

KNHSS

Kuwait National Healthcare-associated
Infections Surveillance System

Dialysis Event Protocol

Settings: Surveillance occurs in outpatient hemodialysis centers. These centers may be attached to or affiliated with a hospital, but should serve hemodialysis outpatients.

Population: Maintenance hemodialysis outpatients.

Requirements: Participating facilities are required to report data according to this protocol, using the NHSN definitions described herein, to ensure data are uniformly reported across participants. A minimum of 6 months of Dialysis Event (DE) surveillance at an outpatient hemodialysis facility is required by Kuwait National Healthcare-associated Infections Surveillance System.

Definitions of Dialysis Events:

Dialysis Event: Three types of dialysis events are reported by users: IV antimicrobial start; positive blood culture; and pus, redness, or increased swelling at the vascular access site. An additional four types of dialysis events are calculated from the reported data: bloodstream infection, local access site infection, access-related bloodstream infection, and vascular access infection.

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.

There must be 21 or more days from **the end** of the first IV antimicrobial start **to the beginning** of a second IV antimicrobial start for two starts to be considered separate dialysis events, even if different antimicrobials are used. If IV antimicrobials are stopped for less than 21 days and then restarted, the second start is **NOT** considered a new dialysis event. To apply the 21 day rule to outpatient IV antimicrobial starts that are continuations of inpatient treatment, consider the start day to be the first day of outpatient 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. The date of a blood culture result is based on the date the blood specimen was collected, not the date the laboratory reported the result.

There must be 21 or more days between positive blood cultures (**between collection dates**) for each positive blood culture to be considered a separate dialysis event, even if organisms are different. If positive blood cultures occur less than 21 days apart, the second positive blood culture(s) is **NOT** considered a new dialysis event: add new organisms from these subsequent positive blood cultures to the first report.

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.

There must be 21 or more days between the **onset** of a first episode and **onset** of a second episode of pus, redness, or increased swelling at a vascular access site to be considered separate dialysis events. If an episode of pus, redness, or increased swelling at a vascular access site resolves and then recurs within 21 days, the recurrence is **NOT** considered a new dialysis event.

Bloodstream infection: Any positive blood culture.

Local access site infection (LASI): Pus, redness, or swelling of the vascular access site and access related bloodstream infection is **not** present.

Access-related bloodstream infection (ARB): Positive blood culture with the suspected source identified as the vascular access site or uncertain.

Vascular access infection (VAI): Either a local access site infection or an access-related bloodstream infection.

Vascular Access Types

***Non-tunneled 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 synthetic tubing for the purpose to provide a permanent vascular access.

***Fistula:** a surgically created direct connection between an artery and a vein to provide vascular access.

***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.

Reporting instructions

KNHSS forms should be used to collect required data, using the definitions outlined in this protocol. Each form has corresponding instructions which define all fields on the form.

Report Denominator Data Monthly: 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.

Report Numerator Data Monthly: Each month, complete one Dialysis Event form per event among all patients who received hemodialysis at the facility during that month. If a transient patient has a dialysis event during the time he or she is receiving hemodialysis treatment at your facility, report the dialysis event. Complete a Dialysis Event form only if a maintenance hemodialysis outpatient has one or more of the following:

- IV antimicrobial start
- Positive blood culture
- Pus, redness or increased swelling at the vascular access site

See tables of instructions for an explanation of each field of the Dialysis Event form.

Reporting multiple dialysis events for a single patient: Dialysis Event surveillance definitions include IV antimicrobial start; positive blood culture; and pus, redness, or increased swelling at the vascular access site. If multiple dialysis events occur together, as a part of the same patient problem, they should be reported as one dialysis event. For example, if a patient has a positive blood culture and begins IV antimicrobials, these two events would be recorded together on one form. When reporting multiple dialysis events together, always use the date from the first event that occurred. Refer to dialysis event definitions for the 21 day rule. Do not report unrelated dialysis events on the same form.

Suspected source of the positive blood culture: When reporting a positive blood culture, indicating one of four suspected sources of the positive blood culture is required.

1 -Vascular access: Choose “Vascular access” if there is objective evidence of vascular access infection and the vascular access is thought to be the source of the positive blood culture.

2-A source other than the vascular access: Choose “A source other than the vascular access” if either (a) or (b) is true:

a) a culture from another site (e.g., infected leg wound, urine) shows the same organism found in the blood and the site is thought to be the source of the positive blood culture.

b) there is clinical evidence of infection at another site which is thought to be the source of the positive blood culture, but the site was not sampled for culture.

3-Contamination: Choose “Contamination” if the organism isolated from the blood culture is thought by the physician, infection preventionist, or head nurse to be a contaminant. Contamination is more likely if the organism is a common commensal and is isolated from only one blood culture.

Examples of some common commensals include:

o diphtheroids [*Corynebacterium* spp., not *C. diphtheriae*]

o *Bacillus* [not *B. anthracis*] spp.

o *Propionibacterium* spp.

- o* coagulase-negative staphylococci [including *S. epidermidis*]
- o* viridans group streptococci
- o* *Aerococcus* spp.
- o* *Micrococcus* spp.

4-Uncertain: Choose “Uncertain” only if there is insufficient evidence to decide among the three previous suspected source categories.

Data Analyses: Dialysis event rates are stratified by vascular access type and expressed per 100 patient-months. Rates are calculated by dividing the number of events by the number of patient-months and multiplying the result by 100. KNHSS calculates pooled mean rates for each event type by combining rates from all participating facilities. Facilities can compare their rates with the pooled mean rates using NHSN analysis rate table output options. Facilities are strongly encouraged to analyze the data they report and provide regular feedback to staff about performance.

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

References and Resource

- http://www.cdc.gov/nhsn/psc_da_de.html
- Dialysis Surveillance Report: National Healthcare Safety Network (NHSN)—Data Summary for 2006