

Adoption and Persistence of Expanded Hemodialysis in ESKD Patients

Eric Weinhandl^{a,b}, Scott Sibbel^a, Darin Bradley^a, Jeffrey Giullian^a, Steven M. Brunelli^a, Francesca Tentori^a

^aDaVita Inc., Denver, Colorado; ^bDepartment of Pharmaceutical Care and Health Systems, University of Minnesota, Minneapolis, Minnesota



Introduction and Objective

- Most patients with end-stage kidney disease (ESKD) in the United States are treated with thrice weekly in-center hemodialysis (ICHD). Modern dialyzers are extremely efficient at removing small (<500 Da) water-soluble toxins like urea (60 Da), which readily diffuse across the dialyzer membrane. Despite achieving adequate dialysis by this measure, outcomes for patients treated with ICHD remain poor, with high rates of complications, hospitalizations, and mortality.¹
- There is currently heightened focus in the United States on increasing clearance of middle molecules, such as β 2-microglobulin (β 2M), myoglobin, and κ - and λ - free light chains. C-reactive protein (CRP), a pentameric protein larger than albumin, is measured as an index of systemic inflammation.^{2,3}
- Two therapies known to increase clearance of middle molecules are available, including hemodiafiltration and expanded hemodialysis (HD) using a medium cut off dialyzer.⁴ One key advantage of the latter approach is relatively simple implementation, for it requires only a change in dialyzer, rather than changes in equipment or clinic workflow.
- Although logistical implementation of expanded HD is relatively simple, the tolerability of the therapy has not been well characterized in a US population. Additionally, increased clearance of middle molecules could theoretically result in unwanted depletion of some solutes, resulting in biochemical derangements or symptoms that lead to discontinuation of expanded HD.
- There is no large-scale data in a US population describing adoption and persistence of expanded HD in patients undergoing in-center HD for treatment of end-stage kidney disease (ESKD). We wanted to test the feasibility and tolerability of an expanded HD program at a large dialysis organization.

Methods

- Beginning in summer 2025, 33 dialysis clinics were identified that were of requisite size, geographically positioned within supply lines, and whose medical directors expressed interest in implementing dialyzers with expanded HD.
- The governing body of each clinic approved switching the formulary dialyzer to an expanded hemodialyzer (in two sizes).
- The quality initiative began in October 2025.
- Patients in these clinics were followed forward in time passively using existing clinical data streams and their dialyzer use pattern was observed.
- Discontinuation of expanded HD was defined as 6 consecutive treatments with high-flux HD. The 6-treatment rule was designed to account for temporary supply disruptions. Isolated ultrafiltration treatments and sequential ultrafiltration dialysis treatments did not count towards the rule because expanded hemodialyzers are not indicated for such treatments.

