



Dialysis Component Surveillance Manual

Visit the Dialysis Event Homepage

<http://www.cdc.gov/nhsn/dialysis/dialysis-event.html>

NHSN Helpdesk

nhsn@cdc.gov or [ServiceNow](#) Portal



NHSN Dialysis Event Surveillance Manual

The definitions and instructions used in this manual are the only criteria to be used to identify and report National Healthcare Safety Network (NHSN) Dialysis Component Surveillance. While some participants may not agree with all reporting criteria, it is important that NHSN participants consistently use them for reporting, so that metrics between facilities can be appropriately compared.

For information about other NHSN surveillance options, please refer to <http://www.cdc.gov/nhsn/>.

Direct questions about this manual to the NHSN Helpdesk (nhsn@cdc.gov) or through the ServiceNow portal. Put “Dialysis Manual” in the subject line.

The findings and conclusions in this document are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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NHSN Structure

The National Healthcare Safety Network (NHSN) is a secure, internet-based surveillance system open to all types of healthcare facilities in the United States. Surveillance options vary by facility type, each with an NHSN surveillance protocol that provides instructions for data collection and reporting. NHSN surveillance is categorized into components and modules.

Getting Started in NHSN

There is a process to getting started in NHSN which includes:

1. Completing required training
2. Enrolling the facility in NHSN
3. Completing set-up
4. Implementing a data collection process in your facility
5. Reporting data to NHSN

NHSN enrollment is not included in this manual; please refer to <http://www.cdc.gov/nhsn/dialysis/enroll.html> to get started in NHSN.

User Roles and Rights

Each person with access to NHSN has a unique user profile, which can be accessed through Secure Access Management Services (SAMS), using a grid card or mobile token, the user's email address in NHSN, and password. A user may have access to more than one NHSN facility/group, as long as the same email address is entered in each facility. User roles are facility and group specific, and therefore, may differ across facilities. User rights are both facility and component specific, and therefore, may differ both across facilities and within a facility across components (e.g., in a given facility, a user may have rights to enter data under the Dialysis Component, but not the Healthcare Personnel Safety Component).

Facility User Requirements

It is recommended that each NHSN facility have at least two users with administrative rights to simplify issues related to staff turnover. All NHSN users who no longer require NHSN access should be deactivated immediately (e.g., if they no longer work for the facility).

To ensure data quality, at least one staff member at the facility should be trained in and knowledgeable of how to report dialysis event data to NHSN. This is required regardless of whether electronic (clinical document architecture [CDA]) or manual methods are used to submit data.¹

Facility Component Primary Contacts

Each component has a primary contact person designated during enrollment or at the time a component is activated. This contact should be the person who interacts most closely with NHSN for the component. Participation in Dialysis Event Surveillance, a Dialysis Component Contact Person is required, and participation in vaccination reporting for patients and staff requires a Healthcare Personnel Safety contact person. Primary contacts are not mutually exclusive from NHSN roles. For example, the NHSN Facility Administrator and the Dialysis Component Primary Contact Person may be the same.

¹ CMS requires that at least one staff member at the facility is trained in and be knowledgeable of how to report dialysis event data to NHSN.

Facility Roles

- NHSN Facility Administrator:** The user who enrolls a facility in NHSN is designated as the NHSN Facility Administrator. Following facility enrollment, he or she is responsible for adding additional users and assigning their user rights. The NHSN Facility Administrator will remain in the role unless he or she reassigns the role to another existing facility user.
- Facility User:** All other users with access to the facility in NHSN. Their user rights determine their role(s) in NHSN. They may be assigned administrative rights.

Facility User Rights

<i>Category</i>	<i>Activity</i>	<i>Facility Administrator</i>	<i>Facility User with Administrator Rights</i>	<i>Facility User with Limited or All Rights</i>
Patients	View/add patients	X	X	X
	Edit/delete patients not shared across components	X	X	X
	Edit/delete patients shared across components	X		
Data Entry	View monthly reporting plan	X	X	X ²
	Add/edit monthly reporting plan	X	X	X ³
	View NHSN data	X	X	X ³
	Add, edit, delete NHSN data	X	X	X ⁴
Import/Export	Import or export NHSN data	X	X	X ⁴
Analysis	Analyze data, create NHSN reports	X	X	X ⁴
Annual Survey	View/add/edit survey data	X	X	X
Users	View facility users and user rights	X	X	X ⁵
	Add/edit/deactivate facility user	X	X	
	Add/edit facility user rights	X	X	
Facility	Customize data collection forms	X	X	
	View/edit facility contact information and identifiers	X	X	
	Reassign NHSN Facility Administrator role	X		
	Activate/reactivate components	X		
	Deactivate components	X		
	View/add locations	X	X	
	Edit/delete locations not shared across components	X	X	
	Edit/delete locations shared across components	X		
Group	Confer rights to share facility data with a group	X	X	
	Join a group	X	X	
	Leave a group	X	X	
	Nominate a group	X	X	

² If assigned “View Data” or “All Rights” on the Edit User Rights screen

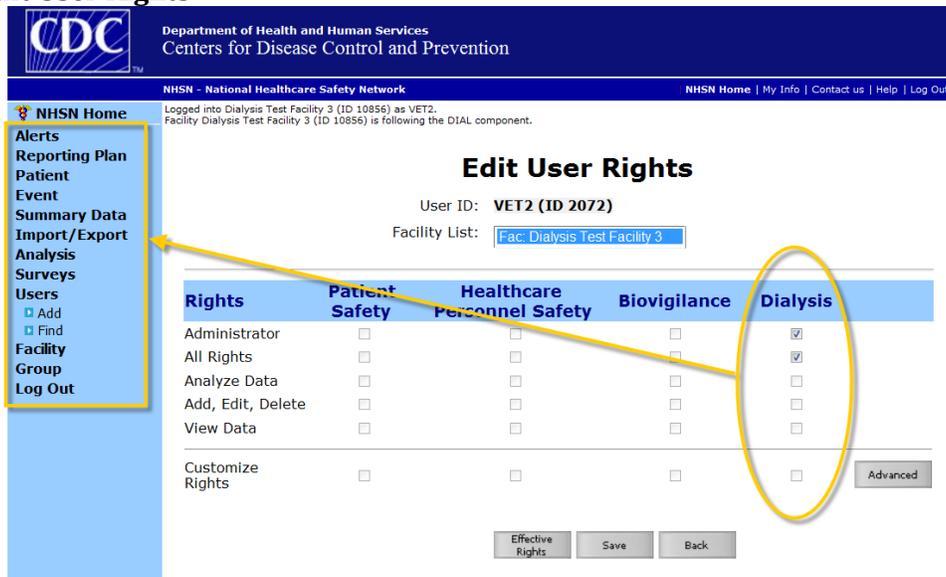
³ If assigned “Add, Edit, Delete” or “All Rights” on the Edit User Rights screen

⁴ If assigned “Analyze Data” or “All Rights” on the Edit User Rights screen

⁵ A facility user may view only their own user rights under the “My Info” link

A facility user’s rights determine which options appear on the NHSN navigation bar.

Facility “Edit User Rights”



Group Roles

- **NHSN Group Administrator:** The NHSN Group Administrator is selected when a group is nominated in NHSN. Once the NHSN Group Administrator has access to NHSN, they are responsible for adding additional group users and assigning their user rights. The NHSN Group Administrator remains in their role, unless they reassign the role to another existing group user.
- **Group User:** All other users with access to the group. Their user rights determine their role(s) in NHSN. Their rights to facilities that belong to the group may be limited to a specific subset, as determined on the “Edit Users Rights” screen. They may be assigned administrator rights for the facilities to which they have access.

Group User Rights

A group’s access to a facility’s data is determined solely by what that facility agrees to share by conferring rights.

