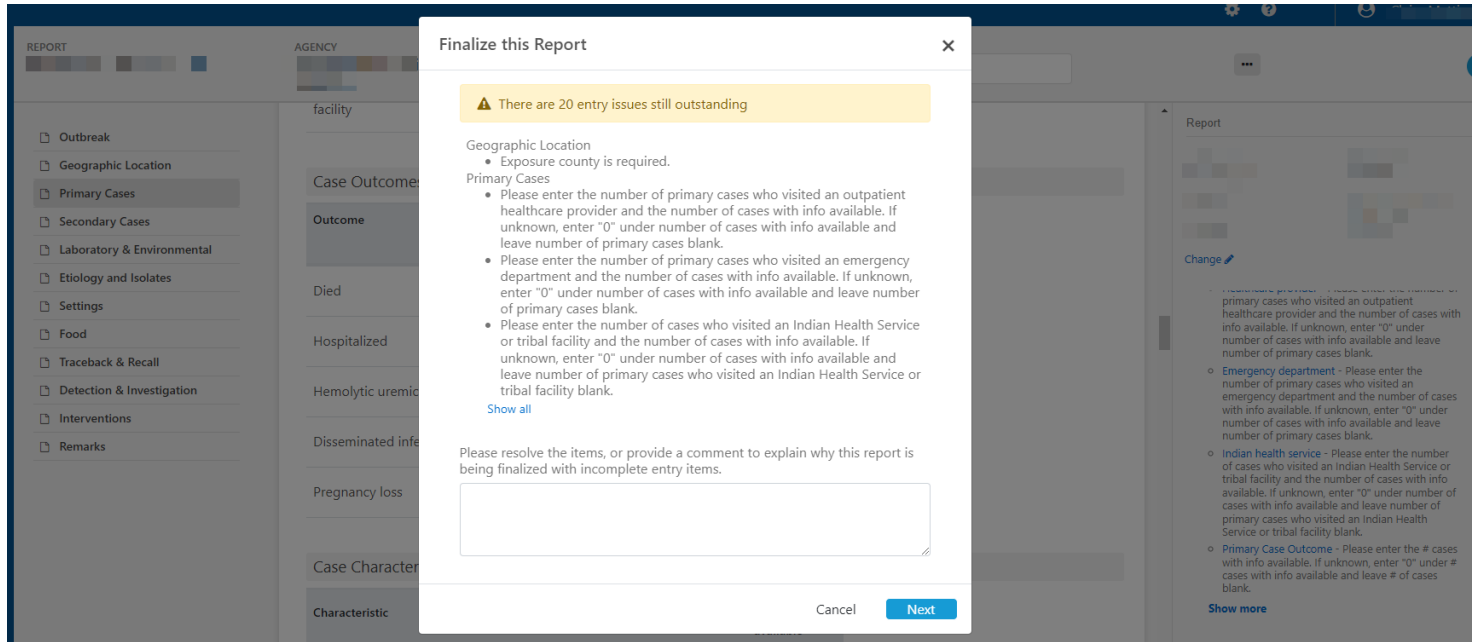
Users can also view all outstanding entry issues when finalizing a report. To finalize a report, click on the pencil icon next to “Active” on the top of the report page. Click “Finalize” when ready to finalize the report.

Correction needed issues will prevent a report from being finalized until they are resolved. If there are any outstanding correction needed issues, they will appear in a pop up when finalizing a report. Users can cancel out of the pop-up notification, return to the report, and make the necessary correction(s).



