



Healthcare-Associated Infections (HAIs) in Dialysis Dashboard, 2019-2023

John Keenan, PhD, MSPH
Statistician III

Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Disease
Division of Healthcare Quality Promotion
Surveillance Branch

Understanding Healthcare-Associated Infections (HAIs) in Dialysis

- Over 500,000 patients are treated with maintenance hemodialysis in the United States.
- There are three main vascular access types:
 - Arteriovenous fistula
 - Arteriovenous graft
 - Central venous catheter (CVC)
- Hemodialysis patients are at high risk for infection often with antimicrobial-resistant bacteria.



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

Antimicrobial Resistance & Patient Safety Portal

[Home](#) > [Healthcare- and Community-Associated Infections](#) > [Healthcare-Associated Infections in Dialysis](#)

Surveillance Focus Areas Supporting the HAI Dialysis Dashboard

- **Surveillance focus areas include:**
 - Bloodstream Infections (BSI)
 - Intravenous Antibiotic Starts (IVAS)
 - Signs of infection at the access site including pus, redness, or increased swelling (PRS)
- **These measures help inform infection prevention strategies and support the HAI Dashboard.**
- **Access the [CDC Antimicrobial Resistance & Patient Safety Portal \(ARPSP\) dashboard](#) to learn more.**

Context & Resources for Exploring the HAI Dashboard

HAIs in Dialysis Hero Cards

- When users first open the HAI Dialysis Dashboard, they'll see these national summary metrics, also known as “hero cards.”
- These cards highlight the key infection focus areas.



Mapping HAIs in Dialysis by Location



GEOGRAPHIC LOCATION

DIALYSIS DATA BY EVENT TYPE AND STATE

EVENT TYPE

BSI

IVAS

PRS

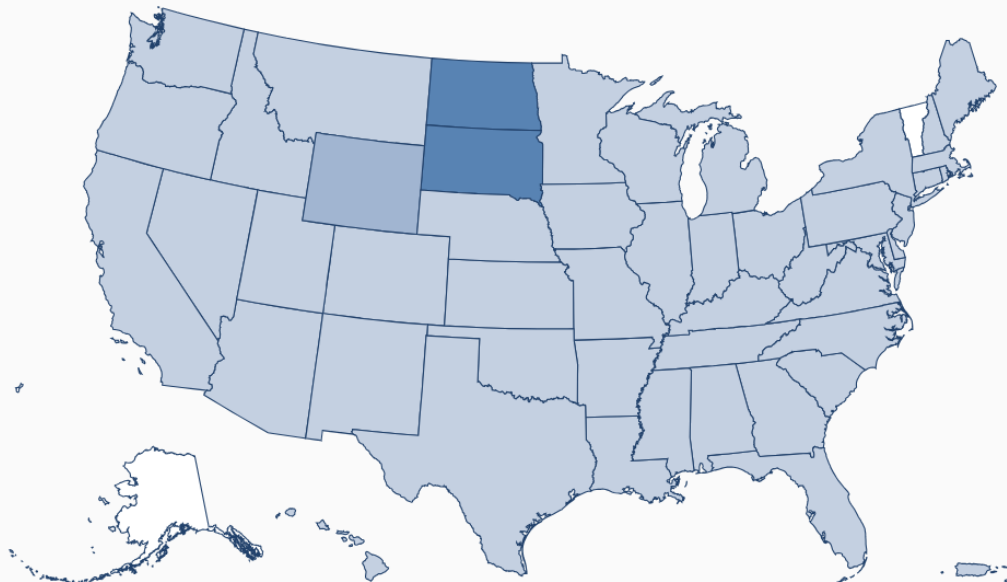
YEAR

2023

The data in this graph are limited to information that was reported by dialysis facilities to NHSN for the calendar year 2023. Data displayed are SIRs for BSIs and crude rates for IVAS and PRS by state. Data are not displayed if data are insufficient to produce an SIR or rate.

DIALYSIS DATA BY BSI AND STATE IN 2023

[VIEW DATA](#) [SAVE IMAGE](#) [SHARE](#)



