National Healthcare Safety Network (NHSN) - Dialysis Component Training – Unveiling Insights: The Journey of NHSN Data in Public Health

Austin Woods, B.S.
Chenega Enterprise Systems and Solutions (ChESS)
Contractor for the National Healthcare Safety Network (NHSN), CDC

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Overview

NHSN Outpatient Dialysis Component continues to support the advancement of healthcare quality promotion by collecting Events, Vaccination, Facility Survey, and COVID-19 data among patients (in-center, home, & peritoneal dialysis) and dialysis facilities nationwide.

- **Importance of Healthcare Reporting - How Is Your Data Utilized by CDC and NHSN?**
  - Description of reporting and data for COVID-19, HAI, and Facility Survey forms
  - Ensure the most pertinent data are collected for research and surveillance
  - Reduce reporting burden on facilities when possible
  - Continuous monitoring of any essential data (infections, cases, deaths, etc.)

- **Value of Healthcare Reporting in Public Health Research Efforts**
  - Outline the various public health research studies and initiatives that would be impossible without the help of reporting facilities

Recognition of Reporting Efforts

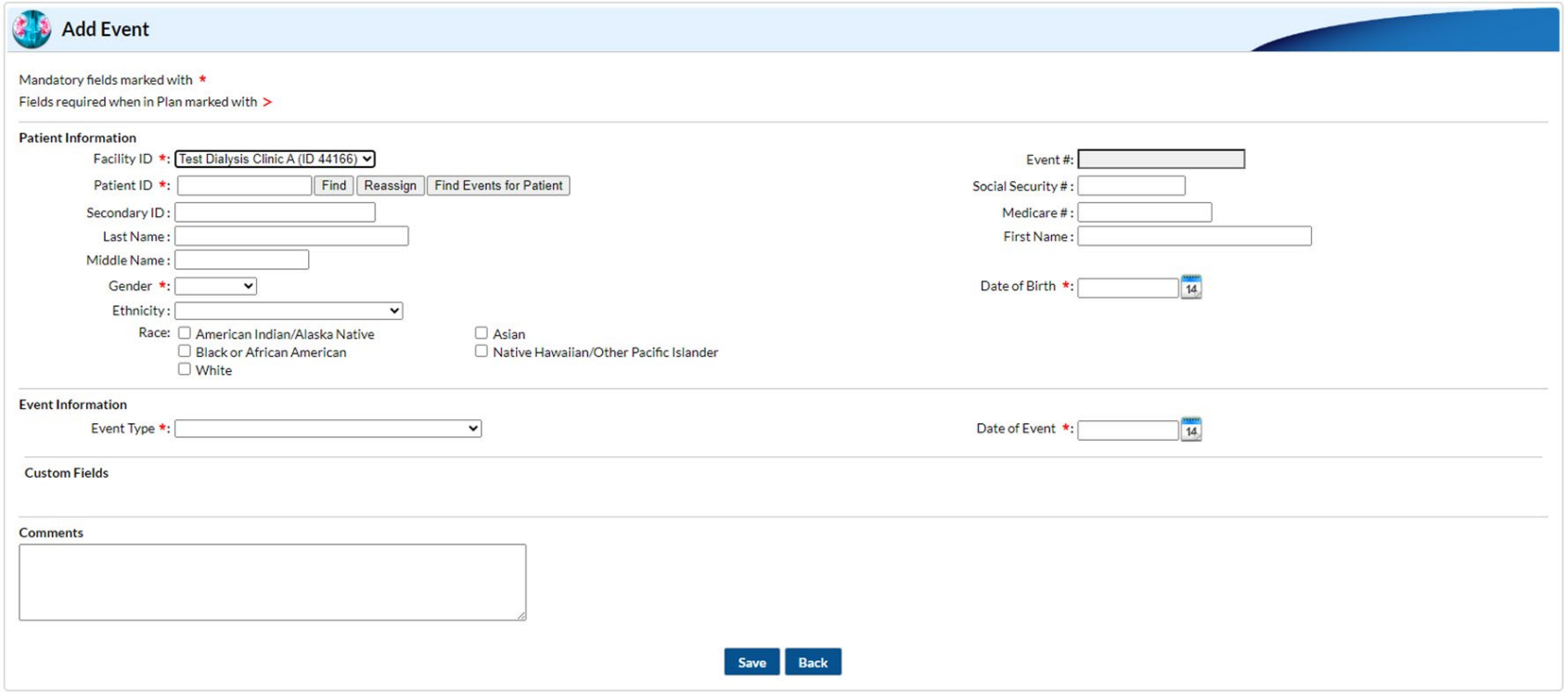
Role of NHSN in Healthcare Surveillance

Recognition of Reporting Efforts

- **Reporting Efforts across NHSN**
  - It is imperative and necessary to give thanks to all facilities that have reported and continue to report to the NHSN Outpatient Dialysis Component.
  - This national-level surveillance and the dedication of the various users of NHSN is integral to the advancement of healthcare quality promotion in the United States.

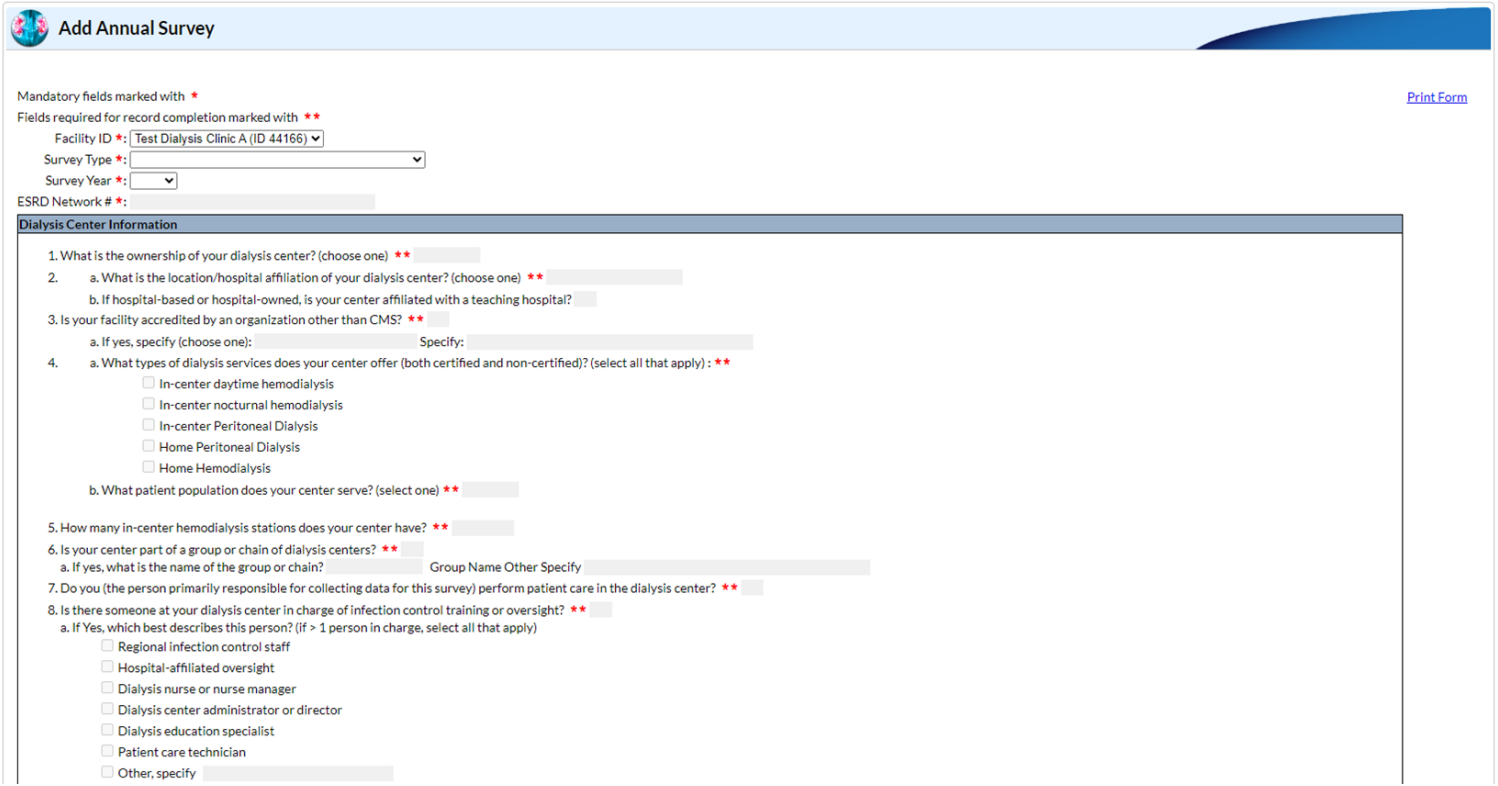
- **Notable Statistics**
  - Amount of active enrolled facilities as of June 2024: **7,791**
  - Total count of unique dialysis events reported from January 2023 to present: **137,191**
  - Total amount of dialysis patients with data reported to the NHSN Dialysis Component: **545,693**
  - Total facility-weeks of reported data in the COVID-19 Infection Module: **987,205**
  - Total number of unique COVID-19 cases among dialysis patients reported to NHSN: **176,362**