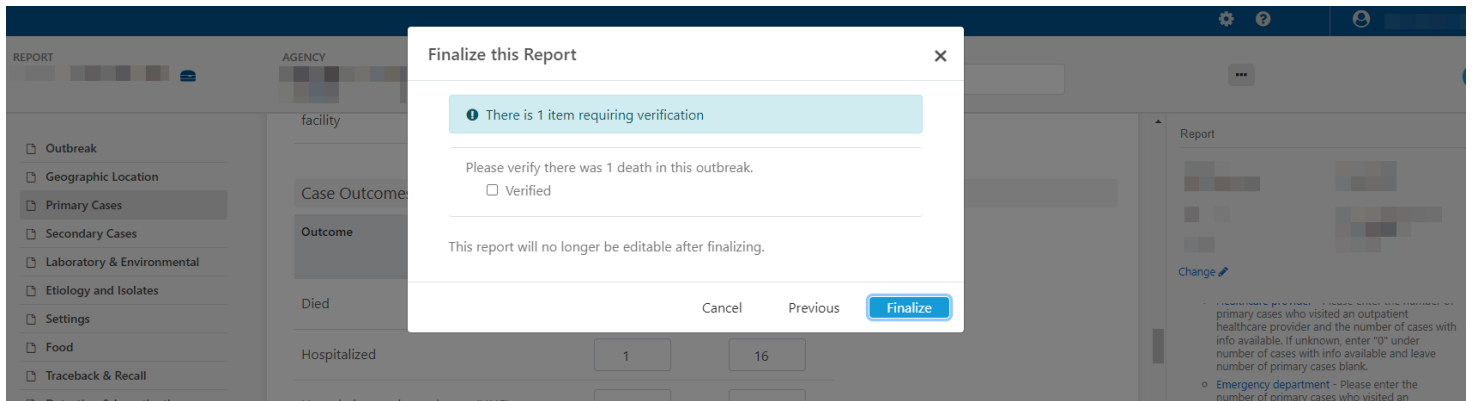
Outstanding warning and verification issues will not prevent a report from being finalized but will appear in a pop-up when a user begins to finalize a report. If there are warnings, a user must enter a comment explaining why the entry issues are not resolved before proceeding.

If any fields require verification, users can select “Next” after entering a comment. Fields can then be verified by selecting the “Verified” checkbox under each prompt.



Once the required comment and/or verifications have been entered, the report can be finalized.

Note: To add or correct data in a report that was previously finalized, open the report and select the pencil icon next to the “Finalized” status in the bar at the top of the screen. Select “Reopen” to change the report status to back to active. Finalize the report again once you have added or corrected the data.



How to Access a List of NORS Entry Issues

A complete list of all the cleaning checks NORS runs and their descriptions can be accessed on the Administration page in NORS by selecting the gear icon in the upper right corner, then selecting “Entry Issues” from the list on the left. This list may be searched, filtered, and exported to Excel.

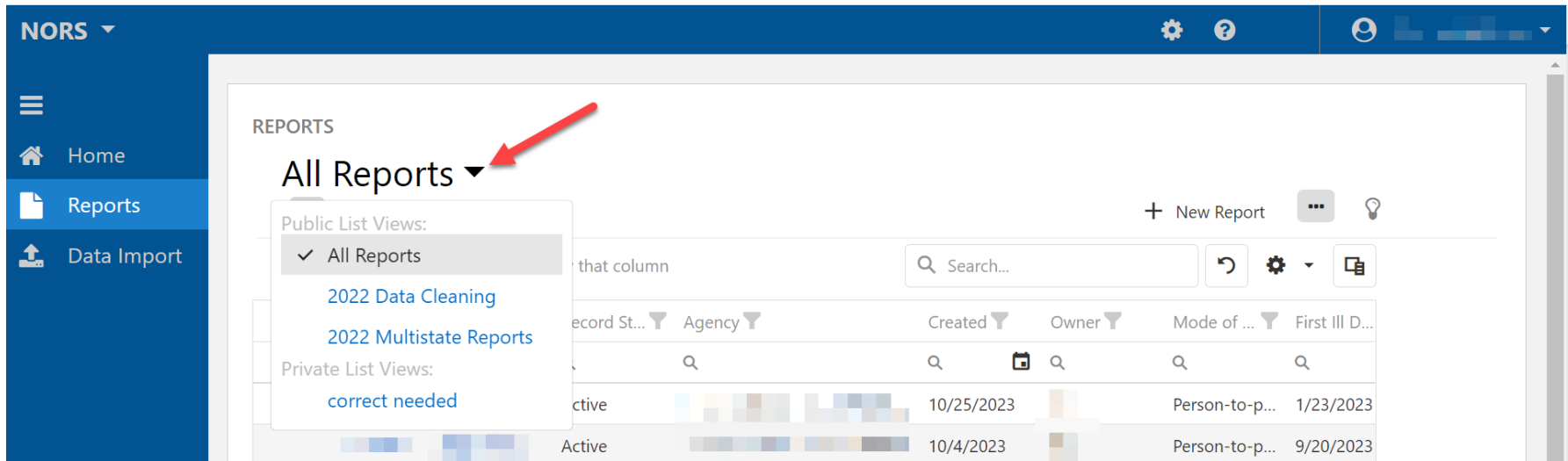
The column labeled “Condition” details the logic query used to trigger the entry issue prompts. Note that in some cases, the condition refers to variable names in the NORS database that are not the same as those used in data downloads and NORSDirect uploads (e.g., TransmissionMode instead of PrimaryMode). For additional guidance or clarification on a specific entry issue, please email the CDC NORS Team at NORSAdmin@cdc.gov for assistance.

