Advanced National Healthcare Safety Network (NHSN) Dialysis Event Surveillance Reporting and Introduction to NHSN Reports

Alicia Shugart, MA

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

- Training objectives
- Brief overview of NHSN reporting
- Case studies
- Introduction to NHSN analysis
  - How to create reports in 3 steps
  - Quality Incentive Program (QIP) Report
  - Bloodstream Infection Rates (BSI) Rates
- Summary
Training Objectives

1. Identify dialysis events and correctly apply the 21 day rule to case studies
2. List the three steps to create an NHSN report
3. List two report modifications
4. Describe the components of a rate
5. Interpret the “Line Listing - CMS ESRD QIP Rule” report to verify your facility has met minimum reporting requirements
6. Interpret the “Rate Table - Bloodstream Infection” (BSI) report and assess your facility’s BSI rates against the national benchmarks
OVERVIEW OF DIALYSIS EVENT REPORTING
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

- **Rate** = \[
\frac{\text{Dialysis Events (numerator)}}{\text{Patient-Months (denominator)}} \times 100
\]

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

<table>
<thead>
<tr>
<th>Higher Risk</th>
<th>Nontunneled Central Line</th>
<th>Tunneled Central Line</th>
<th>Other Access Device</th>
<th>AV Graft</th>
<th>AV Fistula</th>
<th>Lower Risk</th>
</tr>
</thead>
</table>
CASE STUDIES
## Case 1: Sam

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 4</td>
<td>- Sam has a tunneled central line</td>
</tr>
<tr>
<td></td>
<td>- He receives a prophylactic dose of <strong>IV cefazolin</strong> in the outpatient dialysis clinic before being admitted to the hospital for surgery to get a graft</td>
</tr>
<tr>
<td>May 6</td>
<td>- Discharged from hospital, back to outpatient dialysis</td>
</tr>
<tr>
<td>June 11</td>
<td>- Sam has a fever of 101°F and reports chills</td>
</tr>
<tr>
<td></td>
<td>- Blood cultures ordered and <strong>IV vancomycin</strong> is started</td>
</tr>
<tr>
<td>June 15</td>
<td>- Blood culture results are negative</td>
</tr>
<tr>
<td></td>
<td>- Sam is afebrile &amp; reports feeling better</td>
</tr>
<tr>
<td></td>
<td>- Vancomycin is discontinued</td>
</tr>
</tbody>
</table>

### Questions:
- What meets dialysis event reporting 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

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

**Why?** Report ALL IV antimicrobial starts, regardless of reason or duration of treatment. Report them separately because there are 21 or more days between them.
Case 2: Alex

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 9</td>
<td>- While receiving maintenance hemodialysis, Alex complains of “not feeling well”</td>
</tr>
<tr>
<td></td>
<td>- Physician orders <strong>blood cultures</strong></td>
</tr>
<tr>
<td></td>
<td>- IV vancomycin is started empirically</td>
</tr>
<tr>
<td>June 11</td>
<td>- One of four blood culture results are positive for coagulase-negative staphylococci</td>
</tr>
<tr>
<td></td>
<td>- Alex feels better, physician discontinues vancomycin</td>
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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 whether or not a true infection is suspected or whether the infection is thought to be related to hemodialysis. Report related events together.
**Case 3 - Bobbie**

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
</table>
| June 4     | - Bobbie has **redness and swelling at her graft, that is suspicious for infection**  
             - Oral antibiotic is prescribed                                    |
| June 18    | - Redness and swelling are still present                               
             - Bobbie experiences a drop in blood pressure                     
             - **4 blood samples are drawn**                                   
             - **IV vancomycin is started**                                     |
| June 22    | - Blood cultures positive for *Staphylococcus aureus*                 |

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 3 - Bobbie

### June 4
- Bobbie has **redness and swelling at her graft**, that is suspicious for infection
- Oral antibiotic is prescribed

### June 18
- Redness and swelling are still present
- Bobbie experiences a drop in blood pressure
- 4 blood samples are drawn
- IV vancomycin is started

### June 22
- Blood cultures **positive for *Staphylococcus aureus***

**Report:** 1 dialysis event, date June 4, which includes pus, redness, swelling; positive blood culture (suspected source is vascular access); and IV antimicrobial start.

