National Healthcare Safety Network (NHSN)

Dialysis Event Surveillance

August - December, 2015

ESRD NCC
NATIONAL COORDINATING CENTER

Meeting Hosts

Vicky Cash,
NCC Assistant Director of Quality Improvement

Nicholas Roberts
Clinical AIMS Project Coordinator

Participant Responsibilities

Completion of this training program requires participants to:

Day of the Training (webinar):

1. Attend a live training webinar;
2. Complete the training webinar Evaluation (at the end of this training session);

Following the Training:

1. Complete the CDC's online, self-paced NHSN Dialysis Event Surveillance Training;
2. Pass the competency test. Applying for credits is encouraged, but not required for completion of the training program**.**

Navigating to the CDC website -

To complete the online, self-paced "NHSN Dialysis Event Surveillance Training" and competency post-test, go to:

http://nhsn.cdc.gov/nhsntraining/courses/2014/C18/

- Participants are asked to complete the competency test within two weeks of their webinar training.

- Participants that receive a passing grade (≥80%) on the competency test may request a free continuing education credit from the CDC's Training and Continuing Education (TCE) online system.

NHSN Dialysis Event Surveillance Training

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2015

Outline

- **Training Objectives**
- **Getting started with NHSN**
- **QIP NHSN reporting requirements**
- **Dialysis Component requirements**
  - Survey
  - Monthly Reporting Plans
- **Dialysis Event Surveillance Protocol & requirements**
  - Denominator data
  - Numerator data (Dialysis Events and “Report No Events”)
- **Your Data**
- **Summary**
- **Questions**

Training Objectives

- **Edit an NHSN Monthly Reporting Plan to show your facility is participating in Dialysis Event Surveillance.**
- **Correctly count patients for the "Denominators for Dialysis Event Surveillance" form.**
- **Recall and describe the 3 reportable dialysis events, including:**
  - IV antimicrobial starts
  - Positive blood cultures
  - Pus, redness, or increased swelling at a vascular access site.
- **Determine when and how to apply the "21 day rule" to each of the three dialysis event types.**
- **Determine when and how to "Report no events."**

OVERVIEW: GETTING STARTED WITH NHSN

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 Facility Enrollment Checklist
for Dialysis Facilities

✓	Complete items in order	Time
	Step 1: Training and Preparation	
	Complete the required training at http://www.cdc.gov/nhsn/Training/dialysis/index.html.	2 hrs
	Complete the Outpatient	
	In Internet Explorer, add *	
	Change spam-blocker sett	
	Step 2: Register with NHS	
	Read and agree to the NH	
	Register your email addre	
	After registration, receive	
	Step 3: Register with SAM	
	From the "Invitation to Re	
	Within 24 hours of succes	
	From the "Identify Verifica	
	Mail or fax to CDC the con	
	After CDC processes the d	
	Within 7-10 days, receive	
	Step 4: Submit NHSN Dial	
	Access "NHSN Enrollment"	
	Submit required forms on	
	Shortly after successfully s	
	Step 5: Sign and Send Cor	
	From the "NHSN Facility E	
	Get consent form signatur	
	Return the signed consent	
	Within 3 business days of	
	NHSN Set-up	
	Access "NHSN Reporting"	
	Add users and assign user	
	Add an "Outpatient Hemo	
	Add Monthly Reporting Pl	
	Report to NHSN	
	Read the Dialysis Event Su	
	To report, access "NHSN R	

Last revised
7/15/2014

NHSN Helpdesk: nhsn@cdc.gov

NHSN 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

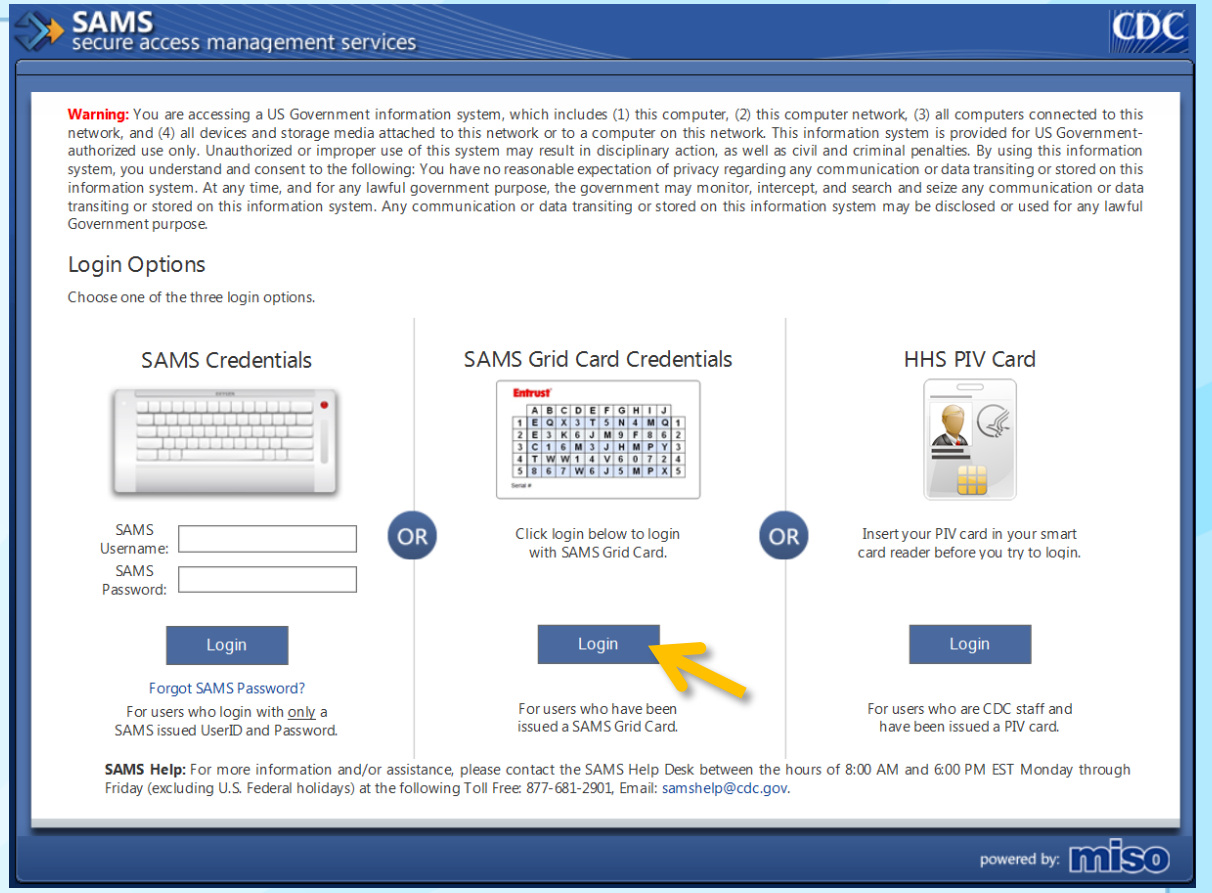
☑	Complete steps in order.	TIME
	STEP 1: Training and Preparation	
	Complete required Dialysis Event Surveillance training: http://www.cdc.gov/nhsn/dialysis/dialysis-event.html.	2 HRS
	In Internet Explorer, add *.cdc.gov to the list of trusted websites and permit pop-ups for these sites.	5 MIN
	Change 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 http://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)	
	Presently, there are two secure CDC systems in use to access NHSN. New users are invited to register with only with the newest system, SAMS. 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
	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
	STEP 4: Access NHSN	
	Go to https://sams.cdc.gov and log in using your grid card and password from Step 3. Select 'NHSN Reporting.'	2 MIN
	Verify you have the NHSN navigation bar options that you need for your role in NHSN.	5 MIN

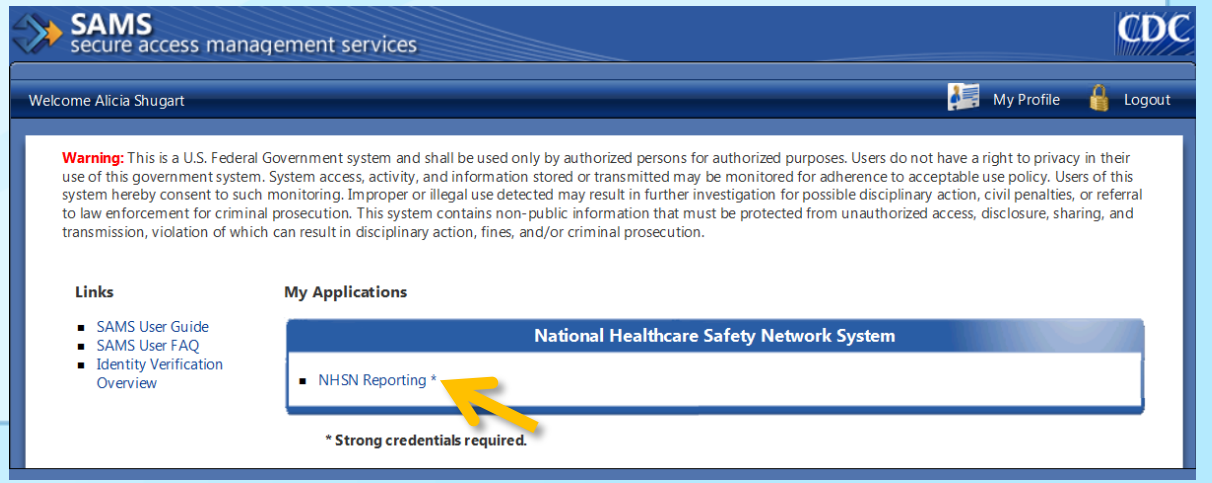
National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

