Appendix 1: Selection of facilities and patients for NHSN dialysis event data quality evaluation

Selecting Facilities - Main steps:

1) Determine all of the facilities within your area that are eligible to participate in the evaluation (e.g., the Network, Region, State, or other geographically defined area).

2) Make a list that includes each eligible facility within the area represented; the order of the facilities on the list is not important. This is called the sampling frame.

3) Starting with the first facility listed in the sampling frame, assign each facility a number from 1 to *n*, with *n* representing the total number of facilities in the population. For example, if there are 88 facilities in your region, create a list as follows.

Example: Sampling frame containing the population of 88 facilities (n = 88)

Facility name	**Number assigned**
ABC hemodialysis facility	1
ABE hemodialysis facility	2
AGC hemodialysis facility	3
…	…
AAC hemodialysis facility	88

4) Determine the number of facilities to be selected (the facility sample size). Using the 88 facilities in the example above, a 20% sample would be 88 x .20 = 17.6 facilities; this would be round up to 18 to make a whole number. You need to identify 18 facilities from your sampling frame to be included in your sample.

5) Using a random number table (a series of digits, 0 to 9, arranged randomly through the rows and columns) or statistical software, select numbers at random that correspond to the facilities to be included in your random sample. Keep drawing numbers until you have reached your target number of randomly selected facilities (in the example provided this would be 18 different numbers). Skip over any repeated numbers - simply draw another number to replace it so that each number is different (and each number represents a unique facility). For example, if 14 is selected twice, keep the first 14 drawn but draw a new number to replace the second 14.

If the numbers drawn were: 17, 14, 37, 56, 02, 87, 81, 04, 31, 47, 64, 22, 76, 53, 52, 44, 48, 80, the facilities with these numbers assigned would be contacted and asked to participate. If you contact a facility and they decline to participate, return to the random number table or software used and draw another random number to identify an additional facility to contact.

Selecting Patients - Main steps:

1) Make a line list that includes all eligible patients from the facility - those who received one or more in-center hemodialysis treatment(s) during the evaluation time period (see the Implementation Guide document for content on list 1). The order of the patients on the list is not important. This is called the sampling frame.

2) Starting with the first patient on the sampling frame, assign each patient a number from 1 to *n*, with *n* representing the total number of eligible patients who received one or more in-center hemodialysis treatment(s) during the evaluation time period (i.e., the number of patients on list 1)

Example: Sampling frame containing the population of 121 eligible patients (n = 121)

Patient identifier	**List 1**	**List 2**	**List 3**	**List 4**	**List 5**	**Number assigned**
	See page 7 of the Implementation Guide document for content of lists 1 through 5					
AAABBBBB	Y	Y	N	N	Y	1
CCCDDDD	Y	N	N	N	N	2
EEEFFFF	Y	N	Y	N	N	3
…	…	…	…	…	…	…
ABBGGGGG	Y	N	N	N	N	121

3) Determine the number of patient charts to be selected (the patient sample size).

a) For patients included on lists 2, 3, 4 or 5: Include all of them in the sample.

b) For patients on list 1, but not included on lists 2 through 5: Select a random sample.

For example, among the 121 patients from above, 14 patients were included on lists 2-5, so a random sample should be selected from among the remaining 107 patients (121 -14 = 107). A 10% sample would be 107 x .10 = 10.7 patients; this would be round up to 11 patients. The total patient sample size for this facility would be 25 patients; 14 patients from lists 2 through 5 + 11 patients randomly selected.

4) Using a random number table (a series of digits (0 to 9) arranged randomly through the rows and columns) or appropriate software, select the numbers that correspond to the patients that will be included in your sample. Skip over any numbers selected that are assigned to patients that are in lists 2 through 5, as they have already been included in your sample (step 4a). Keep drawing numbers until you have reached your target number of randomly selected unique patients (in this example, 11).

If the numbers drawn were; 2, 17, 54, 29, 97, 83, 07, 39, 41, 121, 85, the patients with these numbers assigned would be selected to undergo chart review (the random sample). The patients included on lists 2 through 5 would also undergo chart review.

Appendix 2a: Letter 1 – Introduction

<<Insert Date >>
<<Facility Name>>
<<Facility Street Address>>
<<Facility City, State, Zip>>

Dear <<N*ame of Facility Manager>>*:

I am writing to ask for your help in a data quality evaluation of Dialysis Event data that are reported to the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN). This evaluation is being conducted by *<<agency/group conducting evaluation>>* to learn how NHSN Dialysis Event Surveillance data collection procedures are understood and carried out in dialysis facilities, as well as identify and address barriers to reporting complete and accurate data.