Dialysis Events



- **In 2023, a total of 6,885 dialysis facilities of the 7,791 enrolled reported**

Annual Survey



Add Annual Survey

Mandatory fields marked with *

Fields required for record completion marked with **

Print Form

Facility ID *: Test Dialysis Clinic A (ID 44166)

Survey Type *:

Survey Year *:

ESRD Network # *:

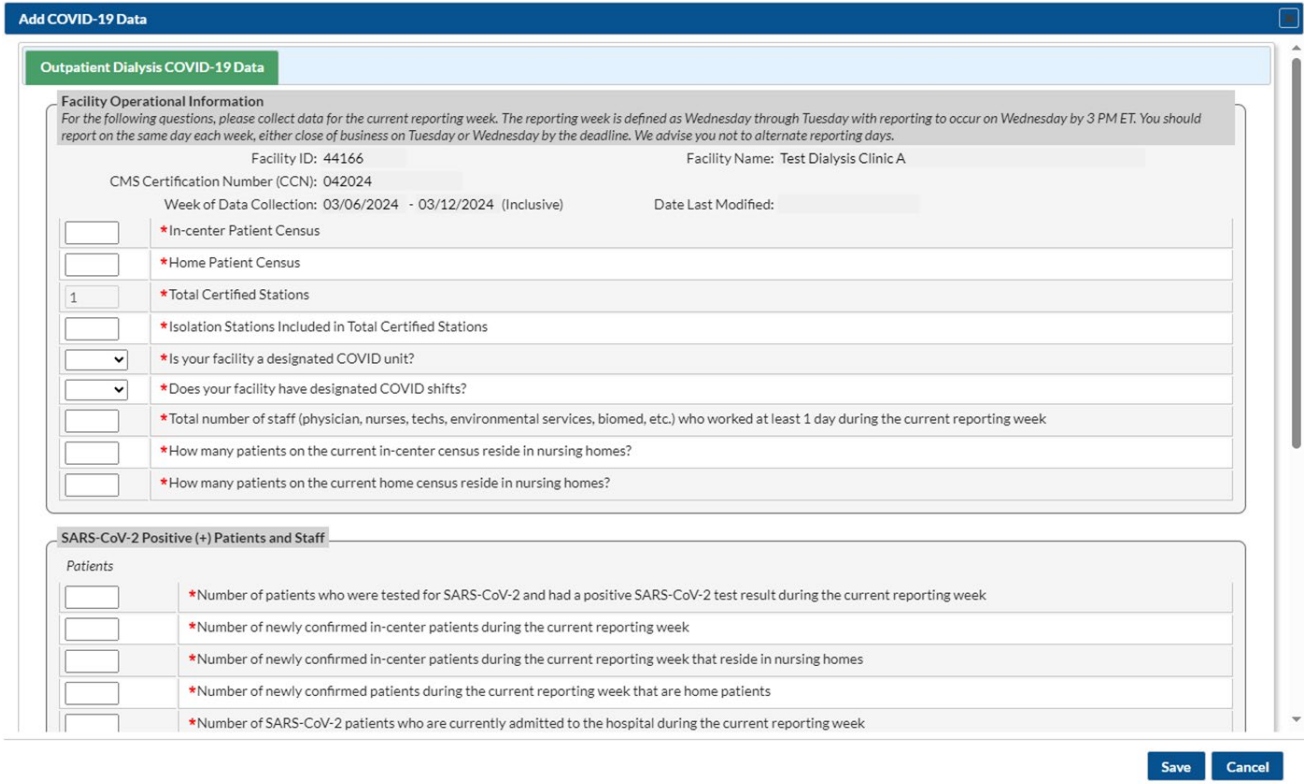
Dialysis Center Information

1. What is the ownership of your dialysis center? (choose one) **
2. a. What is the location/hospital affiliation of your dialysis center? (choose one) **
   b. If hospital-based or hospital-owned, is your center affiliated with a teaching hospital?
3. Is your facility accredited by an organization other than CMS? **
   a. If yes, specify (choose one): Specify:
4. a. What types of dialysis services does your center offer (both certified and non-certified)? (select all that apply) : **
   - In-center daytime hemodialysis
   - In-center nocturnal hemodialysis
   - In-center Peritoneal Dialysis
   - Home Peritoneal Dialysis
   - Home Hemodialysis

   b. What patient population does your center serve? (select one) **
5. How many in-center hemodialysis stations does your center have? **
6. Is your center part of a group or chain of dialysis centers? **
   a. If yes, what is the name of the group or chain? Group Name Other Specify
7. Do you (the person primarily responsible for collecting data for this survey) perform patient care in the dialysis center? **
8. Is there someone at your dialysis center in charge of infection control training or oversight? **
   a. If Yes, which best describes this person? (if > 1 person in charge, select all that apply)
   - Regional infection control staff
   - Hospital-affiliated oversight
   - Dialysis nurse or nurse manager
   - Dialysis center administrator or director
   - Dialysis education specialist
   - Patient care technician
   - Other, specify

