Introduction to the National Healthcare Safety Network – Dialysis Event Surveillance

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Objectives

- Review National Healthcare Safety Network (NHSN)
- Brief Review of Outpatient Dialysis Component
- Outpatient Dialysis Center Practices Survey
- Dialysis Event Surveillance Annual Training Course and Post- Assessment Test
- Dialysis Component Requirements (Monthly Reporting Plan, Denominator Data)
- Dialysis Event Surveillance Protocol & Requirements

National Healthcare Safety Network (NHSN)

National Healthcare Safety Network (NHSN)

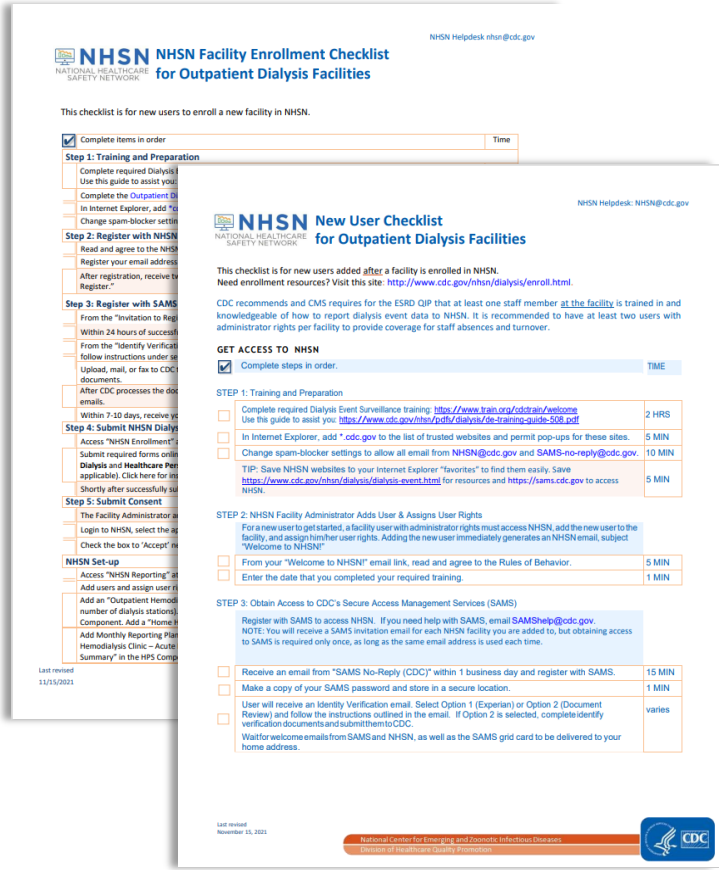
- The nation's most widely used healthcare-associated infection (HAI) tracking system.
- Data can identify problem areas, measure progress of prevention efforts, and eliminate healthcare-associated infections.
- Healthcare facilities can track blood safety errors and important healthcare process measures
- Provides medical facilities, states, regions, and the nation with data collection and reporting capabilities needed to:
    - Identify infection prevention problems by facility, state, or specific quality improvement project
    - Benchmark progress of infection prevention efforts
    - Comply with state and federal public reporting mandates
    - Drive national progress towards HAI elimination

Enrollment

Enrollment – Getting Started

- **NHSN Facility Enrollment Checklist**
  - http://www.cdc.gov/nhsn/pdfs/dialysis/enrollment-checklist.pdf

- **If the facility is enrolled, see the NHSN New User Checklist**
  - http://www.cdc.gov/nhsn/PDFs/dialysis/NHSN-de-New-User-Checklist.pdf



NHSN Helpdesk nhsn@cdc.gov

NHSN NATIONAL HEALTHCARE SAFETY NETWORK

NHSN Facility Enrollment Checklist for Outpatient Dialysis Facilities

This checklist is for new users to enroll a new facility in NHSN.

Complete items in order	Time
Step 1: Training and Preparation	
Complete required Dialysis … Use this guide to assist you:	
Complete the Outpatient …	
In Internet Explorer, add *…	
Change spam-blocker settin…	
Step 2: Register with NHSN	
Read and agree to the NHSN…	
Register your email address…	
After registration, receive t… Register."	
Step 3: Register with SAMS	
From the "Invitation to Regi…	
Within 24 hours of successf…	
From the "Identify Verificat… follow instructions under se…	
Upload, mail, or fax to CDC … documents.	
After CDC processes the doc… emails.	
Within 7-10 days, receive y…	
Step 4: Submit NHSN Dialy…	
Access "NHSN Enrollment"…	
Submit required forms onli… Dialysis and Healthcare Per… applicable). Click here for ins…	
Shortly after successfully su…	
Step 5: Submit Consent	
The Facility Administrator a…	
Login to NHSN, select the a…	
Check the box to "Accept" re…	
NHSN Set-up	
Access "NHSN Reporting" a…	
Add users and assign user ri…	
Add an "Outpatient Hemodi… number of dialysis stations). Component. Add a "Home H…	
Add Monthly Reporting Plan… Hemodialysis Clinic – Acute… Summary" in the HPS Comp…	

Last revised 11/15/2021

NHSN Helpdesk: NHSN@cdc.gov

NHSN NATIONAL HEALTHCARE SAFETY NETWORK

New User Checklist for Outpatient Dialysis Facilities

This checklist is for new users added after a facility is enrolled in NHSN.
Need enrollment resources? Visit this site: http://www.cdc.gov/nhsn/dialysis/enroll.html.

CDC recommends and CMS requires for the ESRD QIP that at least one staff member at the facility is trained in and knowledgeable of how to report dialysis event data to NHSN. It is recommended to have at least two users with administrator rights per facility to provide coverage for staff absences and turnover.

GET ACCESS TO NHSN

Complete steps in order.	TIME
STEP 1: Training and Preparation	
Complete required Dialysis Event Surveillance training: https://www.train.org/cdctrain/welcome Use this guide to assist you: https://www.cdc.gov/nhsn/pdfs/dialysis/de-training-guide-508.pdf	2 HRS
In Internet Explorer, add *.cdc.gov to the list of trusted websites and permit pop-ups for these sites.	5 MIN
Change spam-blocker settings to allow all email from NHSN@cdc.gov and SAMS-no-reply@cdc.gov.	10 MIN
TIP: Save NHSN websites to your Internet Explorer "favorites" to find them easily. Save https://www.cdc.gov/nhsn/dialysis/dialysis-event.html for resources and https://sams.cdc.gov to access NHSN.	5 MIN
STEP 2: NHSN Facility Administrator Adds User & Assigns User Rights	
For a new user to get started, a facility user with administrator rights must access NHSN, add the new user to the facility, and assign him/her user rights. Adding the new user immediately generates an NHSN email, subject "Welcome to NHSN!"	
From your "Welcome to NHSN!" email link, read and agree to the Rules of Behavior.	5 MIN
Enter the date that you completed your required training.	1 MIN
STEP 3: Obtain Access to CDC's Secure Access Management Services (SAMS)	
Register with SAMS to access NHSN. If you need help with SAMS, email SAMShelp@cdc.gov. NOTE: You will receive a SAMS invitation email for each NHSN facility you are added to, but obtaining access to SAMS is required only once, as long as the same email address is used each time.	
Receive an email from "SAMS No-Reply (CDC)" within 1 business day and register with SAMS.	15 MIN
Make a copy of your SAMS password and store in a secure location.	1 MIN
User will receive an Identity Verification email. Select Option 1 (Experian) or Option 2 (Document Review) and follow the instructions outlined in the email. If Option 2 is selected, complete identify verification documents and submit them to CDC. Wait for welcome emails from SAMS and NHSN, as well as the SAMS grid card to be delivered to your home address.	varies