Results

Figure 1: Point Prevalent Use of Expanded HD

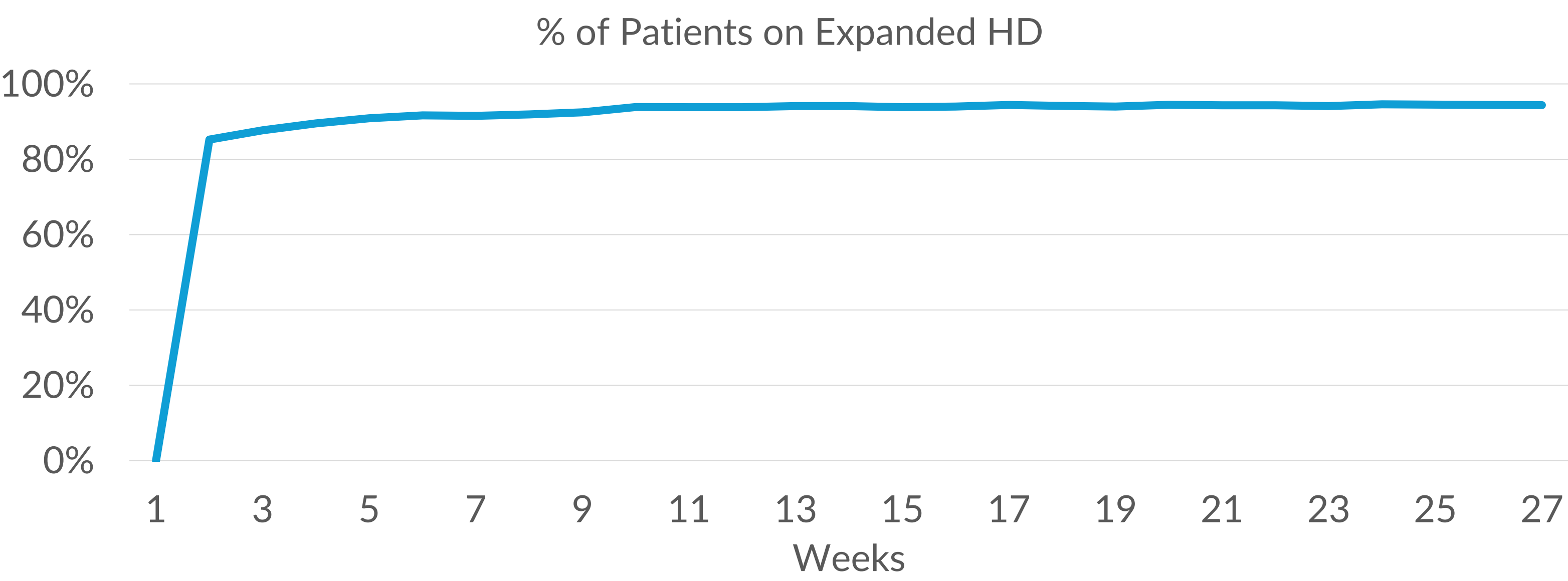


Table 1: Reasons for Non-adoption

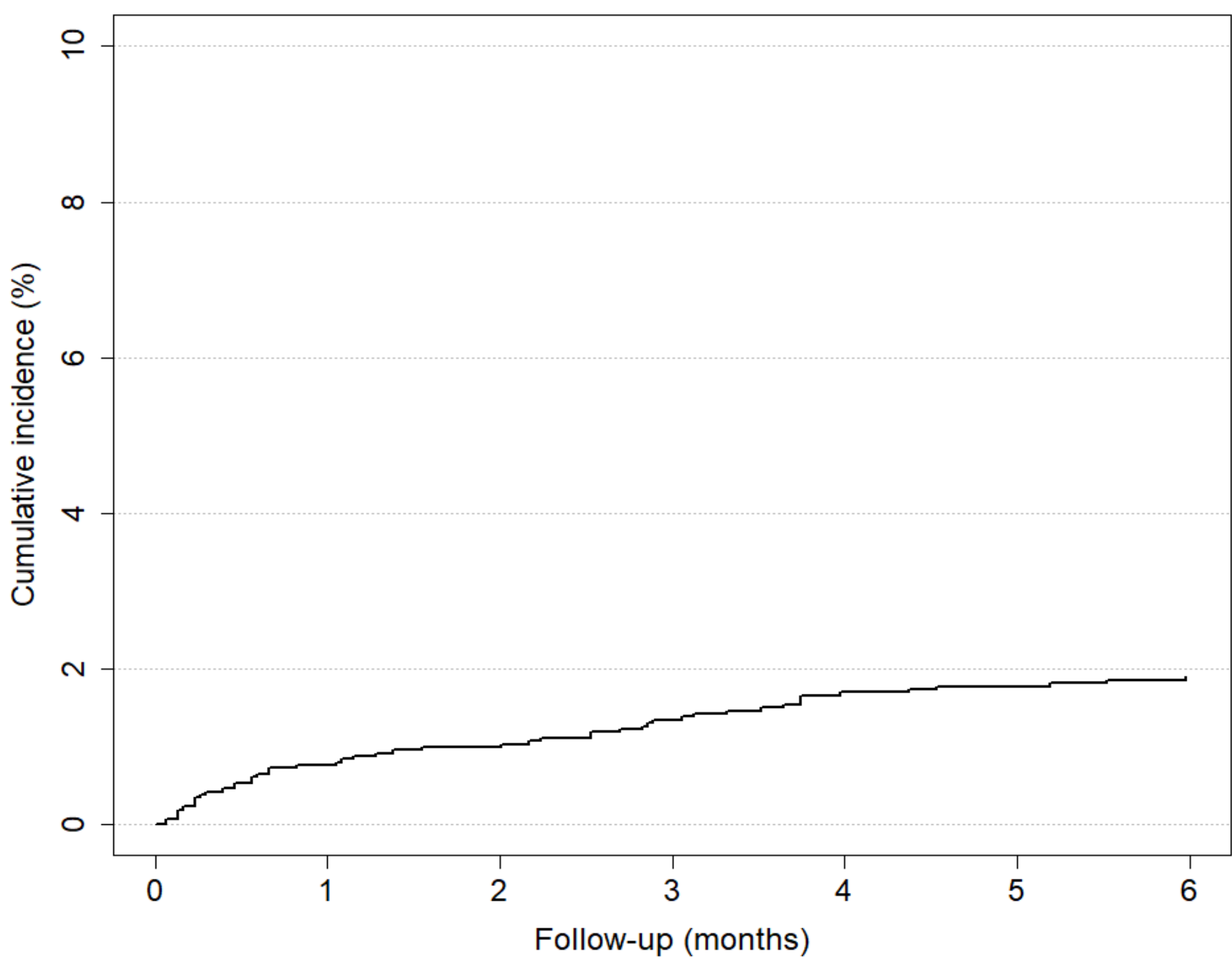
Among patients who did not adopt the therapy (N=86), reasons provided were acute kidney injury, allergy to dialyzer, low albumin, and other (Table 1).