The screenshot shows the NORS Administration interface. On the left is a navigation menu with options: Home, Reports, Data Import, Users, Agencies, Profiles, Help Management, Category Assignment, NORS Direct – Data Import, Contributing Factors, Entry Issues (highlighted), and Message Center. The main content area is titled 'Administration' and 'Entry Issues'. At the top right of the main area, there is a gear icon (settings) and a question mark icon (help). A red arrow points to the gear icon with the text 'Link to Administration Page'. Below the title, there is a search bar and an 'Export to Excel file' button. A red arrow points to the 'Export to Excel file' button with the text 'Export to Excel file'. The main content is a table with columns: Active, Issue Type, Section, Field, Name, Message, and Condition. The table contains two rows of data.

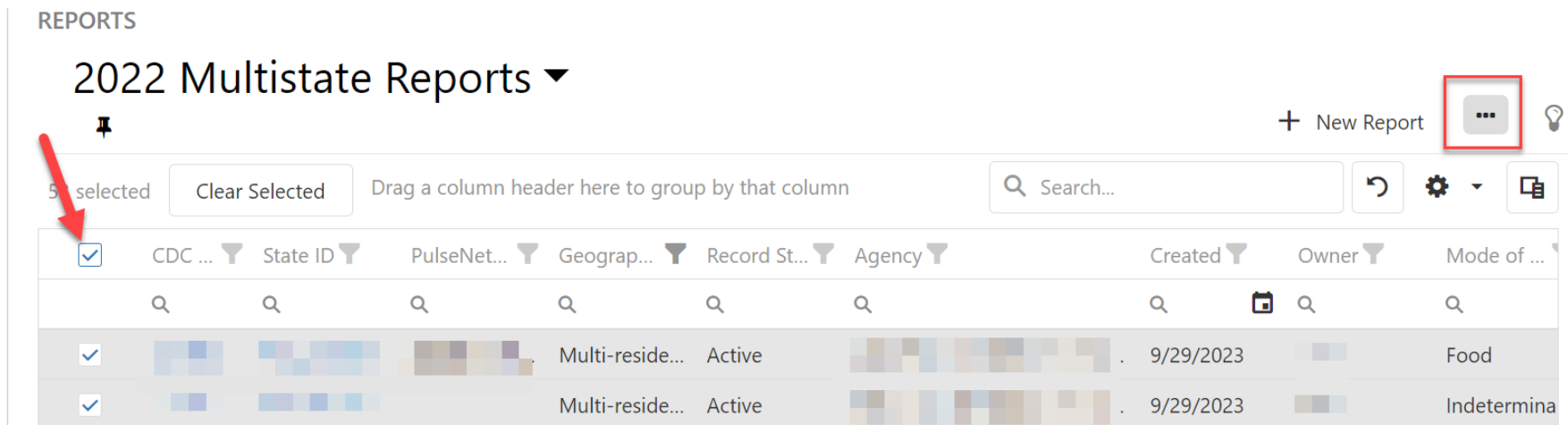
Active	Issue Type	Section	Field	Name	Message	Condition
<input checked="" type="checkbox"/>	Correction needed	Outbreak	LocalReportDate	Local Report Date	Local report date cannot be prior to first ill date.	LocalReportDate is not null and less than FirstIllDate ...
<input checked="" type="checkbox"/>	Correction needed	Outbreak	DateLastIll	Last Ill Date	Last ill date cannot be prior to first ill date.	LastIllDate is not null and less than FirstIllDate ...

