Dialysis Event Reporting: Part 2
ESRD Network 8 LAN
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Acknowledgements

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QUESTION 1

What type of facility are you from?

A. TN LDO (i.e., Fresenius, DaVita, DCI)
B. TN Independent
C. MS LDO (i.e., Fresenius, DaVita, DCI)
D. MS Independent
E. AL LDO (i.e., Fresenius, DaVita, DCI)
F. AL Independent
QUESTION 2

What is your role?
A. Nurse Manager
B. Floor Nurse
C. Dialysis Tech
D. Physician
E. Infection Preventionist
F. Corporate
G. Other
QUESTION 3

Are you responsible for collecting/entering NHSN data?

A. Yes
B. No
C. Not sure
QUESTION 4

Is there someone designated at your facility (not corporate) who is responsible for collecting/entering NHSN data for your facility?

A. Yes
B. No
C. Don’t know
QUESTION 5

How many facilities is that person responsible for?

A. 1
B. 2-4
C. 5 or more
D. Don’t know
Why are we doing this?

Surveillance Can Improve Practices

- Dialysis unit in London implemented CDC dialysis surveillance; described their experience over 18 months
- Without any other intervention, tracking rates and feeding back data to staff resulted in reductions in:
  - Access-related bloodstream infections
  - Antibiotic usage
- “Surveillance raised awareness and provided a cornerstone for improved infection control and line care involving all staff of the dialysis unit.”

CMS (and Tennessee) Reporting Requirement

- All outpatient hemodialysis facilities (includes those attached to hospitals and freestanding centers) must report
- 12 months of:
  - Dialysis Event numerator and
  - Dialysis Event denominator data
  - per the NHSN Protocol
NHSN Dialysis Event Protocol

- Dialysis Event Protocol design
- Surveillance population
- Data collection forms:
  - Outpatient Dialysis Center Practices Survey
  - Monthly Reporting Plan
  - Denominators for Outpatient Dialysis Census Form
  - Dialysis Event Form
- Dialysis Event definitions:
  - IV antimicrobial start
  - Positive blood culture
  - Pus, redness, or increased swelling at the vascular access site
Dialysis Event Protocol Design

- Designed for implementation in dialysis facilities with limited surveillance resources
  - Goal: generate data that are useful for informing quality improvement decisions
  - Requires reliable data capture
  - Protocol is designed for optimal balance of low data collection burden with high data validity

- Data must be collected uniformly so that meaningful comparisons can be made
  - Requires all users follow the Dialysis Event Protocol
  - Dialysis Event definitions are standardized and simplified to minimize subjectivity
Dialysis Event Surveillance Population

- Maintenance hemodialysis patients treated in-center

- Other dialysis patients should be excluded:
  - Peritoneal dialysis
  - Home hemodialysis
  - Inpatient dialysis
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.

Data Reporting Requirements

1. **Outpatient Dialysis Center Practices Survey**
   - Completed upon enrollment and annually thereafter

2. **Monthly Reporting Plan**
   - Indicate what NHSN surveillance your facility will do each month

3. **Denominators for Outpatient Dialysis form**
   - Completed once monthly

4. **Numerator: Dialysis Event form**
   - Completed when a dialysis event occurs
Data Reporting Requirements

1. Outpatient Dialysis Center Practices Survey
   ▪ Completed upon enrollment and annually thereafter

2. Monthly Reporting Plan
   ▪ Indicate what NHSN surveillance your facility will do each month

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See Part 1
Data Reporting Requirements

1. Outpatient Dialysis Center Practices Survey
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2. Monthly Reporting Plan
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4. Numerator: Dialysis Event form
   ▪ Completed when a dialysis event occurs

See Part 1
3. Denominators for Outpatient Dialysis form: REVIEW

- Report all maintenance hemodialysis outpatients (including transients) treated at your facility on the first 2 working days of the month, separated by vascular access type.
- Count each patient only once:
  - If they have more than 1 vascular access, count that patient once, under their highest infection risk access.
  - If a patient is present on both working days (e.g., for a make-up appointment) do not count them twice.
- Consider ALL vascular accesses present, not just those being used for dialysis.
- Complete this form once per month.