Last revised
June 2014

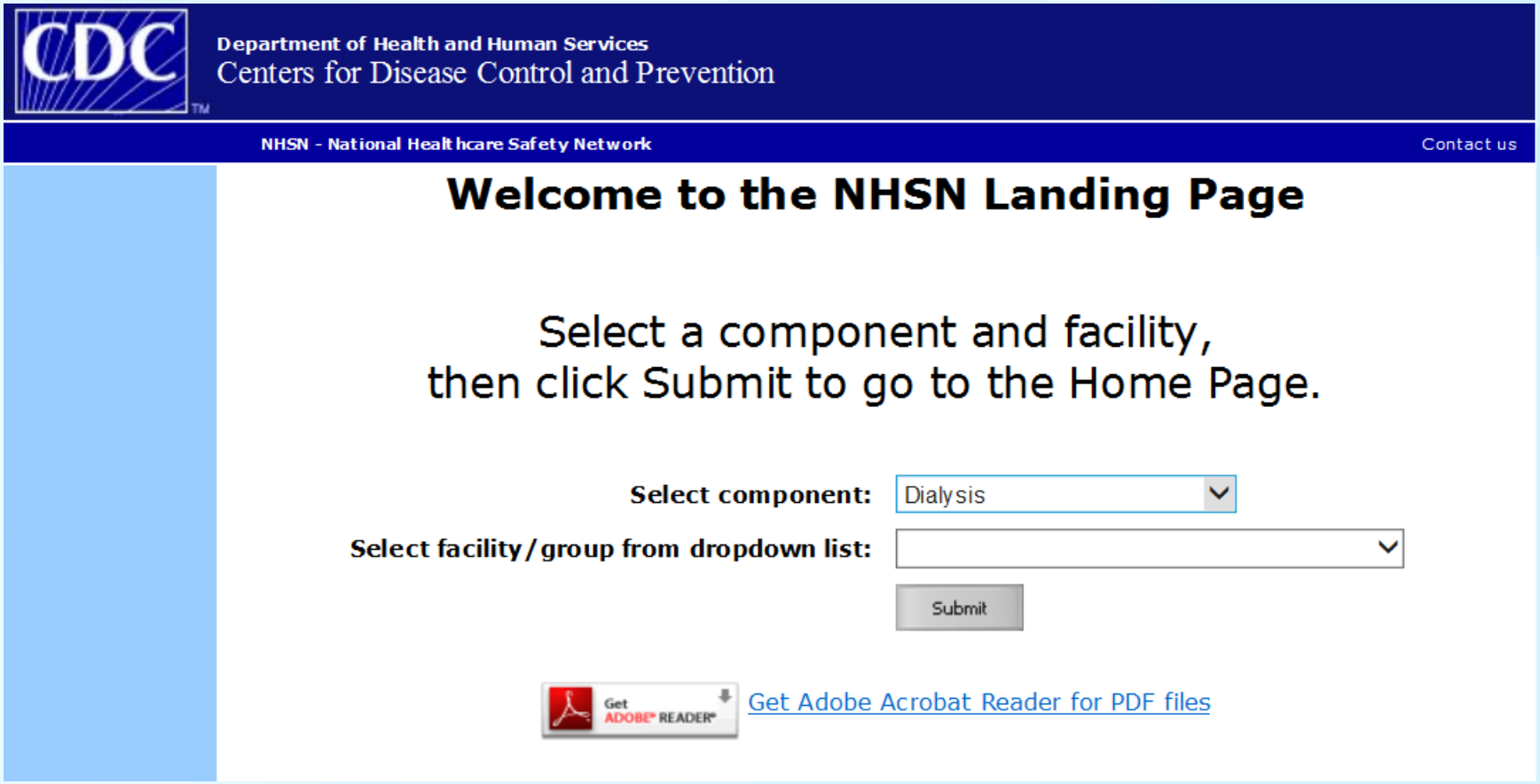
SAMS

- Secure Access Management Services (SAMS) is the secure gateway to access NHSN
- Log in to SAMS
- Then select the “NHSN Reporting” option



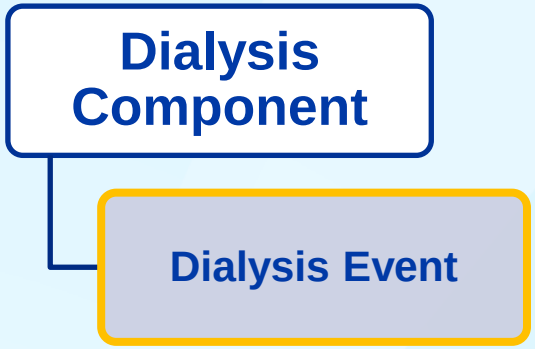


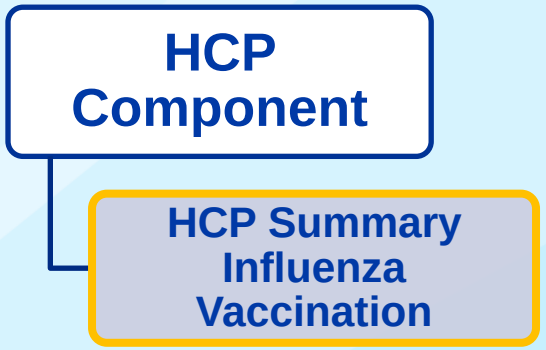
NHSN Landing Page



NHSN DIALYSIS COMPONENT

QIP NHSN Calendar Year 2015 Reporting Requirements

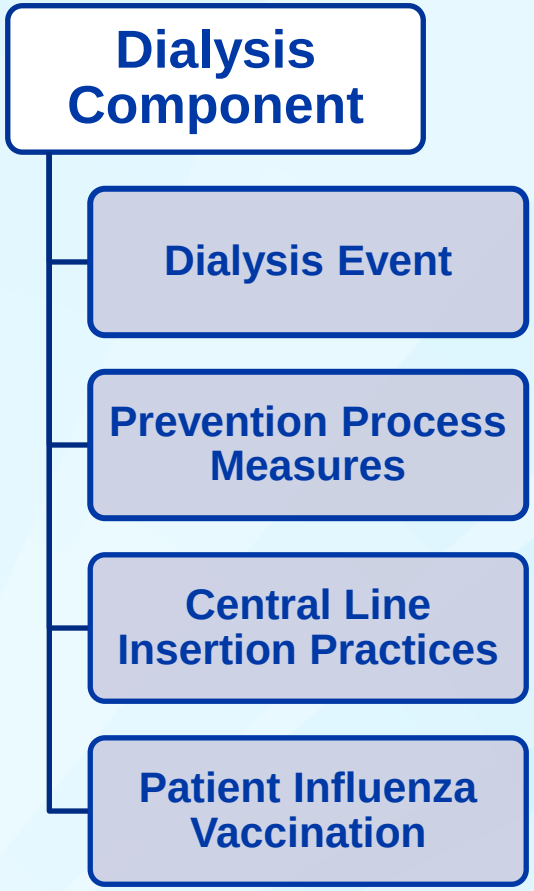




- **Dialysis Event data:**
  - Q1 2015 data due 06/30/2015
  - Q2 2015 data due 09/30/2015
  - Q3 2015 data due 12/31/2015
  - Q4 2015 data due 03/31/2016

- **Healthcare Personnel (HCP) Influenza Vaccination Summary**
  - 2015/2016 flu season summary data due 05/15/2016

NHSN Dialysis Component



- **Four surveillance modules within the Dialysis Component**

- **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 to 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

NHSN Dialysis Component Annual Survey

OUTPATIENT DIALYSIS CENTER PRACTICES SURVEY

NHSN Outpatient Dialysis Center Practices Survey

- **Complete one survey per NHSN facility org ID.**
- **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.**