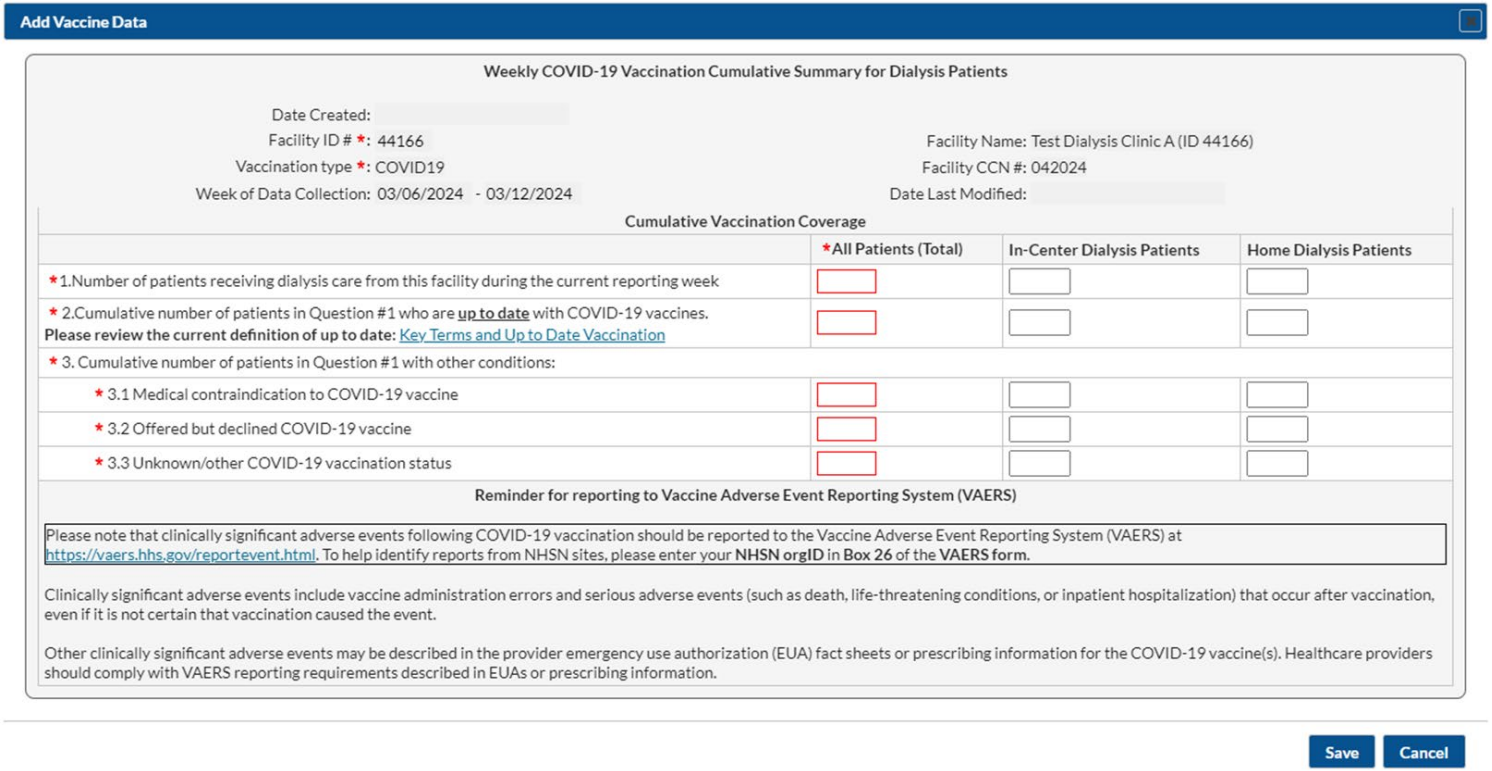
- **In 2023, a total of 7,114 dialysis facilities of the 7,791 enrolled reported**

COVID-19 Infection



- **In 2023, a total of 7,474 dialysis facilities of the 7,791 enrolled reported**

COVID-19 Vaccination



Add Vaccine Data

Weekly COVID-19 Vaccination Cumulative Summary for Dialysis Patients

Date Created:
Facility ID # *: 44166
Vaccination type *: COVID19
Week of Data Collection: 03/06/2024 - 03/12/2024

Facility Name: Test Dialysis Clinic A (ID 44166)
Facility CCN #: 042024
Date Last Modified:

Cumulative Vaccination Coverage

	*All Patients (Total)	In-Center Dialysis Patients	Home Dialysis Patients
*1.Number of patients receiving dialysis care from this facility during the current reporting week			
* 2.Cumulative number of patients in Question #1 who are up to date with COVID-19 vaccines. **Please review the current definition of up to date:** Key Terms and Up to Date Vaccination			
* 3. Cumulative number of patients in Question #1 with other conditions:			
* 3.1 Medical contraindication to COVID-19 vaccine			
* 3.2 Offered but declined COVID-19 vaccine			
* 3.3 Unknown/other COVID-19 vaccination status			

Reminder for reporting to Vaccine Adverse Event Reporting System (VAERS)

Please note that clinically significant adverse events following COVID-19 vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) at https://vaers.hhs.gov/reportevent.html. To help identify reports from NHSN sites, please enter your **NHSN orgID** in **Box 26** of the **VAERS form.**

Clinically significant adverse events include vaccine administration errors and serious adverse events (such as death, life-threatening conditions, or inpatient hospitalization) that occur after vaccination, even if it is not certain that vaccination caused the event.

Other clinically significant adverse events may be described in the provider emergency use authorization (EUA) fact sheets or prescribing information for the COVID-19 vaccine(s). Healthcare providers should comply with VAERS reporting requirements described in EUAs or prescribing information.