**Why?** Report related events together & use earliest event date.
Case 3 - Bobbie

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<td>IV vancomycin is started</td>
</tr>
<tr>
<td>June 22</td>
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Do NOT Report: oral antibiotics.
- Only IV antimicrobial starts are reported for Dialysis Event surveillance.
CASE STUDY OR PROTOCOL QUESTIONS?

Reminder!

Next CMS QIP deadline:
Report data from April 1 - June 30, 2016 to NHSN by September 30, 2016.
INTRODUCTION TO NHSN ANALYSIS & REPORTS
NHSN Reports

- NHSN includes reports that facilities and groups can run at any time to review their surveillance data.

- Different reports are available to choose from:
  - NHSN can summarize what has been reported to date and calculate infection rates.

- Use reports to:
  - Track infections
  - Inform prevention
  - Evaluate and improve performance
    - Evaluate specific infection prevention interventions
    - Identify other areas for improved performance
NHSN Reports

- There are a variety of “CDC Defined Output” options to choose from
  - These are standard reports that can be run as-they-are or modified to suit your needs

- The report type determines how data are displayed

- Report types include:
  - Line Listings
  - Frequency Tables
  - Bar Charts
  - Pie Charts
  - Rate Tables
  - Run Charts
Positive Blood Culture Suspected Source and Dialysis Event Metrics

- Four categories of suspected source of positive blood culture (defined in the protocol):
  - Vascular access
  - A source other than the vascular access (e.g., a wound)
  - Contamination
  - Uncertain

- Correct selection of suspected source impacts ARBSI, LASI, and VAI rates
  - Bloodstream infection (BSI): Any positive blood culture.
  - Access-related bloodstream infection (ARBSI): Positive blood culture with the suspected source reported as the vascular access or uncertain.
  - Local access site infection (LASI): Pus, redness, or swelling of the vascular access site and ARB is not present.
  - Vascular access infection (VAI): Either an LASI or an ARBSI.
Positive Blood Culture Suspected Source and Dialysis Event Metrics

- Four categories of suspected source of positive blood culture (defined in the protocol):
  - Vascular access
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- **Bloodstream infection (BSI):** Any positive blood culture.
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Endorsed by the National Quality Forum (NQF) and is used for the Centers for Medicare and Medicaid Services (CMS) Quality Incentive Program (QIP)
CREATE A REPORT IN 3 STEPS
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!
Step 1 - Generate New Data Sets

- Data sets are the files NHSN uses to run reports
- Generating new data sets captures all of your facility’s NHSN data so that reports are created using complete, up-to-date information
- Each user has their own analysis data sets
- They may take several minutes to generate, but you can work elsewhere in NHSN while you wait
Step 1 - Generate New Data Sets
Step 2 – Select a Report

- Once data sets are generated, select ‘Output Options’ from the navigation bar.
- Open “Dialysis Event” folder to find report templates.
Step 3 – ‘Run’ the Report

Press “Run” button next to the report you want
SIMPLE REPORT MODIFICATIONS
Modifying Reports - Optional

- Two useful modifications:
  - Filter the data, so the report includes desired information only
  - Customize which variables are included and in what order

- Click the ‘Modify’ button next to the template you would like to change
Modify Screen (optional)

The modify screen can be described in three main sections:

1. Report formatting
2. Data filters
3. Variable display and organization
Variable Reference List

- Data collected or calculated in NHSN are assigned variable names:
  - "abxStart" (IV antimicrobial start)
  - "bldCultDE" (Positive blood culture)
  - "prsEvent" (Suspected source of positive)

Don’t know a variable name’s meaning? Open the variable reference list.
Modify the Report – Filter Data

- The middle section allows you to specify which data are included in the output
  - Filter by time period
  - Specify other selection criteria

![Filter Data Interface]