BSI SIR Value

Color-Coded Map of Event Type Crude Rate by U.S. State



GEOGRAPHIC LOCATION

DIALYSIS DATA BY EVENT TYPE AND STATE

EVENT TYPE

BSI

IVAS

PRS

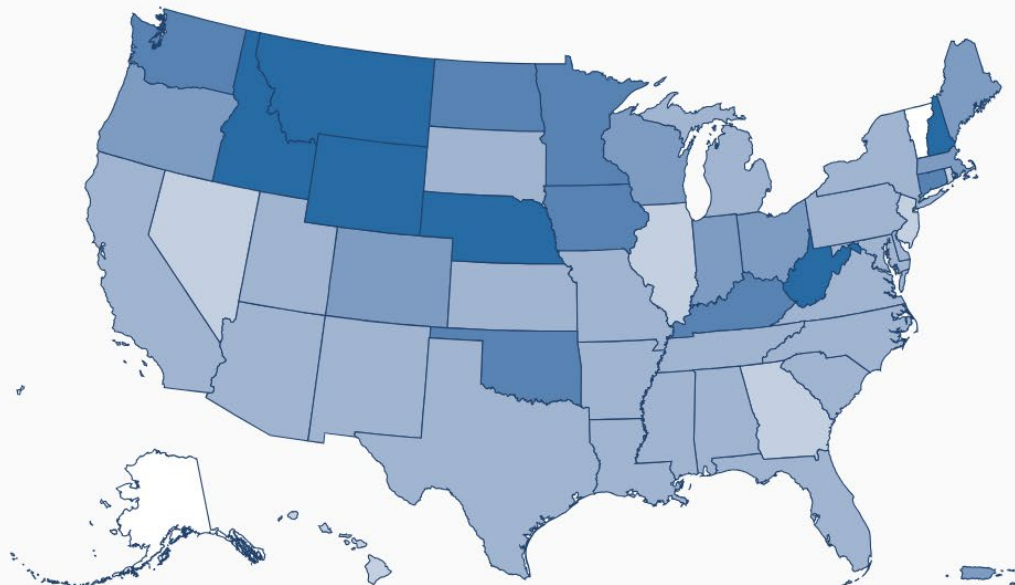
YEAR

2023

The data in this graph are limited to information that was reported by dialysis facilities to NHDN for the calendar year 2023. Data displayed are SIRs for BSIs and crude rates for IVAS and PRS by state. Data are not displayed if data are insufficient to produce an SIR or rate.

DIALYSIS DATA BY PRS AND STATE IN 2023

[VIEW DATA](#) [SAVE IMAGE](#) [SHARE](#)



PRS Crude Rate

0.25 - 0.39 0.4 - 0.53 0.54 - 0.61 0.62 - 0.76 0.77+ Insufficient Data

Dialysis HAIs: Filter by Event Type and Data Export Options

GEOGRAPHIC LOCATION

DIALYSIS DATA BY EVENT TYPE AND STATE

EVENT TYPE

BSI

IVAS

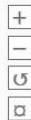
PRS

YEAR

2023

The data in this graph are limited to information that was reported by dialysis facilities to NHSN for the calendar year 2023. Data displayed are SIRs for BSIs and crude rates for IVAS and PRS by state. Data are not displayed if data are insufficient to produce an SIR or rate.

DIALYSIS DATA BY PRS AND STATE IN 2023

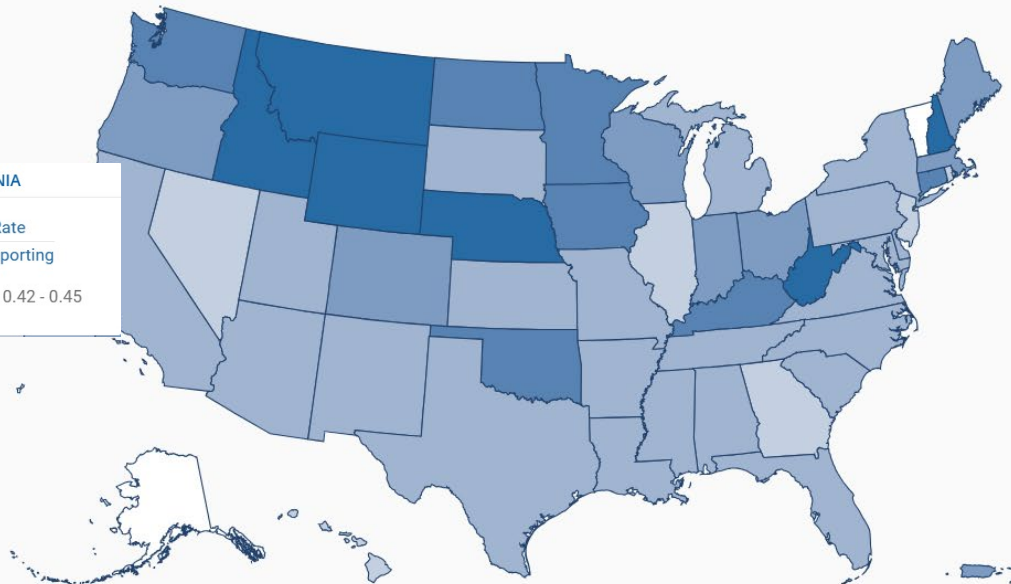


CALIFORNIA

0.44 Crude Rate

648 Facilities Reporting

Confidence Interval: 0.42 - 0.45



 VIEW DATA  SAVE IMAGE  SHARE

PRS Crude Rate

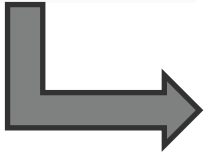
0.25 - 0.39 0.4 - 0.53 0.54 - 0.61 0.62 - 0.76 0.77+ Insufficient Data