Refer to Table of Instructions for guidance.
Denominator Collection Review

Hemodialysis Outpatients

July 1

A  B  C  D  X*
  G  F  TCL  G  NTCL

July 2

C  F  G  E  H
  TCL  O  F  TCL  G

*Patient X is a transient patient

Vascular Access | Abbreviation
-----------------|-----------------|
Fistula          | (F)             |
Graft            | (G)             |
Tunneled CL      | (TCL)           |
Nontunneled CL   | (NTCL)          |
Other Access Device | (O)           |
How many patients should be included in the denominator count for July?

A. 7  
B. 8  
C. 9  
D. 11
**QUESTION 6 - ANSWER**

*Patient X is a transient patient*

How many patients should be included in the denominator count for July?

A. 7  
B. 8  
C. 9  
D. 11
QUESTION 7

How many arteriovenous graft vascular patients should be recorded on the denominator form?

A. 5
B. 3
C. 4
D. 6
**QUESTION 7 - ANSWER**

_Hemodialysis Outpatients_

**July 1**

- A: G
- B: F
- C: TCL
- D: G
- X: NTCL

*Patient X is a transient patient

**July 2**

- C: TCL
- F: O
- G: F
- E: TCL

_How many arteriovenous graft vascular patients should be recorded on the denominator form?

- A. 5
- B. 3
- C. 4
- D. 6

- **LOWER RISK**
  - Arteriovenous fistulas
  - Arteriovenous grafts
  - Other access devices
  - Tunneled central lines

- **HIGHER RISK**
  - Nontunneled central lines
Data Reporting Requirements

1. **Outpatient Dialysis Center Practices Survey**
   - Completed upon enrollment and annually thereafter

2. **Monthly Reporting Plan**
   - Indicate what NHSN surveillance your facility will do each month

3. **Denominators for Outpatient Dialysis form**
   - Completed once monthly

4. **Numerator: Dialysis Event form**
   - Completed when a dialysis event occurs
4. Dialysis Event Form

- Monitor all maintenance hemodialysis outpatients who are treated at your facility for dialysis events:
  - IV antimicrobial start
  - Positive blood culture
  - Pus, redness, or increased swelling at the vascular access site

- Any patient who receives maintenance hemodialysis treatment at your facility is monitored for dialysis events
  - Even if they were not counted on the denominator form
  - Include transient patients who have a dialysis event while being treated by your facility

Refer to Table of Instructions for guidance.
Dialysis Event Form

- Patient demographics
- Risk Factors
- Other Patient Information
- Dialysis Event type(s) & details
- Problems
- Outcomes
### Additional Information: Dialysis Event Date

<table>
<thead>
<tr>
<th>Dialysis Event</th>
<th>Date Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV antimicrobial start</td>
<td>Date of first outpatient dose of an antimicrobial course</td>
</tr>
<tr>
<td>Positive blood culture</td>
<td>Date of specimen collection</td>
</tr>
<tr>
<td>Pus, redness, or increased swelling at vascular access site</td>
<td>Date of onset</td>
</tr>
<tr>
<td>Combination</td>
<td>Earliest date of the three types</td>
</tr>
</tbody>
</table>
If no dialysis events occur, select “Report No Events” to report zero events for the month.
Reporting Timeline

- Data should be reported to NHSN within 30 days of the end of the month for which they were collected

- Example: March data collection
  - Denominators for Outpatient Dialysis Form: March 1 and 2
  - Dialysis Event form(s): through all of March
  - Report both on or before April 30
Summary – National Healthcare Safety Network

- Data must be collected in a standardized way – as described by the Dialysis Event protocol

- Reporting requirements include:
  - The Outpatient Dialysis Center Practices Survey
  - Monthly Reporting Plan
  - Denominators for Outpatient Dialysis Form
  - Numerator: Dialysis Event Form(s) or “Report No Events”
Dialysis Event Definitions
Dialysis Event Type: IV Antimicrobial Start

- Report all outpatient intravenous antibiotic and antifungal starts regardless of the reason for treatment and regardless of duration of treatment
  - Include starts unrelated to vascular access problems
  - Report outpatient starts that are continuations of inpatient treatment
  - Report all IV antibiotic starts, not just vancomycin
  - Do not report IV antiviral starts
Dialysis Event Type: Positive Blood Culture

- Report all positive blood cultures collected as an outpatient or collected within 1 calendar day after a hospital admission
  - Even if the patient does not receive treatment
  - Even if the infection is not related to dialysis
Dialysis Event Type: Positive Blood Culture

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

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3 4 5</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPATIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Day of admission**
- **1 calendar day after admission**
- **2 calendar days after admission**

