

DIALYSIS IN NURSING HOMES

Infection Prevention & Care Standards

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Developed by

NC SPICE

Statewide Program for
Infection Control & Epidemiology

Jessica Ramey MSI, CIC
Infection Prevention Clinical Consultant
UNC College of Medicine
Global Health and Infectious Disease

Assisted Home Dialysis in the United States

1960s

First Home Dialysis

Boston: Twin-coil dialyzers were used in the home for 5 hours twice a week in 4 male patients assisted by their wives and occasionally attended by a physician or nurse.

Paid aide demonstration

Paid aide utilization for assisted home dialysis.

Changes prompt decline in home dialysis

Home dialysis declines due to a variety of reasons: primitive technology, high rates of peritoneal dialysis, increase in the number of End-Stage Renal Disease (ESRD) patients with complex comorbidities, and changes in dialysis funding by Medicare.

1970s

Rise of Peritoneal dialysis

Continuous cycling peritoneal dialysis (CCPD): a machine cycles the dialysate in and out of the abdomen, removing the need for bag exchanges and allowing for nocturnal treatments. Increase in peritoneal dialysis leads to a further decline in home hemodialysis.

HIC on Notice

February 1988: Healthcare Financing Administration requested its Medicare carriers evaluate appropriateness of their Method II payment rates for home dialysis equipment. The average monthly cost was \$856. Home Intensive Care, Inc. average billing was \$3124.

October 1988: Blue Cross/Blue Shield notified HIC \$1625 would be the monthly limit for home dialysis services, effective Jan 1, 1989. HIC and National Kidney Patients Association file lawsuit.

1980s

1990s

2000s

Renewed interest in home dialysis

New advances in technology helped automate the process and expanded availability of a variety of effective home dialysis treatment options.

