

Outpatient Hemodialysis for Acute Kidney Injury Post-Medicare Coverage: How Are We Doing?



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In January 2017, the Centers for Medicare and Medicaid Services (CMS) implemented a new policy allowing outpatient end-stage renal disease (ESRD) facilities to furnish care for Medicare beneficiaries with acute kidney

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injury (AKI) requiring dialysis (AKI-D).¹ This change reversed a 2012 CMS rule clarification that prohibited ESRD facilities from providing dialysis for AKI. The impetus for the legislation resulting in this policy change related, in part, to a desire to expand access to outpatient dialysis care for patients with AKI-D and reduce costs associated with prolonged hospital stays necessitated only by the need for an ongoing dialysis. Before this, many patients with AKI-D remained hospitalized until they experienced recovered kidney function or until their kidney failure was declared irreversible and they were certified as having ESRD. In some cases, nephrologists found themselves under institutional pressure to certify patients as having ESRD to facilitate placement and open hospital beds. It is estimated that approximately 4%-5% of patients added to the United States Renal Data System before the policy change were misclassified as having ESRD, when they actually had AKI-D.²

Although expanding options for the treatment of AKI-D to the outpatient setting has generally been perceived favorably in the nephrology community, it has also spurred significant debate about how to best care for this patient population. In particular, there has been a reasonable concern about placing patients with AKI-D in a maintenance dialysis-centric setting with less predictable monitoring and prevalent protocols that could delay, rather than hasten, kidney recovery. To date, the effect on AKI-D outcomes of transitioning from the hospital to the outpatient setting remains unclear. Recovery rates have been reported to be between 17% and 66%, with this broad a range likely reflecting differences in patient factors as well as processes of care that are not standardized and vary widely among organizations.³

In their original research article from this issue of *Kidney Medicine*, Jordan et al⁴ shined light on longitudinal outcomes in patients with AKI-D following the 2017 CMS policy change. In this prospective cohort, the authors examined the rates of kidney recovery in adult patients with persistent AKI who required either hemodialysis (HD) or continuous kidney replacement therapy during their initial hospitalization at an academic medical center and were eligible for ongoing AKI management in outpatient dialysis units or rehabilitation facilities.⁴ In

addition, they collected and analyzed a broad array of hospitalization-related factors, including comorbidity and acute illness scores, mechanical ventilation, vasoactive support, exposure to packed red blood cell transfusions and nephrotoxic drugs, and dialysis-related hypotension, for their effects on the likelihood of kidney recovery. The rates of recovery were analyzed at 30-, 60-, and 90-day intervals after hospital discharge.

Of 111 patients with AKI-D, 41% were alive and had recovered kidney function such that kidney replacement therapy could be stopped. Of these 45 patients, 55% recovered within the first 30 days, 35% within 30-60 days, and 9% within 60-90 days following hospital discharge. Of the remaining 66 patients, 49 (74%) did not have recovered kidney function and 17 (26%) died or transitioned to hospice care. Patients who initially received HD care in rehabilitation facilities experienced kidney recovery more frequently than those in outpatient HD units. Compared with patients who had recovered kidney function, those who did not have recovered kidney function were older, had a higher burden of comorbid conditions, and had a lower baseline estimated glomerular filtration rate. Although there were no major differences in kidney recovery with regard to acute illness parameters, acute illness duration, the initial type of kidney replacement therapy, and the incidence of intradialytic hypotension, the authors did note a negative association between the number of blood transfusions required during initial hospitalization and the likelihood of kidney recovery. Patients requiring blood transfusions also tended to have higher comorbidity scores, including for anemia, on admission and were more likely to require vasoactive drugs and have a prolonged hospitalization and HD requirement than patients who did not receive transfusions. Finally, the readmission rates within 90 days were higher for patients who did not have recovered kidney function.

In summary, in this study of patients with AKI-D who survived their initial hospitalization and subsequently received HD at either a rehabilitation facility or outpatient HD unit, approximately 40% of the patients had recovered kidney function at 90 days. As noted by the authors, this is the first study to prospectively evaluate outcomes in patients with AKI-D following the 2017 CMS policy change. Although several prior single-center studies have reported the kidney recovery rates to be between 42% and 66%, all these outcomes were evaluated in patients receiving dialysis in either a long-term acute care facility or a hospital-based dialysis unit.⁵⁻⁷ Similarly, the study showed a higher incidence of kidney recovery in patients receiving HD care

in rehabilitation facilities versus those receiving HD care in outpatient HD units. Although this information was not reported as part of the study, it is conceivable that because of the nature of the setting, the patients in rehabilitation facilities or in-hospital units might have received closer monitoring of the recovery of kidney function, including more frequent laboratory evaluations, more frequent kidney provider encounters, and lower nurse-to-patient staffing ratios, compared with their counterparts in community HD units.

This study raises several issues with regard to the management of AKI-D. First, it confirms that patients with AKI-D are at risk of poor outcomes, including chronic kidney failure and death, and there remain uncertainties about which risk factors predict dialysis dependence. Although the authors were able to identify several hospitalization-related factors associated with non-recovery, they noted that they did not have access to postdischarge data, including dialysis prescriptions and frequency of monitoring and medication exposure, among other crucial clinical details, because of lack of a centralized data system. At present, per CMS, there is no regulatory requirement for reporting data on AKI-D, which is in contrast to the extensive requirements of the ESRD program. It has been suggested that the development of a national registry, similar to the United States Renal Data System but specific to AKI-D, would allow for more robust data collection and better tracking of outcomes in this population.⁸

There are also knowledge gaps pertaining to the optimal care of patients with AKI-D. A recent survey has suggested that processes for managing patients with AKI-D vary considerably across organizations, and only one-third of clinicians reported having established AKI-D-specific protocols at their outpatient facilities.³ The creation of a national data registry would help drive research by providing a larger data pool from which potentially modifiable risk factors and interventions that improve the rates of kidney recovery can be identified. Additionally, patients with AKI-D are excluded from existing Medicare oversight programs, such as the Quality Incentive Program and the 5-star program. For patients with AKI-D to be included in these and other value-based care programs, research is needed to exactly define the quality metrics for outpatient AKI care that should be included. Collecting national registry-level data would be the reasonable first step toward that effort.^{8,9}

Finally, given that a major goal of the Advancing American Kidney Health Initiative is to increase the use of home dialysis, an additional consideration is the role of home therapies in caring for patients with AKI-D. This is particularly relevant, given the increased numbers of patients with AKI-D during the coronavirus disease 2019 pandemic and greater utilization of acute peritoneal dialysis (PD) as a modality because of shortages in HD nursing staff and supplies.¹⁰ It is important to note that

Medicare currently does not cover any form of home dialysis for AKI-D. As such, there are no published data regarding recovery rates for patients with AKI-D who undergo PD, and it is possible that patients who were started on acute PD for AKI during the pandemic were misclassified as having end-stage kidney disease to facilitate placement and open hospital beds. Given that residual kidney function is better preserved with PD than with HD, it is conceivable that with appropriate monitoring, PD could be a beneficial option for patients with AKI-D.

So how are we doing with regard to outpatient dialysis care for patients with AKI-D? Four years after Medicare coverage, there remain significant knowledge gaps and ample opportunities for improvement. This study represents an important initial step toward better understanding the outcomes of patients with AKI-D who are discharged to outpatient dialysis settings. Additional research will be necessary to optimize the safety and quality of care for patients discharged from the hospital with AKI-D.

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