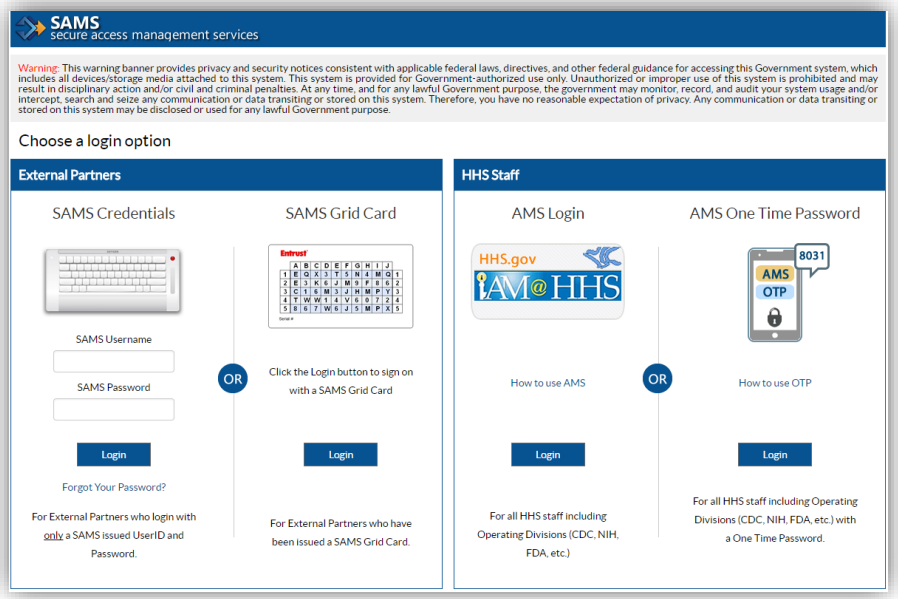
Last revised November 15, 2021

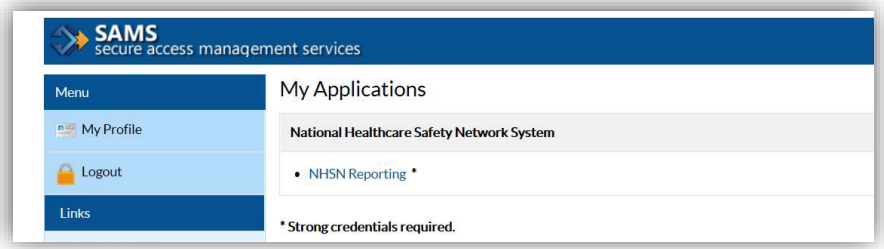
National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

CDC

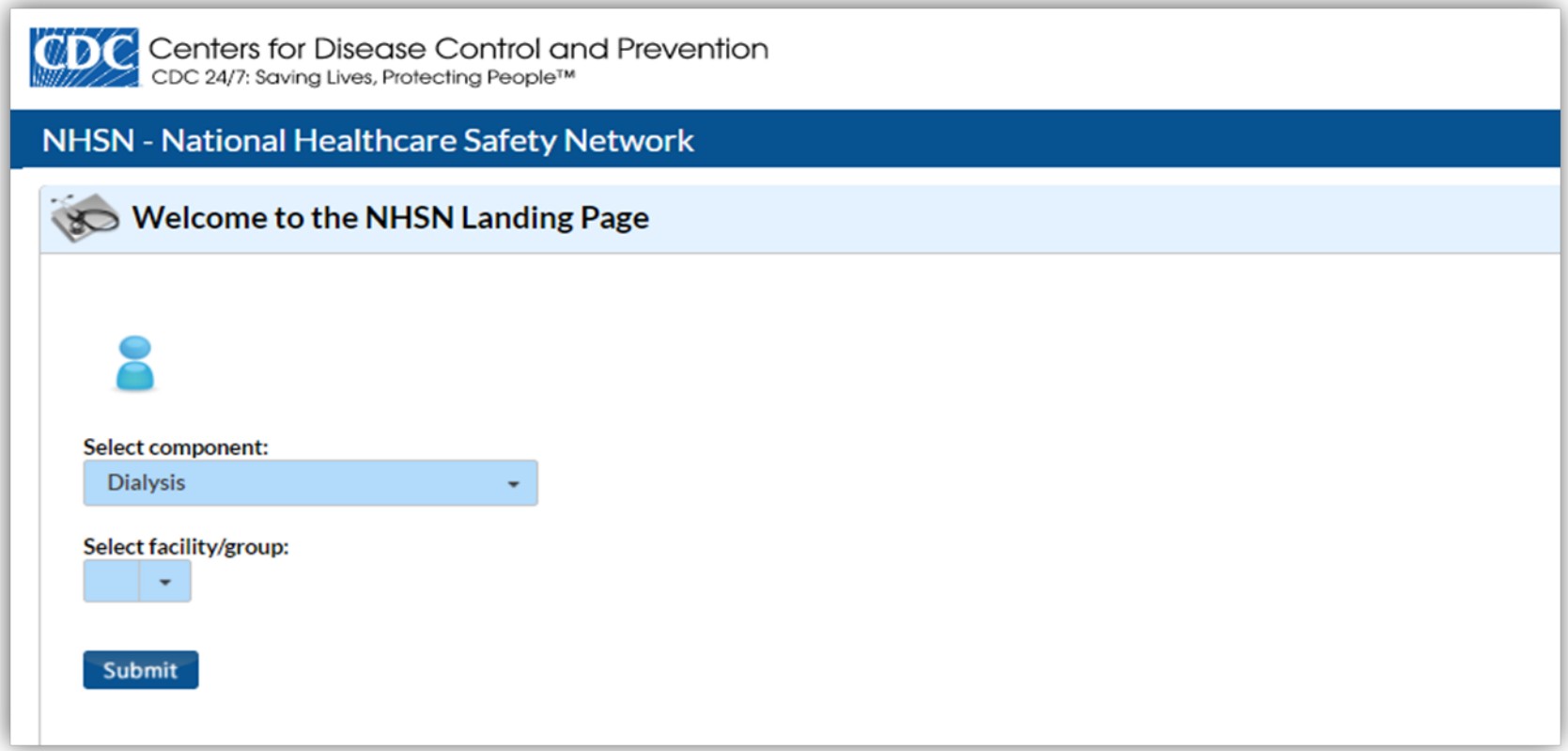
SAMS

- **Secure Access Management Services (SAMS) is the secure gateway used to access NHSN**
  - Each NHSN user must have their own SAMS account
  - You will receive an email invitation to SAMS when you are added as a user to NHSN
- **Log in to SAMS**
  - https://sams.cdc.gov
- **Select the "NHSN Reporting" option**