<i>Category</i>	<i>Activity</i>	<i>NHSN Group Administrator</i>	<i>Group User with Administrator Rights</i>	<i>Group User with Limited or All Rights</i>
Data	View facility’s monthly reporting plans	X	X	X ⁶
	View NHSN facility data	X	X	X ⁷
Analysis	Analyze facility data, create NHSN reports	X	X	X ⁷
Annual Survey	View Facility Survey	X	X	X ⁷
Users	View group users and user rights	X	X	X ⁸
	Add/edit/deactivate group users	X	X	
	Add/edit group user rights	X	X	
Group	View/edit Group Information	X	X	
	Reassign NHSN Group Administrator role	X		
	Set Joining Password	X	X	
	Evict Members	X	X	
	Define Rights	X	X	
	Rights Acceptance Report	X	X	

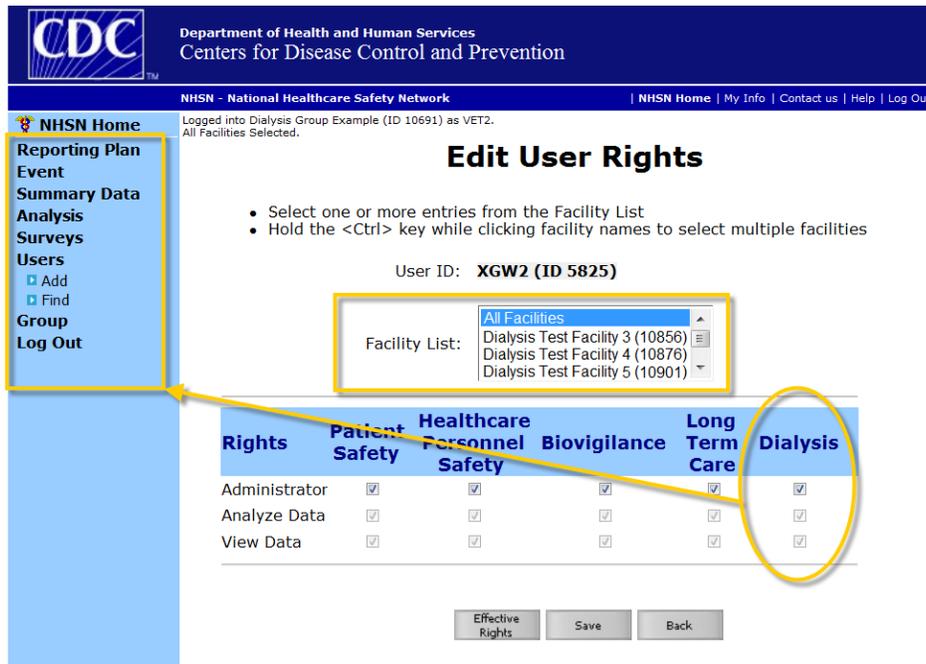
A group user’s rights determine which options will appear on the NHSN navigation bar.

⁶ If assigned “View Data” on the Edit User Rights screen

⁷ If assigned “Analyze Data” on the Edit Users Rights screen

⁸ A group user without administrative rights may only view his or her own user rights under the “My Info” link

Group “Edit User Rights”



Required Training

Training is required to orient users to the system and ensure data are collected and reported to NHSN correctly. Please visit the NHSN Dialysis Event Homepage for current training materials at <http://www.cdc.gov/nhsn/dialysis/dialysis-event.html>.

Training requirements vary based upon user roles:

Training Title	Required For	Description
NHSN Enrollment for Outpatient Dialysis Facilities Facility Admin Enrollment Guide	<ul style="list-style-type: none"> ▪ Persons without access to NHSN who will enroll a dialysis facility in NHSN⁹ ▪ Group users who will be assisting facilities with the enrollment process 	Review of the 5-step enrollment process: training and preparation; register with Secure Access Management Services (SAMS) and submit identity verification forms online; and sign consent.

⁹ Most existing outpatient dialysis facilities are already enrolled in NHSN: check with the NHSN Helpdesk (nhsn@cdc.gov) to determine if your facility needs to be enrolled.

<p>NHSN Set-up for Outpatient Dialysis Facilities</p> <p>Dialysis Enrollment Checklist</p>	<ul style="list-style-type: none"> ▪ NHSN Facility Administrators ▪ Users with administrator rights ▪ Group users who will be assisting facilities with the set-up process 	<p>Review of the set-up process includes NHSN navigation and organization, adding users, adding a reporting location, adding monthly reporting plans, and introduction to patient data import and groups for data sharing.</p>
<p>NHSN Dialysis Event Surveillance Training Video</p> <p>Dialysis Event Surveillance Annual Training Course and Post-Assessment</p>	<ul style="list-style-type: none"> ▪ All facility users (regardless of user rights/roles) ▪ Non-users who are involved in data collection ▪ Group users who will be assisting facilities with reporting or who will be analyzing facility data 	<p>Review the purpose of surveillance, describe the Dialysis Event Protocol, describe reporting requirements, including survey, monthly reporting plans, Denominators for Dialysis Event Surveillance–Census form, and Dialysis Event form, as well as define dialysis events. Examples of how to apply surveillance definitions.</p>

Training requirements vary based upon user roles: (continued)

Training Title	Required For	Description
<p>NHSN Dialysis Event Protocol</p> <p><i>Document (self-study)</i></p> <p>Dialysis Event Protocol</p>	<ul style="list-style-type: none"> ▪ All facility users (regardless of user rights/roles) ▪ Non-users who are involved in data collection ▪ Group users who will be assisting facilities with reporting or who will be analyzing facility data 	<p>Provides brief context for infection surveillance in outpatient dialysis settings. Provides exact definitions for dialysis events, the 21-day rule, and vascular access type categories. Detailed reporting instructions.</p>
<p>Joining a Group and Conferring Rights for Outpatient Dialysis</p> <p>Join a Group</p>	<ul style="list-style-type: none"> ▪ NHSN Facility Administrators ▪ Users with administrator rights who will join their facility to a group ▪ Group users who will be assisting facilities with joining their group 	<p>Describes the Group function used to share data. Outlines steps for joining a group and introduces the Confer Rights screen that specifies which data are shared with the group, review elements specific to Dialysis Event data sharing.</p>

Locations for Dialysis Event Reporting

Each NHSN facility must have at least one active location where dialysis surveillance occurs. Each surveillance location is “mapped” to a corresponding CDC Location Description, which is a CDC-defined designation given to a patient care area with patients who have similar disease conditions or who are receiving care from similar medical or surgical specialties.

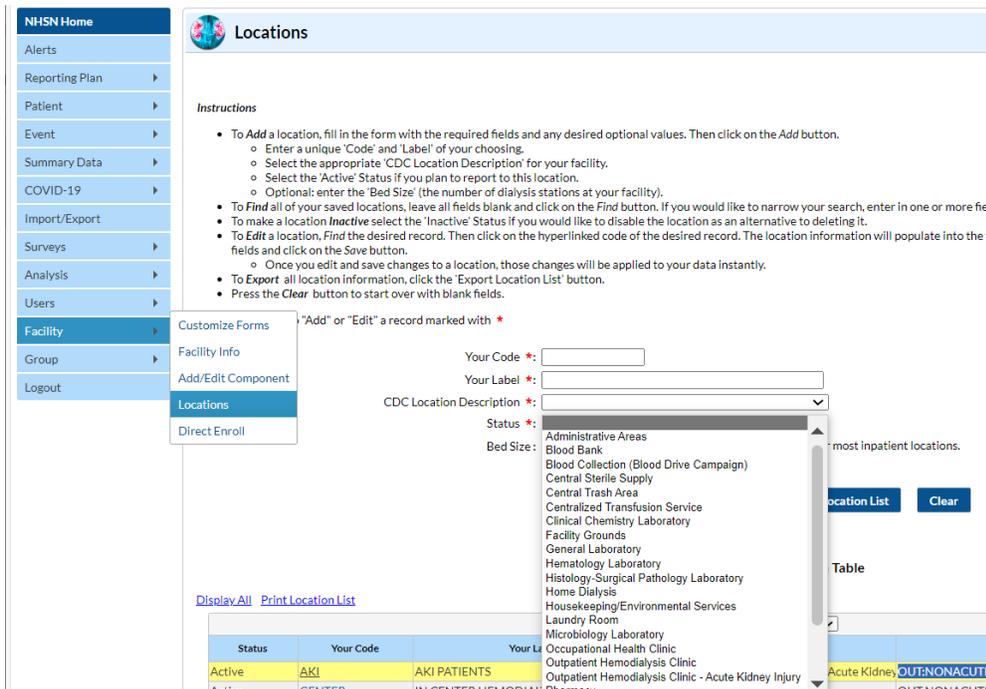
Following facility activation as part of the NHSN Set-Up process, a reporting location is added and assigned a code and label by an administrative user. Required training for set-up is available at <http://www.cdc.gov/nhsn/Training/dialysis/index.html>.