Save Cancel

- **In 2023, a total of 7,565 dialysis facilities of the 7,791 enrolled reported**

Value of Healthcare Reporting in Public Health Research Efforts

Role of NHSN in Healthcare Surveillance

Impact of Healthcare Reporting on Research

- **Value of Healthcare Reporting in Public Health Research Efforts**
  - Outline the various public health research studies and initiatives that would be impossible without the help of reporting facilities
  - Multiple studies published by CDC have come directly from the data reported by NHSN users and have been instrumental in advancing public health understanding – especially with regards to HAI's, COVID-19 cases, and COVID-19 vaccination.

- **Studies Utilizing NHSN Data Published by CDC**
  - *SARS-CoV-2 Infection and Death Rates Among Maintenance Dialysis Patients During Delta and Early Omicron Waves — United States, June 30, 2021–September 27, 2022*
    - Navarrete et al., 2023
  - *Vital Signs: Health Disparities in Hemodialysis-Associated Staphylococcus aureus Bloodstream Infections — United States, 2017–2020*
    - Rha et al., 2023
  - *Disparities in COVID-19 Vaccination Status Among Long-Term Care Facility Residents — United States, October 31, 2022–May 7, 2023*
    - Haanschoten et al., 2023
  - *Influenza and Up-to-Date COVID-19 Vaccination Coverage Among Health Care Personnel — National Healthcare Safety Network, United States, 2022–23 Influenza Season*
    - Bell et al., 2023

Highlighted Study – Navarrete et al., 2023

Morbidity and Mortality Weekly Report

SARS-CoV-2 Infection and Death Rates Among Maintenance Dialysis Patients During Delta and Early Omicron Waves — United States, June 30, 2021–September 27, 2022

Jose Navarrete, MD[1,2]; Gregory Barone, MPH[2,3]; Iram Qureshi, MPH[2,4]; Austin Woods[2,5]; Kira Barbre, MPH[2,6]; Lu Meng, PhD[2]; Shannon Novosad, MD[2]; Qunna Li, MSPH[2]; Minn Minn Soe, MBBS[2]; Jonathan Edwards, MStat[2]; Emily Wong, MPH[2]; Hannah E. Reses, MPH[2]; Sydney Guthrie, MPH[2,6]; John Keenan, PhD[2,6]; Leticia Lamping[2,5]; Meeyoung Park, MPH[7]; Sorie Dumbuya, MPH[7]; Andrea L. Benin, MD[2]; Jeneita Bell, MD[2]

Abstract

Persons receiving maintenance dialysis are at increased risk for SARS-CoV-2 infection and its severe outcomes, including death. However, rates of SARS-CoV-2 infection and COVID-19–related deaths in this population are not well described. Since November 2020, CDC's National Healthcare Safety Network (NHSN) has collected weekly data monitoring incidence of SARS-CoV-2 infections (defined as a positive SARS-CoV-2 test result) and COVID-19–related deaths (defined as the death of a patient who had not fully recovered from a SARS-CoV-2 infection) among maintenance dialysis patients. This analysis used NHSN dialysis facility COVID-19 data reported during June 30, 2021–September 27, 2022, to describe rates of SARS-CoV-2 infection and COVID-19–related death among maintenance dialysis patients. The overall infection rate was 30.47 per 10,000 patient-weeks (39.64 among unvaccinated patients and 27.24 among patients who had completed a primary COVID-19 vaccination series). The overall death rate was 1.74 per 10,000 patient-weeks. Implementing recommended infection control measures in dialysis facilities and ensuring patients and staff members are up to date with recommended COVID-19 vaccination is critical to limiting COVID-19–associated morbidity and mortality.

- During the Delta and first Omicron waves, the infection rate among vaccinated patients was **lower** than that among unvaccinated patients, and during the first Omicron wave, the infection rate was **lower** among patients who had received a monovalent booster dose than among those who had not.
- Results highlight the need for dialysis patients and staff members to stay up to date with primary COVID-19 vaccine and booster dose recommendations.