We are contacting you because your facility is among a subset of dialysis facilities within *<<Network/state/area>>* that are expected to have, on average, more data to review, or that are part of a random sample. To conduct the evaluation, staff from *<<agency/group conducting evaluation>>* will be visiting several dialysis facilities in *<<geographic area>>* during *<<time period month(s)/year of visits>>*. These site visits include three main activities:

1. A standardized interview with facility staff involved in NHSN Dialysis Event data collection or reporting to evaluate surveillance practices within your facility.
2. A review of preselected patient medical records, including both paper charts and any electronic records, to assess the completeness and accuracy of the data reported to NHSN.
3. Education for facility staff about Dialysis Event surveillance, use of the NHSN system, and common reporting omissions and errors and their causes.

It is anticipated the visit will be completed within one day, and that the staff interview will take no longer than one hour. On the day of the visit, <<*agency/group conducting validation*>> staff will need a space to review patient charts and access the facility's electronic medical records systems.

Evaluation of the data is critical to ensure they are complete and accurate. The findings from this evaluation will be used to identify, correct, and prevent common reporting errors. Your participation is vital to these surveillance support and data quality improvement efforts.

This evaluation is not related to any regulatory surveys; no observations will be made of infection control practices or other aspects of patient care during the site visit. The identities of participating facilities will remain confidential, and all patient identifiable information will be maintained securely and remain confidential. All visits will be scheduled – no unannounced visits will occur.

In return for your facility's participation, you will have opportunities to get confidential feedback about your facility's NHSN reporting, interact one-on-one with an NHSN Dialysis Event Surveillance expert who can address any questions you may have about reporting, and provide feedback about your experience with Dialysis Event data collection and reporting that will be used to help inform changes that will improve future reporting efforts.

Please confirm your interest in participation by contacting me with available dates for a site visit during the months of <<*site visit time period*>>. Once you confirm your participation, we will schedule a mutually agreeable date for the site visit and ask you to prepare some information on the patients who received hemodialysis treatment during <<*evaluation period*>>.

I am happy to answer any questions you have or provide further information. I can be reached at <<*phone*>> or via email at <<*email address*>>.

Thank you for your assistance to evaluate and improve the quality of NHSN Dialysis Event Surveillance data and reporting.

Sincerely,

Agency/Contact Information

Appendix 2b: Letter 2—Confirm Site Visit and Preparation

<<Insert Date >>

<<Facility Name>>
<<Facility Street Address>>
<<Facility City, State, Zip>>

Dear *<<Name of Facility Manager>>*:

Thank you again for agreeing to participate in our evaluation of NHSN Dialysis Event data and reporting. Without your participation, this valuable project would not be possible.

As discussed, we will be visiting your facility on *<<date of visit>>*. *<<Names of persons who will be conducting validation>>* from *<<name of agency>>* will arrive at approximately *<<time of arrival>>*.

Preparation before the site visit
To prepare for the chart reviews, we need you to provide the five lists of patients outlined below. Each list should include a patient medical record number, date of birth, and gender. Please send these lists to the attention of *<<Name>>* via fax at *<<number>>* by *<<deadline date>>*.

1. All patients who had one or more in-center hemodialysis treatment(s) between *<<month year to month year – the evaluation timeframe>>*.
2. All patients who had any positive blood cultures between *<<month year to month year – the evaluation timeframe>>*.
3. All patients who received any intravenous antimicrobials in *<<month year to month year – the evaluation timeframe>>*.
4. All patients who were hospitalized for any reason during *<<month year to month year – the evaluation timeframe>>*.
5. All patients who had any pus, redness or swelling at the vascular access site during *<<month year to month year – the evaluation timeframe>>*.

These lists will be maintained securely by us to protect the release of any patient identifiers. Using the lists provided, we will preselect patient charts for us to review during the site visit. The list of patient charts for review will be provided to you in advance of the site visit.