REPORT PBC if specimen was collected during this time

Do NOT report PBC if specimen was collected during this time
Suspected Source of Positive Blood Culture

- **“Vascular Access”** if there is objective evidence of vascular access infection and it is thought to be the source

- **“A Source Other than the Vascular Access”** if another site is thought to be the source and either:
  - Culture from another site has the same organism as the blood
  - Clinical evidence of infection at the site, but site is not cultured

- **“Contamination”** if organism is thought by the physician, Infection Preventionist, or nurse manager to be a contaminant

- **“Uncertain”** only if there is insufficient evidence to decide among the 3 previous categories
Positive Blood Culture Microorganisms

- For each positive blood culture, report up to 3 microorganisms
  - Suggestion: attach microbiology lab report to paper form

- Include antimicrobial susceptibility information
  - i.e., susceptible, resistant, intermediate, or not tested

- Do not report results of cultures from sites other than blood
Dialysis Event Type: Pus, Redness or Increased Swelling at the Vascular Access Site

- Report each new outpatient episode of pus, greater than expected redness or greater than expected swelling at a vascular access site
  - Even if the patient does not receive treatment
  - Always report pus
  - Report redness or swelling if they are more than expected and suspicious for infection
21 Day Rule

- There must be 21 or more days between dialysis events of the same type
  - Reduces multiple reporting of a single event/problem

- IV antimicrobial start
  - From the end of first start to beginning of next start

- Positive blood cultures
  - Between collection dates

- Pus, redness, or increased swelling
  - Between onset to onset

- Otherwise second occurrence is not reported
21 Day Rule - Example

- Example: A patient has two positive blood cultures within 21 days as a result of a bloodstream infection on January 1st and January 4th
  - Report one dialysis event, event date is January 1st
- The patient has a new positive blood culture on February 20th
  - Report a second dialysis event, because event date of this new positive blood culture is 21 or more days after the last reported positive blood culture
Additional Information: Dialysis Event Combinations

- 1 Dialysis Event report may have multiple parts, combining:
  - IV antimicrobial start
  - Positive blood culture
  - Pus, redness or increased swelling at vascular access site

- For example, if a positive blood culture is the reason that a patient is treated with IV antimicrobials, this is part of the same group of events and they are reported together.
Summary – Dialysis Event Definitions

- **IV antimicrobial starts**
  - All outpatient IV antimicrobial starts, including outpatient continuation of inpatient treatment

- **Positive blood cultures**
  - All positive blood cultures collected as an outpatient or collected within 1 calendar day after a hospital admission

- **Pus, redness, or swelling at the vascular access site**
  - All new outpatient episodes where patient has any pus, greater than expected redness, or greater than expected swelling at a vascular access site, suspicious for infection
Case Examples
Case 1

- Patient A receives 1 week of IV antimicrobials beginning 6/2 and ending 6/9.
- On 6/25, IV antimicrobials are restarted

- What do you report?
- What is the event date?
- Why?
Case 1

- Patient A receives 1 week of IV antimicrobials beginning 6/2 and ending 6/9.
- On 6/25, IV antimicrobials are restarted

- What do you report? 1 IV Antimicrobial Start Dialysis Event
- What is the event date? June 2nd

- Why? <21 days between antimicrobial starts (counted from the end of the first antimicrobial start to the beginning of the second antimicrobial start)
Case 2

- Patient B was hospitalized on 7/1. She began IV antimicrobials on 7/10 which continued until discharge on 7/13.
- On 7/14, IV antimicrobials are started in your facility as a continuation of her inpatient treatment.

- What do you report?
- What is the event date?
- Why?
Case 2

- Patient B was hospitalized on 7/1. She began IV antimicrobials on 7/10 which continued until discharge on 7/13.
- On 7/14, IV antimicrobials are started in your facility as a continuation of her inpatient treatment.

- What do you report? 1 IV Antimicrobial Start Dialysis Event
- What is the event date? 7/14

- Why? Report outpatient antimicrobial starts that are continuations of inpatient treatment. The start date is the first day of outpatient antimicrobial administration.
Case 3

- On May 1\textsuperscript{st}, patient C develops symptoms of a bloodstream infection and is hospitalized on 5/2.
- Upon hospital admission (5/2), blood is drawn, and culture results are positive on 5/4.