Data Cleaning List Views

To assist with data cleaning, list views are available for NORS users to identify reports with entry issues. Users can access these views from the “Reports” page by clicking on the dropdown menu next to “All Reports” (red arrow in screenshot below).



For all list views, users can export the outbreak data in flat and relational Excel formats by selecting individual reports or using the “select all” checkbox (red arrow in screenshot below), clicking on the ellipsis menu on the top right of the page (red box in screenshot below), and selecting “Download report data.” Additional tips for using list views are available by clicking on the “lightbulb” icon on the top right of the page.



Reports can be filtered by any column using the filter icon next to that column header. Column names may be truncated depending on window size and number of columns displayed. Users can also search any column for specific information by typing in the box under the column header.

Users can select new columns to display in the list view or remove unneeded columns by using the Column Chooser feature in the top right corner (red arrow in screenshot below). This will bring up a list of the available columns that can be checked or unchecked.

2022 Multistate Reports ▼

Drag a column header here to group by that column

Search...

<input type="checkbox"/>	CDC ...	State ID	PulseNet...	Geograp...	Record St...	Agency	Created
<input type="checkbox"/>							
<input type="checkbox"/>							
<input type="checkbox"/>							
<input type="checkbox"/>							
<input type="checkbox"/>							
<input type="checkbox"/>							

Column Chooser

- CDC ID
- State ID
- Form Version
- PulseNet Code
- Geographic Exposure
- Record Status

To save a customized list view for future use, users can select the gear icon on the top right of the page and select "Save as New list view". The new list view can then be named and given a description. A list view created by a user will appear only for that user under "Private List Views". To set a customized list view as the default list view rather than seeing "All Reports", choose the desired list view from the dropdown menu and then select the pin icon to the right.

The left screenshot shows the top right corner of the interface with a gear icon menu open. The menu options are: Save as New list view, Save list view, Rename list view, and Delete list view. A red arrow points to the gear icon.

The right screenshot shows the 'REPORTS' section with a dropdown menu for 'All Reports'. A red arrow points to the dropdown arrow, and a red box highlights a pin icon next to the 'All Reports' text. Below the dropdown, there are sections for 'Public List Views' (All Reports, 2022 Data Cleaning, 2022 Multistate Reports) and 'Private List Views' (CaliciNet).




[Year] Data Cleaning List View

The [Year] Data Cleaning list view, accessible to all NORS users, displays a list of outbreak reports entered by the user's agency where the first illness occurred in the year specified in the name of the view. The view defaults to show outbreaks of all modes of transmission. If users have access to NORS reports entered or shared by other agencies, those reports will appear as well. All users can sort and filter by primary mode, reporting agency, or any other column by clicking on the filter icon next to the respective column header.




Users can view and filter reports with entry issues using the "Entry Issues" and "Correction Needed" columns. If these columns cannot be seen in the screen, try moving the scroll bar to the right to view these columns. As stated above, Correction Needed issues will prevent a report from being finalized until they are resolved. Reports must have a "Finalized" record status to be released for data requests, analyses, and use in the online NORS Dashboard. Clicking on the hyperlinked CDC ID or State ID opens the NORS report so that these issues can be addressed in the user interface.