Dialysis Event surveillance data are reported to the “Outpatient Hemodialysis Clinic” location.

CDC Location Description	Definition	NHSN Location Code	CDC Location Code
Outpatient Hemodialysis Clinic	An outpatient setting where maintenance hemodialysis patients are evaluated and dialyzed.	1153-6	OUT:NONACUTE:CLINIC:DIAL
Outpatient Hemodialysis Clinic – Acute Kidney Injury	An outpatient setting where acute kidney injury hemodialysis patients are evaluated and dialyzed.	1268.2	OUT:NONACUTE:CLINIC:DIAL_AKI
Home Hemodialysis ¹⁰	Hemodialysis performed by a patient (and/or the patient’s caregiver) at home.	1262-1	COMM:NONACUTE:HOME:DIAL

Other Locations: In addition to the locations in the above table, dialysis facilities have the option to add other locations, which are used for different types of surveillance, such as the surveillance options that are part of the Healthcare Personnel Safety Component. Visit www.cdc.gov/nhsn for information on other surveillance options.

¹⁰ Do NOT include home hemodialysis patients when reporting for maintenance hemodialysis outpatients in your Outpatient Hemodialysis Clinic location.



Monthly Reporting Plan

NHSN uses the Monthly Reporting Plan to identify which data have been reported according to an NHSN surveillance protocol. Only data reported according to an NHSN protocol are combined to generate national statistics that are used for inter-facility comparisons.

A monthly reporting plan must be saved before data can be submitted for that month. When adding a new plan, the message “No data found for [month,year]” will display. This simply indicates that a plan had not previously been created. Otherwise, the existing plan will display and may be edited.

To indicate that your facility will not submit data according to any NHSN surveillance protocols, select the “Not Participating in NHSN this Month” checkbox and “Save” the plan. Make this selection **only** if:

1. the facility is closed or non-operational for the entirety of a given month;
2. when the facility will not be adhering to the Dialysis Event Protocol for the entirety of a given month.

If any data are reported for these months when the “[Not Participating in NHSN this Month](#)” box is checked, these data are referred to as “off-plan.” Off-plan data are excluded from CDC analyses and are not shared with the Centers for Medicare and Medicaid Services (CMS).



A. To indicate your facility will collect and submit data according to NHSN protocol(s), select the corresponding checkbox(es) for any combination of the seven Dialysis Component surveillance options on the Monthly Reporting Plan:

DE: [Dialysis Event](#) – If the location has been appropriately mapped to the correct CDC Location Description, a checkmark automatically appears in the box below “Dialysis Event (DE).” It is the responsibility of the user to ensure the box is appropriately checked. Users can manually check this box to indicate that all Dialysis Event data submitted for the month are collected according to the NHSN Dialysis Event Protocol.

PPM: Prevention Process Measures

1. Hand Hygiene: Optional process measure surveillance for dialysis facilities that monitor opportunities for hand hygiene and assess frequency that staff successfully perform hand hygiene when indicated. Select the “Hand Hygiene (HH)” checkbox to indicate the facility will collect HH data according to the [NHSN Prevention Process Measures Protocol](#).

2. Hemodialysis Catheter Connection/Disconnection: Optional process measure surveillance for dialysis facilities that monitor catheter connection and disconnection practices. Select the “Hemodialysis Catheter Connection/Disconnection (CATHCON)” checkbox to indicate the facility will collect CATHCON data according to the [NHSN Prevention Process Measures Protocol](#).

3. Hemodialysis Catheter Exit Site Care: Optional process measure surveillance for dialysis facilities that monitor catheter exit site care practices. Select the “Hemodialysis Catheter Exit Site Care (CATHCARE)” checkbox to indicate the facility will collect CATHCARE data according to the [NHSN Prevention Process Measures Protocol](#).

4. Arteriovenous Fistula/Graft Cannulation/Decannulation: Optional process measure surveillance for dialysis facilities that monitor arteriovenous fistula and graft cannulation and decannulation practices. Select the “Arteriovenous Fistula/Graft Cannulation/Decannulation (FGCANN)” checkbox to indicate the facility will collect FGCANN data according to the [NHSN Prevention Process Measures Protocol](#).

5. Dialysis Station Routine Disinfection: Optional process measure surveillance for dialysis facilities that monitor dialysis station disinfection practices. Select the “Dialysis Station Routine Disinfection (DISINFECT)” checkbox to indicate the facility will collect DISINFECT data according to the [NHSN Prevention Process Measures Protocol](#).

6. Injection Safety: Optional process measure surveillance for dialysis facilities that monitor injection safety practices. Select the “Injection Safety (INJSAFE)” checkbox to indicate the facility will collect INJSAFE data according to the [NHSN Prevention Process Measures Protocol](#).

Dialysis event data submitted to NHSN during a month when the corresponding checkbox(es) on the Monthly Reporting Plan are selected are referred to as “in-plan.” These data will be included in CDC analyses and sent to CMS. Leave the remaining sections blank, scroll to the bottom of the screen and click “Save.”

Up to one year of Monthly Reporting Plans can be saved in advance (i.e. May 2024 through April 2025). Saved plans can be edited, if needed. If incomplete “off-plan” data exist, then these records must be completed before the Monthly Reporting Plan can be edited to make the records “in-plan.”

Forms and Documents

Refer to the Dialysis Event Protocol for reporting instructions, including when each of the following forms are completed. Accompanying form instructions provide an explanation for each data collection field.

Dialysis Event Protocol

[Dialysis Event Protocol](#)

Infection prevention information is located at: <http://www.cdc.gov/dialysis/>



Denominators for Dialysis Event Surveillance Form (Census Form)

[Denominators for Dialysis Event Surveillance \(Census Form\)](#)
[Denominators for Dialysis Event Surveillance \(Census Form\) Table of Instructions](#)

Dialysis Event Surveillance Form

[Dialysis Event Surveillance Form](#)
[Dialysis Event Surveillance Form Table of Instructions](#)

Dialysis Prevention Process Measures (PPM)

[Prevention Process Measures Protocol](#)
[Dialysis Prevention Process Measures Summary Form](#)
[Dialysis Prevention Process Measures Table of Instructions](#)

Audit Tools

[Hand Hygiene Observations](#)
[Hemodialysis Catheter Connection/Disconnection Observations](#)
[Hemodialysis Catheter Exit Site Care Observations](#)
[Arteriovenous Fistula and Graft Cannulation/Decannulation Observations](#)
[Dialysis Station Routine Disinfection Observations](#)
[Injection Safety Medication Preparation Observations](#)
[Injection Safety Medication Administration Observations](#)

Outpatient Dialysis Center Practices Survey

[Current Outpatient Dialysis Center Practices Survey](#)
[Outpatient Dialysis Center Practices Survey Table of Instructions](#)

Custom Data Collection Forms and Fields

Some NHSN participating facilities may be interested in expanding their data collection to support their quality improvement activities. These facilities have the option to create custom data collection forms or add custom data collection fields to existing NHSN forms. Users must have administrator rights to create custom forms or add custom fields.