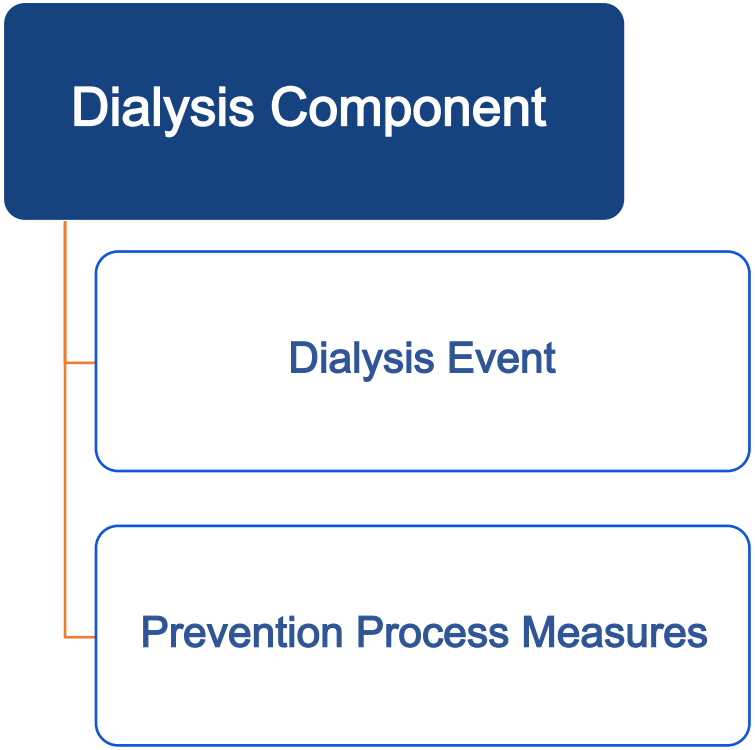


NHSN Landing Page



Outpatient Dialysis Component

NHSN Dialysis Component

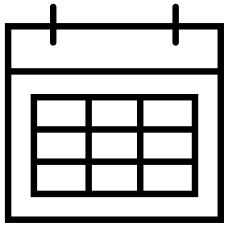


- Two of the surveillance modules within the Dialysis Component include the Dialysis Event and Prevention Process Measures.
- Participation in the Dialysis Component requires:
  1. Users complete training for each module in use
  2. Completion of the annual Outpatient Dialysis Center Practices Survey
  3. Monthly Reporting Plans indicate what surveillance the facility is doing according to NHSN protocol(s)

Find reporting resources for each: http://www.cdc.gov/nhsn/dialysis/index.html

Annual Surveys

NHSN Outpatient Dialysis Center Practices Survey



- **Complete one survey per NHSN facility organization ID (org ID)**
  - Your facility only needs to complete one survey each year
- **Complete survey in February of each year**
  - Multiple questions pertain to patients and staff present during the first week of February
- **Data collection should be performed by someone who works in the center and is familiar with center's practices**
- **The survey should be completed based on the center's actual practices, not necessarily the center's policies, if there are differences**

Dialysis Event Surveillance Annual Training Course and Post-Assessment

NHSN Dialysis Event Surveillance Course and Post-Assessment

- The Dialysis Event Surveillance Annual Training Course and Post-Assessment are available to NHSN Dialysis Component users.
- The goal of this activity is to teach healthcare personnel how to collect and report dialysis event infection data to the National Healthcare Safety Network (NHSN).
- Users may access the training course and post assessment on the NHSN Dialysis homepage https://www.cdc.gov/nhsn/training/dialysis/index.html selecting the following Dialysis Event Surveillance Annual Training Course and Post-Assessment and WB4638 Continuing Education Information for an overview of credits.
- Once users pass the post-assessment instructions will appear on the score page on obtaining their CE credits.

Dialysis Component Requirements

Monthly Reporting Plan

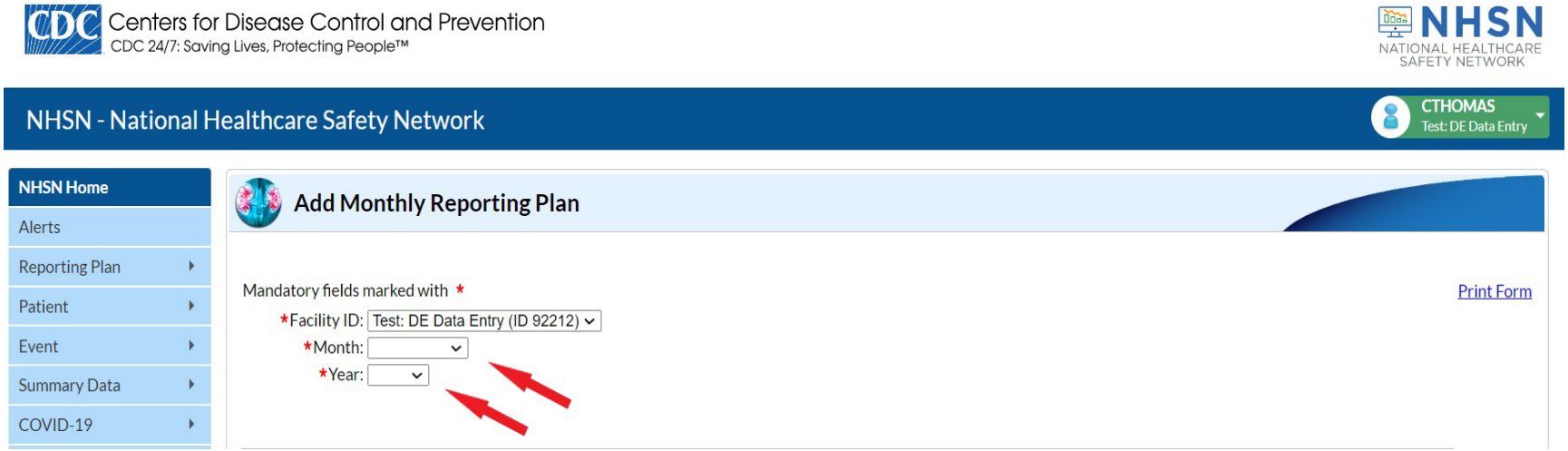
Monthly Reporting Plan

- **The Monthly Reporting Plan is used by NHSN facilities to inform CDC that they are following the NHSN surveillance protocol.**

- **To indicate the facility is reporting in accordance with this protocol, users complete a Monthly Reporting Plan.**