REPORTS

2022 Data Cleaning ▾

 + New Report  

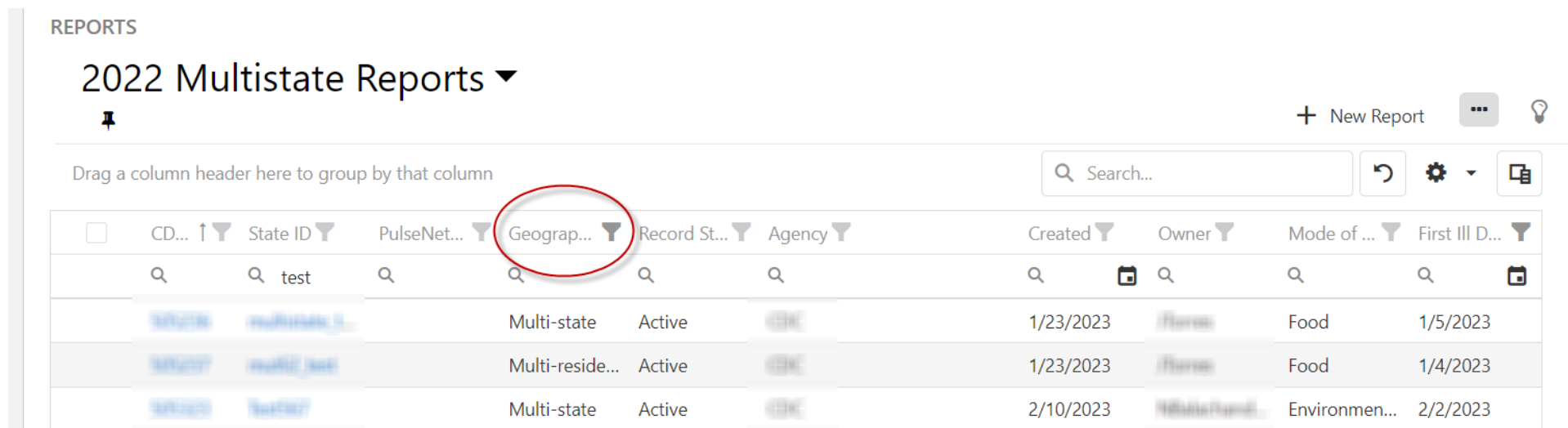
Drag a column header here to group by that column

<input type="checkbox"/>	CDC ID ▾	State ID ▾	Record St... ▾	Agency ▾	Created ▾	Owner ▾	Mode of ... ▾	First Ill ... ↑ ▾	Entry I... ▾	Correctio... ▾
	<input type="text" value="Q"/>	<input type="text" value="test"/>	<input type="text" value="Q"/>	<input type="text" value="Q"/>	<input type="text" value="Q"/> 	<input type="text" value="Q"/>	<input type="text" value="Q"/>	<input type="text" value="Q"/> 	<input type="text" value="Q"/>	<input type="text" value="Q"/>
	202182	reg-water L...	Active	CHC	11/17/2022	reg-water	Water	1/1/2022	7	0
	107240	pennsylvania...	Active	CHC	2/23/2023	Transmission	Animal cont...	1/5/2022	40	0
	202188	reg-drinking...	Active	CHC	9/28/2022	reg-water	Water	9/1/2022	8	0

[Year] Multistate Reports List View

This [Year] Multistate Reports list view, accessible to all NORS users, displays a list of multistate exposure and multistate residency outbreak reports entered by the user's agency, as well as reports entered and shared by another NORS agency or reporting site or CDC. This view includes outbreak reports of all modes of transmission where the first illness occurred in the year specified in the list view name. Reports can be filtered by the type of multistate outbreak using the filter icon on the "Geographic Exposure" column (circled in red in screenshot below).



REPORTS

2022 Multistate Reports ▾

📌 + New Report ⋮ 💡

Drag a column header here to group by that column

🔍 Search...

<input type="checkbox"/>	CD... ↑ ▾	State ID ▾	PulseNet... ▾	Geograp... ▾	Record St... ▾	Agency ▾	Created ▾	Owner ▾	Mode of ... ▾	First Ill D... ▾
🔍	🔍 test	🔍	🔍	🔍	🔍	🔍	🔍 📅	🔍	🔍	🔍 📅
🔗	100206	Multi-state...		Multi-state	Active	CDC	1/23/2023	Flora	Food	1/5/2023
🔗	100207	Multi-reside...		Multi-reside...	Active	CDC	1/23/2023	Flora	Food	1/4/2023
🔗	100208	Multi-state		Multi-state	Active	CDC	2/10/2023	Whitehand...	Environmen...	2/2/2023

Please note that this view is for informational awareness, and reporting sites are not responsible for addressing entry issues in reports created and shared by other agencies or CDC. Additional information on multistate outbreak reporting is available in Appendix B of the NORS guidance document at <https://www.cdc.gov/nors/downloads/appendix-b.pdf>. If a multistate report is not seen in this view as expected, it is possible that the date of first illness is not in the year specified, or that the report has not yet been shared. Please contact NORSAdmin@cdc.gov with any questions or concerns about report sharing.

If assistance is needed with other functions of NORS, please refer to the online training guides and guidance documents located on the NORS website (<http://www.cdc.gov/NORS>). For further assistance, questions, or comments, please email the CDC NORS Team (NORSAdmin@cdc.gov).