- What do you report?
- What is the event date?
- Why?
Case 3

- On May 1\textsuperscript{st}, patient C develops symptoms of a bloodstream infection and is hospitalized on 5/2.
- Upon hospital admission (5/2), blood is drawn, and culture results are positive on 5/4.

- What do you report? Positive Blood Culture with hospitalization outcome
- What is the event date? 5/2 (date the blood was drawn)

- Why? PBC sample was drawn within one day following hospital admission
Case 4

- Patient D’s vascular access site has pus, redness and swelling
- Blood culture grows *Enterococcus*
- Visibly infected leg wound grows *Staphylococcus aureus*

- What do you report?

- Why?
Case 4

- Patient D’s vascular access site has pus, redness and swelling
- Blood culture grows *Enterococcus*
- Visibly infected leg wound grows *Staphylococcus aureus*

Pus, redness, or increased swelling at vascular access site event with positive blood culture; Suspected Source = vascular access

What do you report?

Objective evidence of infection at vascular access site exists. Different organisms in blood & wound: cannot attribute positive blood culture to a ‘source other than vascular access’
Case 5

- Patient E’s leg wound has pus, redness and swelling but her vascular access site looks normal
- Wound culture: *Staphylococcus aureus*
- Blood culture: *Staphylococcus aureus*

- What do you report?

- Why?
Case 5

- Patient E’s leg wound has pus, redness and swelling but her vascular access site looks normal
- Wound culture: *Staphylococcus aureus*
- Blood culture: *Staphylococcus aureus*

Positive blood culture;

- What do you report? Suspected Source = source other than vascular access site

- Why? Evidence of infection at wound site, no evidence at vascular access site. Both wound and blood grow same organism.
Case 6

- Patient F reports chills, but no fever
- Patient F has 2 blood draws for culture
- 1 draw grows coagulase-negative Staphylococci, the other has no growth
- Patient F’s symptoms resolve without treatment

- What do you report?

- Why?
Case 6

- Patient F reports chills, but no fever
- Patient F has 2 blood draws for culture
- 1 draw grows coagulase-negative Staphylococci, the other has no growth
- Patient F’s symptoms resolve without treatment

- What do you report? Positive Blood Culture
  Suspected Source = Contamination

- Why? Only 1 of 2 blood cultures was positive & it was a common skin organism. Doctor was asked for interpretation and indicated the positive growth was the result of contamination.
Case 7

- On 4/2, Patient G has two blood draws that grow *Enterococcus*
- Patient G begins IV antimicrobials on 4/4

- What do you report?

- What is the event date?

- Why?
Case 7

- On 4/2, Patient G has two blood draws that grow *Enterococcus*
- Patient G begins IV antimicrobials on 4/4

- **What do you report?** 1 event, including both the Positive Blood Culture and IV Antimicrobial Start

- **What is the event date?** 4/2

- **Why?** When multiple events occur as part of the same patient problem, they are reported together on the same event form. The date of event is the date the first event occurred (in this example, the date of the positive blood draw)
Case 8

- Patient X is a transient patient in your facility
- Patient X has pus and redness at his vascular access site

- What do you report?

- Why?
Case 8

- Patient X is a transient patient in your facility
- Patient X has pus and redness at his vascular access site

- What do you report?  
  Pus, redness, or increased swelling at vascular access site event

- Why? If a transient patient has a dialysis event while he/she is receiving treatment at your facility, report the event
Summary – NHSN Dialysis Event Surveillance

- Maintenance hemodialysis outpatients

- NHSN Dialysis Event Surveillance reporting forms:
  - Outpatient Dialysis Center Practices Survey
  - Monthly Reporting Plan
  - Denominators for Outpatient Dialysis form
  - Dialysis Event form
    - IV antimicrobial starts
    - Positive blood cultures
    - Pus, redness, or increased swelling at the vascular access site

- Facilities must understand the reporting protocol and surveillance definitions to produce quality data
Resources

- Use other supporting resources:
  - BSI Prevention
    - CDC/HICPAC Guidelines
    - ESRD Networks
    - Health departments
  - General Infection Control
  - NHSN
    - Dialysis Event Homepage: [http://www.cdc.gov/nhsn/psc_da_de.html](http://www.cdc.gov/nhsn/psc_da_de.html)
    - NHSN Helpdesk: nhsn@cdc.gov
    - ESRD Network 8
    - Tennessee Facilities: Tennessee Department of Health HAI team: hai.health@tn.gov