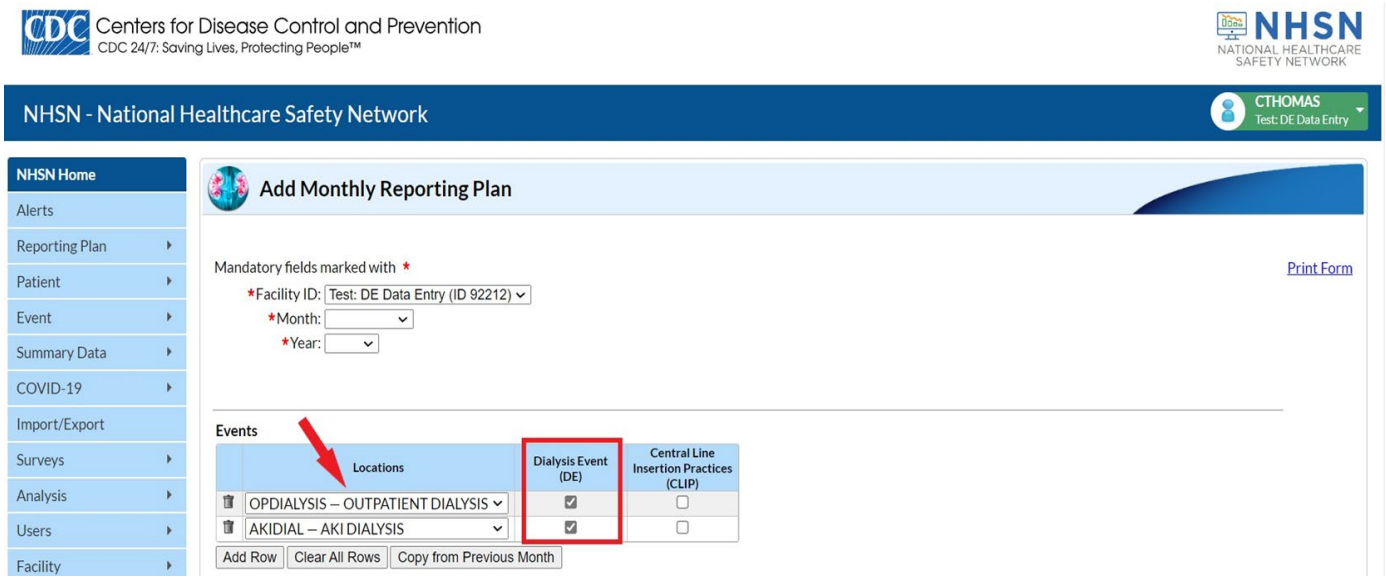
- **If your facility is not following any protocols for the Dialysis Component modules for a particular month (e.g., the facility was closed), select “Not Participating in NHSN this Month.”**

How to Add A Monthly Reporting Plan



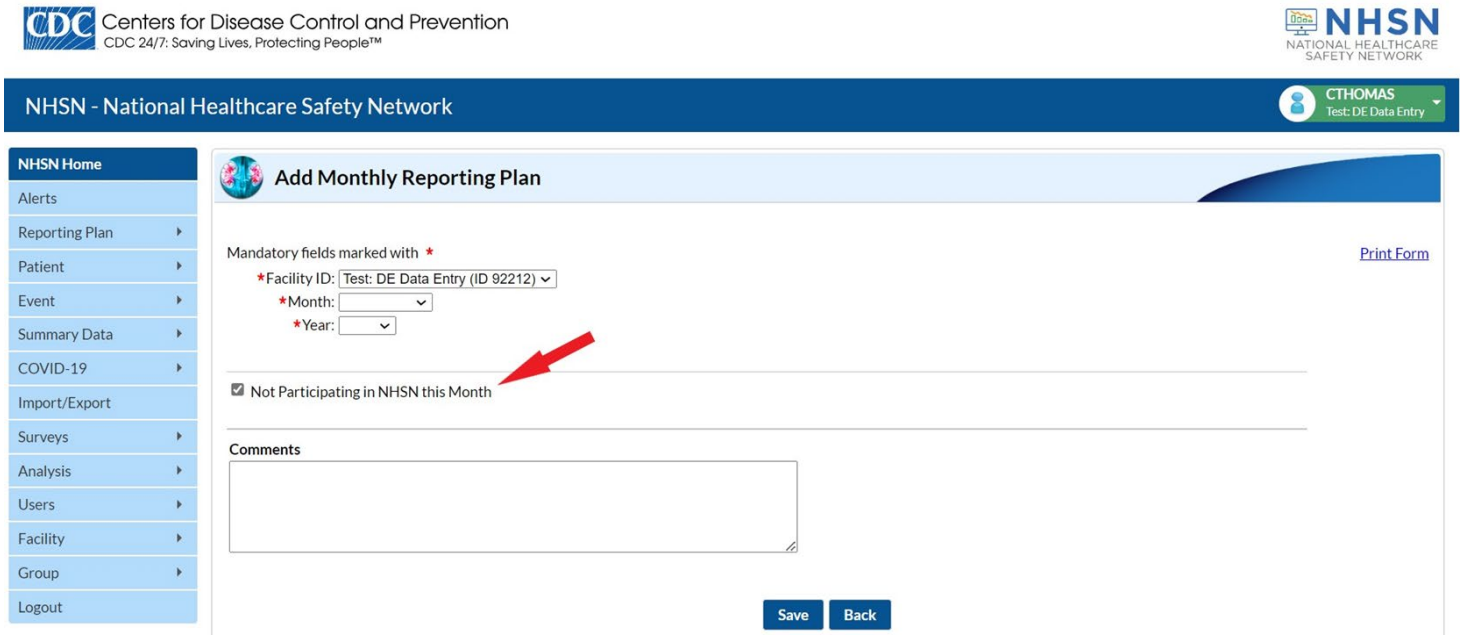
- Select the Month and Year
- If a plan has not yet been created, “No data found” will display
- Otherwise, the existing plan will display and can be edited, as needed

Select Locations on the Monthly Reporting Plan



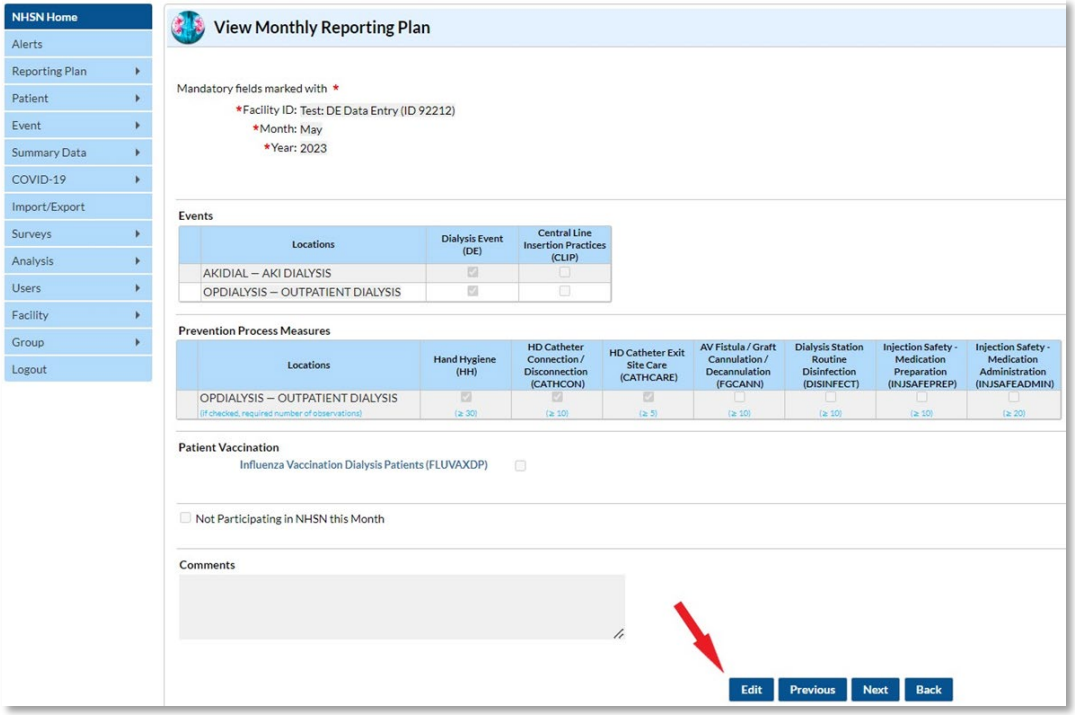
- **Under Events select your reporting location.**
- **The Dialysis Event box will check automatically which indicates your facility is following this Protocol including your facility data in CDC analyses and CMS Reporting.**
- **Click Save.**