- Select a time period or leave blank for cumulative time period:
  - Date Variable: summaryYM
  - Beginning: 01/2015
  - Ending: 12/2015
- Specify Other Selection Criteria:
  - Show Criteria
  - Column +
  - Row +
  - Clear Criteria
Modify the Report – Change Variable Display and Organization

- Arrows move variables between ‘Available Variables’ and ‘Selected Variables’ columns
- Use ‘Up’ and ‘Down’ buttons to change the display order
- Click ‘Save’ when done
Modify Screen

- When modifications are complete, click the ‘Run’ button to determine if output is as desired
- Click ‘Save As’ to save modified report for future use
  - Must change the “Output Name” to save
- Click ‘Reset’ to undo all modifications
- Click ‘Back’ to return to the Output Options screen
- Click ‘Export Output Data Set’ to export modified dataset to other analysis software (e.g., Excel, SAS)
Creating Reports in NHSN

Experiment!

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
ANALYSIS:
INTERPRETING THE QUALITY INCENTIVE PROGRAM (QIP) RULE REPORT
The Centers for Medicare and Medicaid Services (CMS) End-Stage Renal Disease (ESRD) Quality Incentive Program (QIP) NHSN Dialysis Event measure requires 12 months of complete and accurate NHSN reporting.

Use the “Line Listing – CMS ESRD QIP Rule” report before each quarterly reporting deadline to verify minimum reporting requirements are met for all three months.
Line Listing - CMS ESRD QIP Rule

Don’t forget to generate new data sets first for an up-to-date report.
Line Listing – CMS ESRD QIP Rule

Use the report before each quarterly CMS QIP NHSN reporting deadline to verify minimum reporting requirements are met for all three months

- Verify the column “Criteria Met this Month” = Y for each row
"DE on Reporting Plan" = Y if:

- the "DE" checkbox is selected on that month’s Reporting Plan
- this indicates the data were collected according the Dialysis Event Protocol

<table>
<thead>
<tr>
<th>Org ID</th>
<th>CMS Certification Number</th>
<th>Facility Name</th>
<th>Location</th>
<th>Summary Year/Month</th>
<th>DE on Reporting Plan</th>
<th>Dialysis Event Numerator Reported</th>
<th>Dialysis Event Denominator Reported</th>
<th>Criteria Met this Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>10856</td>
<td>123456</td>
<td>Test Facility 1</td>
<td>DIAL</td>
<td>2016M01</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>10856</td>
<td>123456</td>
<td>Test Facility 1</td>
<td>DIAL</td>
<td>2016M02</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>10856</td>
<td>123456</td>
<td>Test Facility 1</td>
<td>DIAL</td>
<td>2016M03</td>
<td>Y</td>
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**Line Listing – CMS ESRD QIP Rule**

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<td>Y</td>
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<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

"Dialysis Event Numerator Reported" = Y if:
- at least 1 dialysis event of each type was reported that month, or
- "Report No Events" checkbox(es) were selected on the Denominators for Dialysis Event Surveillance form
**Line Listing – CMS ESRD QIP Rule**

<table>
<thead>
<tr>
<th>Org ID</th>
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<th>Facility Name</th>
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<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

“Dialysis Event Denominator Reported” = Y if:
- the Denominators for Dialysis Event Surveillance form was completed for the month
Verify minimum NHSN reporting requirements are met, reflected by a “Y” (Yes) on each line in the “Criteria Met this Month” column.

- For criteria to be met, all other Yes/No fields in the same row must be “Y”
- Also verify all months are accounted for in the table
- Check your facility’s CCN is correct
<table>
<thead>
<tr>
<th>Name</th>
<th>Variable Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>orgID</td>
<td>Facility Org ID</td>
</tr>
<tr>
<td>CCN</td>
<td>CMS Certification Number</td>
</tr>
<tr>
<td>name</td>
<td>Facility Name</td>
</tr>
<tr>
<td>location</td>
<td>Location</td>
</tr>
<tr>
<td>summaryYM</td>
<td>Summary Year/Month</td>
</tr>
<tr>
<td>de_plan</td>
<td>DE on Reporting Plan</td>
</tr>
<tr>
<td>de_numer</td>
<td>Dialysis Event Numerator Reported</td>
</tr>
<tr>
<td>de_denom</td>
<td>Dialysis Event Denominator Reported</td>
</tr>
<tr>
<td>criteria_met</td>
<td>Criteria Met this Month</td>
</tr>
</tbody>
</table>
ANALYSIS:
INTERPRETING A BSI RATE TABLE
Dialysis Event Rates

