Practice Guidelines for the Management of End Stage Renal Disease

MVP Health Care®, as part of its continuing Quality Improvement Program, adopted guidelines for End Stage Renal Disease (ESRD) based on the National Kidney Foundation's Kidney Disease Outcome Quality Initiative (NKF KDOQI™).

Statistics – Morbidity & Mortality

According to the United States Renal Data System's (USRDS) Annual Report 2023:

- In 2022, 96.3% of patients receiving HD and 92.6% receiving PD attained their standard Kt/V targets (Figure 3.1a).
- Serum albumin levels were, on average, higher among patients receiving HD than among patients receiving PD (Figure 3.1b). Among the patients receiving HD, nearly half (49.2%) achieved a serum albumin level ≥4.0 g/dL whereas nearly 1 in 8 (11.8%) had a level <3.5 g/dL. Among the patients receiving PD, 28.7% had an albumin level ≥4.0 g/dL but nearly as many (27.5%) had a level <3.5 g/dL.
- Among patients receiving HD, the percentage with hemoglobin (Hb) ≥12.0 g/dL grew from 13.7% in 2013 to 14.3% in 2022 while the percentage of patients with Hb <9.0 g/dL grew from 5.5% to 8.7% (Figure 3.1c). Patients receiving PD tended to have higher hemoglobin levels than those receiving HD, but the percentage with Hb <9.0 g/dL increased from 6.3% in 2013 to 8.1% in 2022.
- In 2022, the mean hemoglobin concentration was 10.7 g/dL in patients receiving HD and 10.9 g/dL in patients receiving PD; changes from 2013 to 2022 were minimal (Figure 3.2).
- Receipt of erythropoiesis stimulating agents (ESAs) changed little from 2018 to 2022, but receipt was much higher among patients receiving HD than among those receiving PD (Figure 3.3a). In January 2022, for example, 77.1% of patients on HD received an ESA, compared with 56.3% of patients on PD in the first quarter of 2022.
- There was a particularly abrupt drop in mean epoetin alfa dose that occurred in 2021 among patients receiving HD, such that the mean monthly dose in 2022 was 37,823 units, or fully 14% lower than the mean monthly dose of 43,965 units in 2016 (Figure 3.4). In contrast, monthly darbepoetin doses increased over this period in both dialysis modalities. Mean pegylated epoetin beta doses were stable among patients receiving PD, but decreased by 8% among patients receiving HD.
- In the subset of ESA-treated patients, mean hemoglobin levels changed little from 2016 to 2022 (Figure 3.5). Mean levels in the fourth quarter of 2022 were 10.4 g/dL for patients receiving HD and 10.3 g/dL for patients receiving PD.
- Patterns of iron receipt over time varied by dialysis modality (Figure 3.6a). Among patients on HD, 66.7% received iron in 2018; the percentage then dropped to 63.2% in

2020 before increasing substantially, to 69.3%, in 2022. In contrast, there was a steady increase in iron receipt among patients on PD, from 36.1% in 2018 to 40.5% in 2022.

- The mean monthly dose of intravenous (IV) iron between 2016 and 2022 was relatively constant (Figure 3.7). In 2022, the mean monthly dose was 206 mg among patients on HD and 183 mg among patients on PD.
- In 2022, 19.2% of patients on HD and 25.3% of patients on PD had serum ferritin <500 ng/mL and transferrin saturation (TSAT) <30% (Figure 3.8).
- Among Medicare fee-for-service (FFS) patients receiving dialysis in 2021, 22.8% received at least one blood transfusion (Figure 3.9).
- In January 2014, 16.1% of patients receiving HD had an ultrafiltration rate ≥13.0 mL/hr/kg, but by January 2022, that percentage had fallen to 9.0% (Figure 3.10a). Over the same period, the percentage of patients with a rate <7.0 mL/hr/kg increased from 38.8% to 45.9%.
- From 2014 to 2022, HD treatment session durations shortened: in January 2014, 67.1% had session durations <4.0 hours; in contrast, in 2022, 70.6% had session durations <4.0 hours.
- Among patients receiving PD with recorded, nonzero urine volumes in 2022, mean urine volume was approximately 1.15 L in patients with ESRD duration <1 year and 0.86 L in patients with ESRD duration ≥5 years (Figure 3.11a).
- Use of loop diuretics was most common among patients with the shortest ESRD duration (Figure 3.11b). For example, in the fourth quarter of 2021, 39.5% of patients on HD with ESRD duration <1 year and 55.4% of patients on PD with ESRD duration <1 year were prescribed loop diuretics, compared with only 11.1% (HD) and 19.6% (PD) of patients with ESRD duration ≥5 years.
- Among patients receiving HD, the percentage with serum calcium <8.4 mg/dL increased from 10.9% in 2016 to 13.9% in 2022, whereas the percentage with serum calcium >10.2 mg/dL decreased from 3.5% to 2.4% (Figure 3.12). Among patients receiving PD, the percentage with calcium <8.4 mg/dL in 2022 was 13.8%, up from 8.9% in 2016; the percentage with calcium >10.2 mg/dL fell from 5.3% to 2.9%.
- Phosphate control generally worsened from 2016 to 2022 (Figure 3.13). Among patients receiving HD, the percentage of patients with phosphorous ≥6.5 mg/dL increased from 19.4% to 23.6%; corresponding percentages for PD were 20.7% and 26.4%.
- Correspondingly, there was a decrease in the use of oral phosphate binders: whereas approximately two-thirds of patients on dialysis used a phosphate binder during each quarter from 2011 to 2013, use decreased thereafter to 60.1% by the fourth quarter of 2021 (Figure 3.14a).