Select NOT Participating on the Monthly Reporting Plan



- **Only select "Not Participating in NHSN this Month" if your facility is NOT participating in any NHSN surveillance that month.**

Editing the Monthly Reporting Plan



- **To edit the Monthly Plan select edit, make edits, then save.**

Dialysis Component Requirements

Denominator Data

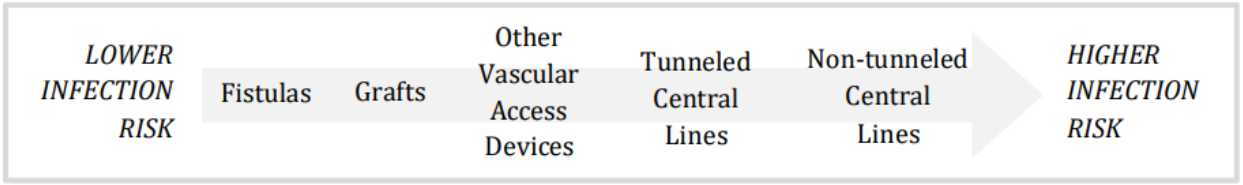
Denominator Data

- Each month, report the number of hemodialysis outpatients by vascular access type who received hemodialysis at the center during the first two working days of the month.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
~~1 Closed~~	2 **Working Day 1**	3 **Working Day 2**	4	5	6	7

  - Report all hemodialysis outpatients, including transient patients, and patients with acute kidney injury (AKI).
  - Exclude non-hemodialysis patients (i.e., home dialysis patients) and exclude inpatients.

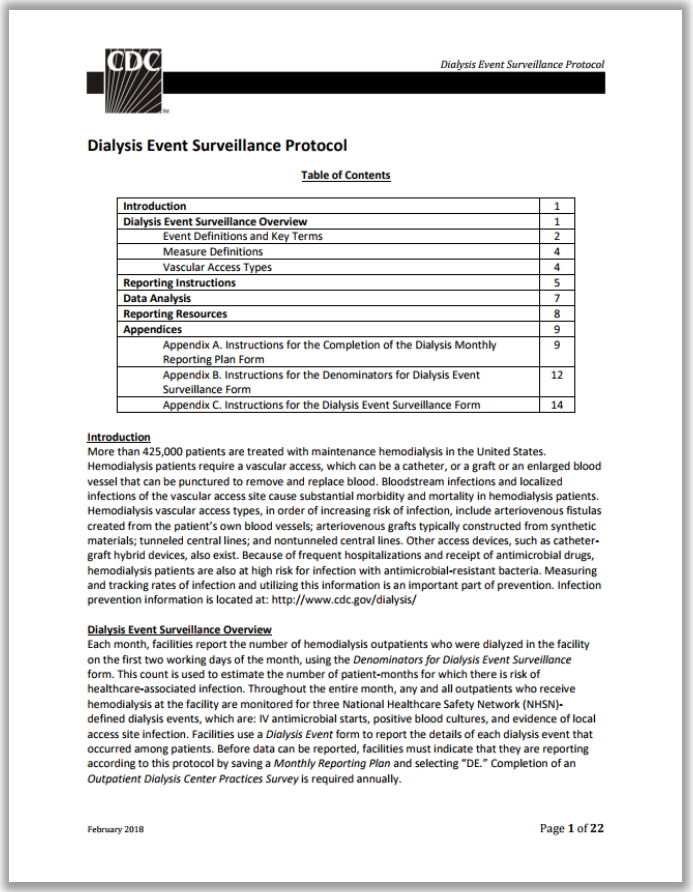
- Count each patient only once by vascular access type
  - If a patient has multiple vascular access types, record that patient once, reporting only their vascular access type with the highest risk of infection.



Dialysis Event Protocol & Requirements

Required Reading: Dialysis Event Protocol

- The Dialysis Event Protocol is a document that provides instructions for reporting to NHSN
- All users must read the Dialysis Event Protocol and follow the instructions, definitions and procedures



Dialysis Event Surveillance Protocol

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Introduction

More than 425,000 patients are treated with maintenance hemodialysis in the United States. Hemodialysis patients require a vascular access, which can be a catheter, or a graft or an enlarged blood vessel that can be punctured to remove and replace blood. Bloodstream infections and localized infections of the vascular access site cause substantial morbidity and mortality in hemodialysis patients. Hemodialysis vascular access types, in order of increasing risk of infection, include arteriovenous fistulas created from the patient's own blood vessels; arteriovenous grafts typically constructed from synthetic materials; tunneled central lines; and nontunneled central lines. Other access devices, such as catheter-graft hybrid devices, also exist. Because of frequent hospitalizations and receipt of antimicrobial drugs, hemodialysis patients are also at high risk for infection with antimicrobial-resistant bacteria. Measuring and tracking rates of infection and utilizing this information is an important part of prevention. Infection prevention information is located at: http://www.cdc.gov/dialysis/

Dialysis Event Surveillance Overview

Each month, facilities report the number of hemodialysis outpatients who were dialyzed in the facility on the first two working days of the month, using the *Denominators for Dialysis Event Surveillance* form. This count is used to estimate the number of patient-months for which there is risk of healthcare-associated infection. Throughout the entire month, any and all outpatients who receive hemodialysis at the facility are monitored for three National Healthcare Safety Network (NHSN)-defined dialysis events, which are: IV antimicrobial starts, positive blood cultures, and evidence of local access site infection. Facilities use a *Dialysis Event* form to report the details of each dialysis event that occurred among patients. Before data can be reported, facilities must indicate that they are reporting according to this protocol by saving a *Monthly Reporting Plan* and selecting "DE." Completion of an *Outpatient Dialysis Center Practices Survey* is required annually.

http://www.cdc.gov/nhsn/PDFs/pscManual/8pscDialysisEventcurrent.pdf

Dialysis Event Surveillance

- **The reporting protocol is designed to reliably capture data useful for informing quality improvement decisions.**

- **All participants are required to follow the protocol so data are uniformly collected across users in different facilities, and meaningful comparisons can be made.**

- **Dialysis Event Surveillance has FOUR requirements:**
  1. Outpatient Dialysis Center Practices Survey
  2. Monthly Reporting Plan
  3. Denominators for Dialysis Event Surveillance form
  4. Dialysis Event form

Protocol: Report Numerator (Event) Data

- **Throughout the month, monitor all outpatients who undergo hemodialysis at your facility for dialysis events.**
  - Even if they were not present on the 1st two working days.
  - Monitor transient patients and acute kidney injury patients and report dialysis events that occur at your facility.
- **Report an event for any of the three types of dialysis events:**
  - Positive blood culture
  - IV antimicrobial start
  - Pus, redness or increased swelling at the vascular access site
- **Report all the patient's vascular accesses on the event form, regardless of whether they are in use for hemodialysis, abandoned, or non-functional.**

