



REDUCING NEEDLE STICKS AND PRESERVING BLOOD VESSELS IN PEOPLE WITH CHRONIC KIDNEY DISEASE

A Patient- and Clinician-Informed Call to Action



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Executive Summary

For people with chronic kidney disease (CKD) and end-stage kidney disease (ESKD), preserving healthy veins is essential to ensuring long-term dialysis access, reducing complications, and improving outcomes.

Yet vein preservation remains inconsistently prioritized across healthcare settings, particularly outside nephrology care. Findings from clinician and patient focus groups reveal communication gaps, inconsistent practices, inadequate training, and system-level barriers that contribute to avoidable vascular injury and compromised access options.

This white paper summarizes the key themes emerging from these discussions and outlines practical opportunities for healthcare systems, professional societies, policy-makers, and patient advocacy organizations to improve vein preservation education, clinical practice, and care coordination across the CKD continuum.

Introduction

Vascular access is a lifeline for many individuals living with kidney failure. However, repeated venipuncture, unnecessary or incorrect IV placement, and poor coordination across healthcare settings can compromise future dialysis access options and contribute to complications including thrombosis, aneurysms, infections, and failed fistula maturation and function.

While nephrology clinicians recognize the importance of vein preservation, current approaches remain highly variable and largely dependent on individual provider practices, institutional culture, and patient self-advocacy. Patients often learn through experience — sometimes after adverse events — how to protect their access and preserve viable veins for future treatment.

To better understand the lived experiences, challenges, and opportunities surrounding vein preservation, the National Kidney Foundation conducted focus groups with both clinicians and patients with ESKD. The findings reveal a shared recognition that current systems are insufficient and that sustainable improvement requires coordinated education, workflow redesign, patient empowerment, and policy change.

Key Findings

1. Vein Preservation Is Universally Viewed as Important — But Inconsistently Prioritized

Both clinicians and patients consistently described vascular access preservation as essential to long-term survival and quality of care. Clinicians frequently referred to the dialysis access arm as a patient's "lifeline," emphasizing the devastating consequences that can occur when veins are damaged unnecessarily.

Despite this recognition, vein preservation often becomes secondary to immediate clinical tasks, especially in emergency departments, inpatient units, surgery settings, and acute care scenarios. Clinicians described environments where workflow pressures and urgent clinical demands overshadow long-term vascular planning.

Patients similarly reported that many healthcare professionals focus narrowly on completing tasks rather than understanding the broader implications of vein health for future dialysis access.

2. Patients Frequently Bear the Burden of Protecting Their Own Access

One of the strongest themes across patient discussions was the need for constant self-advocacy. Many participants described situations where they had to actively stop clinicians from placing IVs or performing blood pressure measurements or blood draws on their access arm.

Patients reported learning, often over many years, how to protect their access through experience, peer support, and guidance from dialysis nurses and technicians rather than formal educational systems.

Several patients described emotional exhaustion associated with balancing self-advocacy while also attempting not to offend healthcare staff. Others explained that they no longer prioritize provider feelings when protecting their vascular access because the consequences of access failure fall entirely on the patient.

What patients emphasized most:

- The importance of being heard by clinicians
- The value of experienced staff familiar with dialysis access
- The need for providers to explain procedures and involve patients in decision-making
- The critical role of patient education and peer mentorship

3. Education Around Vein Preservation Is Limited and Non-Standardized

Clinicians acknowledged that patient education around vein preservation is often brief, informal, and inconsistent. Most education occurs verbally during nephrology encounters or dialysis visits, with few standardized materials or structured curricula available.

Education gaps were identified at multiple levels:

Patient Education Gaps	Clinician Education Gaps
Patients may struggle to absorb vein preservation guidance due to: • Cognitive impairment • Health literacy challenges • Overwhelm associated with advanced CKD • Competing medical priorities • Difficulty anticipating future dialysis needs	Provider knowledge varies widely, especially outside nephrology-focused settings. Training is often: • Informal • Ad hoc • Nurse-focused • Dependent on experienced nephrology staff • Absent from fellowship curricula Participants specifically noted that nephrology fellows often receive little formal education on limb preservation strategies.

4. Communication and Coordination Failures Across Care Settings Create Significant Risk

Clinicians and patients alike identified transitions of care as major points of vulnerability for inappropriate needle sticks and access-related harm.

High-risk settings include:

- Emergency departments
- Intensive care units
- Surgical admissions
- Hospital transfers
- Non-nephrology outpatient settings
- Commercial diagnostic laboratories

Clinicians shared examples where inappropriate IV placement resulted in fistula thrombosis and cancellation of planned access surgeries.