Customized data collection forms and fields can be useful tools for prevention initiatives. If more than one facility is collecting the same information for group analysis, consider collecting and reporting custom data in the same manner to facilitate data analysis. If you are leading a prevention initiative and have questions about custom forms or fields, contact the [NHSN Helpdesk at nhsn@cdc.gov](mailto:nhsn@cdc.gov).



How to Create a Custom Data Collection Form

To create a custom event form:

1. From the NHSN navigation bar, select “Facility” and then “Customize Forms”
2. Select Form Type “Custom – DIAL– Event”
3. Follow on-screen instructions

Custom Dialysis Event Form

Some NHSN participating facilities may be interested in expanding their data collection beyond the required reporting of dialysis events which comply with the 21 day rule (found in the [Dialysis Event Protocol](#)), in order to support their quality improvement activities. These facilities have the option to create custom dialysis event forms to enter dialysis events that are fewer than 21 days from the previously reported event of the same type. In order to report a dialysis event that does not comply with the 21-day rule, an administrative user at the facility must create a custom dialysis event form. Users must have administrator rights to create custom forms. If you are leading a prevention initiative and have questions about custom forms or fields, contact the NHSN Helpdesk.

How to Create a Custom Dialysis Event Form

1. From the NHSN navigation bar, select “Facility” and then “Customize Forms”
2. Select Form Type “Custom – DE – Event”
3. Next to “Form,” enter any alphanumeric label (up to 5 characters)
4. Next to “Description,” enter any alphanumeric description (60+ characters available)
5. Add up to 50 additional custom fields (optional)
6. Click “Save”
7. To enter data in the custom dialysis event form, click “Event” on the NHSN navigation bar and then click “Add.” From the “Event Type” pull-down menu, select the name of the saved Custom-DE-Event form. All of the fields from the Dialysis Event form will appear in addition to any custom fields added by the user.
8. Once you have entered your data, click “Save.” A pop-up message will appear reminding you that the data entered on your Custom-DE-Event form will not be sent to CMS and will not be visible in your facility’s NHSN Line Listing – CMS ESRD QIP report.

How to Create a Report with Custom Dialysis Event Data

1. Go to the “Advanced” folder under “Output Options”
2. Click “Create new custom output”
3. On the screen that appears, select “Events_DE” from the Analysis Data Set pull-down menu
4. Select the Output Type (i.e. Frequency Table, Line Listing, etc)
5. Enter an Output Name and Output Title for your report
6. Select any other formatting or filtering criteria you wish
7. Click “Save” to save your custom report to run in the future

8. Click “Run” to run the report

The custom dialysis events will appear along with every other event that has been reported. To locate specifically the custom dialysis events in the report, look under the “Custom Event Type” column for the form name (up to 5-digits in length) that you created.

For a reference list of the labels given to custom fields, run the Line Listing – Custom Field Variable Names found under the “Advanced” and “Facility-Level Data” folders on the “Output Options” screen.

How to Add Custom Data Collection Fields to the Dialysis Event Form

Up to 50 custom fields can be added to each customizable form. There are three types of fields:

- Alphanumeric (maximum 15 characters)
- Numeric (maximum 11 digits)
- Date (mm/dd/yyyy)

To add custom fields to dialysis forms:

1. From the NHSN navigation bar, select “Facility” and then “Customize Forms”
2. Follow on-screen instructions

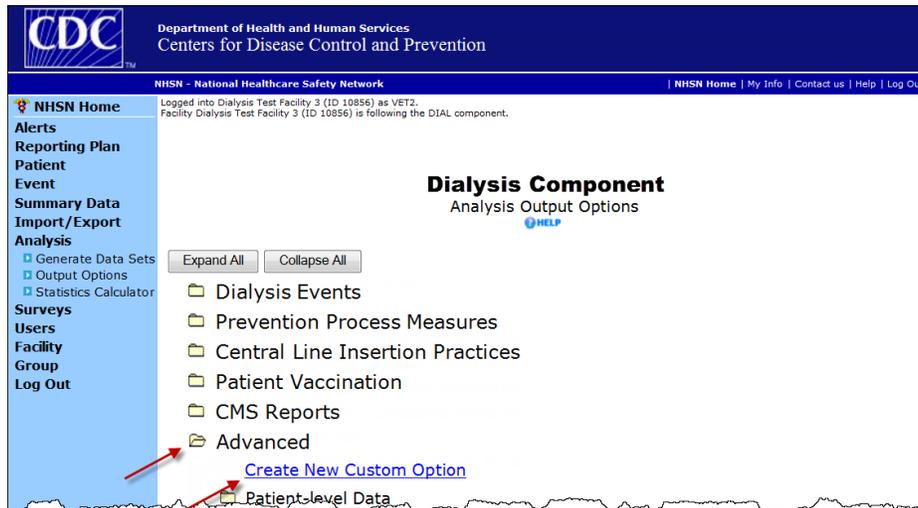
Form	Dialysis Event	Denominators for Dialysis Event Surveillance--Census Form
Form Type	CDC-Defined – DIAL-Event	CDC-defined – DIAL – Summary Data
Form	DIAL – Dialysis Event	DIAL –Denominators for Dialysis Event Surveillance—Census Form

Deleting/Inactivating Custom Fields

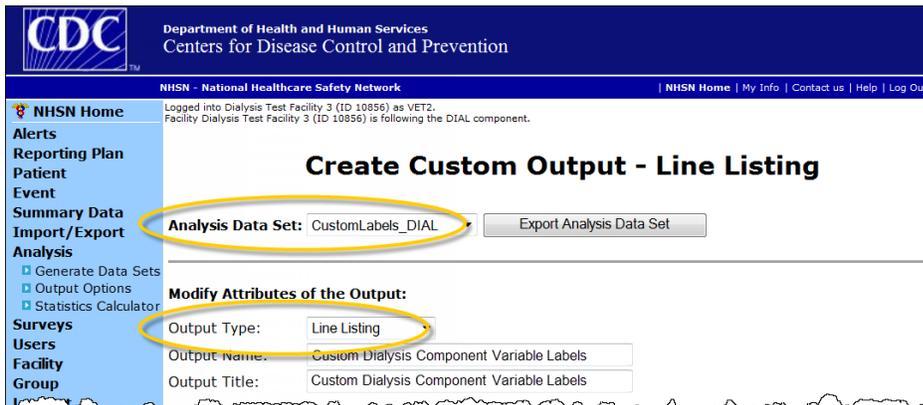
Once created, custom fields may be deleted only if data have not been collected. Otherwise, the field status can be set to “Inactive”: the field will continue to be visible on the form, but will no longer be available for use.