What to expect during the site visit
When we arrive, we will need assistance to obtain the preselected patient charts. For the chart review, we will require a workspace and access to your electronic medical record system(s). You do not need to stay with us during our review, but we may need your assistance to answer intermittent questions throughout the day. When it is most convenient for you, we will interview the facility staff involved in NHSN data collection or entry, which takes about 45 minutes. The group interview is interactive and provides on-the-spot feedback about

NHSN surveillance practices and is a valuable learning opportunity for staff. Before we conclude, we will summarize our findings and review them with you, as well as address any outstanding questions from you or your staff.

Please confirm your receipt of this information, and contact me if you have any questions about preparing the lists or the site visit itself.

Thank you,

<<Primary Contact's Name>>
<<Primary Contact's Title>>
<<Agency/Group's Contact Information>>

Appendix 2c: Letter 3 – Post-Site Visit Summary

<<Insert Date >>
<<Facility Name>>
<<Facility Street Address>>
<<Facility City, State, Zip>>
Date of site visit: _____/_____/_____

Dear *<<Name of Facility Manager>>*:

Thank you for participating in the evaluation of facility surveillance practices and the Dialysis Event data reported to the National Healthcare Safety Network (NHSN). We appreciate you taking time from your schedule to work with us. The valuable information you provided will enable us to improve the quality of the data reported to NHSN, and identify focus areas for education and training of NHSN users.

During our visit, *<<number>>* patient charts were reviewed. The documentation from these charts was used to identify Dialysis Events that should have been reported to NHSN. Here is a summary of our findings, by event type:

<u>IV antimicrobial starts:</u>

- *<<Number>>* of IV antimicrobial start events found in charts by our staff
  - *<<Number>>* of these events found in charts that were reported to NHSN
  - *<<Number>>* of these events found in charts that were not reported to NHSN
  - *<<Number>>* of these events reported to NHSN, but were not found in charts

<u>Positive blood cultures:</u>

- *<<Number>>* of positive blood culture events found in charts by our staff
  - *<<Number>>* of these events found in charts that were reported to NHSN
  - *<<Number>>* of these events found in charts that were not reported to NHSN
  - *<<Number>>* of these events reported to NHSN, but were not found in charts

<u>Pus, redness, or increased swelling at the vascular access site:</u>

- *<<Number>>* of pus, redness, or increased swelling events found in charts by our staff
  - *<<Number>>* of these events found in charts that were reported to NHSN
  - *<<Number>>* of these events found in charts that were not reported to NHSN
  - *<<Number>>* of these events reported to NHSN, but were not found in charts

A summary of our findings can be found in the table below with additional details. **We would like you to perform the following steps to correct data discrepancies that were identified**:

1. Report to NHSN the events listed below as "under-reported". These are events that were not reported to NHSN by your facility staff, but should have been.
2. Delete or edit the NHSN records of the events listed below as "over-reported". These are events that were reported to NHSN by your facility staff, but should not have been.

Please make these corrections by *<<deadline>>*. Please contact us with any questions or concerns you have about making these changes.

Denominators for Outpatient Dialysis Form

From the information obtained during the interview, it appears the monthly denominator data/patient census data *<<is/is not>>* being reported correctly on the Denominators for Outpatient Dialysis form. Please *<<begin/continue>>* to report using the NHSN Dialysis Event Protocol instructions: "Report Denominator Data Monthly".

In addition, it is recommended that you and your staff involved in reporting review the NHSN Dialysis Event Protocol, noting the following common reporting issues found at your facility:

- *<<Highlight up to 3 main issues that were discovered during the validation process. Include excerpt(s) of the NHSN Dialysis Event Protocol that pertain to those issues.>>*
- *<<Issue 2>>*
- *<<Issue 3>>*

Thank you for work with regards to improving the quality of NHSN Dialysis Event surveillance data; we recognize the time and effort that you have committed. We also appreciate your willingness to participate in these important quality improvement activities. We hope the experience was also helpful to you. Please don't hesitate to contact us with any remaining questions or concerns you may have.