- **Numerator** = number of dialysis events
- **Denominator** = count of patients by vascular access type that is used to estimate the number of patient-months at risk for dialysis events

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

- Dialysis event rates are stratified by vascular access type and expressed per 100 patient-months
- Facilities are strongly encouraged to analyze their data and provide regular feedback to staff
Don’t forget to generate new data sets first for an up-to-date report.
## Bloodstream Infection Rate Table

<table>
<thead>
<tr>
<th>Access Type</th>
<th>Summary Yr/Qt</th>
<th>Months</th>
<th>Number Bloodstream Infections</th>
<th>Patient-Months</th>
<th>Bloodstream Infection Rate/100 patient-months</th>
<th>NHSN Bloodstream Infection Pooled Mean Rate/100 patient-months</th>
<th>Incidence Density</th>
<th>Incidence Density p-value</th>
<th>Incidence Density Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2016Q1</td>
<td>3</td>
<td>2</td>
<td>211</td>
<td>0.95</td>
<td>0.64</td>
<td>0.5513</td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>Fistula</td>
<td>2016Q1</td>
<td>3</td>
<td>0</td>
<td>97</td>
<td>0.00</td>
<td>0.26</td>
<td>0.7743</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Graft</td>
<td>2016Q1</td>
<td>3</td>
<td>0</td>
<td>63</td>
<td>0.00</td>
<td>0.39</td>
<td>0.7802</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Other Access</td>
<td>2016Q1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0.00</td>
<td>0.51</td>
<td>0.9849</td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>Tunneled</td>
<td>2016Q1</td>
<td>3</td>
<td>1</td>
<td>45</td>
<td>2.22</td>
<td>2.17</td>
<td>0.8778</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Nontunneled</td>
<td>2016Q1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>33.33</td>
<td>2.05</td>
<td>0.0615</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Any CVC</td>
<td>2016Q1</td>
<td>3</td>
<td>2</td>
<td>48</td>
<td>4.17</td>
<td>2.16</td>
<td>0.3661</td>
<td>82</td>
<td></td>
</tr>
</tbody>
</table>

Non-shaded (white) area includes the facility data.

Shaded (yellow) area includes aggregate data from all of NHSN. Use this information to compare each facility to the rest of NHSN.
# Bloodstream Infection Rate Table

Data are stratified by vascular access type

- "All" = Fistula + Graft + Other Access + Tunneled + Nontunneled
- "Any CVC" = Tunneled + Nontunneled

<table>
<thead>
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- Timeframe (default is calendar quarters “Summary Yr/Qtr”)
- “Months” is the number of complete months of data for that timeframe
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Tunneled central line BSI rate = \( \frac{1}{45} \times 100 = 2.22 \) BSI/100 patient-months
Bloodstream Infection Rate Table

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Compare the NHSN pooled mean rate to the facility’s rate.

The NHSN pooled mean BSI rate among patients with tunneled central lines was lower than the facility’s rate (2.17 BSI per 100 patient-months versus 2.22 BSI per 100 patient-months).