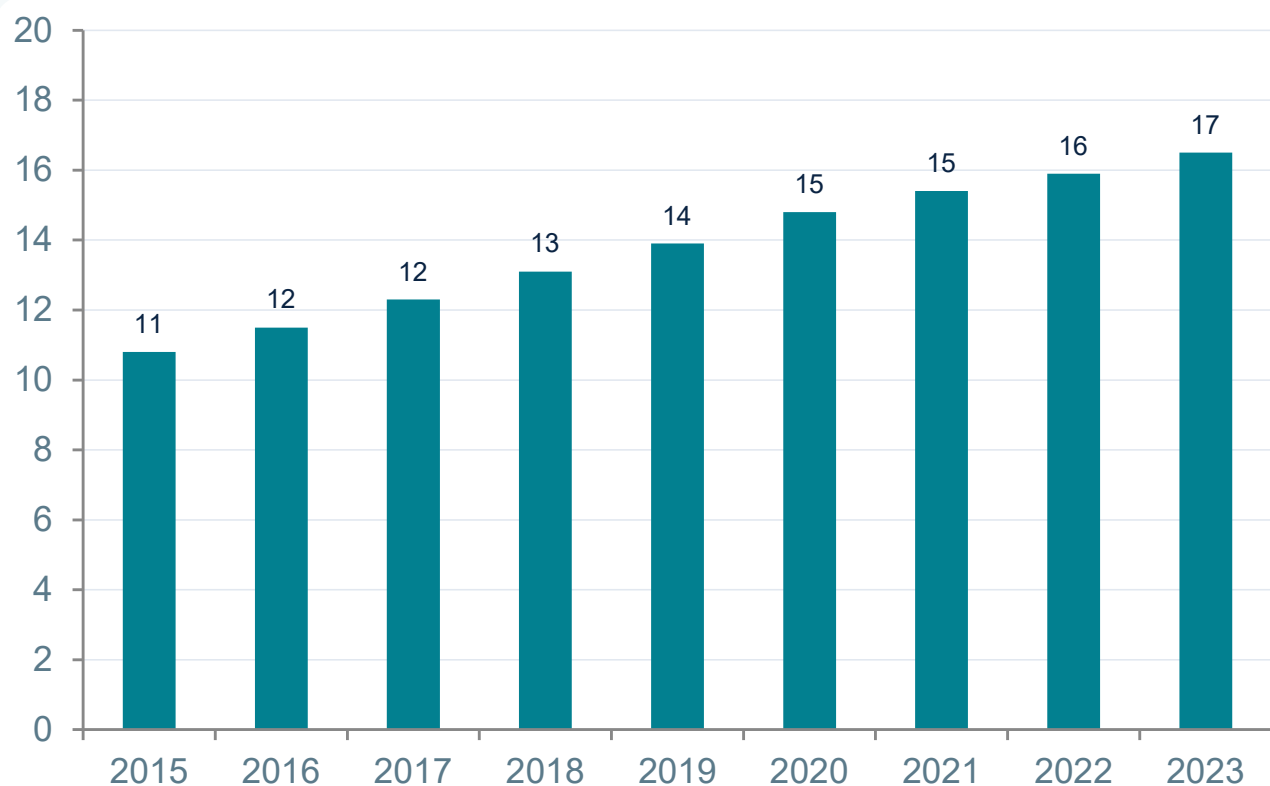
2020s

Assisted home dialysis programs

Satellite Healthcare and Kaiser Permanente assisted home dialysis pilot programs.

Home Dialysis Trends: National Data

USRDS Annual Data Report — End-Stage Renal Disease



16.5%

home dialysis share in 2023

+53%

growth since 2015

Source: USRDS Annual Data Report 2025 — usrds-adr.niddk.nih.gov

Dialysis in Nursing Homes — By the Numbers

The scale of this patient population

15%

of dialysis patients are
admitted to a SNF annually

5K–10K

SNF residents receive
on-site dialysis at any time

HIGH

burden of comorbidities
& specialized care needs



Bedside Model

Dialysis performed directly at the resident's bedside
within the nursing facility



Den Model

A dedicated dialysis space within the nursing home
— like a mini-dialysis center on-site

CMS Classification: Home Dialysis in a Nursing Home

Regulatory framework & treatment model

 CMS classifies nursing home dialysis under HOME DIALYSIS — the SNF is treated as the patient's home



ESRD Facility Role

A Medicare-certified ESRD facility oversees and administers the dialysis program



Staff Training

ESRD facility trains either their own staff OR nursing home staff to perform treatments



Resident Benefit

Residents receive the same quality care standards as a freestanding dialysis center

Nursing Home Dialysis: Resident Benefits

Why on-site dialysis improves quality of life



Scheduling Flexibility

No transportation windows — treatment fits the resident's routine, not the other way around



No Transport Required

Eliminates risky, tiring trips to dialysis centers multiple times per week



Reduced Exposure

Fewer contacts with outside facilities means lower infection risk from external environments



Care Continuity

SNF and dialysis teams communicate directly, enabling faster response to complications

Nursing Home Dialysis Challenges

Why infection prevention demands extra vigilance



Elevated Infection Risk —

Dialysis patients face higher infection risk in ANY setting — complex vascular access + immunocompromised status



Complex Equipment —

Dialysis machines are difficult to clean thoroughly and require multi-step disinfection protocols



Lack of Physical Barriers —

SNF environments may not have purpose-built separation between dialysis patients



Tight Schedules —

Time pressure between treatment slots can compress sanitation and preparation steps



Multi-Step IP Procedures —

Infection prevention requires complex, sequential steps — every missed step creates risk



Maintain schedules

Allows residents to maintain care, rehabilitation, appointment, meal, and activity schedules.



Reduce cardiac-related hospitalizations¹

Reduces or eliminates unnecessary hospitalizations and ER trips, which can positively impact skilled nursing facility star ratings.



Enhanced care coordination

Improves patient care coordination between the skilled nursing facility staff and dialysis care team.



Helps to mitigate risk

Mitigates the potential for mishaps such as patient falls and slips.



Lowers transportation costs

Decreases dialysis-related transportation expenses and time spent on transportation logistics.



Differentiates facilities

Differentiates your skilled nursing facility's services.