Sincerely,

<<Primary Contact's Name>>
<<Primary Contact's Title>>
<<Agency/Group's Contact Information>>

Summary Findings from Evaluation of NHSN Dialysis Event Reporting between ___/___/_____ and ___/___/_____

Facility Name: _____ # Patient Charts Reviewed:_____ Date of Site Visit: ___/___/_____

DE = Dialysis Event

Dialysis Event Type: PBC = Positive Blood Culture, AMX = IV Antimicrobial Start, PRS = Pus, Redness, Swelling at the Vascular Access Site

Vascular Access Types: F = Fistula, G = Graft, T = Tunneled Central Line, NT = Nontunneled Central Line, O = Other

Pat ID	DE identified		If yes, list the following information: DE Date, DE Type, and Vascular Access Type(s)		This DE was determined to be			Comments/notes
	No	Yes	Identified during evaluation site visit	Reported to NHSN by facility staff	*Correctly reported*	*Under reported*	*Over* reported	

Appendix 3: Survey to Evaluate NHSN Dialysis Event Surveillance Practices

INTERVIEWER INSTRUCTIONS

Prior to interview:
Identify the primary person who does NHSN Dialysis Event data collection at the facility to interview. If other staff perform NHSN activities such as data entry or analysis, it is ideal for them to also be included.

During Interview:
This interview is a tool to evaluate and improve NHSN Dialysis Event data collection and reporting. If data collection or reporting errors are identified through this evaluation of practices, the interviewer should provide education and information to help correct errors and ensure that staff report data correctly to NHSN. Refer to the "*Note to Interviewer*" boxes for reference information. If there is a correct answer to a question, the correct answer is **bolded**.

Note to Interviewer –

SECTION A: FACILITY INFORMATION AND NHSN

Facility Name: _____NHSN Org ID: _____ Number stations/chairs_____

Interviewer Name: _____ Interview Date: _____

1. Is any Dialysis Event data collected or reported by persons that do not work directly within this facility (for example, a regional or corporate employee) No Yes
   a. If yes, specify who and what data:_____
      _____

2. Please list all staff involved in NHSN Dialysis Event Surveillance and their involvement:

	Interviewee 1	Interviewee 2	Interviewee 3
Name(s)			
Job Title(s)			
Background/Degree(s)			
Collects NHSN dialysis event data?	Yes No	Yes No	Yes No
Collects NHSN dialysis denominator data?	Yes No	Yes No	Yes No
Has access to NHSN?	Yes No	Yes No	Yes No
Does NHSN data entry?	Yes No	Yes No	Yes No
Creates reports/uses NHSN analysis?	Yes No	Yes No	Yes No
Has read the NHSN Dialysis Event Protocol?	Yes No	Yes No	Yes No
Has completed NHSN Dialysis Event Surveillance reporting training?	Yes No	Yes No	Yes No

3. For staff that completed NHSN Dialysis Event Reporting Training, what kind of training did they do?

(Check all that apply)

- ☐ Online NHSN Dialysis Event Surveillance Protocol training
- ☐ In person, presented by a CDC trainer
- ☐ Webinar, presented by a CDC trainer
- ☐ In person, by a non-CDC trainer (e.g., ESRD Network, State Health Dept.)
- ☐ Webinar, by a non-CDC trainer (e.g., ESRD Network, State Health Dept.)
- ☐ Other, specify: _____

4. What do you (would you) do if you have a question about how or what to report to NHSN?

(Check all that apply)

- ☐ Read the NHSN Dialysis Event Protocol
- ☐ Visit the NHSN Dialysis Event website (http://www.cdc.gov/nhsn/dialysis/dialysis-event.html)
- ☐ Send an e-mail to the NHSN Helpdesk (nhsn@cdc.gov)
- ☐ Contact the ESRD Network
- ☐ Contact Corporate
- ☐ Contact State Health Department
- ☐ Other, specify: _____

5. Once data are reported to NHSN, does anyone from your facility go back and review the reported data to make sure it is correct? Yes No
   a. If yes, specify who: _____

6. Within the NHSN application, have you ever generated any of the reports (also called "output options") using the analysis function? Yes No
   a. If yes, which ones? _____
   b. If yes, what are the reports used for?

(Check all that apply)

- ☐ Checking reported data are correct
- ☐ Shared at quality improvement meetings
- ☐ Communicating to leadership about event rates
- ☐ Communicating to frontline staff about event rates
- ☐ Root cause analysis of infections
- ☐ Informing prevention activities
- ☐ Other, specify: _____

SECTION B: DENOMINATOR DATA COLLECTION

7. In your facility, which days of the month are used to count patients to obtain the monthly denominator data/patient census data?