Reasons for Not Adopting	% of Non-adopting Patients
Acute kidney injury*	36.4
Allergy to dialyzer	13.6
Low albumin	10.2
Other	39.8

*Indication not cleared by US Food and Drug Administration.

- Adoption of the expanded hemodialyzer was quick at participating clinics following program initiation. Most patients (>85%) made the switch within the first month; by month 3, 90% of patients were dialyzing with expanded HD (Figure 1).
- Seven months into the expanded HD program, >90% of patients included in the initiative were still using expanded HD and >2,900 patients had dialyzed with expanded HD. Additionally, more than 195,000 treatments have been delivered since program inception.
- Of patients who initiated expanded HD, we found that an overwhelming percentage continued the modality. The cumulative incidence of discontinuation over the first 6 months was 1.9% (Figure 2).

Figure 2: Cumulative Incidence of Discontinuation of Expanded HD



Conclusions

Expanded HD with a medium cut off dialyzer is easy for clinics to implement and is well tolerated by patients over a 6-month period.

References & Acknowledgements

1. Vanholder R, et. al; European Uremic Toxin Work Group (EUTox). Review on uremic toxins: classification, concentration, and interindividual variability. *Kidney Int.* 2003 May;63(5):1934-43.
2. Vanholder R, Pletinck A, Schepers E, Glorieux G. Biochemical and Clinical Impact of Organic Uremic Retention Solutes: A Comprehensive Update. *Toxins (Basel).* 2018 Jan 8;10(1):33.
3. Wolley M, Jardine M, Hutchison CA. Exploring the Clinical Relevance of Providing Increased Removal of Large Middle Molecules. *Clin J Am Soc Nephrol.* 2018 May 7;13(5):805-814.
4. Weiner DE, et. al. Efficacy and Safety of Expanded Hemodialysis with the Theranova 400 Dialyzer: A Randomized Controlled Trial. *Clin J Am Soc Nephrol.* 2020 Sep 7;15(9):1310-1319.

We specifically acknowledge Kathryn Husarek of DaVita, Inc. for editorial contributions in preparing this poster.

Correspondence: Eric.Weinhandl@davita.com.

Presented at the 40th Annual Meeting of the International Society of Blood Purification (ISBP) in October 2026, Rome, Italy.



40th ANNUAL MEETING OF THE
INTERNATIONAL SOCIETY OF BLOOD
PURIFICATION