Benefits of More Frequent Home Hemodialysis

AI-informed literature review on resident outcomes in skilled nursing facilities

Residents receiving more frequent home hemodialysis (typically 5 weekly treatments per prescription) in a skilled nursing facility have shown improved outcomes



Improved Clinical Outcomes

- Improved survival
- Reduced hospitalizations
- Shorter dialysis recovery time



Additional Health Benefits

- Fewer blood pressure medications needed
- Improved symptoms of depression

Nursing Home Dialysis Protocols

42 CFR 494.30–494.100 requirements

Protocols must be equivalent to standards in a freestanding dialysis facility



Infection Control

Procedures per 42 CFR
494.30



Patient Assessment

Individualized evaluation



Plans of Care

Dialysis-specific care plans



Home Dialysis Care

Adapted home-setting
protocols



Emergency Preparedness

Response & continuity
planning

Collaborative Care Plan Example: Infection Prevention

Template framework for dialysis residents

CARE AREA	GOAL	INTERVENTIONS	RESPONSIBLE PARTY
Vascular Access Care	Prevent BSI at access site	Inspect site; aseptic technique; document any redness/discharge	Dialysis Staff / SNF Nurse
Hand Hygiene	100% compliance before/after care	Soap & water or alcohol-based rub; education reminders posted	All Clinical Staff
Equipment Sanitation	No cross-contamination between patients	Wipe down machine surfaces; disinfect between sessions per protocol	Dialysis Technician
Infection Surveillance	Early detection of BSI/exit-site infections	Monitor access sites; report temperature spikes; NHSN reporting	Charge Nurse / ESRD RN

ESRD Survey Process for Nursing Home Dialysis

Core survey tasks across three phases



PHASE 1 At ESRD Facility (Before NH Visit)

- Review policies & protocols
- Staff credentials & training records
- Quality improvement data
- Equipment maintenance logs



PHASE 2 At the Nursing Home

- Observe machine preparation
- Observe dialysis initiation
- Vascular access care
- Discontinuation practices
- Environmental inspection



PHASE 3 At ESRD Facility (After NH Visit)

- Reconcile observations
- Review care coordination records
- Evaluate quality of SNF-ESRD collaboration
- Document findings

ESRD Survey: Direct Observations

What surveyors look for at the nursing home



Machine Preparation

Safe setup, equipment checks, chlorine testing, water treatment



Initiation of Dialysis

Proper priming, connection technique, aseptic practices



Vascular Access Care

Access inspection, infection prevention measures, documentation



Discontinuation

Safe needle removal, hemostasis, post-treatment monitoring

ESRD Tip Sheet: Home Dialysis in a Nursing Home

AHCA overview of CMS QSO-18-24-ESRD guidance for nursing homes



Care at Home Provisions

Training, monitoring, and support services for residents receiving home dialysis



Survey Process Activities

ESRD surveyors evaluate machine setup, vascular access, and treatment initiation



Written Agreements

Defines ESRD facility and nursing home responsibilities for dialysis care



Policies & Procedures

Joint ESRD/nursing home policies for infection control and care planning



Qualifications & Training

Staff administering dialysis must be trained and competency-verified



Coordination of Care

On-call schedules, care plans, and QAPI participation between facilities

Resources: QSO-18-24-ESRD (Revised 3/22/2023) — Summary of Updated Guidance for Home Dialysis Furnished in Nursing Facilities

ESRD Infection Prevention: Condition V585

Key deficiency triggers surveyors evaluate



Condition V585 — Infection Control Precautions: Unsanitary or unsafe conditions that may be associated with a dialysis treatment

- 1 Blood spots, spills, or uncontained infectious wastes present during or after treatment
- 2 Dirty dialysis equipment or dirty dialysate containers
- 3 Dialysis supplies stored near contamination sources
- 4 Insufficient space between resident treatment areas to prevent cross-contamination
- 5 Inadequate space to provide personal privacy or deliver emergency care

Infection Control Technique Lapses

Common deficiencies observed during nursing home dialysis surveys



Observed lapses in infection control technique may include, but are not limited to:

- Improper hand hygiene or glove use
- Supplies taken to the individual dialysis location but not disposed of, disinfected, or dedicated to that resident after use
- Clean dialysis supplies not protected from potential contamination
- Lapses in aseptic practices for CVC, AV fistula/graft care, or PD catheter care
- Inadequate disinfection of dialysis equipment after treatment
- Improper disposal of infectious waste and effluent
- Staff not wearing appropriate personal protective equipment for the procedure
- Lack of aseptic technique during medication administration, such as drawing saline flush syringes from single-use containers or bags

Effective Use of Dialysis Equipment

Conditions V585 & V593 — Key compliance areas

Equipment Condition (V585)

- Equipment in poor repair — missing components or non-functional alarms
- Rusted or degraded machine components that could compromise patient safety
- Portable water treatment units lacking two carbon tanks
- Missing sample port between carbon tanks (does not apply to pre-configured systems)

Chlorine Testing Requirements (V593)

- No documentation of chlorine testing after each new dialysate batch (SAK) for pre-configured systems
- Resident receiving HD but total chlorine test not performed before treatment start
- Missing or incomplete chlorine test records as applicable to equipment in use
- Testing records must be current and available for surveyor review

Dialysis Equipment Used in Home Dialysis Programs

Devices supporting on-site hemodialysis and water treatment for residents



Water Treatment & Dialysate Monitoring

Core survey review items for water treatment and dialysate quality

Records should be kept both by the ESRD facility and the LTC facility

- 1 Total chlorine
- 2 Product water conductivity/TDS
- 3 Product water chemical analysis
- 4 Microbial surveillance of water
- 5 Microbial surveillance of dialysate

Converting Space for On-Site Dialysis

Renovation progress at a partnering long-term care facility



Before



During Renovation



After

ICRA: Infection Control Risk Assessment

A high-level overview for healthcare construction and renovation projects



What Is ICRA?

A proactive risk assessment conducted before any construction, renovation, or repair project in a healthcare facility



When It's Required

Any project affecting air quality, water systems, dust, vibration, or noise near patient care areas



The ICRA Process

A multidisciplinary team (infection prevention, facilities, and clinical staff) assesses risk and assigns precautions before work begins



Why It Matters

Prevents construction-related infections — airborne (e.g., *Aspergillus*) and waterborne (e.g., *Legionella*) — during active projects

CDC Dialysis Safety Tools

Free infection prevention resources — cdc.gov/dialysis-safety

Infection Control Assessment

- Infection Control Assessment and Response (ICAR) Tool for Hemodialysis Facilities — evaluates infection prevention practices and identifies gaps (English & Spanish)
- Environmental Surface Disinfection Notes — disinfectant selection, procedures, and training guidance

Core Interventions Audit Tools

- Checklists and audit tools for catheter care, exit-site care, and AV fistula/graft cannulation
- Dialysis station disinfection, injection safety, and hand hygiene audit tools

Provider Education

- Posters, pocket guides, and conversation starters (English & Spanish)
- Videos demonstrating bloodstream infection prevention best practices

Patient Resources

- Brochures and infographics on hand hygiene outside the facility
- Factsheets on dialysis access care for patients and caregivers

CDC Audit Tool: Catheter Connection & Disconnection

Sample observation checklist from CDC's Dialysis Safety core interventions

CDC Dialysis Collaborative Facility Name: _____ Date: _____ Start time: _____ AM / PM
Day: M W F Tu Th Sa Shift: 1st 2nd 3rd 4th Observer: _____ Location within unit: _____

Audit Tool: Catheter connection and disconnection observations
(Use a "✓" if action performed correctly, a "Φ" if not performed. If not observed, leave blank)

Procedure observed, C=connect, D=disconnect	Discipline	Mask worn properly (if required)	Hand hygiene performed	New clean gloves worn	Catheter removed from blood line aseptically (disconnection only)	Catheter hub scrubbed	Hub antiseptic allowed to dry	Catheter connected to blood lines aseptically (connection only)	New caps attached aseptically (after disconnecting)	Gloves removed	Hand hygiene performed

Discipline: P=physician, N=nurse, T=technician, S=student, O=other

Duration of observation period = _____ minutes

Number of procedures performed correctly = _____

Total number of procedures observed during audit = _____

ADDITIONAL COMMENTS/OBSERVATIONS:



National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion



Source: CDC Dialysis Safety – Core Interventions Audit Tools (cdc.gov/dialysis-safety)

CDC Audit Tool: Catheter Exit Site Care

Sample observation checklist from CDC's Dialysis Safety core interventions

CDC Dialysis Collaborative Facility Name: _____ Date: _____ Start time: _____ AM / PM
Day: M W F Tu Th Sa Shift: 1st 2nd 3rd 4th Observer: _____ Location within unit: _____

Audit Tool: Catheter exit site care observations
(Use a "✓" if action performed correctly, a "Φ" if not performed. If not observed, leave blank)

Discipline	Mask worn properly (if required)	Hand hygiene performed	New clean gloves worn	Skin antiseptic applied appropriately	Skin antiseptic allowed to dry	No contact with exit site (after antiseptics)	Antimicrobial ointment applied	Dressing applied aseptically	Gloves removed	Hand hygiene performed	Comments

Discipline: P=physician, N=nurse, T=technician, S=student, O=other
Duration of observation period: _____ minutes Number of procedures performed correctly = _____
Total number of procedures observed during audit = _____

ADDITIONAL COMMENTS/OBSERVATIONS:



Source: CDC Dialysis Safety – Core Interventions Audit Tools (cdc.gov/dialysis-safety)

CDC Audit Tool: Dialysis Station Disinfection

Sample observation checklist from CDC's Dialysis Safety core interventions

Facility Name: _____ Observer: _____
Date: _____ Day: M W F Tu Th Sa Shift: 1st 2nd 3rd 4th Start time: _____ AM / PM

Audit Tool: Hemodialysis station routine disinfection observations*

(Use a "✓" if action performed correctly, a "Φ" if not performed/ performed incorrectly. If not observed, leave blank. All applicable actions within a row must have "✓" for the procedure to be counted as successful.)

*This audit tool applies when there is no visible soil on surfaces at the dialysis station. If visible blood or other soil is present, surfaces must be cleaned prior to disinfection.

Discipline	All supplies removed from station and prime bucket emptied	Gloves removed, hand hygiene performed	Station is empty before disinfection initiated ^{**}	New clean gloves worn	Disinfectant applied to all surfaces and prime bucket	All surfaces are wet with disinfectant	All surfaces allowed to dry	Gloves removed, hand hygiene performed	No supplies or patient brought to station until disinfection complete

Discipline: P=physician, N=nurse, T=technician, S=student, O=other

Duration of observation period: _____

Number of procedures performed correctly = _____

Total number of procedures observed during audit = _____

ADDITIONAL COMMENTS/OBSERVATIONS:

** Ensure the patient has left the dialysis station before disinfection is initiated.



National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion



Source: CDC Dialysis Safety – Core Interventions Audit Tools (cdc.gov/dialysis-safety)

NC SPICE Dialysis Resources

Tools and support available to North Carolina facilities

Training & Education

- NC Infection Control Curriculum for Hemodialysis Settings (10A NCAC 41A .0206)
- SPICE offers a state-approved infection prevention course — required for designated IP staff
- Each noncontiguous facility must designate an IP-trained individual

ICAR Assessment

- NC SPICE IP consultants offer on-site ICAR (Infection Control Assessment and Response) visits
- Free resource for facilities wanting a gap assessment

NHSN Reporting

- Dialysis facilities reporting to NHSN complete an annual Outpatient Dialysis Center Practices Survey
- Survey responses accessible in NHSN or can be printed for surveyor review in advance

Ask SPICE

- Infection prevention questions? Submit to spice.unc.edu/ask-spice/
- Quick expert guidance from the NC SPICE team

NC SPICE Dialysis Letter & Flyer

Outreach flyer: ICAR assessment program for hemodialysis facilities

INFECTION CONTROL ASSESSMENT and RESPONSE (ICAR) FOR HEMODIALYSIS FACILITIES



***ICAR tools are
used to
systematically
assess a
healthcare
facility's IPC
practices and
guide quality
improvement***

Introducing:
An 18 month collaborative between N.C. Department of Health and Human Services (NCDHHS) and N.C. Statewide Program for Infection Control and Epidemiology (SPICE).
Funded by CDC, under the American Rescue Plan Act of 2021 to support a broad range of healthcare infection prevention and control (IPC) activities.