   The first 2 working days of the month **Yes** No

   If no, specify which days are used:_____

8. Are patients ever counted twice in monthly denominator data? Yes **No**

9. How is the monthly denominator/patient census data obtained for the "NHSN Denominators for Outpatient Dialysis" form? (*Check all that apply*)

   ☐ From a computer generated report

   i. What data source is used for determining the number of patients present and their vascular access type(s) _____

   _____

   ☐ By performing patient chart reviews

   ☐ By observation and counting of patient's vascular access types

   ☐ Other method use, specify: _____

10. Has the method used at your facility for the monthly denominator/patient census data ever been checked to identify errors? Yes No

SECTION C: VASCULAR ACCESS

11. Do you follow the NHSN Dialysis Event definitions for vascular access types?

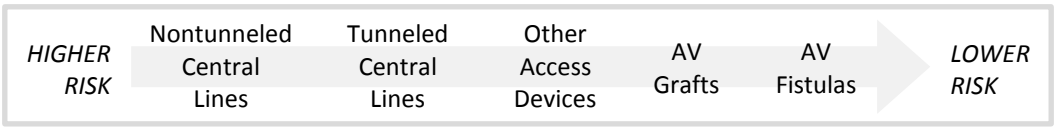
a. Nontunneled central line	Yes	No	N/A
b. Tunneled central line	Yes	No	N/A
c. Graft	Yes	No	N/A
d. Fistula	Yes	No	N/A
e. Other access device	Yes	No	N/A

Note to Interviewer – NHSN Surveillance Vascular Access Definitions:

Mark N/A only if the interviewee indicates they do not have or have not seen patients with that access type

- 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 terminating 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 access device: includes hybrid access devices (e.g., HeRO® vascular access device), ports, and any other central vascular access devices not meeting the above definitions.

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



12. When determining in which vascular access category to count a patient for the monthly denominators:

a. Do you consider vascular accesses not presently in use (e.g., a tunneled central line that is retained as a back-up while a new fistula is tested for patency) to determine the appropriate category?	**Yes**	No
b. Do you consider vascular accesses that are not used for dialysis (e.g., chemotherapy ports) to determine the appropriate category?	**Yes**	No
c. Do you consider abandoned vascular accesses (e.g., clotted AV fistulas) to determine the appropriate category?	**Yes**	No

d. How are patients with more than one access type categorized?
Specify:_____
_____
_____

13. When counting denominator data, which of the following patients are included?

a.	Hospitalized patients	Yes	**No**
b.	Patients who missed their scheduled treatment	Yes	**No**
c.	Transient patients	**Yes**	No

Note to Interviewer – Protocol instructions for dialysis denominator data collection:

Each month, report the number of maintenance hemodialysis patients with each vascular access type who received hemodialysis at the center during the first two working days of the month on the *Denominators for Outpatient Dialysis* form. Report all maintenance hemodialysis outpatients, including transient patients. Exclude non-hemodialysis patients and exclude inpatients. Report denominator data each month, regardless of whether any dialysis events occur. Each patient is counted only once; if the patient has multiple vascular accesses, record that patient once, reporting their highest infection risk vascular access type only. See tables of instructions for an explanation of each field on the *Denominators for Outpatient Dialysis* form.

14. If not using NHSN denominator criteria, summarize below how denominator is determined at this facility:

SECTION D: DIALYSIS EVENTS

15. What are the three types of "dialysis events" monitored for NHSN Dialysis Event surveillance?

	Identified	Not identified
IV antimicrobial starts	☐	☐
Positive blood cultures	☐	☐
Pus, redness, or increased swelling at the vascular access site	☐	☐

Note to Interviewer – Protocol definitions for dialysis events:

- IV antimicrobial start: Report **all** outpatient intravenous (IV) antibiotic and antifungal starts, regardless of the reason for treatment (i.e., include IV antimicrobial starts unrelated to vascular access problems) and regardless of the duration of treatment. Report all IV antibiotic starts, not just vancomycin. Do **not** report IV antiviral starts. Report outpatient starts that are continuations of inpatient treatment.
- Positive blood culture: Report **all** positive blood cultures collected as an outpatient or collected within 1 calendar day after a hospital admission, regardless of whether or not the patient received treatment.
- Pus, redness, or increased swelling at the vascular access site: Report **each** new outpatient episode where the patient has one or more symptoms of pus, greater than expected redness or greater than expected swelling at a vascular access site, regardless of whether the patient received treatment.

See next page for the application of the 21 day rule for each event type.