NHSN Dialysis Component

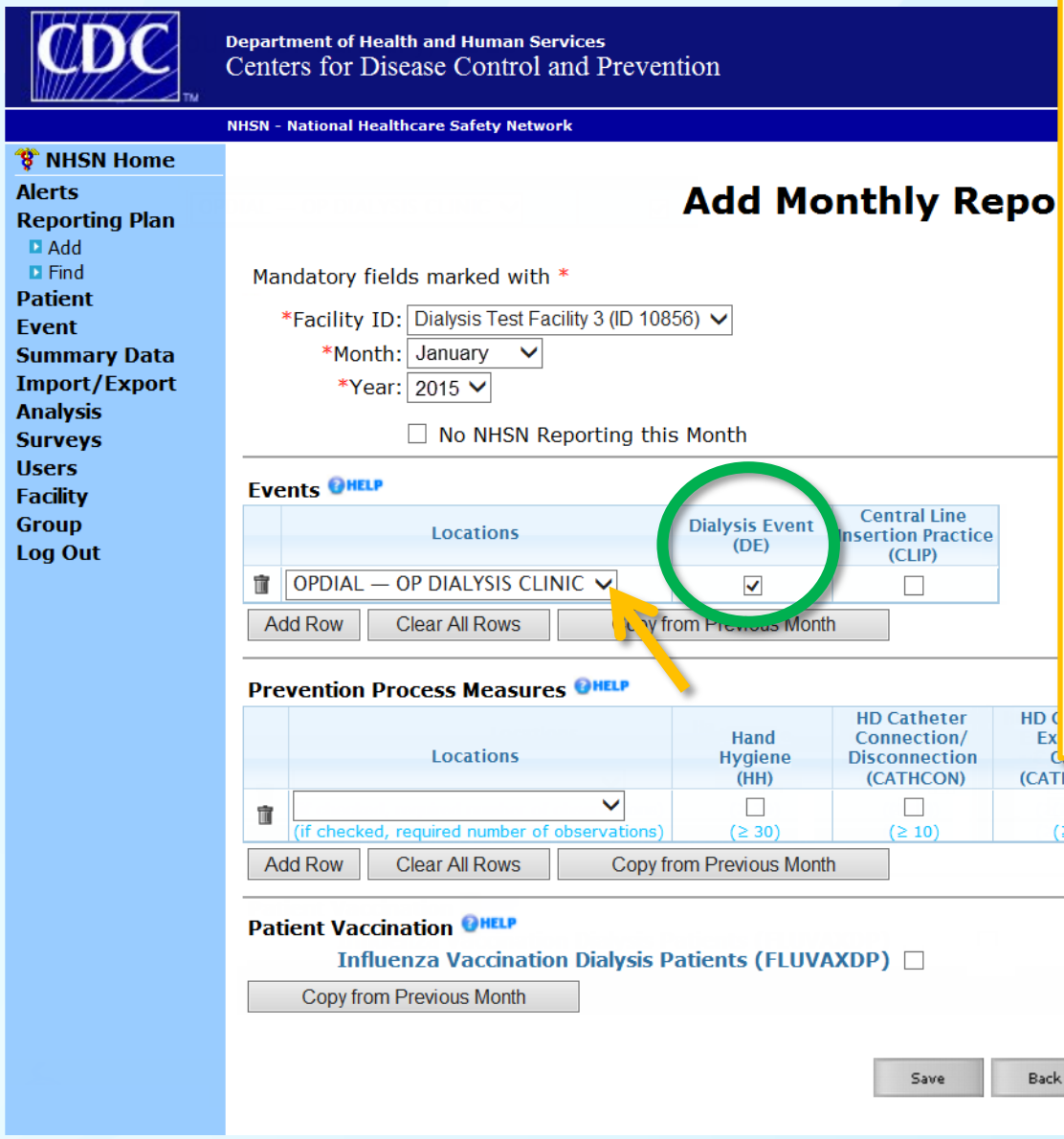
MONTHLY REPORTING PLAN

Monthly Reporting Plans

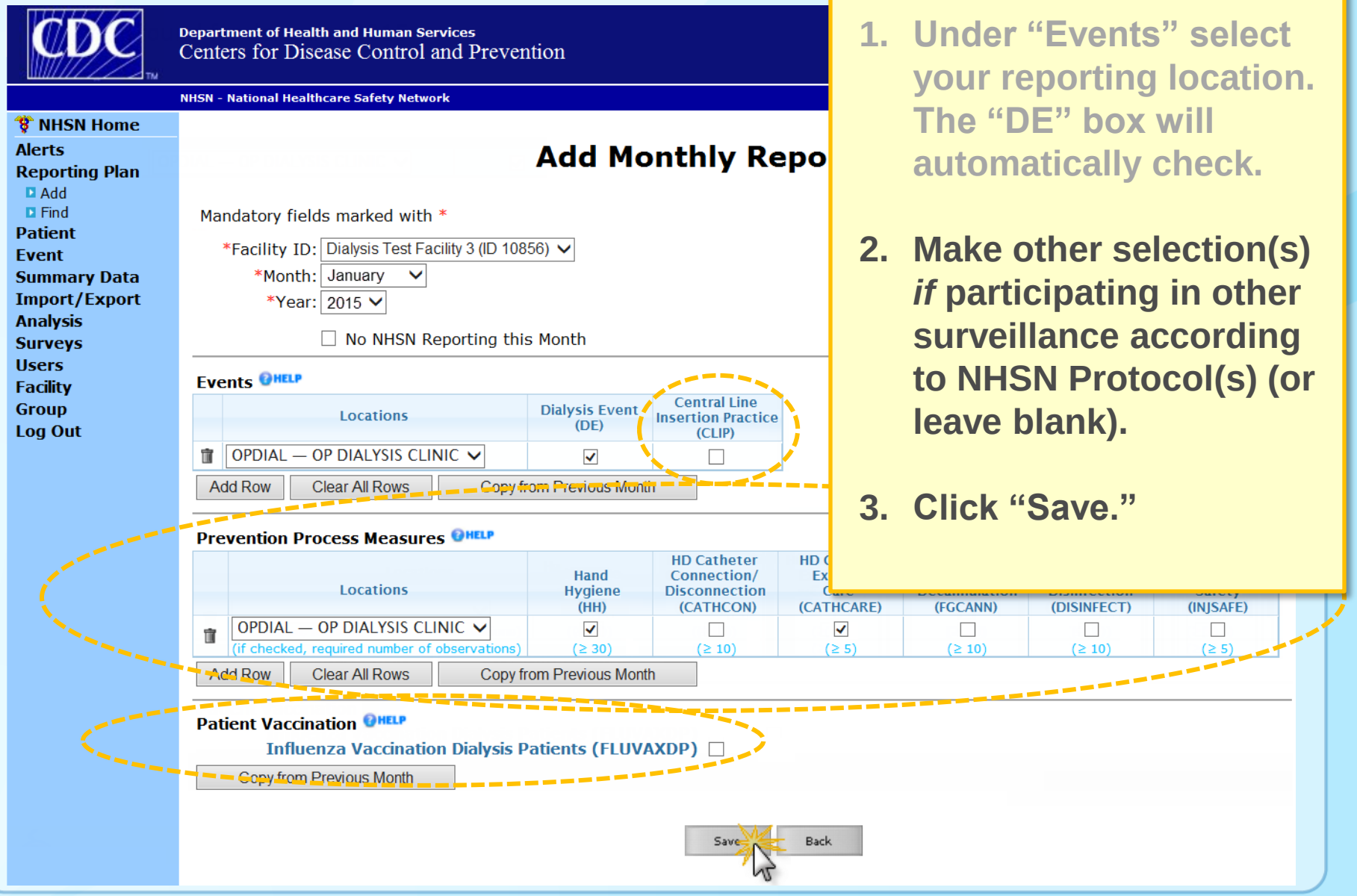
- **The plan informs CDC what surveillance the facility is participating in according to NHSN protocol(s).**
- **Data can be reported either "in-plan" or "off-plan."**
  - "In-plan" refers to selections made on the monthly reporting plan.
  - By making a selection on the plan, you agree to follow the NHSN Protocol(s) for monitoring and reporting for that month.
- **CDC selects "in-plan" data to include in the aggregate pool for analysis.**
  - "Off-plan" data are not used by CDC and not shared with CMS.
- **Plans can be modified retrospectively.**

Adding 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



1. **Under "Events," select your reporting location. The "DE" box will automatically check.**
2. **Make other selection(s) if participating in other surveillance according to NHSN Protocol(s) (or leave blank).**
3. **Click "Save."**



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2. Make other selection(s) *if* participating in other surveillance according to NHSN Protocol(s) (or leave blank).
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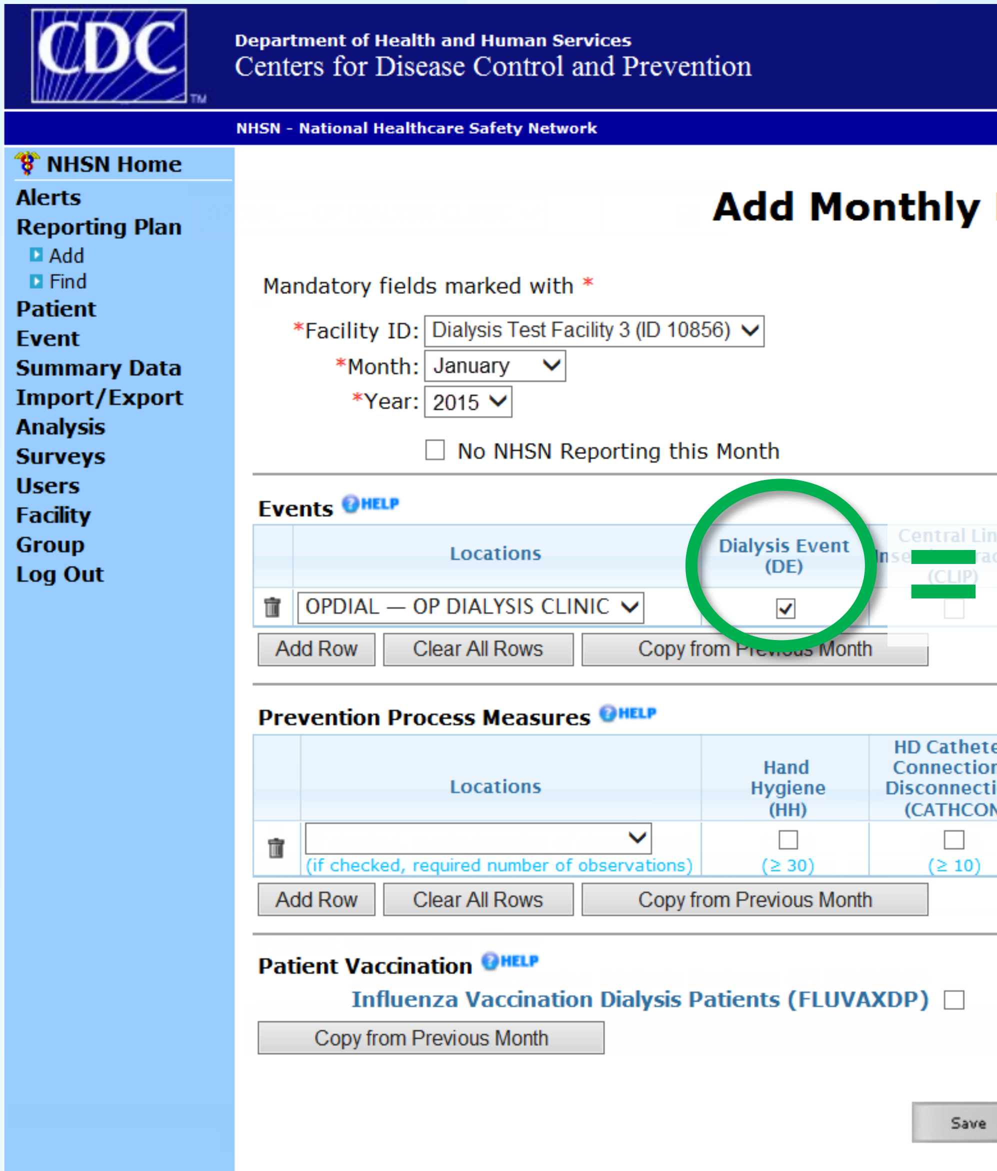

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NHSN Dialysis Event Manual
Dialysis Event Protocol

Dialysis Event Protocol

Introduction

In 2011, more than 395,000 patients were treated with maintenance hemodialysis in the United States.[13] 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/

Population: Hemodialysis outpatients.

- Include transient patients
- Include peritoneal dialysis patients or transplant patients undergoing temporary hemodialysis

[13] *U.S. Renal Data System, USRDS 2013 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2013.* (http://www.usrds.org/adr.htm)

January 2014 page 14/55

Our facility is following this Protocol. Include our data in CDC analyses and CMS reporting.

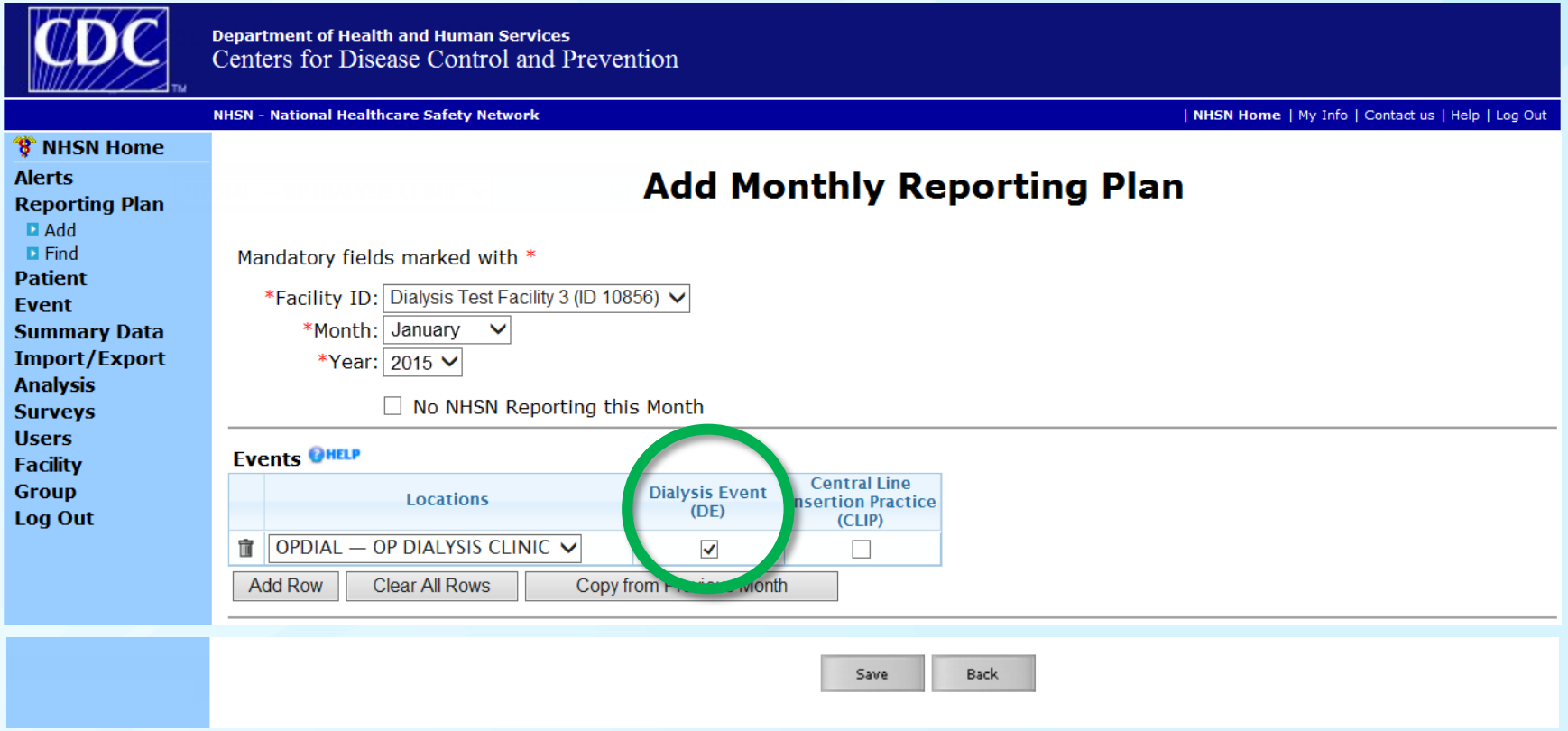
How to Add a Monthly Reporting Plan if Your Facility is *Not* Participating

***Only* select "No NHSN Reporting This Month" if your facility is not participating in any NHSN surveillance that month.**

E.g., the facility is temporarily closed.

Training Objective #1: Add/edit the Monthly Reporting Plan to show your facility is participating in Dialysis Event Surveillance.