Highlighted Study – Rha et al., 2023

Morbidity and Mortality Weekly Report

Vital Signs: Health Disparities in Hemodialysis-Associated *Staphylococcus aureus* Bloodstream Infections — United States, 2017–2020

Brian Rha, MD[1]; Isaac See, MD[1]; Lindsay Dunham, MPH, MSDA[1]; Preeta K. Kutty, MD[1]; Lauren Moccia, MA[1]; Ibironke W. Apata, MD[1,2]; Jennifer Ahern, PhD[3]; Shelley Jung, PhD[3]; Rongxia Li, PhD[1]; Joelle Nadle, MPH[4]; Susan Petit, MPH[5]; Susan M. Ray, MD[6]; Lee H. Harrison, MD[7,8]; Carmen Bernu, MPH[9]; Ruth Lynfield, MD[9]; Ghinwa Dumyati, MD[10]; Marissa Tracy, MPH[10]; William Schaffner, MD[11]; D. Cal Ham, MD[1]; Shelley S. Magill, MD, PhD[1]; Erin N. O'Leary, MPH[1]; Jeneita Bell, MD[1]; Arjun Srinivasan, MD[1]; L. Clifford McDonald, MD[1]; Jonathan R. Edwards, MStat[1]; Shannon Novosad, MD[1]

Abstract

On February 6, 2023, this report was posted as an MMWR *Early Release on the* MMWR *website (https://www.cdc.gov/mmwr).*

Introduction: Racial and ethnic minorities are disproportionately affected by end-stage kidney disease (ESKD). ESKD patients on dialysis are at increased risk for *Staphylococcus aureus* bloodstream infections, but racial, ethnic, and socioeconomic disparities associated with this outcome are not well described.

Methods: Surveillance data from the 2020 National Healthcare Safety Network (NHSN) and the 2017–2020 Emerging Infections Program (EIP) were used to describe bloodstream infections among patients on hemodialysis (hemodialysis patients) and were linked to population-based data sources (CDC/Agency for Toxic Substances and Disease Registry [ATSDR] Social Vulnerability Index [SVI], United States Renal Data System [USRDS], and U.S. Census Bureau) to examine associations with race, ethnicity, and social determinants of health.

Results: In 2020, 4,840 dialysis facilities reported 14,822 bloodstream infections to NHSN; 34.2% were attributable to *S. aureus*. Among seven EIP sites, the *S. aureus* bloodstream infection rate during 2017–2020 was 100 times higher among hemodialysis patients (4,248 of 100,000 person-years) than among adults not on hemodialysis (42 of 100,000 person-years). Unadjusted *S. aureus* bloodstream infection rates were highest among non-Hispanic Black or African American (Black) and Hispanic or Latino (Hispanic) hemodialysis patients. Vascular access via central venous catheter was strongly associated with *S. aureus* bloodstream infections (NHSN: adjusted rate ratio [aRR] = 6.2; 95% CI = 5.7–6.7 versus fistula; EIP: aRR = 4.3; 95% CI = 3.9–4.8 versus fistula or graft). Adjusting for EIP site of residence, sex, and vascular access type, *S. aureus* bloodstream infection risk in EIP was highest in Hispanic patients (aRR = 1.4; 95% CI = 1.2–1.7 versus non-Hispanic White [White] patients), and patients aged 18–49 years (aRR = 1.7; 95% CI = 1.5–1.9 versus patients aged ≥65 years). Areas with higher poverty levels, crowding, and lower education levels accounted for disproportionately higher proportions of hemodialysis-associated *S. aureus* bloodstream infections.

Conclusions and implications for public health practice: Disparities exist in hemodialysis-associated *S. aureus* infections. Health care providers and public health professionals should prioritize prevention and optimized treatment of ESKD, identify and address barriers to lower-risk vascular access placement, and implement established best practices to prevent bloodstream infections.

- During 2020, 4,840 dialysis facilities (68.2% of 7,097 reporting to NHSN that year) reported 14,822 bloodstream infections, 34.2% were attributable to *S. aureus*.
- Results highlight the need for healthcare providers and public health professionals should prioritize prevention and optimized treatment of ESKD, identify and address barriers to lower-risk vascular access placement, and implement established best practices to prevent bloodstream infections.

Discussion and Questions

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