16. Do you check to see if the "21 day rule" applies, before reporting a new dialysis event?

- ☐ Yes, the 21 day rule is checked
- ☐ No, the 21 rule is not checked
- ☐ No, not aware of the 21 day rule

17. If yes, please describe how you apply the rule:	Correctly described?	
a. For IV antimicrobial starts:	Yes	No
b. For Positive blood cultures:	Yes	No
c. For Pus, redness, or increased swelling at the vascular access site:	Yes	No
d. When applying the 21 day rule, do you look back to the preceding month for events (instead of checking only within the current month)?	**Yes**	No

Note to Interviewer – 21 Day Rule applies only within the same dialysis event types:

If a patient has two dialysis events of the same type, the second occurrence is reported only if there are 21 or more days between the events. If the second event falls exactly on the 21st day, it is reported.

IV antimicrobial starts: There must be 21 or more days from the **end** of one IV antimicrobial course to the **beginning** of a second IV antimicrobial dose or course in an outpatient setting for two starts to be reported as separate dialysis events, even if different antimicrobials are used

Positive blood cultures: There must be 21 or more days between positive blood cultures for each positive blood culture to be considered a separate dialysis event, even if organisms are different

Pus, redness, or increased swelling: count days between onset to onset.
There must be 21 or more days between the **onset** of a first episode and the **onset** of a second episode of pus, redness, or increased swelling at a vascular access site to be considered separate dialysis events

Examples:

21 day rule for IV antimicrobial starts: a single dose of IV cefazolin is administered in the dialysis facility prophylactically prior to AV graft placement surgery. Within two weeks, patient shows signs of bloodstream infection and is started empirically on IV vancomycin. Report only one dialysis event for the IV cefazolin; the IV vancomycin was started within 21 days of the prophylactic dose and is therefore, not reported.

21 day rule for positive blood cultures: patient has a positive blood culture on January 1, 22, and 24. Report two dialysis events: one for January 1 and one for January 22. The positive blood culture from January 24 is not reported because there are fewer than 21 days between January 22 and 24.

21 day rule for pus, redness, or increased swelling at the vascular access site: Patient's tunneled central line exit site is slightly red on January 1. Over the course of four days, the redness worsens, and the vascular access site becomes warm to the touch, and tender. Patient receives a 10 day course of oral antibiotics and the symptoms resolve. On January 19, the redness returns. Report one dialysis event: the second onset of redness on January 19 is within 21 days of the first onset of redness on January 1 and is therefore not reported.

18. How are Dialysis Events identified and tracked for NHSN surveillance at your facility?

Note to interviewer: Ask about the different sources of data that are used to find each type of dialysis event, and the process that is used to ensure all information is captured and reported correctly. Prompt the interviewee with examples as necessary. Use the table below to summarize the responses by checking the box if the interviewee indicated they used that data source or process.

	Type of Dialysis Event		
	IV antimicrobial start	**Positive blood culture**	**Pus, redness, or increased swelling**
What data sources do you use to help you find Dialysis Events?			
Daily direct observation of patients	☐	☐	☐
Patient chart reviews	☐	☐	☐
Review computer generated reports	☐	☐	☐
If used computer reports, specify the type(s):			
Staff discussion	☐	☐	☐
Pharmacy records	☐	☐	☐
Positive laboratory reports	☐	☐	☐
Hospitalization records	☐	☐	☐
Patient temperature records	☐	☐	☐
Administrative (billing or discharge) codes	☐	☐	☐
Other data sources, specify:			
How frequently is case finding done (e.g., daily, weekly, monthly, quarterly)?			
Once you have identified a patient with a Dialysis Event, what process do you use to keep track of them before they are entered into NHSN?			
Keep a line listing (e.g., a log) of events			
Fill out a paper NHSN Dialysis Event form			
Flag events in Electronic Medical Record			
Other, specify:			

19. Does your facility keep track of all patient hospitalizations? **Yes** No

20. Are patients routinely asked the following at each treatment visit:
    a. Do you have any signs or symptoms of infection? **Yes** No
    b. Have you had any ED visits or hospitalization since the last treatment? **Yes** No
    c. If no to b, what process is used to find out if a patient had an ED visit or was hospitalized *between* treatments?