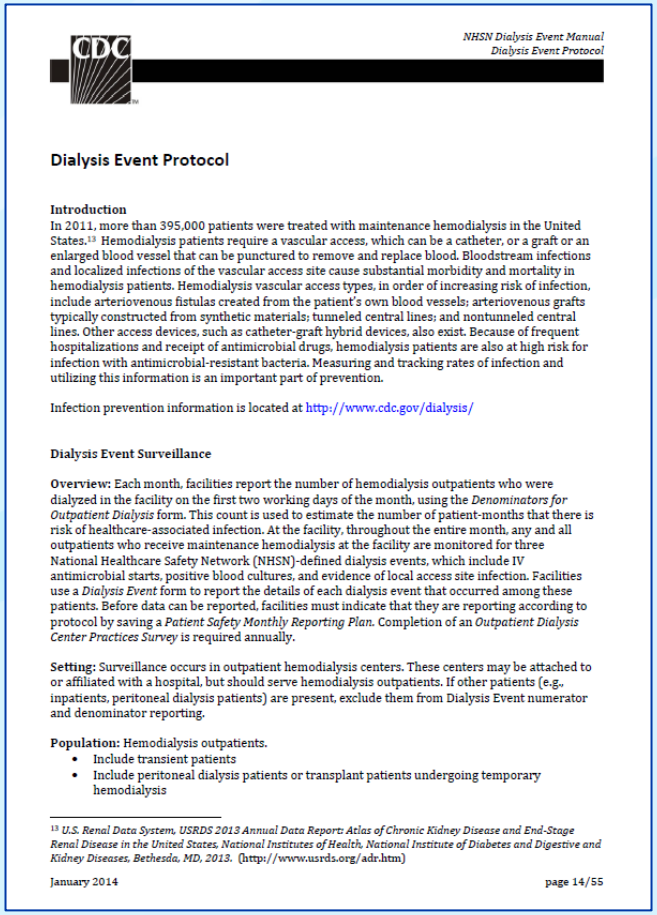
- Check the “DE” box every month before submitting your Dialysis Event data to indicate your facility is following the Protocol



DIALYSIS EVENT PROTOCOL

Required Reading: Dialysis Event Protocol

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



Dialysis Event Protocol

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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 Outpatient Dialysis* form. This count is used to estimate the number of patient-months that there is risk of healthcare-associated infection. At the facility, throughout the entire month, any and all outpatients who receive maintenance hemodialysis at the facility are monitored for three National Healthcare Safety Network (NHSN)-defined dialysis events, which include 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 these patients. Before data can be reported, facilities must indicate that they are reporting according to protocol by saving a *Patient Safety Monthly Reporting Plan*. Completion of an *Outpatient Dialysis Center Practices Survey* is required annually.

Setting: Surveillance occurs in outpatient hemodialysis centers. These centers may be attached to or affiliated with a hospital, but should serve hemodialysis outpatients. If other patients (e.g., inpatients, peritoneal dialysis patients) are present, exclude them from Dialysis Event numerator and denominator reporting.

Population: Hemodialysis outpatients.

- Include transient patients
- Include peritoneal dialysis patients or transplant patients undergoing temporary hemodialysis

[13] *U.S. Renal Data System, USRDS 2013 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2013.* (http://www.usrds.org/adr.htm)

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 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 Terminology and Components of a Rate

- ***Numerator*** **= number of dialysis events**
  - Information from "Dialysis Event" forms
- ***Denominator*** **= count of patients by vascular access type used to estimate number of patient-months considered at risk for dialysis events**
  - Info from "Denominators for Dialysis Event Surveillance" forms

$$\textit{Rate} = \frac{\text{Dialysis Events (numerator)}}{\text{Patient-Months (denominator)}} \times 100$$

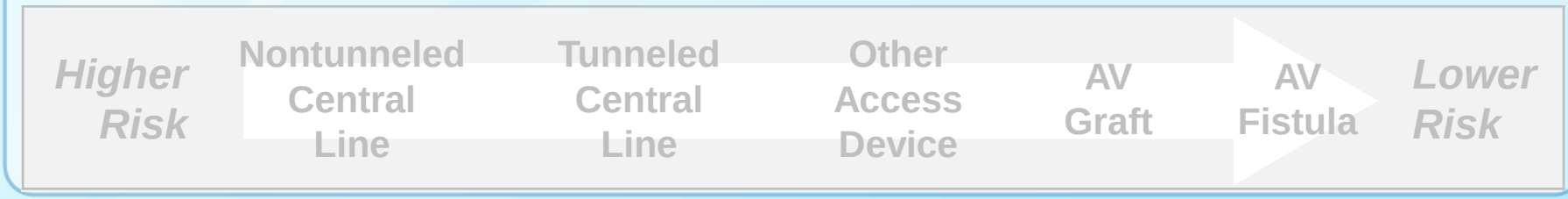
- **Both numerator and denominator data must be correct to calculate valid rates**

Dialysis Event Surveillance Protocol

DENOMINATORS FOR DIALYSIS EVENT SURVEILLANCE

Protocol: Report Denominator Data Monthly

- **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.**
  - Report all hemodialysis outpatients, including transient patients.
  - Exclude non-hemodialysis patients and exclude inpatients.
- **Count each patient only once by vascular access type; if the patient has multiple vascular accesses, report only the vascular access with the highest risk of infection.**
  - This may not be the vascular access currently in use for dialysis.



“Working Days”

- **The first two “working days” of the month are the days that provide the opportunity to capture all regularly scheduled hemodialysis shifts and patients.**
- **Count each patient only once!**
- Example: A facility dialyzes patients 6 days a week, Monday - Saturday. If the 1st day of the month falls on a Sunday, then Monday and Tuesday are the 1st 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

Protocol: Report Denominator Data Monthly

- **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.**
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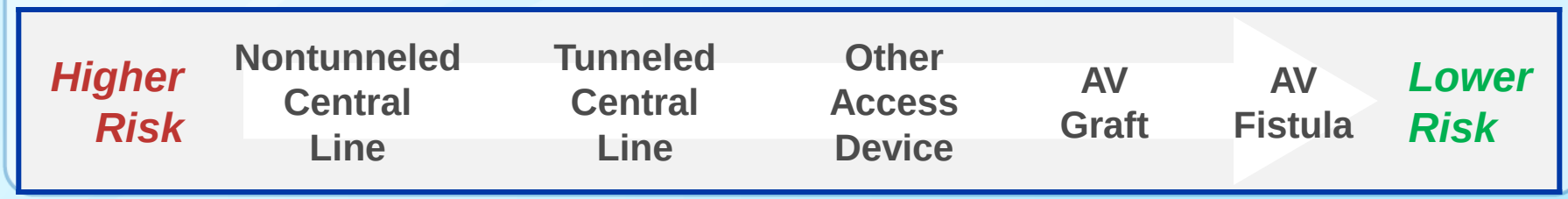

Refer to Protocol for Vascular Access Definitions

- **Nontunneled central line:** a central venous catheter that travels directly from the skin entry site to a vein and terminates close to the heart or one of the great vessels, typically intended for short term use.
- **Tunneled central line:** a central venous catheter that travels a distance under the skin from the point of insertion before entering a vein, and terminates at or close to the heart or one of the great vessels
  - E.g., Hickman® or Broviac® catheters*
- **Graft:** a surgically created connection between an artery and a vein using implanted material (typically synthetic tubing) to provide a permanent vascular access for hemodialysis.
- **Fistula:** a surgically created direct connection between an artery and a vein to provide vascular access for hemodialysis.
- **Other vascular access device:** includes catheter-graft hybrid access devices (e.g., HeRO® vascular access device*), ports, and any other vascular access devices that do not meet the above definitions.

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

Refer to Protocol for Vascular Access Definitions

- **Nontunneled central line:** a central venous catheter that travels directly from the skin entry site to a vein and terminates close to the heart or one of the grea
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  - E.g.,
- **Graft:** using implant t vascula
- **Fistula** d a vein to
- **Other** es (e.g., H ar access devices that do not meet the above definitions.

When determining the patient's highest infection risk access for the denominator…

Consider <u>all</u> of the patient's vascular accesses: even accesses that are not used for dialysis, and accesses that are abandoned/non-functional.

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

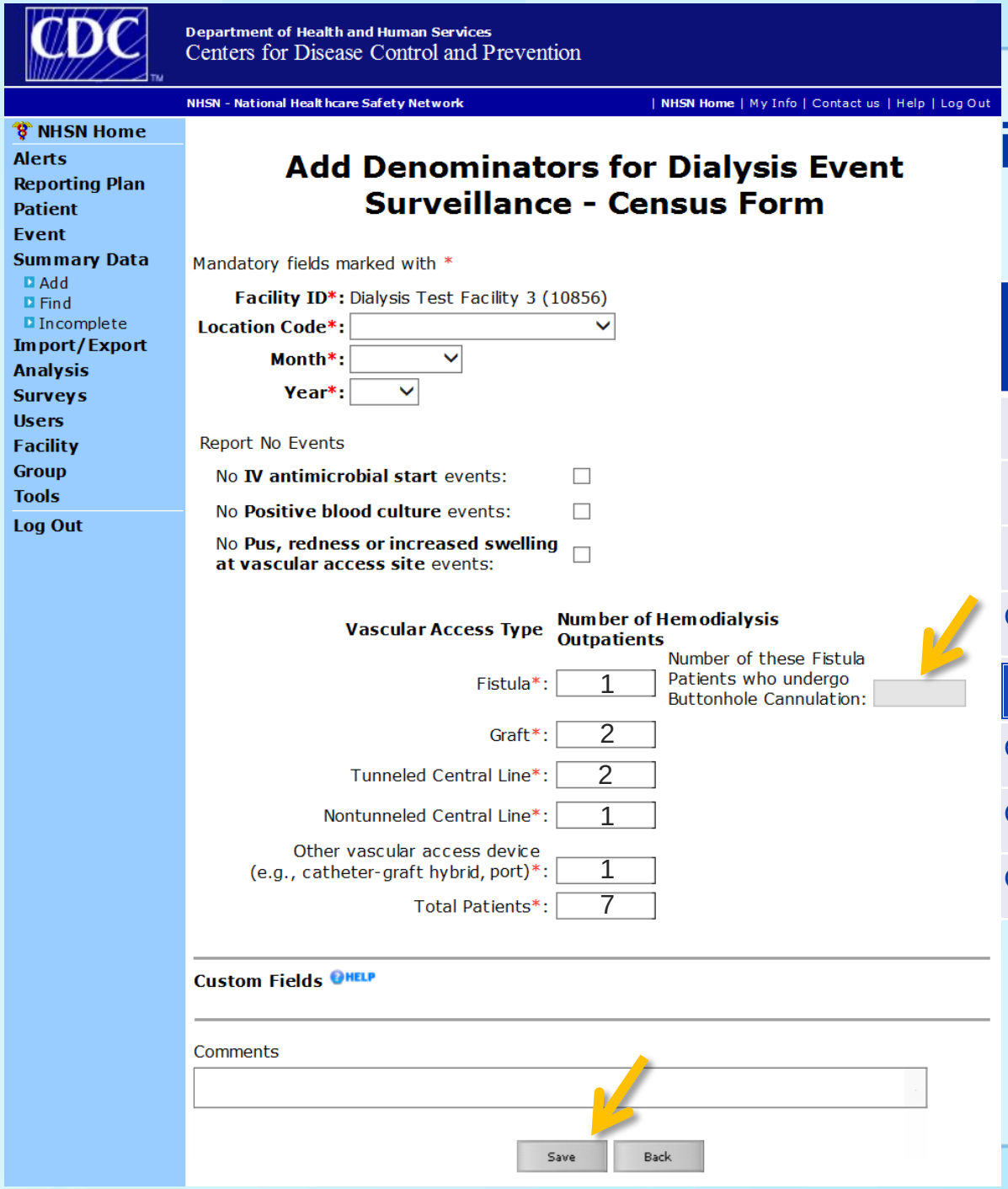
Training Objective #2: Correctly count patients for the "Denominators for Dialysis Event Surveillance" form

- **Describe patient inclusion/exclusion criteria:**
  - Include: all outpatients, including transients, who undergo hemodialysis treatment on the first two working days of the month.
  - Exclude: non-hemodialysis patients, inpatients, patients who are not present on the first two working days.
- **Determine the first two "working days" of each month:**
  - The first two days that include all regular shifts (i.e., all patients have the opportunity to be included in the count).
- **Categorize patients by highest infection risk access type:**
  - Count each patient only once.
  - If the patient has multiple vascular accesses, report him/her only once, under the category of his/her vascular access with the highest risk of infection:
    Nontunneled CL > Tunneled CL > Other > Graft > Fistula
  - Select the highest infection risk access, even if that access is not used for dialysis, is abandoned, or non-functional.