Dialysis Event Combinations

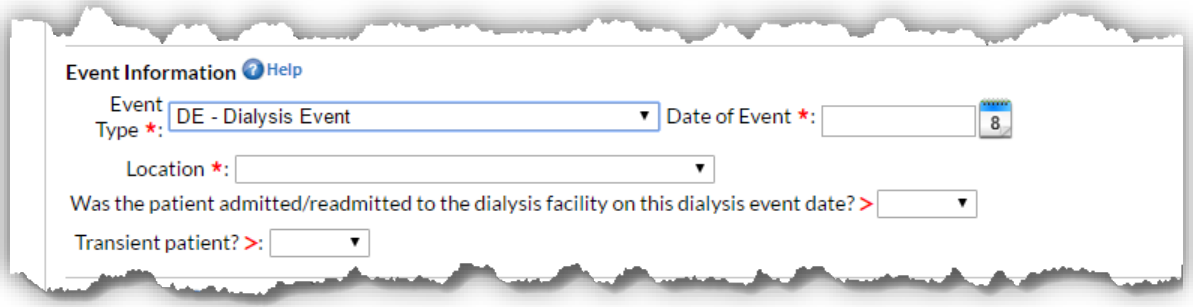
- **If multiple dialysis events occur together, as a part of the same patient problem, they should be reported on the same Dialysis Event form.**
  - One Dialysis Event record may include:
    - Positive blood culture
    - IV antimicrobial start
    - Pus, redness or increased swelling at vascular access site
- **Determining if events should be reported together can be subjective**
- **Purpose:**
  - Improves clinical usefulness and interpretability of surveillance data
  - Reduces data entry burden

Dialysis Event Form: Patient Information

- **Required fields: Facility ID, Patient ID, and Date of birth**
  - Recommendation: use the patient's Medical Record Number as the Patient ID

Dialysis Event Form: Event Information

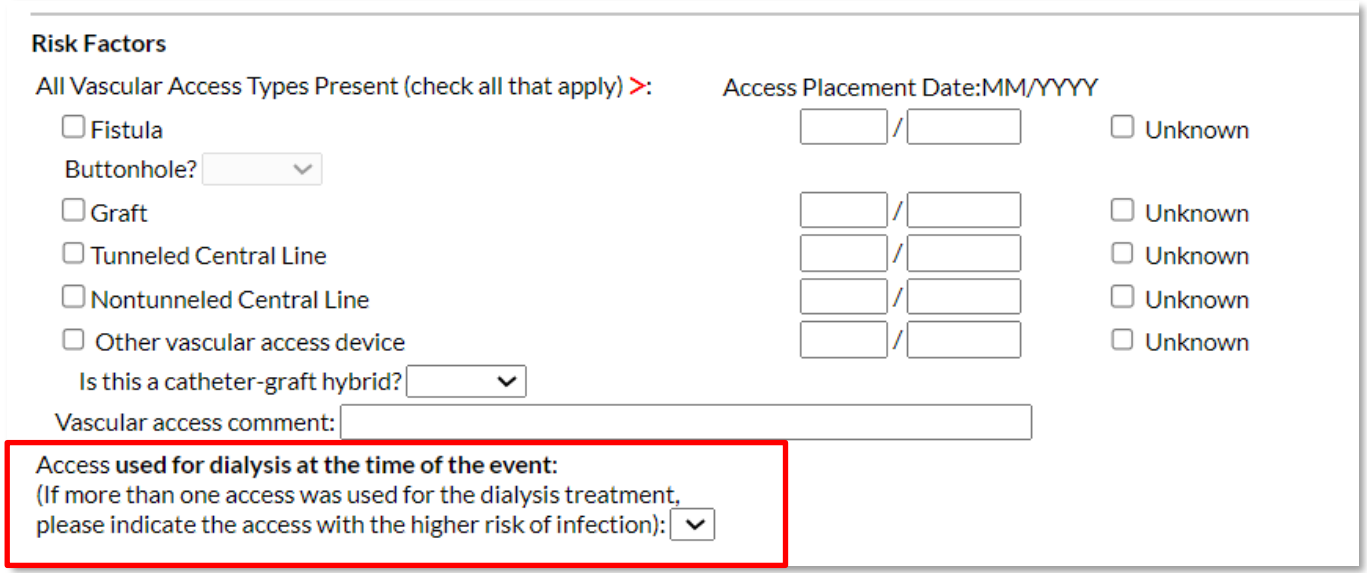
- **Event type = “Dialysis Event”**
- **Date of event**



Event Type	Date of Event
IV Antimicrobial Start	Date of first outpatient dose of an antimicrobial course
Positive Blood Culture	Date of specimen collection
Pus, Redness, Swelling	Date of onset
Combination	Earliest date among related event types

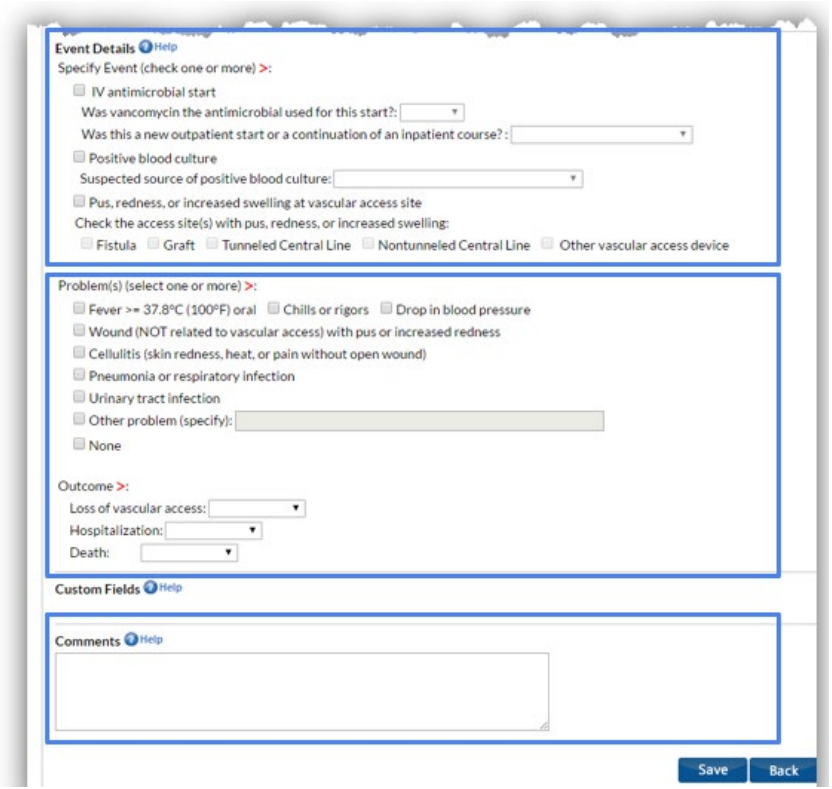
Dialysis Event Form: Risk Factors

- **Specify all vascular access types present at the time of event and access placement date, if known**