How to Create Reports with Custom Fields

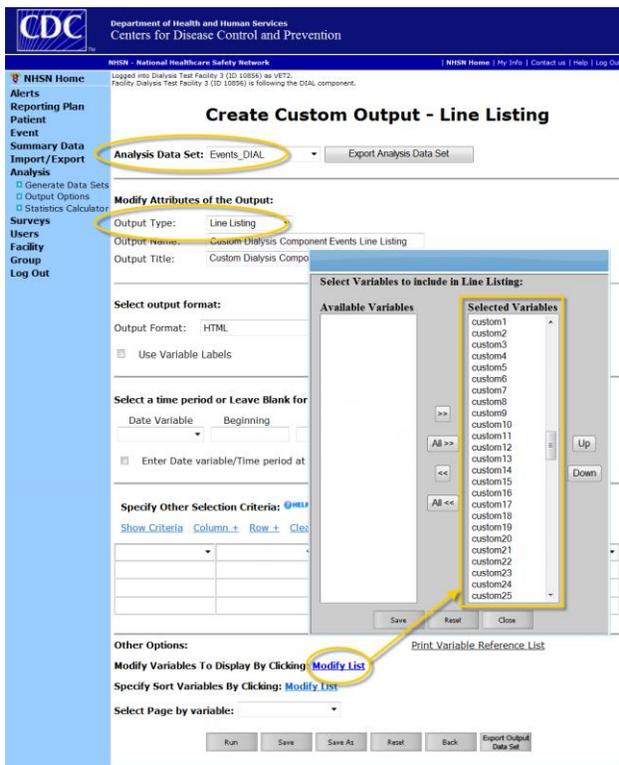
To run a report that includes your custom fields, open the “Advanced” output options folder and select “Create New Custom Option” (shown below).



For a reference list of the labels given to custom fields, run a line listing for the “CustomLabels_DIAL” data set (shown below).



On the “Create Custom Output” screen, select the desired data set (e.g., “Events”) from the dropdown menu (shown below). For output type, select “Line Listing.” Select the variables to include in the Line Listing by selecting the “Modify List” link next to “Modify Variables to Display By Clicking” option. A dialogue box with all relevant variables will appear. Scroll down the list until the “custom 1- 25” variables appear and add as many as necessary.



Reporting Methods

All data are collected according to the NHSN Dialysis Event Protocol; therefore, the meaning of the data should be the same, regardless of which reporting method is employed.

There are three modes for reporting numerator and denominator data to NHSN:

- **Manual data entry:** an NHSN user accesses <https://sams.cdc.gov> and logs into the Secure Access Management Services (SAMS) using their SAMS grid card and username and password and selects “NHSN Reporting” to select the facility of interest. Data are then manually typed into the NHSN web interface for that facility.
- **Manual CDA import:** an NHSN user accesses <https://sams.cdc.gov> and logs into the Secure Access Management Services (SAMS) using their SAMS grid card or username and password and selects “NHSN Reporting” to select the facility of interest. The NHSN Import/Export option is used to import a zip file containing one or more NHSN reports in CDA file format for that facility.
- **Batch CDA submission** using NwHIN Direct (a.k.a. automated send): an NHSN user accesses NwHIN Direct (an intermediate transmission mechanism) to send a zip file containing one or more NHSN reports in CDA file format for one or more facilities.



Clinical Document Architecture (CDA)

CDA is a document markup standard that specifies the structure and semantics of a clinical document (such as a discharge summary or progress note) for the purpose of information exchange. For the purposes of NHSN specifically, CDA is a file format that allows a facility's data to be imported electronically into NHSN. The data in the file must include all NHSN required elements for the particular report forms.

To create valid CDA files, facilities work with a CDA implementer to develop software that extracts NHSN data from the facility's available electronic sources of medical information (e.g., electronic medical record software, laboratory information, and admission, discharge, and transfer data) and organizes the data into a valid CDA file. To report, the CDA files are created, zipped, and then imported into NHSN.

A facility-based NHSN user is expected to review the data in NHSN on an ongoing basis to verify that data reported via CDA are complete, accurate, and representative of what should be reported if data were entered manually, on-site.

Using Multiple Modes of Reporting

NHSN enrollment, set-up (e.g., adding a reporting location and monthly reporting plans), and the Outpatient Dialysis Center Practices Surveys may only be completed manually. In addition, selecting the "report no events" checkboxes on the Denominators for Dialysis Event Surveillance—Census form must also be reported manually.

Facilities that use both manual and CDA methods to report numerator and denominator data must coordinate efforts to ensure that all data entered are accurately and completely reported.

CDA Data Validation

CDC expects facilities using CDA file submission to collect dialysis event data manually and compare it to CDA data for a minimum of three months to verify the data. This recommended timeframe should be extended in facilities that experience a low frequency of dialysis events. If discrepancies are identified, work with the CDA implementer to ensure all data are being correctly captured as described by the CDA Implementation Guide (IG) and the [Dialysis Event Protocol](#). If it is determined that incorrect data have been reported to NHSN, add, edit, and delete records in NHSN as necessary to make corrections.

Reporting for the CMS ESRD QIP NHSN Dialysis Event Reporting Measure

The Centers for Medicare and Medicaid Services (CMS) End Stage Renal Disease (ESRD) Quality Incentive Program (QIP) NHSN Dialysis Event reporting measure requirements can be met with any of the methods of reporting, including submitting data to NHSN via CDA. However, CDC recommends at least one staff member at the facility be trained in and knowledgeable of how to report dialysis event data to the NHSN, and have access to NHSN, regardless of the method of data submission used. A complete understanding of the NHSN



[Dialysis Event Protocol](#) is a prerequisite for the facilities participating in NHSN and this prerequisite must be met by at least one facility staff member.

1. Revisions are CDA record-to-CDA record only. That means that submission of a revised CDA record only impacts the original CDA record it is intended to update:
 - a. If the facility creates record(s) using the user interface and then other non-conflicting CDA records are submitted, those facility-entered records remain in NHSN unaffected.
 - b. If the facility creates a record using the user interface and then a conflicting CDA record is submitted (i.e., an event for same patient/event date/location OR duplicate denominator data), then that CDA record is rejected.
2. Cumulative CDA data submission is not possible without the use of succession management. That means that the CDA implementer has to *actively revise the version number of the CDA record* in order to replace the original record. Therefore, widespread overwriting of facility changes is unlikely, unless the CDA implementer has ALSO identified changes to the record.
3. If the CDA implementer has identified changes to a previously submitted record, any facility changes are lost if CDA succession management is used to replace the original record:
 - a. A CDA record is submitted
 - b. The facility modifies that record using the user interface
 - c. Succession management is used to submit a modified CDA version 2 record
 - d. Result: facility changes from the user interface are lost (CDA succession management record version 2 is maintained)

This is only problematic if the facility's changes are discrepant from the CDA implementer's changes. For example, if a CDA record for an ABX start is submitted, then the facility adds a PBC to that record, and then CDA succession management is used to resubmit the modified ABX start record (e.g., with modified outcomes), but *without* the PBC identified by the facility, then that positive blood culture would be lost.



Data Quality and Validation

The CDC has developed recommended approaches to investigate and enhance the accuracy and completeness of NHSN Dialysis Event data. Users should visit the NHSN Data Validation webpage for appropriate year's data validation guide and toolkit - [2023 Data Validation Resources | NHSN | CDC](#). This webpage was developed to assist nurses, infection preventionists, or quality professionals at outpatient dialysis facilities that report to NHSN, state health department, or end-stage renal disease (ESRD) Network personnel who work with facilities to enhance NHSN data quality for surveillance, reimbursement, quality improvement, research or public reporting purposes. The CDC has developed an [External Validation Toolkit and Appendices](#) document which include the templates and forms necessary to implement a data quality evaluation project.

To assist facilities with monthly and quarterly review of NHSN Dialysis Event data for accuracy and completeness, the CDC has developed a document titled '3 Steps to Review NHSN Dialysis Event Surveillance Data' (<http://www.cdc.gov/nhsn/PDFs/dialysis/3-Steps-to-Review-DE-Data-2014.pdf>). The document provides instructions to assist users in determining whether: (1) minimum monthly DE reporting requirements been met, (2) data have been submitted correctly and completely, (3) your facility is successfully reducing bloodstream infections.

Analysis & Reports

Monthly review of NHSN data is recommended to ensure all data have been reported and are accurate. Review of quarterly data is recommended to help detect problems in your facility, provide feedback to your staff, engage staff in quality improvement, and report to NHSN by quarterly deadlines.