    _____

    _____

21. After patients return to your facility following a hospitalization, does your facility request a copy of your dialysis patients' medical records? **Yes** No
    a. Are hospital records requested for <u>every</u> hospitalization? **Yes** No
    b. Is there a standard process to request hospital records (e.g., a request form)? **Yes** No
    c. Does your facility have a follow-up system in place to ensure all requested records are received? Yes No
    d. Please specify the type of records requested for all patient hospitalizations:
       (Check all that apply)
       - ☐ Admission history and physical
       - ☐ Microbiology laboratory reports
       - ☐ Pharmacy/drug administration records/logs
       - ☐ Discharge summary
       - ☐ The complete hospitalization record
       - ☐ Other, specify: _____

22. Does your facility have a process in place to identify and report positive blood cultures collected during the first day of a dialysis patient's hospital admission? **Yes** No
    a. If yes, please describe the process:

    _____

    _____

23. If new dialysis event information is identified after the event has already been reported, do you go back and revise the record? **Yes** No

> <u>*Note to Interviewer*</u> – revising reported data:
>
> On occasion, data reported to NHSN may need to be updated with new information and/or corrected if errors are identified. It is expected that the information will be revised in these instances.
>
> *Example: A patient has a positive blood culture in January. This dialysis event is reported to NHSN in February. The patient dies in March as a result of the bloodstream infection. The record should be accessed in March and edited to modify "Outcome: Death" to "Yes".*

SECTION E: ADDITIONAL QUESTIONS TO IDENTIFY AREAS OF NHSN IMPROVEMENT

24. What 2 things would be most helpful to improve NHSN data collection and/or reporting?
    a. _____
    b. _____

25. What are the 2 main challenges to NHSN reporting?
    a. _____
    b. _____

26. Do you have any other questions or comments about NHSN?

_____
_____
_____
_____

Appendix 4: NHSN Dialysis Event Surveillance: Chart Review Form

Instructions: The attached form is a tool to review a hemodialysis outpatient chart and collect NHSN Dialysis Event Surveillance information to determine whether data were correctly reported. Chart reviewers must be familiar with the NHSN Dialysis Event Protocol instructions and definitions prior to chart review.

First complete sections A and B, for section C, note all (1) IV antimicrobial starts; (2) positive blood cultures; and instances of (3) pus, redness, or increased swelling at the vascular access site, identified for this patient, as defined by the NHSN Dialysis Event Protocol. Arrange events of the same type chronologically. Use the calendar on page 4 to help you apply the 21 day rule to determine which events should have been reported to NHSN. For section D, summarize the events that should have been reported during the evaluation time period, ensuring that the event type, the event date, and the access type(s) are all correct.

Legend:

Category	Abbreviation	Name	Summary of the 21 Day Rule
Dialysis Events	**PBC**	Positive blood culture	**21 Day Rule:** There must be 21 or more days between two events of the same type for the second event to be reported. **IV antimicrobial start:** From the end of one course to beginning of the next (i.e., only IV antimicrobials restarted on or after the 21st day following the end of a previous dose/course are reported) **Positive blood cultures:** Between blood specimen collection dates (i.e., only positive blood cultures collected on or after the 21st day following the last collected positive blood culture are reported) **Pus, redness, or increased swelling:** Between onset to onset (i.e., only new onset on or after the 21st day following the previous onset is reported)
	AMX	IV antimicrobial start	
	PRS	Pus, redness, or increased swelling of the vascular access site	
Suspected Sources	**VA**	Vascular access site	
	O	Source other than the vascular access site	
	C	Contamination	
	U	Uncertain	
Vascular Accesses	**F**	Fistula	
	G	Graft	
	T	Tunneled central line	
	NT	Nontunneled central line	
	O	Other access device	
Result	**Y**	Yes	
	N	No	
	U	Unknown	

Common NHSN Dialysis Event Reporting Errors

General:
- Failure to follow-up on hospitalizations to identify whether positive blood cultures were obtained within one calendar day after hospital admission
- Incorrect application of 21 day rule often results in over-reporting
- Event Date is the earliest date among >1 related reportable events

IV antimicrobial start: Failure to report if:
- A one-time or prophylactic dose is given
- Related blood culture results are negative
- Treatment is for non-vascular access problems (e.g., pneumonia)
- It is the first outpatient IV antimicrobial administration resulting from continuation of inpatient treatment
- Administered on outpatient basis, outside of the dialysis facility (e.g., in nursing home, prison)

Positive blood cultures: Failure to report if:
- Result is believed to be due to contamination
- IV antimicrobials are not started
- Attributed to non-vascular access problems (e.g., wound infection, pneumonia)
- Obtained within first day following a hospital admission

Pus, redness, or increased swelling: Failure to report if:
- Antimicrobials are not started
- Infection is suspected but not confirmed
- Lack process to track these events