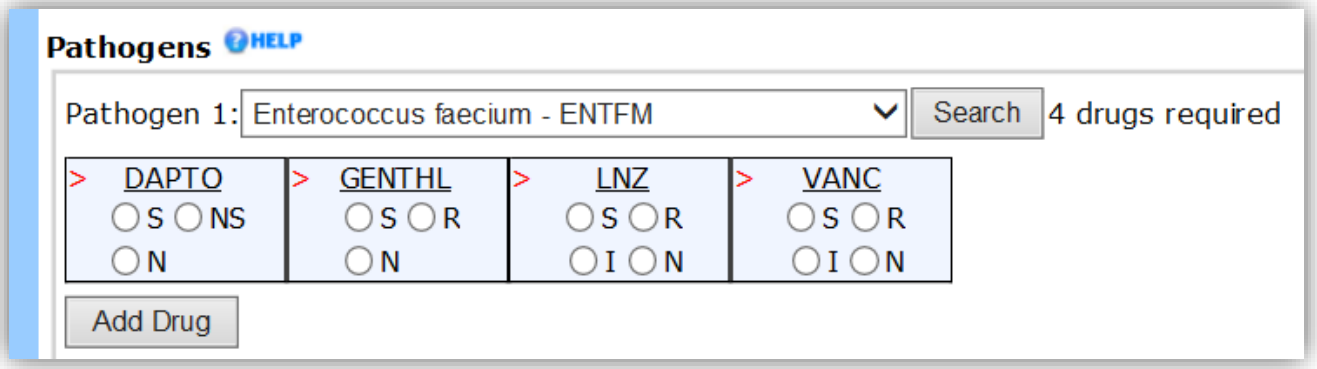
Dialysis Event Form: Event Details

- Specify the dialysis event type(s) and associated details
- Indicate problems associated with the events and outcomes
  - Outcomes should only be reported if they are related to the event
- Use the “Comments” box to add any additional information



Positive Blood Cultures: Pathogens & Antimicrobial Susceptibilities

- **For each positive blood culture, report up to three microorganisms**
- **Indicate antimicrobial susceptibility information for each organism reported**
  - Susceptible (S), Intermediate (I), Resistant (R), or Not tested (N)
- **Do not report cultures from sites other than blood**



Numerator Data – Confirming there were zero events

- **Each month, your facility must account for each dialysis event type.**
- **So, for each event type, either:**
  - The event is reported on one or more Dialysis Event forms, or
  - The “report no positive blood culture events” box for that event type is checked on the Monthly Reporting Plan to confirm no events (i.e., zero) of that type occurred during the month.
- **When you check the “report no positive blood culture events” box it means:**
  - You have reviewed your records and are confirming there were no reportable positive blood culture events that occurred that month in your patients.

Dialysis Event Requirements – 21 Day Rule

Dialysis Event “21-Day Rule”

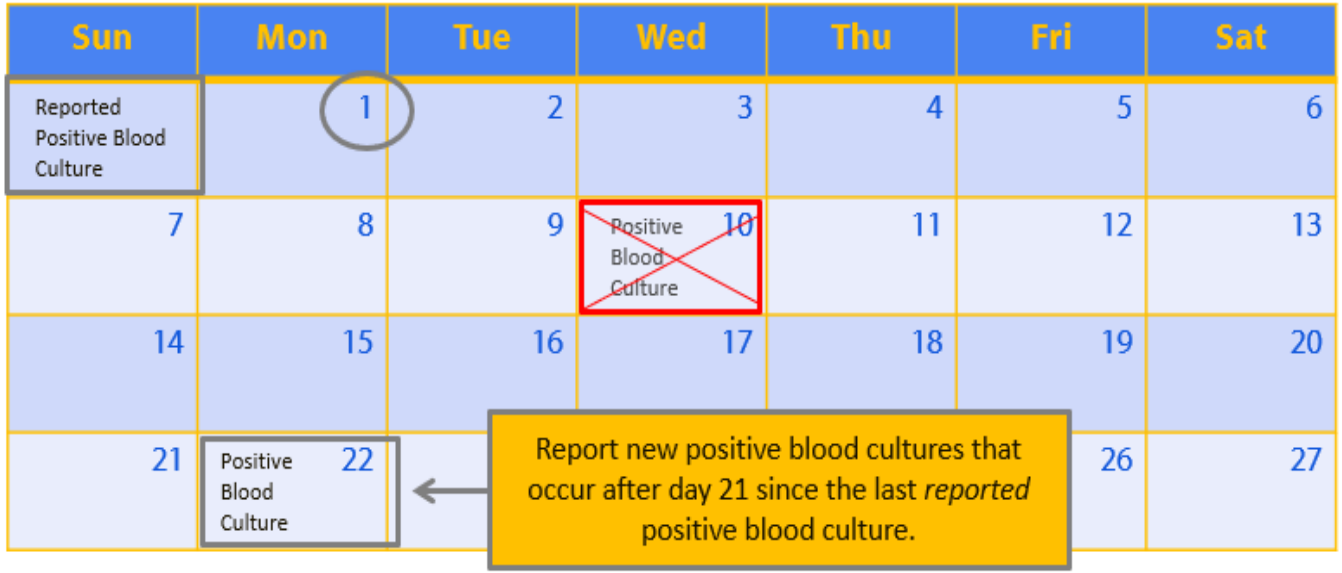
- **An event reporting rule which reduces reporting of events likely related to the same patient problem.**
  - E.g., multiple positive blood cultures may result from a single infection
- **21 or more days must exist between two dialysis events of the same type for the second occurrence to be reported as a separate (new) dialysis event.**
- **If fewer than 21-Days have passed since the last reported event of the same type, the subsequent event of the same type is NOT considered a new dialysis event and it is not reported.**
- **The 21-Day rule applies across calendar months.**
- **Refer to each event definition in the protocol for instructions on applying the 21-Day rule for each specific dialysis event type.**

Applying the 21-Day Rule in Situations where patients have had >1 of the same event type

- **Positive Blood Culture 21-Day Rule:**
  - Only report another positive blood culture for the same patient if there have been ≥ 21-Days since their last positive blood culture date
- **IV Antimicrobial Start 21-Day Rule:**
  - Only report another IV antimicrobial start for the same patient if there have been ≥ 21-Days since their last IV antimicrobial dose
  - The rule still applies even if antimicrobial drugs are different
- **Pus, Redness, or Swelling at Vascular Access Site 21-Day Rule:**
  - Only report another episode of pus, redness, or swelling for the same patient if there have been ≥ 21-Days since their last onset date of these symptoms
- **21-day rule only applies to multiple events of the same type**

21-Day Rule Applies to the Last Reported Event

- If fewer than 21 Days have passed since the last *reported* event of the same type, the subsequent event of the same type is NOT considered a new dialysis event and it is not reported.



Applying the 21-Day Rule to each event type (after a previous report of the same type)

Event Type	Count 21-Days…
Positive Blood Culture	From the **last PBC** (specimen collection date) to the next PBC (even if microorganisms differ) ▪ Has it been 21 or more days since the specimen collection date of the last reported PBC?
IV Antimicrobial Start	From the **end** of one IV antimicrobial course to the **beginning** of the next IV antimicrobial start (even if antimicrobials differ) ▪ Has it been 21 or more days since this patient received an IV antimicrobial dose?
Pus, Redness, or Swelling at Vascular Access Site	From the last Pus, Redness, Swelling **onset** to next **onset** ▪ Has it been 21 or more days since this patient's last reported onset of PRS?

If yes, report a new Dialysis Event.

If no, DO NOT report a new Dialysis Event.