Denominator Data Collection Example

Patient	All Vascular Access(es)	Working Day 1	Working Day 2	NHSN Denominator
A	**NTCL** TCL O **G** F	OP Hemodialysis	-	**1 NTCL**
B	NTCL **TCL** O G **F**	OP Hemodialysis	-	**1 TCL**
C	NTCL TCL O **G** **F**	OP Hemodialysis	-	**1 Graft**
D	NTCL **TCL** **O** **G** F	OP Hemodialysis	OP Hemodialysis	**1 TCL**
E	NTCL **TCL** O G F	-	H Hospital	
F	NTCL TCL O G **F**	-	OP Hemodialysis	**1 Fistula**
G	NTCL TCL O **G** F	-	OP Hemodialysis	**1 Graft**
transient	NTCL TCL **O** G **F**	-	OP Hemodialysis	**1 Other**

NTCL = Nontunneled Central Line
TCL = Tunnel Central Line
O = Other vascular access device
G = AV Graft
F = AV Fistula

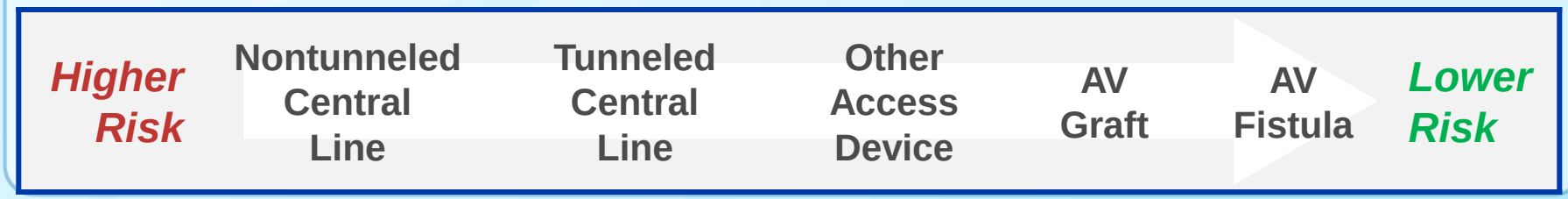


ion Example

Working Day 2	NHSN Denominator
-	1 NTCL
-	1 TCL
-	1 Graft
OP Hemodialysis	1 TCL
H Hospital	✗
OP Hemodialysis	1 Fistula
OP Hemodialysis	1 Graft
OP Hemodialysis	1 Other

Denominator Data Summary

- **Each month, report the number of hemodialysis outpatients who received in-center hemodialysis during the first two working days of the month.**
  - The first two days of the month that the facility provides hemodialysis treatment and are days that include all regular shifts
- **Count each patient only once.**
- **If the patient has multiple vascular accesses, report the vascular access with the highest risk of infection.**
  - This may not be the vascular access currently in use for dialysis.



Dialysis Event Surveillance Protocol

NUMERATORS: DIALYSIS EVENTS & “REPORT NO EVENTS”

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 counted on that month's denominator form.
  - Monitor transient patients and report dialysis events that occur at your facility.
- **Report a dialysis event for any of the following:**
  - IV antimicrobial start
  - Positive blood culture
  - Pus, redness or increased swelling at the vascular access site
- **On the event form under Risk Factors, report <u>all</u> of the patient's vascular accesses, regardless of whether they are in use for hemodialysis, abandoned/non-functional.**

Protocol: Report Numerator Data
Dialysis Event Types

- **IV antimicrobial start: Report all starts of intravenous antibiotics or antifungals administered in an 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.
- **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.
- **Pus, redness, or increased swelling at the VA site: Report each new outpatient episode where the patient has pus, >expected redness, and/or >expected swelling at any vascular access site.**
  - Report regardless of whether the patient receives treatment for infection.
  - Always report pus.
  - Report redness or swelling if greater than expected and suspicious for infection.

IV Antimicrobial Start Continuations

- Report all occurrences where IV antibiotics or antifungals are administered in an outpatient setting, regardless of the reason and duration of treatment
- Report outpatient starts that are continuations of inpatient treatment

Sun	Mon	Tue	Wed	Thu	Fri	Sat
H	INPATIENT IV Antimicrobial Start	Continuing Inpatient Dose	Continuing Inpatient Dose	DISCHARGED Continuing Inpatient Dose	OUTPATIENT IV Anti-microbial Start	

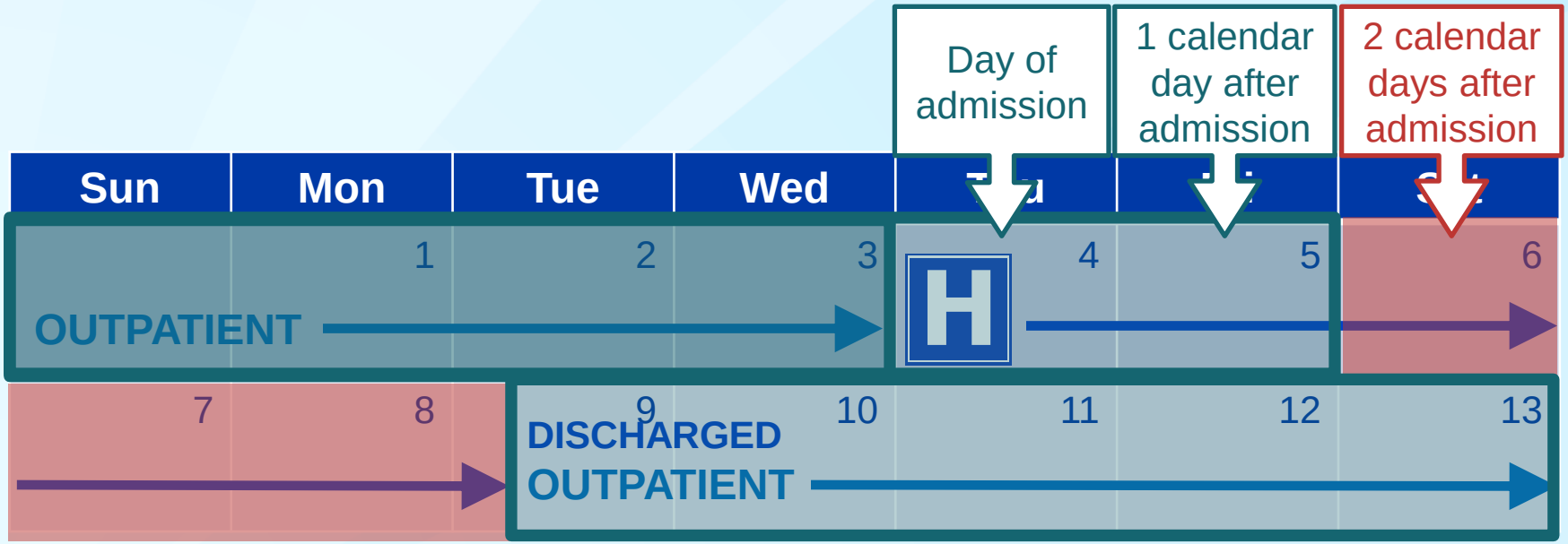
Although IV antimicrobial treatment was started in the hospital, report the *OUTPATIENT* IV antimicrobial start that is a continuation of the inpatient treatment

Protocol: Report Numerator Data
Dialysis Event Types

- **IV antimicrobial start: Report all starts of intravenous antibiotics or antifungals administered in an 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.
- **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.
- **Pus, redness, or increased swelling at the VA site: Report each new outpatient episode where the patient has pus, >expected redness, and/or >expected swelling at any vascular access site.**
  - Report regardless of whether the patient receives treatment for infection.
  - Always report pus.
  - Report redness or swelling if greater than expected and suspicious for infection.

Reportable Positive Blood Cultures

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



Protocol: Report Numerator Data
Dialysis Event Types

- **IV antimicrobial start: Report all starts of intravenous antibiotics or antifungals administered in an outpatient setting.**
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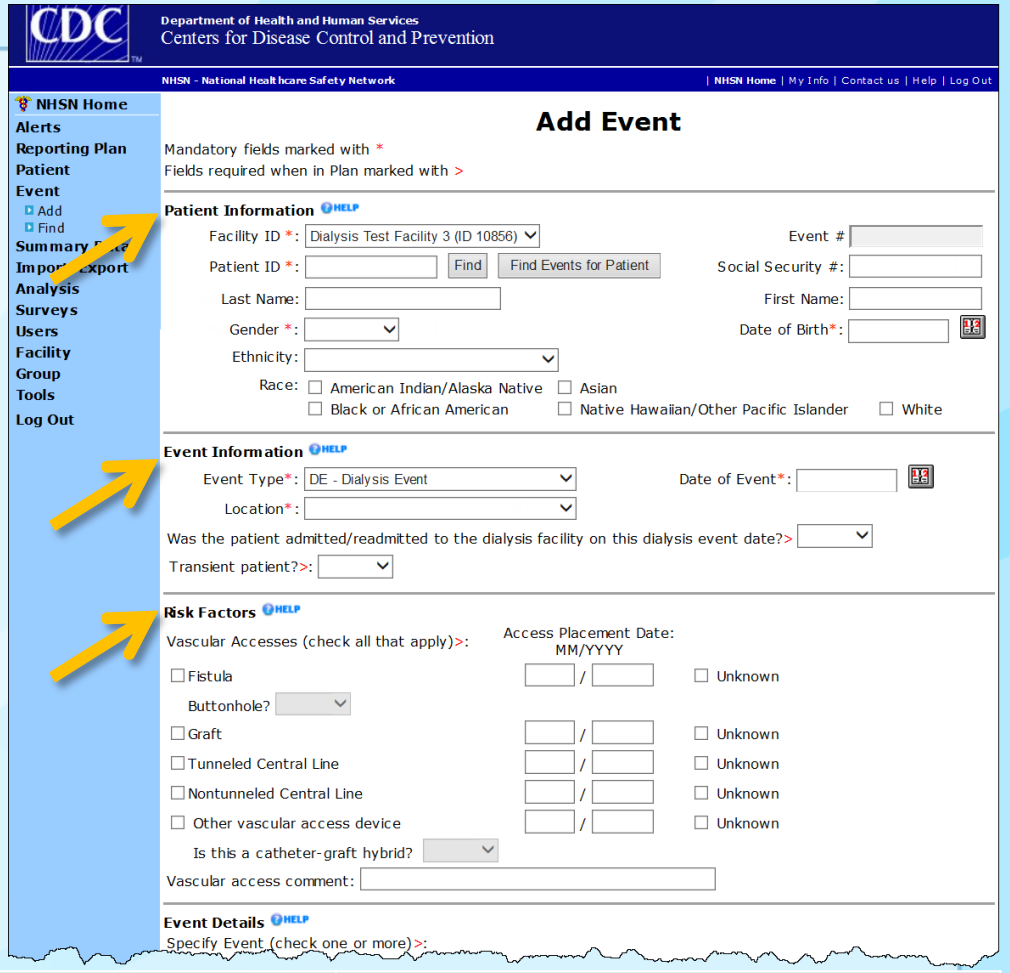
  - Always report pus.
  - Report redness or swelling if greater than expected and suspicious for infection.