With NHSN analysis, dialysis facilities can:

- Calculate risk-stratified dialysis event rates (e.g., vascular access infections)
- Benchmark against all NHSN facilities reporting dialysis events
- Use a variety of reports to inform quality improvement decisions

Components of a Rate

Stratified by vascular access type, rates are calculated by dividing the number of dialysis events by the estimated number of patients who were at risk for a dialysis event during each month, multiplied by 100 to determine the rate of infection per 100 patient-months. Typically, rates are stratified by vascular access type so that differences can be easily identified.

$$\text{rate} = \frac{\text{Dialysis Events (numerator)}}{\text{Patient Census (denominator)}} \times 100$$

To calculate rates for a period of time that exceeds one month, the monthly numerators are pooled (summed) and divided by the pooled monthly denominators and multiplied by 100.

Comparison statistics

NHSN rate tables and run charts provide aggregate rates combined from all facilities reporting according to the Dialysis Event Protocol. These aggregate rates can be used as a comparison for facilities. In addition to the aggregate rate, comparison statistics are provided (when possible) to indicate the statistical significance of any potential difference between facility and aggregate data.

These comparison statistics include:

- **p-value:** a measure of statistical significance that indicates the probability that any difference between the facility's rates and NHSN aggregated rates is due only to chance.
 - Typically, a p-value of <0.05 is considered a statistically significant difference. A p-value of <0.05 means that there is a greater than a 95% chance that the two rates being compared are truly different from each other.
- **Percentile:** a value that indicates where the facility's rate ranks within the distribution of all NHSN facility-specific rates.
 - The 50th percentile, also known as the median, indicates average performance: half of facilities have lower rates and half of facilities have higher rates.
 - The lower the percentile, the better the facility is performing relative to other facilities reporting to NHSN. For example, a rate in the 10th percentile indicates that



the facility's rate is lower than (=better than) 90% of other facilities that reported data to NHSN.

How to Create an NHSN Report (“Output Option”)

From the NHSN navigation bar, select “Analysis”

1. Generate new data sets
 - “Data sets” are the files that NHSN uses to create reports for your facility or group. Generating new data sets ensures reports include complete, up-to-date information.
 - A. By default, the “Generate New” button creates data sets that include the last three calendar years of the facility's NHSN data. The default date range is displayed on the date range bar.
 - B. If your facility has reported more than three calendar years of data, you can choose to generate cumulative data sets by first selecting the checkbox “Include all data reported to NHSN for this component,” prior to clicking on the “Generate New” button.
 - Each user has his or her own analysis data sets.
 - Data sets may take several minutes to generate, but the user can work elsewhere in NHSN while data sets are generating or minimize the application and check back later.

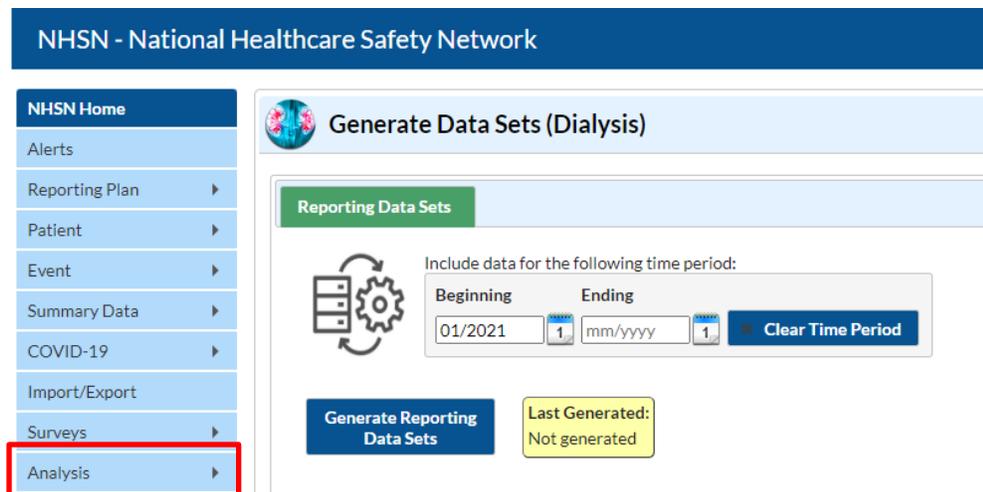


Figure 1.

2. Locate the reports (“Reports”) from the list of templates
 - All reports pertaining to dialysis are located in the Dialysis Component's Reports option, under the following primary folders:
 - Dialysis Events
 - Prevention Process Measures
 - Central Line Insertion Practices
 - Data Quality
 - CMS Reports

- Additional dialysis reports pertaining patient-, event-, and facility-level data are located in the 'Advanced' folder. Summary-level data, plan data, and pathogen-level data can also be found within the 'Advanced' folder.
 - Modify reports, if desired.
3. Press the "Run" button once the report you wish to produce has been selected.
- The report will open in a new window, so allow pop-ups from *.cdc.gov.

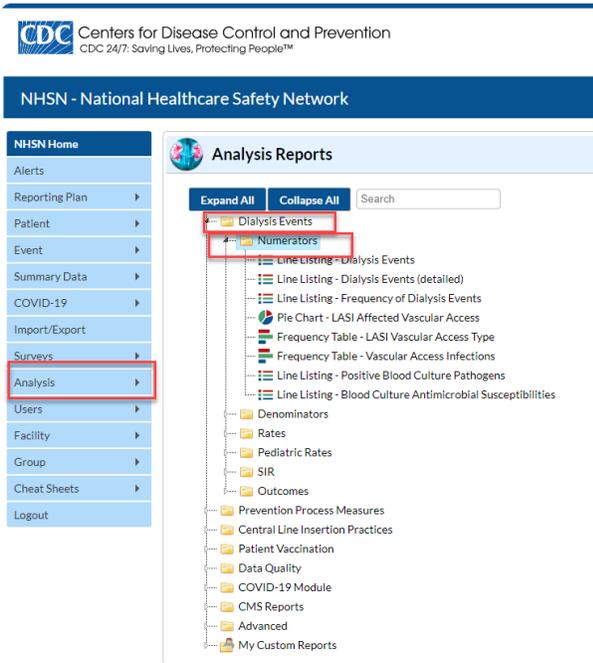


Figure 2.

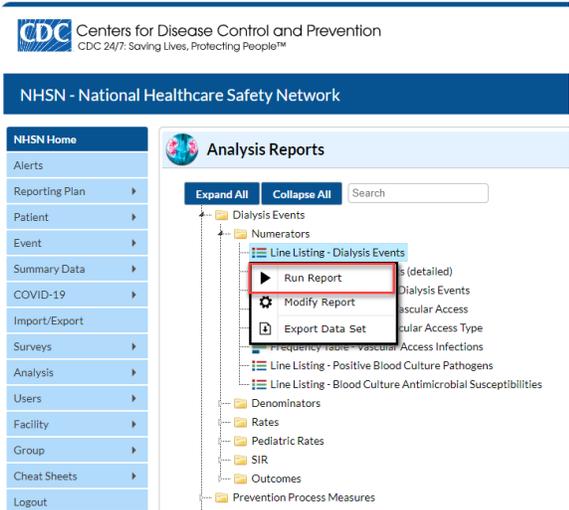


Figure 3.

Users are encouraged to experiment with the analysis function. NHSN data are not affected by creating reports, so users can explore the analysis function without risk to reported data.