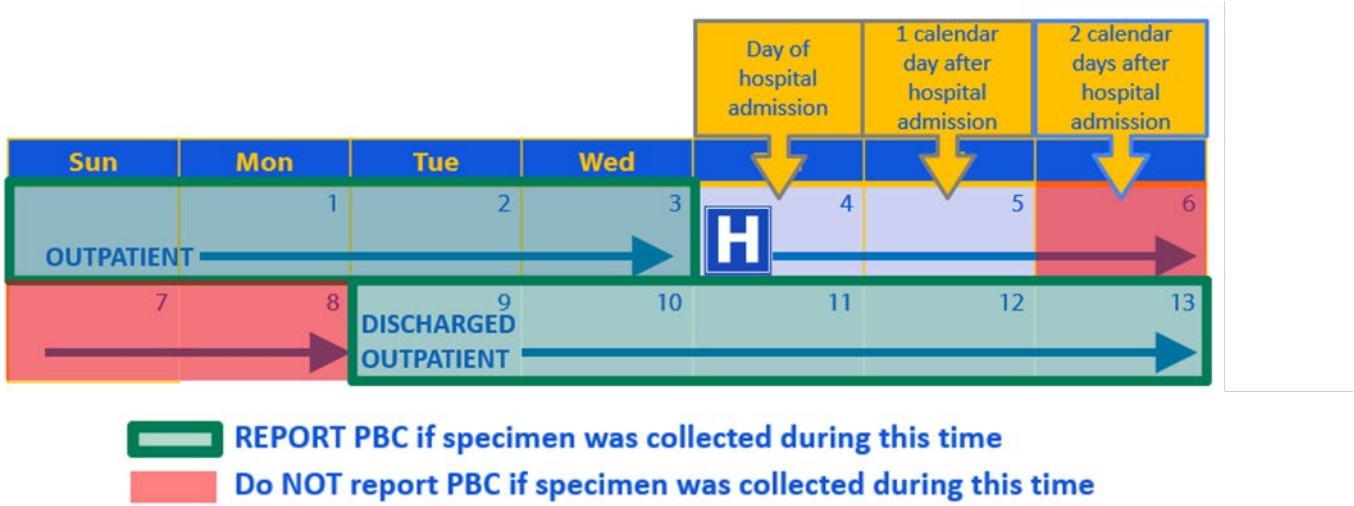
Dialysis Event Requirements – Bloodstream Infection (BSI)

Protocol: Report Numerator Data Dialysis Event Types

- Positive blood culture: Report all positive blood cultures from specimens collected as an outpatient or collected on the day of or the day following hospital admission.
  - Report regardless of whether the infection is thought to be related to hemodialysis or whether or not a true infection is suspected.

Reportable Positive Blood Cultures

- **Report all positive blood cultures (PBC)**
  - Collected as a hemodialysis outpatient
  - Collected within 1 calendar day after a hospital admission



Positive Blood Cultures: Requesting Information from Hospitals

- **Report all positive blood cultures (PBC)**
  - Collected as an outpatient, including Emergency Department
  - Collected on the day of, or the day after, hospital admission
- **Requires follow-up on every hemodialysis outpatient's hospitalization**
  - Implement a standardized process to request data
  - Consider requesting access to the hospital's electronic medical record
- **Hospital's medical records department unresponsive?**
  - Involve your ESRD Network
  - Develop a relationship with the hospital's infection preventionist
    - They are familiar with NHSN, although their reporting requirements differ

Positive Blood Cultures: Indicate the Suspected Source

- **“Vascular access” if there is objective evidence of vascular access infection and it is thought to be the source**
- **“A source other than the vascular access” if another source is thought to be the source and either:**
  - Culture from that site has the same organism as the blood
  - Clinical evidence of infection at the site, but site is not cultured
- **“Contamination” if organism is thought by the physician, infection preventionist, or nurse manager to be a contaminant**
- **“Uncertain” only if there is insufficient evidence to decide among the 3 previous categories**

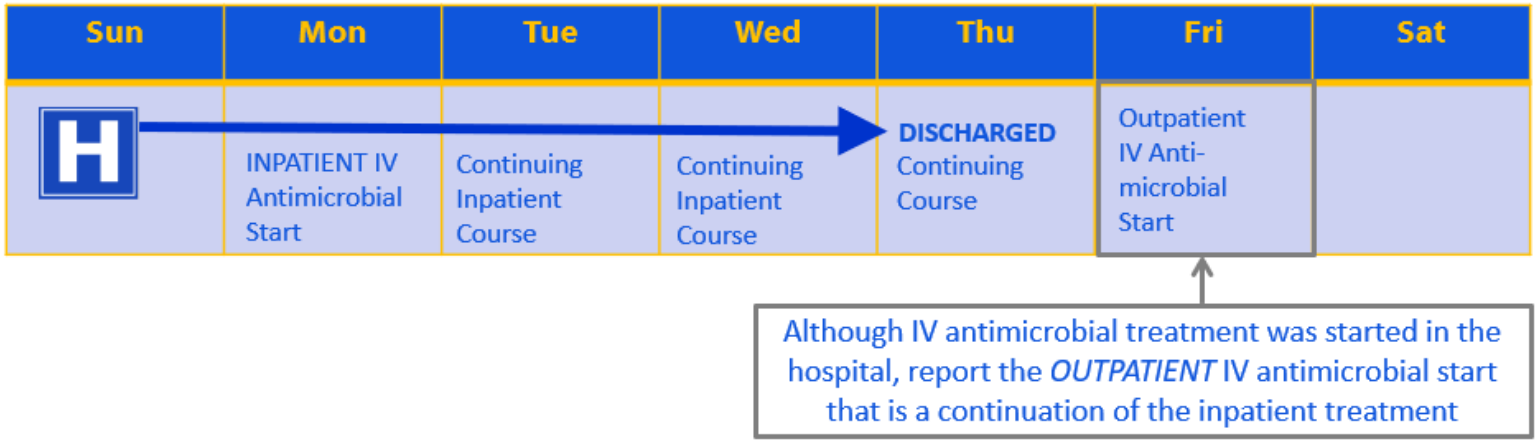
Dialysis Event Requirements – IV Antimicrobial Start

Protocol: Report Numerator Data Dialysis Event Types

- **IV antimicrobial start: Report all starts of intravenous antibiotics or antifungals administered in the outpatient setting.**
  - A “start” is defined as a single outpatient dose or first outpatient dose of a course.
  - Report regardless of the reason for administration or duration of treatment.

IV Antimicrobial Starts can include continuations of Inpatient Treatments

- **Report outpatient starts that are continuations of inpatient treatment**



Dialysis Event Requirements – Pus, Redness, or Increased Swelling (PRS)

Protocol: Report Numerator Data Dialysis Event Types – Pus, Redness, or Increased Swelling (PRS)

- **Pus, redness, or increased swelling at the vascular access site: Report each new outpatient episode where the patient has pus, greater than expected redness, and/or greater than expected swelling at any vascular access site, regardless of whether the patient receives treatment for infection.**
- **Always report pus.**
- **Report redness or swelling if greater than expected and suspicious for infection.**

Numerator (Event) Data Summary

- **Report a dialysis event for any of the three event types:**
  - IV antimicrobial start
  - Positive blood culture
  - Pus, redness or increased swelling at the vascular access site
- **Apply the 21-day rule across calendar months**
  - For a given patient, 21 or more days must pass between two dialysis events of the same type for the second occurrence to be reported as a separate (new) dialysis event
  - Rule is applied differently depending on the dialysis event type
  - Refer to the Dialysis Event Protocol if you are unsure how to report a particular event
- **Account for each event type each month:**
  - If no events occurred, confirm for that event type on that month's denominator form

For any questions, contact the NHSN ServiceNow portal or the NHSN helpdesk at NHSN@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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