Training Objective #3: Recall and describe the three types of reportable dialysis events

- **IV antimicrobial start:**
  - Report all starts of intravenous antibiotics or antifungals administered in an outpatient setting.
  - “Start” is a single outpatient dose or first outpatient dose of a course.
  - Report regardless of the reason for administration or duration of treatment.
- **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.
- **Pus, redness, or increased swelling at the VA site:**
  - Report each new outpatient episode where the patient has pus, >expected redness, and/or >expected swelling at any vascular access site.
  - Report regardless of whether the patient receives treatment for infection.
  - Always report pus.
  - Report redness or swelling if greater than expected and suspicious for infection.

Other Dialysis Event Form Requirements

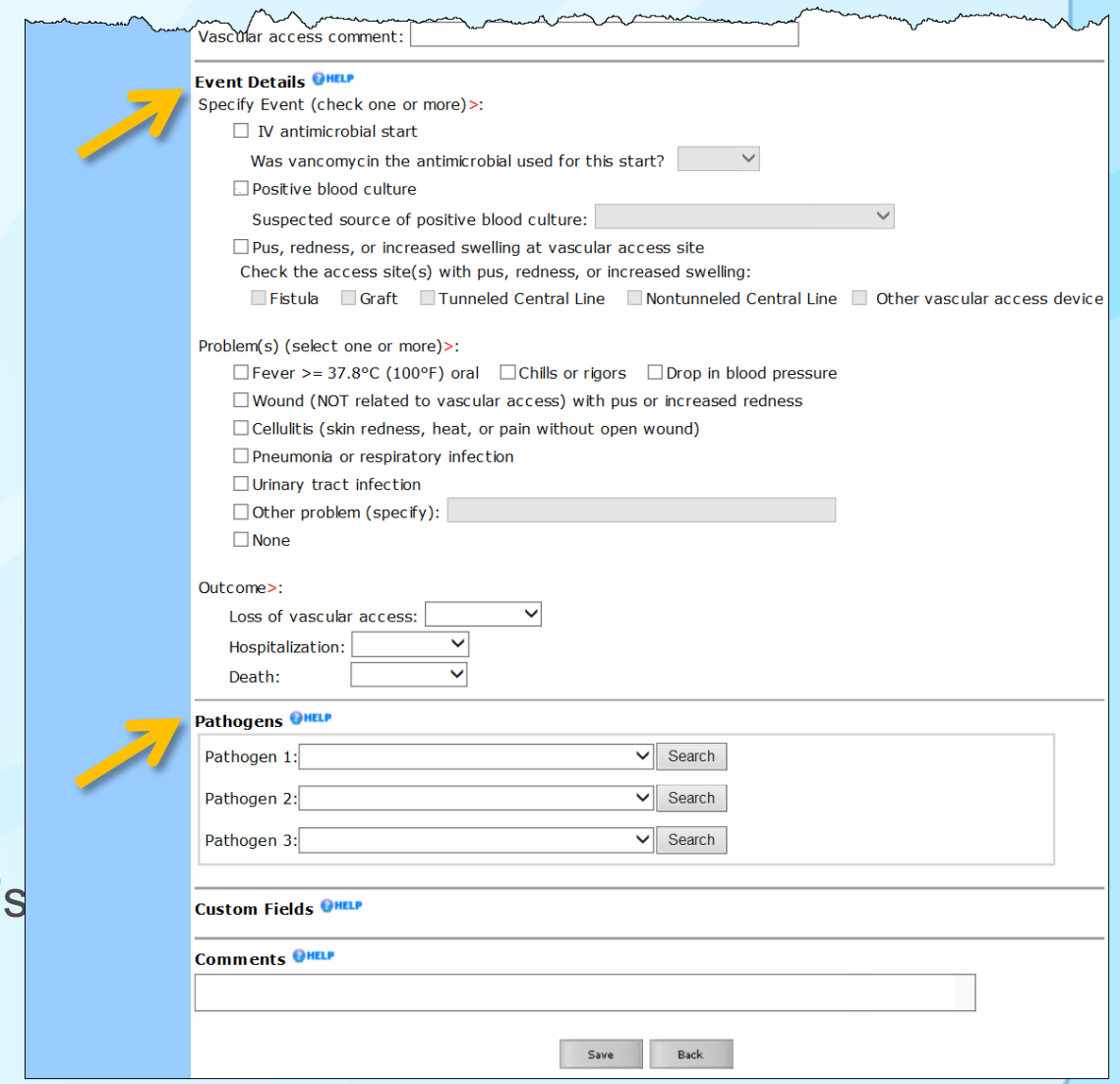
- **Patient Information**
  - Identifier, gender, DOB
- **Event Information**
  - Event Type = “Dialysis Event”
  - Date of Event
- **Risk Factors**
  - Specify *all* of vascular accesses present at the time of event



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 of the three types

Other Dialysis Event Form Requirements (con't)

- **Event Details**
  - Specify the dialysis event type(s) and associated details
  - Indicate problems associated with the events and outcomes
- **Pathogens (if applicable)**
  - For Positive Blood Cultures, report up to three pathogens and indicate the pathogen's antimicrobial susceptibilities



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
- **The rule is that for each patient, 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.**

21 Day Rule Applies Across Calendar Months

Sun	Mon	Tue	Wed	Thu	Fri	Sat
21	22 Reported Positive Blood Culture	23	24	25	26	27
28	29	30	31			

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6 Positive Blood Culture	7	8	9	10

Applying the 21 Day Rule to Each Event Type

Event Type	Count 21 Days…
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 IV antimicrobial treatment?
Positive Blood Culture	From the **last reported 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?
Pus, Redness, or Swelling at VA Site	From first reported **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.

IV Antimicrobial Starts on the 21st Day

21 Day Rule: IV Antimicrobial Starts (continued)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Final IV Antimicrobial Dose	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20 IV Anti-microbial Start
21 IV Anti-microbial Start	22	23	24	25	26	27
28	29	30	31			

Report new IV antimicrobial starts that occur on or after 21 days without antimicrobials have passed.

21 Day Rule: Positive Blood Cultures with Multiple Microorganisms

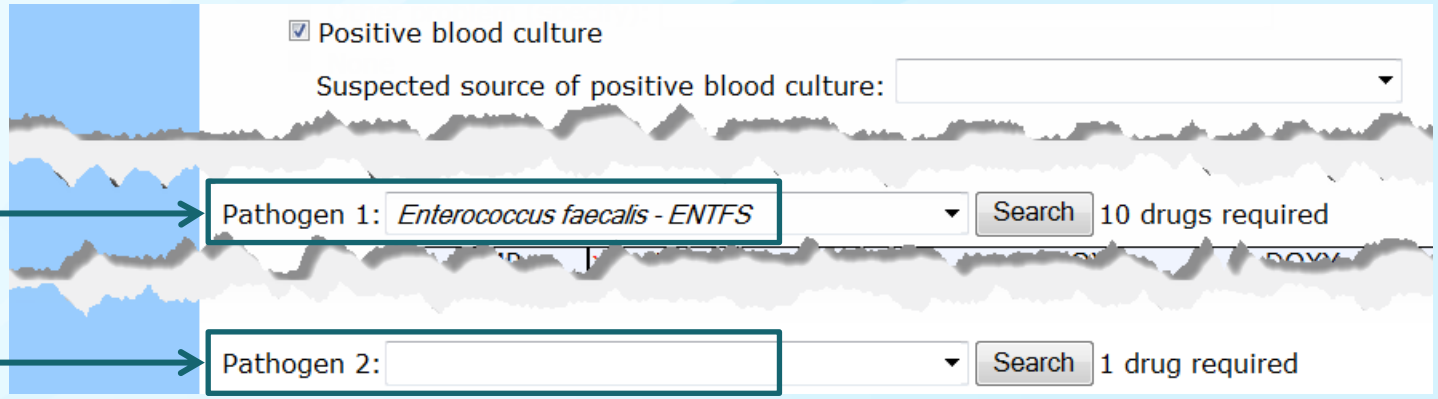
- If different microorganisms grow from subsequent positive blood cultures, add the new organism(s) to the initial report

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Reported Positive Blood Culture	1	2	Positive Blood Culture 3	4	5	6

Enterococcus faecalis

× ***Enterococcus faecalis***

✓ ***Staphylococcus epidermidis***



Pus, Redness, or Increased Swelling at the Vascular Access Site 21 Day Rule Example

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Reported pus, redness, swelling onset	1 Symptoms continues	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17 Symptoms resolve	18	19	20
21 Onset of redness	22	23	24	25	26	27

Report the new onset of redness because the 21 days are counted from onset to onset.

Training Objective #4: when and how to apply the “21 day rule” to each dialysis event type

- **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 course ended
  - The rule still applies even if antimicrobial drugs are different
- **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 was reported
- **Pus, Redness, or Swelling at VA Site 21 Day Rule:**
  - Only report another episode of pus, redness, or swelling if there have been 21 days since their last onset of symptoms was reported
- **21 day rule only applies to multiple events of the *same* type**

Case 1: Sam

May 4	○ Sam has a tunneled central line ○ He receives a prophylactic dose of IV cefazolin in the outpatient dialysis clinic before being admitted to the hospital for surgery to get a graft
May 6	○ Discharged from hospital, back to outpatient dialysis
June 11	○ Sam has a fever of 101°F and reports chills ○ Blood cultures ordered and IV vancomycin is started
June 15	○ Blood culture results are negative ○ Sammy is afebrile & reports feeling better ○ Vancomycin is discontinued

Questions:

- What meets dialysis event criteria?
- How many dialysis events should be reported?
  - Are the events related?
  - Does the 21 day rule apply?
- What are the event dates?

Case 1: Sam

May 4	○ Sam has a tunneled central line ○ He receives a prophylactic dose of IV cefazolin in the outpatient dialysis clinic before being admitted to the hospital for surgery to get a graft ○ A few days later, he is discharged from the hospital
June 11	○ Sam has a fever of 101°F and reports chills ○ Blood cultures ordered and IV vancomycin is started
June 15	○ Blood culture results are negative ○ Sammy is afebrile & reports feeling better ○ Vancomycin is discontinued

Report: 2 dialysis events: May 4 IV antimicrobial start and June 11 IV antimicrobial start

Why? Report ALL IV antimicrobial starts, regardless of reason or duration of treatment. Report them separately because there are more than 21 days between them.

Case 2: Alex

June 9	○ While receiving maintenance hemodialysis, Alex complains of "not feeling well" ○ Physician orders blood cultures ○ IV vancomycin is started empirically
June 11	○ One of four blood culture results are positive for coagulase-negative staphylococci ○ Alex feels better, physician discontinues vancomycin

Questions:

- What meets dialysis event criteria?
- How many dialysis events should be reported?
  - Are the events related?
  - Does the 21 day rule apply?
- What is the event date?

For positive blood cultures:
"What is the suspected source?"