Steps to View, Download, and Share Dialysis HAI Data



GEOGRAPHIC LOCATION

VIEW DATA SAVE IMAGE SHARE



View Data Save Image Share

ENDPOINT

arpsp.cdc.gov/api/Dialysis BSI?drilldowns=geographyID,state,Event Year,year&sum=Num... COPY

State	Event Year	Number of reporting facilities	Standard Infection Ratio	Observed
Alabama	2023	170	0.34	24
Alaska	2023	9	Insufficient Data	Ins
American Samoa	2023	2	Insufficient Data	Ins
Arizona	2023	123	0.32	28
Arkansas	2023	69	0.35	16
California	2023	648	0.3	18
Colorado	2023	83	0.3	12
Connecticut	2023	49	0.34	12
Delaware	2023	32	0.3	45
District of Columbia	2023	19	0.27	29
Florida	2023	487	0.29	91
Georgia	2023	332	0.23	41
Guam	2023	6	Insufficient Data	Ins

DOWNLOAD AS CSV DOWNLOAD AS XLS DOWNLOAD AS JSON

View Data Save Image Share

IMAGE AREA ENTIRE SECTION

☐ Transparent Background

DOWNLOAD PNG

View Data Save Image Share

DIRECT LINK

arpsp.cdc.gov/profile/dialysis/all-123 COPY

☒ Scroll to section

SOCIAL

SHARE ON FACEBOOK SHARE ON X

State-by-State View of Event Type in Dialysis Patients

DIALYSIS BY EVENT TYPE AND STATE LIST

EVENT TYPE

BSI

IVAS

PRS

YEAR

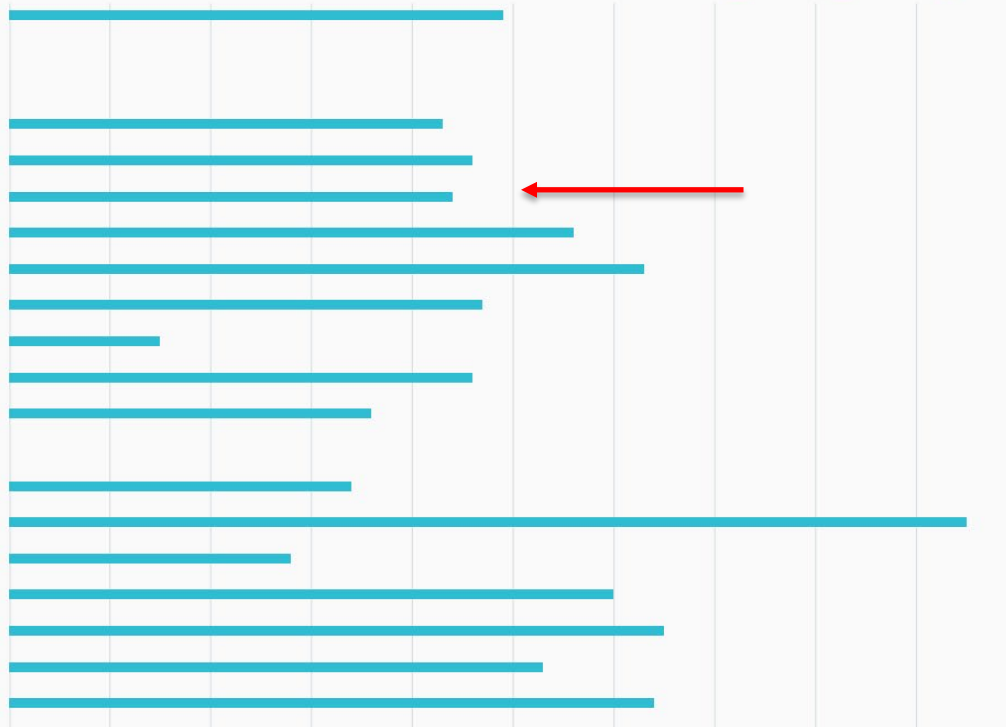
2023

The data in this graph are limited to information that was reported by dialysis facilities to NHSN for the calendar year 2023. Data displayed are SIRs for BSIs and crude rates for IVAS and PRS by state. Data are displayed by the "*" if data are insufficient to produce an SIR or rate.