Provide the following:

- A consultative, onsite infection control assessment.
- An exit summary of findings.
- A site visit summary report with available resources.
- Additional educational opportunities based on findings (at facilities request).

To request a visit or for more information:
<http://spice.unc.edu/ask-spice>

Request a visit or learn more: spice.unc.edu/ask-spice

UNC SPICE Infection Prevention and Control Assessment Tool for Hemodialysis Facilities

Assessment domains reviewed at each facility

This tool is intended to assess a dialysis facility's infection control program and practices across the following domains:

- 1 Infection Control Program and Infrastructure
- 2 Infection Control Training, Competency, and Audits
- 3 Healthcare Personnel (HCP) Safety
- 4 Surveillance and Disease Reporting
- 5 Respiratory Hygiene/Cough Etiquette
- 6 Personal Protective Equipment (PPE)
- 7 Environmental Cleaning
- 8 Dialyzer Reuse and (if applicable) Reprocessing
- 9 Hand Hygiene
- 10 Catheter and other Vascular Access Care
- 11 Injection Safety

To complete the assessment, direct observation of infection control practices will be necessary.

NC SPICE Direct Observations for Dialysis

CDC core interventions reviewed during on-site infection control visits

The following core interventions are assessed through direct observation at the dialysis station:

- 1 Hand Hygiene
- 2 Catheter Connection, Disconnection and Exit Site Care
- 3 AV Cannulation
- 4 Injectable Medication Preparation and Administration
- 5 Disinfection of Dialysis Station

Source: CDC Dialysis Safety – Core Interventions Audit Tools (cdc.gov/dialysis-safety)

IPRO ESRD Network 6 South Atlantic (NC, SC and GA)

CMS-designated ESRD Network Program serving Georgia, North Carolina, and South Carolina



Regional Coverage

Serves about 51,000 dialysis patients across 769 Medicare-certified facilities in GA, NC, and SC, including 6 VA hospitals and 10 transplant centers



Patient Resources

Grievance investigation, treatment education, peer mentoring, patient portal access, transplant comparison tools, and a toll-free line (800-238-3773)



Facility Resources

Quality improvement guidance, EQRS/NHSN/QIP data reporting support, and staff consultation on patient services and administration



Quality Improvement Focus

Initiatives targeting bloodstream infections, long-term catheter use, and hospitalization reduction across the region

Learn more: esrd.ipro.org/about-our-networks/about-us/network-of-the-south-atlantic/

Key Resources & References

Links for further learning and compliance guidance



CMS QSO-18-24-ESRD (Revised 2023)

cms.gov/files/document/qso-18-24-esrd-revised-2023-03-22.pdf



CMS Survey & Cert Guidance — Home Dialysis in NH

cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/...



IPro ESRD — NH Collaborative Care Plan Template

esrd.ipro.org/.../T12-Dialysis-NH-Collab-Care-Plan-Final.pdf



ESRD Network Hand-Off Communication Tool

esrd.ipro.org/.../Dialysis-and-Nursing-Home-Hand-Off-Communication-Tool.pdf



CDC ICAR Tool for Dialysis Facilities

cdc.gov/infectioncontrol/pdf/icar/dialysis.pdf



USRDS Annual Data Report 2025 — Home Dialysis

usrds-adr.niddk.nih.gov/2025/end-stage-renal-disease/3-home-dialysis



NC SPICE Hemodialysis Curriculum

spice.unc.edu



ESRD Network 6 (GA, NC, SC) — News & Updates

esrd.ipro.org/blog/category/network-6/



Questions?

We're here to help NC facilities deliver safe, high-quality dialysis care.

NC SPICE

spice.unc.edu | spice.unc.edu/ask-spice/



Jessica Ramey
MSI, CIC

UNC College of Medicine
Global Health & Infectious Disease
NC SPICE