Template Reports

Report Type	Report Name	Report Description
Line Listing	Dialysis Events	Each row displays information about a specific event reported, such as patient's vascular access type(s), dialysis event type(s), and outcomes.
Line Listing	Dialysis Events (detailed)	In addition to the above, each row displays event information including if the patient is transient; the location of pus, redness, or swelling; and problems associated with the event.
Line Listing	Frequency of Dialysis Events	Indicates the count and percent of access-related bloodstream infections (ARBSI) and local access site infections (LASI), per calendar month.
Pie Chart	LASI Affected Vascular Access	Indicates the count and percentage of local access site infections that are attributed to each type of vascular access among reported local access site infections.
Frequency Table	LASI Vascular Access Type	Indicates the count and percentage of local access site infections (LASI) by vascular access type, per calendar quarter.
Frequency Table	Vascular Access Infections	Indicates the count and percentage of vascular access infections (VAI) by infection type, per calendar quarter.
Line Listing	Dialysis Blood Culture Pathogens Information	Each row indicates for each positive blood culture, the suspected source, the microorganism(s) identified, and the outcomes.
Line Listing	Dialysis Blood Culture Antibiograms	Each row indicates for each positive blood culture, the patient's vascular access type, the microorganism(s) identified, and antimicrobial susceptibility information.
Line Listing	All DE Denominators	Each row summarizes the month's number of maintenance hemodialysis outpatients by vascular access type.



Pie Chart	Vascular Access Type by Patient-Months	Displays the count of patient-months and the aggregate percent of patient-months by vascular access type. The secondary pie chart indicates the count and percent of patient-months attributed to each vascular access type and is stratified by location.
Run Chart	Vascular Access Distribution of Patients-Months	This chart graphs the percentage of patient-months per vascular access type per calendar month of NHSN reporting.

Location: Dialysis Events > Rates

Rate Table	IV Antimicrobial Start Data	Each row provides the facility rate of IV antimicrobial starts by vascular access type per calendar quarter. Includes NHSN aggregate data (in yellow) for comparison.
Run Chart	IV Antimicrobial Start Data	Each chart graphs the facility rate of IV antimicrobial starts per vascular access type over each calendar month of NHSN reporting.
Rate Table	IV Vancomycin Start Data	Each row provides the facility rate of IV vancomycin starts by vascular access type per calendar quarter. Includes NHSN aggregated data (in yellow) for comparison.
Run Chart	IV Vancomycin Start Data	Each chart graphs the facility rate of IV vancomycin starts per vascular access type over each calendar month of NHSN reporting.
Rate Table	Local Access Site Infection Data	Each row provides the facility rate of local access site infection (LASI) by vascular access type per calendar quarter.
Run Chart	Local Access Site Infection Data	Each chart graphs the facility rate of local access site infection (LASI) per vascular access type of each calendar month of NHSN reporting.
Rate Table	Bloodstream Infection Data	Each row provides the facility rate of blood stream infections (BSI) by vascular access type per calendar quarter. Includes NHSN aggregate data (in yellow) for comparison.

Run Chart	Bloodstream Infection Data	Each chart graphs the facility rate of bloodstream infections (BSI) per vascular access type, over each calendar month of NHSN reporting.
Rate Table	Access Related Bloodstream Infection	Each row provides the facility rate of access related bloodstream infection (ARB) by vascular access type per calendar quarter. Includes NHSN aggregate data (in yellow) for comparison.
Run Chart	Access Related Bloodstream Infection	Each chart graphs the facility rate of access related bloodstream infection (ARB) per vascular access type, over each calendar month of NHSN reporting.
Rate Table	Vascular Access Infection Data	Each row provides the facility rate of vascular access infection (VAI) by vascular access type per calendar quarter.
Run Chart	Vascular Access Infection Data	Each chart graphs the facility rate of vascular access infections (VAI) per vascular access type, over each calendar month of NHSN reporting.

Location: Dialysis Events > Outcomes

Report Type	Report Name	Report Description
Pie Chart	Death by Event Type	Indicates the count and percentage of deaths reported as the outcome, stratified by dialysis event type (i.e., 1) access related bloodstream infections; 2) IV antimicrobial starts; 3) local access site infections; 4) positive blood cultures; 5) pus, redness, and increased swelling events; and 6) vascular access infections).
Pie Chart	Hospitalized by Event Type	Indicates the count and percentage of hospitalizations reported as the outcome, stratified by dialysis event types (i.e., 1) access related bloodstream infections; 2) IV antimicrobial starts; 3) local access site infections; 4) positive blood cultures; 5) pus, redness, and increased swelling events; and 6) vascular access infections).

Location: Prevention Process Measures

Report Type	Report Name	Report Description
Line Listing	Line Listing – All Prevention Process Measures	Each row provides the number of successful opportunities and number of total opportunities observed by month for each prevention process measure.
Line Listing	Line Listing – Hand Hygiene % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.
Line Listing	Line Listing – HD Catheter Connection/Disconnection % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.
Line Listing	Line Listing – HD Catheter Exit Site Care % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.
Line Listing	Line Listing – AV Fistula/Graft Cannulation/Decannulation % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.
Line Listing	Line Listing – Dialysis Station Routine Disinfection % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.
Line Listing	Line Listing – Injection Safety % Adherence	Each row provides the number of successful opportunities, total number of opportunities, and percent adherence by month.

Location: Patient Vaccination > Influenza

Report Type	Report Name	Report Description
Line Listing	Flu Vacc Declination Data	Each row displays information of all dialysis patient influenza vaccination declination events. Information includes patient dialysis modality and reasons for declining vaccination.
Line Listing	Flu Vacc Administration Data	Each row displays information about all successful dialysis patient influenza vaccination administration events and includes details about patient dialysis modality, vaccine subtype administered (seasonal or non-seasonal), manufacturer

		description, product description, and route of administration.
Line Listing	All Flu Vacc Events	Each row displays information about all dialysis patient influenza vaccination events and includes details such as patient dialysis modality and whether the vaccine was administered.
Line Listing	Flu Vacc Denominators Data	Each row displays information about seasonal or non-seasonal influenza denominators reported to NHSN per month. Details include flu vaccination subtype, and number of denominator patients per patient modality (hemodialysis, home hemodialysis, and peritoneal dialysis).

Location: CMS Reports > QIP

Report Type	Report Name	Report Description
Line Listing	CMS ESRD QIP Rule	Each row indicates whether minimum monthly Dialysis Event reporting requirements have been met for the Centers for Medicare and Medicaid Services (CMS) End Stage Renal Disease (ESRD) Quality Incentive Program (QIP) NHSN Dialysis Event reporting measure.

Location: Advanced > Patient-level Data

Report Type	Report Name	Report Description
Line Listing	All Patients	Each row displays demographic and personal information (including name, date of birth, and other personal identifiers) of patients entered into NHSN for dialysis surveillance.

Location: Advanced, > Event-level Data

Report Type	Report Name	Report Description
Line Listing	All Events	Each displays details of all events (Dialysis, CLIP and FLUVAX) reported to NHSN. Details include dob, sex, eventID, event data, event type, location, patient ID and orgID.
Frequency Table	All Events	Indicates the count and percent of event types occurring within each calendar quarter.

Bar Chart	All Events	This bar chart provides the count and percentage of all DE, CLIP, FLUVAX, and custom events reported to NHSN by location.
Pie Chart	All Events	Chart indicates the count and percentage of dialysis events and dialysis patient influenza vaccination events reported to NHSN and stratified by location.

Location: Advanced > Summary-level Data

Report Type	Report Name	Report Description
Line Listing	All Summary Data	Each row provides information about monthly summary data that was reported to NHSN. Report output includes details about patient-months, report no dialysis events for the three dialysis event types, counts of hand hygiene opportunities and successes, patient influenza vaccination subtypes and total denominator data.

Location: Advanced > Plan Data

Report Type	Report Name	Report Description
Line Listing	Reporting Plans	Each row indicates the Monthly Reporting Plan data that was reported for a given month.

Location: Advanced, under Pathogen-Level Data

Report Type	Report Name	Report Description
Line Listing	Antibiogram	Each row provides information including the microorganism(s) identified and its resistance and susceptibility to any antibiotics used to treat the patient for every positive blood culture event reported to NHSN.