This column shows the mean or average RATE (per 100 patient-months) for all dialysis facilities reporting to NHSN.
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A p-value and percentile are provided to assist with interpretation of rate comparison.
Comparing Rates Using Percentiles and p-values

- The percentile indicates how a facility ranks for the event among all NHSN facilities
  - The lower the percentile, the better the facility is ranked for that event

- A p-value is a measure of statistical significance that indicates the probability that any difference between the facility’s rate and NHSN’s aggregate rate is due only to chance
  - Typically, a p-value of <0.05 is considered a statistically significant difference between rates
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Facility’s rate is 2.22 and NHSN’s rate is 2.17 – what can we conclude about the facility’s tunneled central line BSI rate?
- The percentile (59) is medium
- The p-value (0.8778) is greater than 0.05, which is not statistically significant
  - i.e., facility’s rate is not statistically different from the NHSN rate

- Conclusion: the facility’s BSI rate for tunneled central lines is average.
Rate Table Interpretation Examples

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<th>Incidence Density Percentile</th>
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</table>

- **Example A:** Facility rate is zero, NHSN rate is 2.17
  - Percentile (10) is low
  - p-value is statistically significant (i.e., rates are statistically different)
  - Conclusion: facility has a lower than average BSI rate

- **Example B:** Facility rate is 2.13, NHSN rate is 2.17
  - Percentile (57) is medium
  - p-value is not statistically significant (i.e., rates are not statistically different)
  - Conclusion: facility has an average BSI rate

- **Example C:** Facility rate is 20.00, NHSN rate is 2.17
  - Percentile (100) is high
  - p-value is statistically significant (i.e., rates are statistically different)
  - Conclusion: facility has a higher than average BSI rate
## Bloodstream Infection Rate Table

For Reference: Variable Names & Labels

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<tr>
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<th>Variable Label</th>
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<td>IDR_pctl</td>
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</table>
Data Quality and Quantity

- Remember the importance of data quality:
  - High rates may = high event occurrence OR over-reporting
  - Low rates may = low event occurrence OR under-reporting
  - NHSN rates could increase if facilities improve the accuracy and completeness of reporting

- And data quantity:
  - Rates may fluctuate over short periods of time
  - Assessing rates over greater time intervals can increase confidence in the values
All Dialysis Rate Tables are Interpreted Similarly

- IV Antimicrobial Start
- IV Vancomycin Start
- Bloodstream Infection (BSI)
- Access Related Bloodstream Infection (ARBSI)
- Local Access Site Infection (LASI)
- Vascular Access Infection (VAI)
Quick References for Reports

http://www.cdc.gov/nhsn/dialysis/event/index.html

Dialysis Event Surveillance

(Part of CMS ESRD QIP)

Resources for Active Dialysis Facility Users

- Training Spotlight
- Protocol
- Data Collection Forms and Instructions

Analysis Resources to Create Reports

- How to Create and Read an NHSN Report for CMS ESRD QIP November 2014
- How to Create and Read an NHSN Report for Bloodstream Infections November 2014
- How to Create and Read an NHSN Report for Access Related Bloodstream Infections October 2015
- 3 Steps to Review NHSN Dialysis Event Surveillance Data November 2014
- Data Quality Checklist for Group Users July 2014
SUMMARY
Summary – Reporting Dialysis Events

- Implement a process to identify dialysis events and refer to the protocol often

- When reporting dialysis events, consider:
  - How many events should be reported?
  - If > one event of same type, does the 21 day rule apply?
  - If > one event of different type, should they be reported together?
  - If a positive blood culture, what is the suspected source?

- Contact the NHSN Helpdesk if you have reporting questions (nhsn@cdc.gov) – we are here to help!
Summary – Running Reports

- You can run at any time to review your data – experiment!

- Create a report in 3 Steps:
  1. Generate new data sets
  2. Locate the report under “Output Options”
  3. “Run” the report

- Modifying the report is optional, you can:
  - Filter the data, so the report includes desired information only
  - Customize which variables are included and in what order they are displayed
  - Use the variable reference list
Summary – QIP and BSI Rate Reports

- Use the “CMS ESRD QIP Rule” report before each quarterly deadline to verify minimum reporting requirements are met
  - Verify “Criteria Met this Month” = Y for each month/row

- Rates are calculated by dividing the number of events by the number of patient-months and multiplying the result by 100
  - All data must be correct to calculate valid rates

- You can compare your facility’s rates to national benchmarks for all dialysis event metrics
  - The lower the percentile, the better the facility is ranked for that event
  - A p-value <0.05 indicates rates are statistically significantly different

- When interpreting data, keep in mind the impact of data quality and quantity
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