Case 2: Alex

June 9	○ While receiving maintenance hemodialysis, Alex complains of "not feeling well" ○ Physician orders blood cultures ○ IV vancomycin is started empirically
June 11	○ One of four blood culture results are positive for coagulase-negative staphylococci ○ Alex feels better, physician discontinues vancomycin

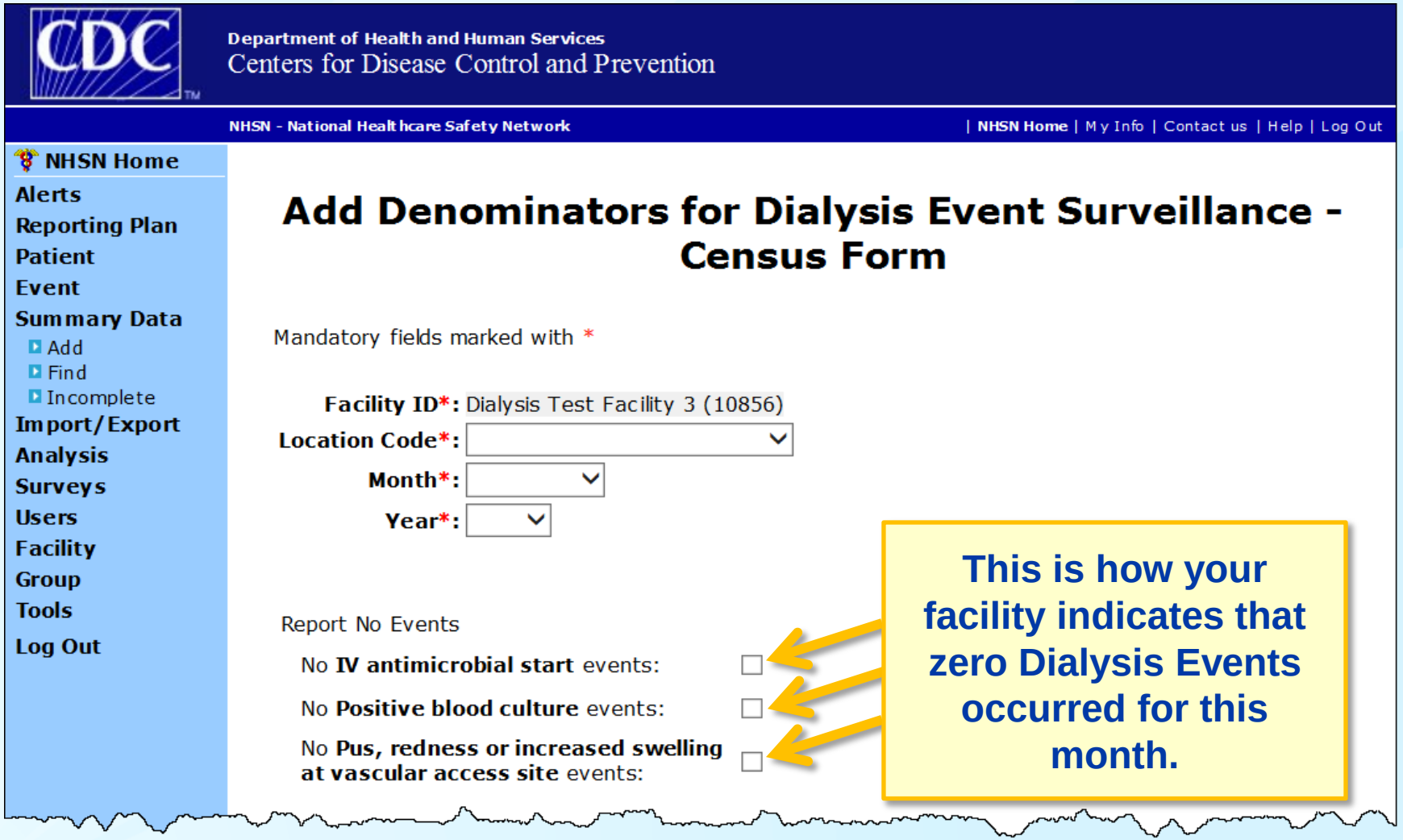
Report: 1 dialysis event, date June 9, which includes a positive blood culture (suspected source is contamination) and an IV antimicrobial start.

Why? Report ALL positive blood cultures collected as an outpatient.
Report related events together.

Numerator Data - “Report No 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 events” box for that event type is checked on the Denominators for Dialysis Event Surveillance form to confirm no events (i.e., zero) of that type occurred during the month.
- **If you “report no events,” that numerator = 0.**

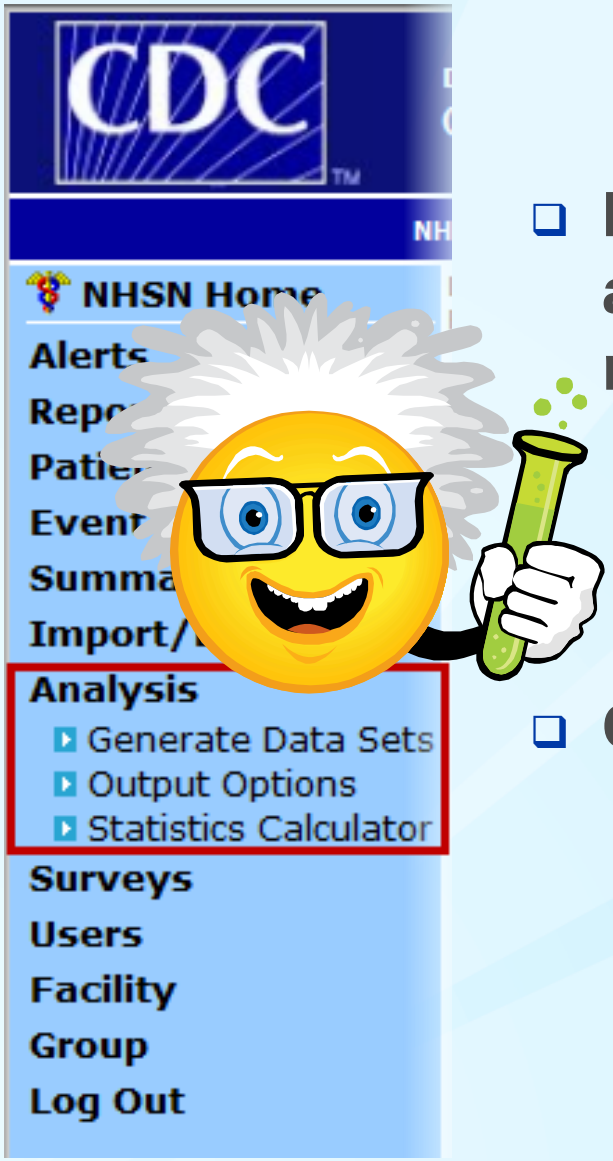
Training Objective #5: When and How to "Report no events"



Numerator (Event) Data Summary

- **Report a dialysis event for any of the following:**
  - 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
- **Account for each event type each month:**
  - If there no events occurred, “report no events” for that event type on that month’s denominator form

YOUR FACILITY'S DATA



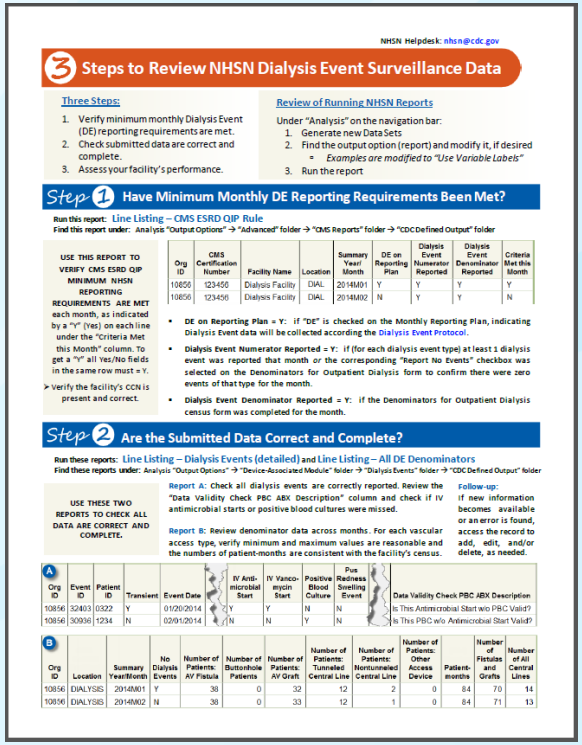
Creating Reports in NHSN

- **NHSN includes reports that facilities and groups can run at any time to review their data**
  - Experiment with the Analysis function – You won't break anything!
  - NHSN does the work for you!
- **Create a report in 3 Steps:**
  1. Generate New Data Sets
  2. Locate the report under "Output Options"
     - Modifying is optional
  3. "Run" the Report

Reference Guide: 3 Steps to Review NHSN Dialysis Event Surveillance Data

- Refer to the illustrated, two-page guide:
  http://www.cdc.gov/nhsn/PDFs/dialysis/3-Steps-to-Review-DE-Data-2014.pdf

1. Verify minimum monthly reporting requirements are met
2. Verify the submitted data are correct and complete
3. Verify how your facility is doing



NHSN Helpdesk: nhsn@cdc.gov

3 Steps to Review NHSN Dialysis Event Surveillance Data

Three Steps:
1. Verify minimum monthly Dialysis Event (DE) reporting requirements are met.
2. Check submitted data are correct and complete.
3. Assess your facility's performance.

Review of Running NHSN Reports

Under "Analysis" on the navigation bar:
1. Generate new Data Sets
2. Find the output option (report) and modify it, if desired
   - *Examples are modified to "Use Variable Labels"*
3. Run the report

Step 1 Have Minimum Monthly DE Reporting Requirements Been Met?

Run this report: Line Listing – CMS ESRD QIP Rule
Find this report under: Analysis "Output Options" → "Advanced" folder → "CMS Reports" folder → "CDC Defined Output" folder

USE THIS REPORT TO VERIFY CMS ESRD QIP MINIMUM NHSN REPORTING REQUIREMENTS ARE MET each month, as indicated by a "Y" (Yes) on each line under the "Criteria Met this Month" column. To get a "Y" all Yes/No fields in the same row must = Y.

➢ Verify the facility's CCN is present and correct.

Org ID	CMS Certification Number	Facility Name	Location	Summary Year/ Month	DE on Reporting Plan	Dialysis Event Numerator Reported	Dialysis Event Denominator Reported	Criteria Met this Month
10856	123456	Dialysis Facility	DIAL	2014M01	Y	Y	Y	Y
10856	123456	Dialysis Facility	DIAL	2014M02	N	Y	Y	N

- **DE on Reporting Plan = Y:** if "DE" is checked on the Monthly Reporting Plan, indicating Dialysis Event data will be collected according the Dialysis Event Protocol.
- **Dialysis Event Numerator Reported = Y:** if (for each dialysis event type) at least 1 dialysis event was reported that month *or* the corresponding "Report No Events" checkbox was selected on the Denominators for Outpatient Dialysis form to confirm there were zero events of that type for the month.
- **Dialysis Event Denominator Reported = Y:** if the Denominators for Outpatient Dialysis census form was completed for the month.

Step 2 Are the Submitted Data Correct and Complete?

Run these reports: Line Listing – Dialysis Events (detailed) and Line Listing – All DE Denominators
Find these reports under: Analysis "Output Options" → "Device-Associated Module" folder → "Dialysis Events" folder → "CDC Defined Output" folder

USE THESE TWO REPORTS TO CHECK ALL DATA ARE CORRECT AND COMPLETE.

Report A: Check all dialysis events are correctly reported. Review the "Data Validity Check PBC ABX Description" column and check if IV antimicrobial starts or positive blood cultures were missed.

Report B: Review denominator data across months. For each vascular access type, verify minimum and maximum values are reasonable and the numbers of patient-months are consistent with the facility's census.