- From 2011 to 2021, use of calcimimetics increased, from 22.8% of patients in the first quarter of 2011 to 32.3% of patients in the last quarter of 2021 (Figure 3.14b). Use of vitamin D receptor activators (VDRAs) decreased from 72.3% of patients in the first quarter of 2017 to 65.0% in the fourth quarter of 2021 (Figure 3.14c).
- In 2011, 70.5% of Medicare FFS beneficiaries on dialysis received the influenza vaccine in the outpatient setting; receipt peaked at 77.4% in 2020 before declining to 70.5% in 2021 (Figure 3.15). In 2021, outpatient vaccine administration was consistently lower in Black (65.5%) than in White (72.3%), Hispanic (73.2%), and Asian (77.9%) individuals.
- The percentage of Medicare FFS beneficiaries with diabetes as the cause of ESRD who received indicted tests (hemoglobin A1c test, lipid test, and diabetes eye exam) dropped substantially from 2019 to 2020, and there was no compelling improvement in 2021 (Figure 3.16). In 2019, only one-third of patients received all three tests annually; this dropped to 25.7% in 2020 before increasing marginally to 26.7% in 2021.

Racial, Ethnic and Socioeconomic Disparities

In this year's report, we examined disparities in prevalence and treatment of CKD among Black and Hispanic individuals. Among younger Medicaid beneficiaries aged 18 to 64 this year, we found little disparity by race/ethnicity or by neighborhood in deprivation of medications or nephrology encounters. However, younger Medicare beneficiaries saw nephrologists less than half as often as older Medicare beneficiaries. Thus, the younger, more heavily Black, Hispanic, and lower socioeconomic status (SES) Medicaid population appeared to have considerably less access to nephrology care. In addition, there was substantial disparity among groups in receipt of a living donor kidney transplant and treatment with home dialysis.

Source:

United States Renal Data System. USRDS annual data report: Epidemiology of kidney disease in the United States. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2012. Available: Annual Data Report | USRDS

Guideline Summary

In 1997, the National Kidney Foundation began the Kidney Disease Outcome Quality Initiative (KDOQI) with a goal to create clinical management guidelines for health care professional for all stages of chronic kidney disease and related complications, from diagnosis to monitoring and management. The National Kidney Foundation has published numerous Clinical Practice Guidelines through its KDOQI process. Topics covered include:

- Acute Kidney Injury (AKI)
- Anemia
- Bone Metabolism in CKD
- Cardiovascular Disease in CKD

- Classifying Chronic Kidney Disease
- Diabetes mellitusmellitus
- Glomerulonephritis
- Hemodialysis Adequacy
- Hepatitis C
- Nutrition in CKD
- Peritoneal Dialysis Adequacy
- Transplant
- Vascular Access

For all KDOQI Guidelines for Chronic Kidney Disease (CKD) Care and KDOQI Guidelines for Dialysis Care please go to the National Kidney Foundation website at: http://www.kidney.org/professionals/kdoqi/guidelines_commentaries.cfm#.
In conjunction with these guidelines, MVP Health Care offers Case Management for members with End Stage Renal Disease who are preparing for or receiving dialysis. If you would like to refer one of your patients to the Case Management program, please call the Population Health Management Department at 866-942-7966.

This guideline is not intended to replace the role of clinical judgment by the physician in the management of this, or any other disease entity. This is an educational guideline to assist in the delivery of good medical care. All treatment decisions are ultimately up to the patient and provider. Where medication recommendations are made, please refer to each health plan's formulary for coverage considerations.

MVP Health Care updates its clinical guidelines at least every two years. The review process is also initiated when new scientific evidence or national standards are published. Practitioners are alerted via the web site and by written notices from the plan via fax or newsletter. A hard copy of the clinical guideline can be requested by calling the MVP Quality Improvement Department at **800-777-4793.**