Patients similarly reported limited coordination between providers and noted that they themselves often become the primary communicator across healthcare settings.

These failures are amplified by:

- Staff turnover
- Workflow fragmentation
- Limited interoperability
- Shift-based care models
- Lack of ownership over vein preservation responsibilities

5. Experienced Staff and Structured Workflows Improve Outcomes

Patients consistently identified experienced nurses and dialysis technicians as critical to positive vascular access experiences. These providers were perceived as more likely to:

- Listen to patient preferences
- Examine access carefully before cannulation

- Use appropriate needling techniques
- Rotate sites appropriately
- Prevent infiltrations and aneurysms

Operational strategies that appear effective:

- EHR alerts and limb restriction documentation
- Wristbands and room signage
- Nurse task lists and checklists
- Vascular access teams
- Structured handoffs
- Routine access assessments and monitoring

Participants repeatedly emphasized that embedding vein preservation into workflow systems increases accountability more effectively than relying solely on verbal communication.

Strategic Opportunities for Improvement

1. Standardize Vein Preservation Education Across the CKD Continuum

Priority action: Create a consistent education framework that introduces vein preservation early and reinforces it throughout the CKD journey.

- Vein preservation basics
- Access protection strategies
- Self-advocacy techniques
- Preparing for blood draws and hospitalizations
- Patient rights and communication strategies

Recommended delivery methods:

- Videos
- Printed materials
- Peer-led support

- Digital integration into patient portals and EHR systems
- Multilingual resources
- Reinforcement at multiple points of care

2. Expand Provider Training Beyond Nephrology Settings

Priority action: Broaden training beyond nephrology so frontline staff across care settings understand how to protect future dialysis access.

Educational efforts should target:

- Emergency department staff
- ICU clinicians
- Hospital nurses
- Phlebotomists
- Surgical teams
- Infusion centers
- Diagnostic laboratories

Training should emphasize:

- CKD-specific vascular preservation principles
- Communication with patients
- Proper access assessment
- Importance of avoiding unnecessary venipuncture
- Long-term consequences of vascular injury

Professional societies could play a central role in developing competency standards, certifications, and clinical guidance.

3. Integrate Vein Preservation into Clinical Workflow Infrastructure

Priority action: Build vein preservation directly into workflows so teams do not have to rely on memory or ad hoc communication.

Participants strongly supported system-based approaches that lower the “activation energy” required to preserve veins. Potential strategies include:

- Automated EHR alerts triggered by CKD stage
- Limb preservation order sets
- Central line checklists
- Mandatory nephrology consultation for advanced CKD patients
- Standardized documentation templates
- Vascular access incident reporting systems
- Expanded vascular access teams

4. Empower Patients as Partners in Vein Preservation

Priority action: Treat patients as active partners by giving them the tools, language, and support to protect their vascular health.

Patients should be recognized as essential members of the care team and supported in becoming effective advocates for their vascular health. Programs should promote:

- Peer mentorship
- Self-cannulation education when appropriate
- Patient-centered communication
- Shared decision-making
- Greater transparency during procedures

Participants repeatedly emphasized that patients often become the most reliable safeguard against inappropriate needle sticks. Supporting that role proactively may significantly reduce preventable vascular injury.

5. Advance Policy and Quality Improvement Initiatives

Priority action: Align policy, quality improvement, and measurement efforts so vein preservation becomes a recognized system priority.

Current kidney care policy frameworks rarely address vein preservation directly. Based on focus group findings, the National Kidney Foundation identified opportunities to:

- Incorporate vein preservation into CKD quality improvement initiatives
- Engage CMS and the CMS Innovation Center
- Leverage QIN-QIO infrastructure
- Develop formal guidances or practice guidelines
- Expand ESRD Network involvement
- Consider the creation of quality measures related to vascular preservation practices

Broader policy efforts should shift beyond modality awareness alone and emphasize the practical foundations necessary for long-term kidney care success, including early access planning and vascular preservation.

Conclusion

The findings from these clinician and patient focus groups underscore an urgent need to elevate vein preservation as a core component of CKD and ESKD care. While awareness exists within nephrology settings, current approaches remain fragmented, inconsistent, and overly dependent on patient self-advocacy.

Preventing avoidable vascular injury requires coordinated action across healthcare systems, professional education, clinical workflows, patient engagement, and policy infrastructure. Standardized training, embedded workflow supports, improved communication, and patient empowerment represent critical opportunities to improve outcomes and preserve future access options for individuals living with kidney disease.

Vein preservation is not simply a technical issue. It is foundational to patient safety, long-term treatment success, and preserving quality of life for people living with CKD and ESKD.

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