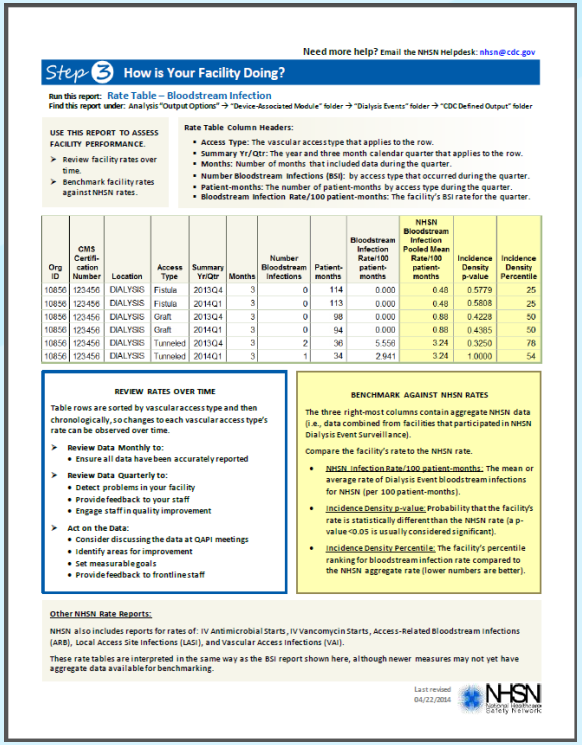
Follow-up: if new information becomes available or an error is found, access the record to add, edit, and/or delete, as needed.

A

Org ID	Event ID	Patient ID	Transient	Event Date	IV Antimicrobial Start	IV Vancomycin Start	Positive Blood Culture	Pus Redness Swelling Event	Data Validity Check PBC ABX Description
10856	32403	0322	Y	01/20/2014	Y	Y	N	N	Is This Antimicrobial Start w/o PBC Valid?
10856	30936	1234	N	02/01/2014	N	N	Y	N	Is This PBC w/o Antimicrobial Start Valid?

B

Org ID	Location	Summary Year/Month	No Dialysis Events	Number of Patients: AV Fistula	Number of Buttonhole Patients	Number of Patients: AV Graft	Number of Patients: Tunneled Central Line	Number of Patients: Nontunneled Central Line	Number of Patients: Other Access Device	Patient-months	Number of Fistulas and Grafts	Number of All Central Lines
10856	DIALYSIS	2014M01	Y	38	0	32	12	2	0	84	70	14
10856	DIALYSIS	2014M02	N	38	0	33	12	1	0	84	71	13



Need more help? Email the NHSN Helpdesk: nhsn@cdc.gov

Step 3 How is Your Facility Doing?

Run this report: Rate Table – Bloodstream Infection
Find this report under: Analysis "Output Options" → "Device-Associated Module" folder → "Dialysis Events" folder → "CDC Defined Output" folder

USE THIS REPORT TO ASSESS FACILITY PERFORMANCE.
- ➢ Review facility rates over time.
- ➢ Benchmark facility rates against NHSN rates.

Rate Table Column Headers:
- **Access Type:** The vascular access type that applies to the row.
- **Summary Yr/Qtr:** The year and three month calendar quarter that applies to the row.
- **Months:** Number of months that included data during the quarter.
- **Number Bloodstream Infections (BSI):** by access type that occurred during the quarter.
- **Patient-months:** The number of patient-months by access type during the quarter.
- **Bloodstream Infection Rate/100 patient-months:** The facility's BSI rate for the quarter.

Org ID	CMS Certification Number	Location	Access Type	Summary Yr/Qtr	Months	Number Bloodstream Infections	Patient-months	Bloodstream Infection Rate/100 patient-months	NHSN Bloodstream Infection Pooled Mean Rate/100 patient-months	Incidence Density p-value	Incidence Density Percentile
10856	123456	DIALYSIS	Fistula	2013Q4	3	0	114	0.000	0.48	0.5779	25
10856	123456	DIALYSIS	Fistula	2014Q1	3	0	113	0.000	0.48	0.5808	25
10856	123456	DIALYSIS	Graft	2013Q4	3	0	98	0.000	0.88	0.4228	50
10856	123456	DIALYSIS	Graft	2014Q1	3	0	94	0.000	0.88	0.4385	50
10856	123456	DIALYSIS	Tunneled	2013Q4	3	2	36	5.556	3.24	0.3250	78
10856	123456	DIALYSIS	Tunneled	2014Q1	3	1	34	2.941	3.24	1.0000	54

REVIEW RATES OVER TIME

Table rows are sorted by vascular access type and then chronologically, so changes to each vascular access type's rate can be observed over time.

- ➢ **Review Data Monthly to:**
  - Ensure all data have been accurately reported
- ➢ **Review Data Quarterly to:**
  - Detect problems in your facility
  - Provide feedback to your staff
  - Engage staff in quality improvement
- ➢ **Act on the Data:**
  - Consider discussing the data at QAPI meetings
  - Identify areas for improvement
  - Set measurable goals
  - Provide feedback to frontline staff

BENCHMARK AGAINST NHSN RATES

The three right-most columns contain aggregate NHSN data (i.e., data combined from facilities that participated in NHSN Dialysis Event Surveillance).

Compare the facility's rate to the NHSN rate.

- NHSN Infection Rate/100 patient-months: The mean or average rate of Dialysis Event bloodstream infections for NHSN (per 100 patient-months).
- Incidence Density p-value: Probability that the facility's rate is statistically different than the NHSN rate (a p-value <0.05 is usually considered significant).
- Incidence Density Percentile: The facility's percentile ranking for bloodstream infection rate compared to the NHSN aggregate rate (lower numbers are better).

Other NHSN Rate Reports:

NHSN also includes reports for rates of: IV Antimicrobial Starts, IV Vancomycin Starts, Access-Related Bloodstream Infections (ARB), Local Access Site Infections (LASI), and Vascular Access Infections (VAI).

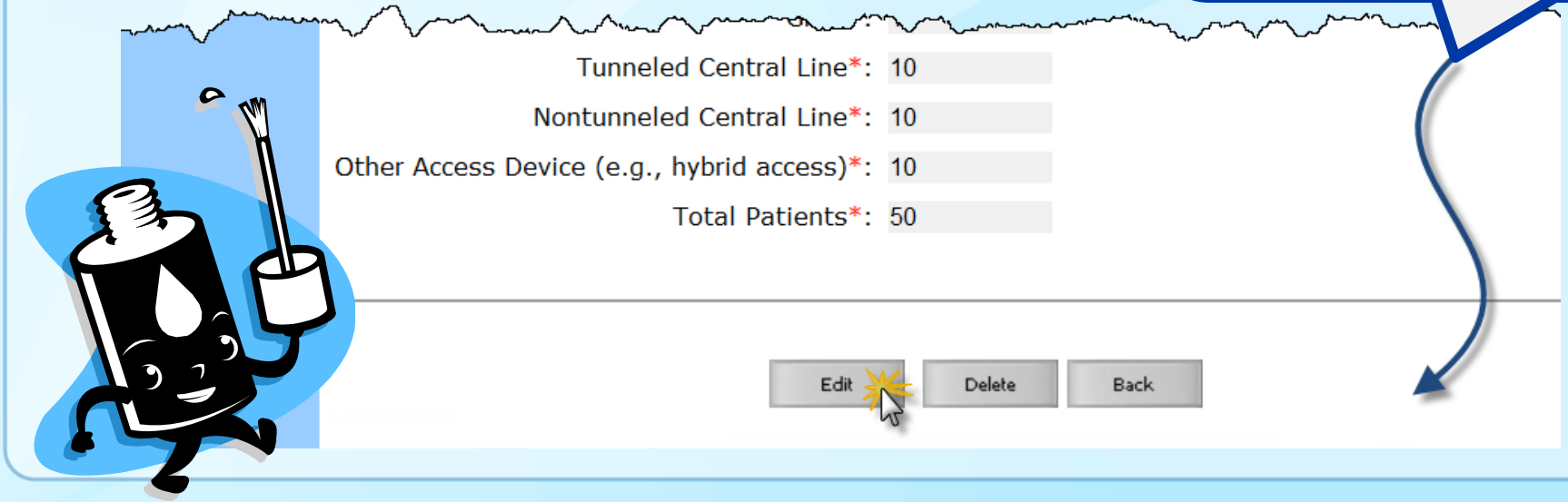
These rate tables are interpreted in the same way as the BSI report shown here, although newer measures may not yet have aggregate data available for benchmarking.

Last revised 04/22/2014 NHSN National Healthcare Safety Network

Corrections

- **Even if QIP reporting deadlines have passed, corrections can be made.**
- **CMS will *not* receive updated data, but corrections will…**
  - Improve your data for facility performance assessments
  - Improve national data quality for CDC analyses (benchmarking)

Find the record, scroll to the bottom and click the "Edit" button.



SUMMARY

Summary – Dialysis Event Surveillance Requirements

1. Annual Outpatient Dialysis Center Practices Survey
   - Completed in February each year
2. Monthly Reporting Plans
   - Indicate which data are reported according to NHSN protocol(s)
   - Select the “DE” checkbox each month to indicate the facility is participating in Dialysis Event Surveillance
3. Denominator data
   - Count all hemodialysis outpatients present on first two working days of the month, by their highest infection risk access type (even if that access is not used for dialysis, is abandoned or non-functional)
4. Numerator data
   - Across the entire month, monitor hemodialysis outpatients and report a Dialysis Event for IV antimicrobial starts; positive blood cultures; pus, redness, swelling at a vascular access site
     - Apply the 21 day rule as needed, to dialysis events of the *same* type
   - “Report No Events” if no dialysis events occurred during the month

Thank you!

Questions?

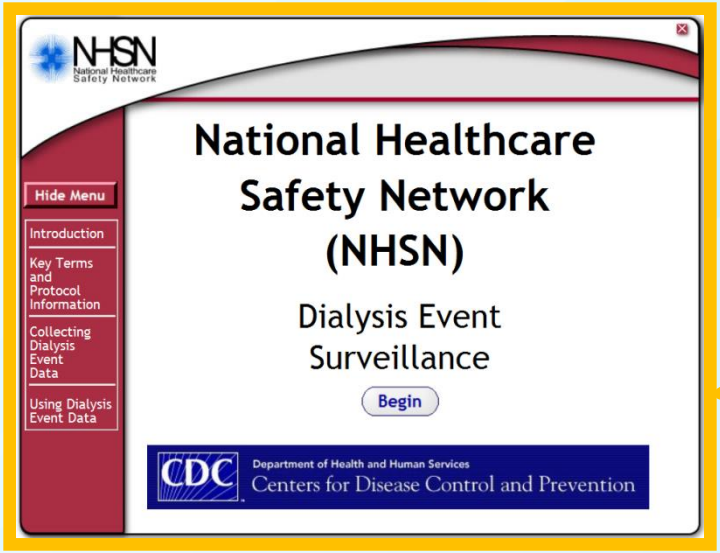
NHSN Helpdesk: nhsn@cdc.gov

Include “Dialysis” in the subject line

For more information please contact Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333
Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov Web: www.cdc.gov

Next Steps…

- **Self-paced, online instruction: Dialysis Event Surveillance Training**
  - Includes knowledge checks and ends with a multiple-choice test
  - Dialysis Event Training Page:
    http://www.cdc.gov/nhsn/dialysis/dialysis-event.html#train



Free Continuing Education Credit!

- **1.3 CNE (nurses)**
- **1.5 CME (physicians)**
- **0.1 CEU (other)**

Final Steps to complete the training -

Following the training, please remember to:

1. Complete the training course evaluation
2. Complete the online, self-paced “NHSN Dialysis Event Surveillance Training” and competency post-test on the CDC website, go to: http://nhsn.cdc.gov/nhsntraining/courses/2014/C18/

3. Complete the competency test within two weeks of their webinar training.
4. Participants that receive a passing grade (≥80%) on the competency test may request a free continuing education credit from the CDC’s Training and Continuing Education (TCE) online system.

FOR MORE INFORMATION

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