PRS RATE (PER 100 PATIENT-MONTHS)

ALABAMA	0.49
ALASKA	*
AMERICAN SAMOA	*
ARIZONA	0.43
ARKANSAS	0.46
CALIFORNIA	0.44
COLORADO	0.56
CONNECTICUT	0.63
DELAWARE	0.47
DISTRICT OF COLUMBIA	0.15
FLORIDA	0.46
GEORGIA	0.36
GUAM	*
HAWAII	0.34
IDAHO	0.95
ILLINOIS	0.28
INDIANA	0.60
IOWA	0.65
KANSAS	0.53
KENTUCKY	0.64

[VIEW DATA](#) [SAVE IMAGE](#) [SHARE](#)



Crude Infection Rates for Each HAI Type by Access Type and Year

DIALYSIS EVENT DATA BY ACCESS TYPE

EVENT TYPE

Overall

YEAR

2019

This table shows the crude rates for each HAI type - BSI, IVAS, and PRS - by each access type for 2019. Access types include the following: Central Venous Catheter (CVC) access, arteriovenous fistula access, arteriovenous graft access, or other access types such as catheter-graft hybrid devices.

Access Type	Events	Denominator	Crude Rate (per 100)	95% CI Lower	95% CI Upper
All BSI	22,063	5,321,309	0.41	0.41	0.42
CVC	13,604	1,126,566	1.21	1.19	1.23
Fistula	5,454	3,253,646	0.17	0.16	0.17
Graft	2,968	927,645	0.32	0.31	0.33
Other access	37	13,452	0.28	0.2	0.38
All IVAS	124,895	5,321,309	2.35	2.33	2.36
CVC	58,355	1,126,566	5.18	5.14	5.22
Fistula	46,885	3,253,646	1.44	1.43	1.45
Graft	18,005	927,645	1.94	1.91	1.97
Other access	131	13,452	0.97	0.82	1.15
All PRS	26,432	5,321,309	0.5	0.49	0.5
CVC	17,811	1,126,566	1.58	1.56	1.6
Fistula	5,619	3,253,646	0.17	0.17	0.18
Graft	2,986	927,645	0.32	0.31	0.33
Other access	16	13,452	0.12	0.07	0.19

Crude Infection Rates for Each HAI Type by Access Type and Year Continued...

DIALYSIS EVENT DATA BY ACCESS TYPE

EVENT TYPE

Overall

YEAR

2023

This table shows the crude rates for each HAI type - BSI, IVAS, and PRS - by each access type for 2023. Access types include the following: Central Venous Catheter (CVC) access, arteriovenous fistula access, arteriovenous graft access, or other access types such as catheter-graft hybrid devices.

Access Type	Events	Denominator	Crude Rate (per 100)	95% CI Lower	95% CI Upper
All BSI	13,877	5,069,759	0.27	0.27	0.28
CVC	9,720	1,618,379	0.6	0.59	0.61
Fistula	2,708	2,652,483	0.1	0.1	0.11
Graft	1,413	787,786	0.18	0.17	0.19
Other access	36	11,111	0.32	0.23	0.44
All IVAS	91,360	5,069,759	1.8	1.79	1.81
CVC	53,555	1,618,379	3.31	3.28	3.34
Fistula	26,650	2,652,483	1.01	0.99	1.02
Graft	10,238	787,786	1.3	1.27	1.32
Other access	226	11,111	2.03	1.78	2.31
All PRS	23,764	5,069,759	0.47	0.46	0.47
CVC	17,986	1,618,379	1.11	1.09	1.13
Fistula	3,974	2,652,483	0.15	0.14	0.15
Graft	1,775	787,786	0.23	0.21	0.24
Other access	29	11,111	0.26	0.18	0.37

Resources

- [Guide to the NHSN Dialysis Event Surveillance Bloodstream Infection \(BSI\) Standardized Infection Ratio \(SIR\) Measure](#)
- **SIR Guide**
 - [NHSN SIR Guide](#) (in depth guide)
 - [Guide to the NHSN Dialysis Event Surveillance BSI SIR Measure](#) (quick reference guide)
- **Dialysis Surveillance Reports**
 - [National Healthcare Safety Network \(NHSN\) Dialysis Event Surveillance Report for 2014](#)
 - [A Six-Year Follow-Up of Bloodstream Infections in Hemodialysis Facilities in the United States, National Healthcare Safety Network, 2020 - PubMed](#)
- [Dialysis Component-NHSN-CDC](#)

Resources Continued...

- [Submit a ticket to Service Now](#)
- **Contact NHSN**
 - NHSN@cdc.gov
- **John Keenan**
 - TNY5@cdc.gov

Thank You

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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