Section A: Facility and patient information			
Facility name		Patient Name	
NHSN Org ID		Med record number	
Reviewer name		NHSN Patient ID	
Review date		Date of birth	
Evaluation time period	From: (month/year) To: (month/year)	Gender Transient Patient	Male / Female Yes / No

Section B: Record the vascular access types identified during the validation time period. Include all vascular accesses present, even if it was not being used for dialysis			
Access(es)	Present	If present, placement date(s)	Discontinued date(s)
Fistula	☐		
Graft	☐		
Tunneled	☐		
Nontunneled	☐		
Other Access	☐		
If placement or discontinuation dates are not documented, please write "unknown"			

Section C: AMX - All IV antimicrobial courses:

☐ Chart review for this patient completed and no AMX found during the evaluation time period

Start date	End date	Drug name	Problems documented*	Should this event be reported to NHSN?	Was this event reported to NHSN by facility?
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N
				Y N	Y N

*Problems include: Fever, chills/rigors, drop in blood pressure, wound infection, cellulitis, pneumonia, other, or none

Notes:

Section C: PBC - All positive blood cultures

☐ Chart review for this patient completed and no PBC found during the evaluation time period

BC Draw Date	Pathogen(s)	Suspected Source	Problems documented*	Should this event be reported to NHSN?	Was this event reported to NHSN by facility?
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N
		VA O C U		Y N	Y N

*Problems include: Fever, chills/rigors, drop in blood pressure, wound infection, cellulitis, pneumonia, other, or none

Notes:

Section C: PRS - All pus, redness, or increased swelling at the vascular access site

☐ Chart review for this patient completed and no PRS found during the evaluation time period

PRS Onset Date	Pus, Redness, Swelling^	Vascular Access(es) Affected	Problems documented*	Should this event be reported to NHSN?	Was this event reported to NHSN by facility?
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N
	P R S	F G T NT O		Yes No	Y N

^Other terms that may be used to document PRS *may* include: For PUS: purulent, excretion, secretion, discharge, seepage, ooze, suppuration. For REDNESS: cellulitis, inflamed, ruddy, rosy. For SWELLING: distended, puffy, tumescent, tumid, edema

*Problems include: Fever, chills/rigors, drop in blood pressure, wound infection, cellulitis, pneumonia, other, or none

Notes:

Calendar for year: 2013 [Insert calendar corresponding to your evaluation time period]

January						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

February						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

March						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

May						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

July						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

August						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

October						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Section D: Summary of Dialysis Events identified for this patient	Patient Name/MRN:
☐ Chart review for this patient completed and no Dialysis Events were found during the evaluation time period	

1. Dialysis Event Summary Form Event Date: Access type(s) present for this event date:	Was this event reported to NHSN by the facility? Y N
☐ **AMX** Vancomycin: Yes No	
☐ **PBC** Suspected Source: Vascular Access Other Source Contamination Uncertain Pathogen(s) :	
☐ **PRS** Access(es): Fistula Graft Tunneled Central Line Nontunneled Central Line Other Access Device	
Problems, notes:	

2. Dialysis Event Summary Form Event Date: Access type(s) present for this event date:	Was this event reported to NHSN by the facility? Y N
☐ **AMX** Vancomycin: Yes No	
☐ **PBC** Suspected Source: Vascular Access Other Source Contamination Uncertain Pathogen(s) :	
☐ **PRS** Access(es): Fistula Graft Tunneled Central Line Nontunneled Central Line Other Access Device	
Problems, notes:	

3. Dialysis Event Summary Form Event Date: Access type(s) present for this event date:	Was this event reported to NHSN by the facility? Y N
☐ **AMX** Vancomycin: Yes No	
☐ **PBC** Suspected Source: Vascular Access Other Source Contamination Uncertain Pathogen(s) :	
☐ **PRS** Access(es): Fistula Graft Tunneled Central Line Nontunneled Central Line Other Access Device	
Problems, notes:	

4. Dialysis Event Summary Form Event Date: Access type(s) present for this event date:	Was this event reported to NHSN by the facility? Y N
☐ **AMX** Vancomycin: Yes No	
☐ **PBC** Suspected Source: Vascular Access Other Source Contamination Uncertain Pathogen(s) :	
☐ **PRS** Access(es): Fistula Graft Tunneled Central Line Nontunneled Central Line Other Access Device	
Problems, notes:	