Location: Advanced > Facility-level Data

Report Type	Report Name	Report Description
Line Listing	Facility Enrollment Data	Each row provides information about each facility's enrollment into NHSN, including the facility type, enrollment date, facility status, and individual user who enrolled the facility in NHSN.
Line Listing	Conferred Rights	Each row provides facility-level data regarding the conferred rights template

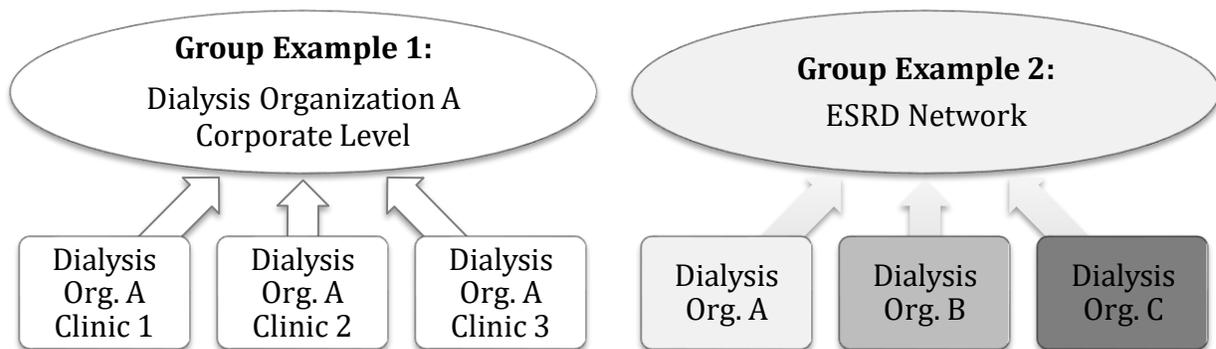
		that was accepted. Report output includes what data are being shared with group users and group user rights with that data, and the time period in which group users can see that data.
Line Listing	Dialysis Survey	Each row provides the responses to all questions on the Outpatient Dialysis Center Practices Survey. Each row summarizes a survey year.
Line Listing	Participation Alerts	Each row indicates every month in which an alert appears in NHSN regarding the presence of denominator but no monthly reporting plan.
Line Listing	Custom Field Variable Names	Each row provides information about custom event and summary data forms and variables that have been added to NHSN per location. Custom forms and variables can be created for DE, CLIP, FLUVAXDP, and PPM.

Groups for Data Sharing

NHSN data can be shared through the Group function. Entities that can maintain a group in NHSN include state health departments, corporate dialysis chains, and ESRD Networks.

A facility will be invited to join the group, at which time the facility chooses whether to join the group and share data specified by the group administrator. Facilities within a group do not have access to each other’s data; only the group-level users and the facility’s users can access the data as described in the data sharing agreement.

Facilities can join multiple groups and can agree to different data sharing agreements between their facility and each group. In dialysis, two common group types include:



Affiliated facilities (e.g., satellite clinics) share data with their overarching organization

Unaffiliated facilities share data for a specific purpose, such as quality improvement or mandated reporting with their ESRD Network

Defining/Conferring Rights

A group administrator sets-up a “Define Rights” template to specify which data they are requesting facilities to share. Upon joining a group, the facility reviews the data sharing template and then either: 1) “Confers Rights” to share the data requested; or 2) refuses to share the data requested and leaves the group. The decision to confer rights to a group is a decision made by the NHSN Facility Administrator. Existence of a group in NHSN should not be construed as a recommendation from CDC to join the group. Groups requesting facility data have the ability to export the data and therefore, should have appropriate means of securing the data. CDC is not accountable for how group users use data granted to the group by a facility once it is exported out of NHSN.

If a group changes which data they want the facility to share, the group can modify their data sharing template and facilities will be notified upon logging into NHSN. The group cannot access data that the facility has not actively shared: the facility must agree to any change to the data sharing agreement by selecting the “Accept” button on the Confer Rights screen before the group is able to access previously unshared data. If the facility does not agree to share the data requested by



the group, they should not “Accept.” They can instead contact the group to discuss any concerns or refuse to share the data and leave the group.



Key Terms

General NHSN Terms

21-day rule: A rule used in dialysis event reporting to determine if an IV antimicrobial start, positive blood culture, or pus, redness and increased swelling at a vascular access site event should be reported. 21 or more days must pass between dialysis events of the same type for the two events to be reported separately. Refer to the Dialysis Event Protocol for details of how the rule is applied to each dialysis event type.

Buttonhole cannulation: A technique for accessing a patient's fistula in which a blunt needle (cannula) is inserted into the fistula at the same location each time using an established track.

Denominator: The estimated number of patients at risk of a dialysis event in a defined amount of time.

Dialysis Component: NHSN is divided into 5 Components: Patient Safety, Healthcare Personnel Safety, Biovigilance, Dialysis, and Long Term Care Facility.. Dialysis event surveillance, dialysis patient influenza vaccination surveillance, prevention process measures surveillance, and central line insertion practices surveillance are housed in the Dialysis Component. **Dialysis event date:** The date the dialysis event occurred is determined based upon what is being reported. For IV antimicrobial starts, it is the date the first outpatient administration was started. For positive blood cultures, it is the date the blood specimen was collected. For pus, redness or increased swelling, it is the sign/symptom onset date. If more than one of these event types is reported on a single dialysis event form, the dialysis event date should be reported as the earliest date among the event types reported.

Group: An organization that is not a healthcare facility (such as an ESRD Network, state health department, or a corporate dialysis chain) with access to NHSN for the purpose of accessing data from facilities. Within NHSN, the Group specifies which data they want facilities to share and then provides facilities an opportunity to join the Group and share the data requested by the Group. Upon joining the Group, facilities review and then choose whether to share those data. A facility that joins a Group does not have access to any data from other facilities in the Group.

Numerator: The total number of dialysis events in a defined amount of time.

Patient-months: The unit of measure for the dialysis denominator (patient census information), where one patient-month means one patient was at risk of a dialysis event for the duration of one month. Each patient counted on the Denominators for Dialysis Event Surveillance—Census form corresponds to one patient-month. Dialysis event rates are expressed per 100 patient-months.

Surveillance: Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding health-related events for use in public health action to reduce morbidity and mortality and improve health.

Transient patient: Patients who are temporarily admitted for treatment at an outpatient dialysis facility for a short time (fewer than 30 days or 13 treatments) due to vacation, emergency, or other short-term displacement.



Dialysis Event Infections

Access related bloodstream infection (ARBSI): A positive blood culture with the suspected source reported as either the vascular access or uncertain.

Bloodstream infection (BSI): Any positive blood culture.

Local access site infection (LASI): Pus, or greater than expected redness, or greater than expected swelling of a vascular access site and access-related bloodstream infection was not present.

Vascular access infection (VAI): Either local access site infection or access-related bloodstream infection.

Vascular Access Types

Catheter-graft hybrid: A subcutaneous surgical implant with both a catheter and a graft component that provides blood flow directly from the target artery to the heart, bypassing the patient's central venous system (e.g., HeRO® vascular access device²).

Graft: A surgically created connection between an artery and a vein created with implanted material (often synthetic tubing) for hemodialysis.

Fistula: A surgically created connection between an artery and a vein for hemodialysis.

Non-tunneled Central Line: A central venous catheter that is fixed in place at the point of insertion and travels directly from the skin entry site to a vein and terminates close to the heart or one of the great vessels.

Other Vascular Access Device: Includes hybrid access devices (e.g., catheter-graft hybrids, HeRO®¹¹), ports, and any other vascular access devices not meeting definitions for fistula, graft, tunneled central lines or non-tunneled central lines.

Tunneled Central line: A central venous catheter that travels a distance under the skin from the point of insertion before terminating at or close to the heart or one of the great vessels.

¹¹ Use of trade names and commercial sources is for identification only and does not imply endorsement.