

Kidney Disease Education: Disparities and Opportunities to Help Increase Kidney Transplants in Patients With ESRD

Kidney disease education (KDE) services, covered by CMS for patients with stage 4 CKD, offer information on kidney disease, diet, managing comorbidities, and treatment options (eg, kidney transplantation and dialysis modalities)¹

CI, confidence interval; CCI, Charlson Comorbidity Index; CKD, chronic kidney disease; CMS, Centers for Medicare & Medicaid Services; ESRD, end-stage renal disease; HR, hazard ratio; OR, odds ratio; Q1, quartile 1; Q4, quartile 4; SDI, social deprivation index; SDOH, social determinants of health; SNAP, Supplemental Nutrition Assistance Program.

* Of all eligible patients with ESRD, 1.5% (7,838 of 519,902) received KDE. Most patients (85.6%) had stage 4 CKD with comorbidities (mean CCI score, 7.2) and received individual KDE (75.6% vs 23.1% group KDE).²

[†] Based on bivariate logistic regression analysis.²

References: 1. Kidney disease education. Medicare.gov. Accessed January 9, 2025. <https://www.medicare.gov/coverage/kidney-disease-education>. 2. Preblick R, et al. *J Am Soc Nephrol*. 2024;35(suppl 10). Kidney Week 2024 abstract TH-PO848. 3. Data on file. Sanofi; 2025.



A study evaluated the association of demographics, clinical characteristics, and SDOH with receipt of KDE among patients with ESRD^{2,*}

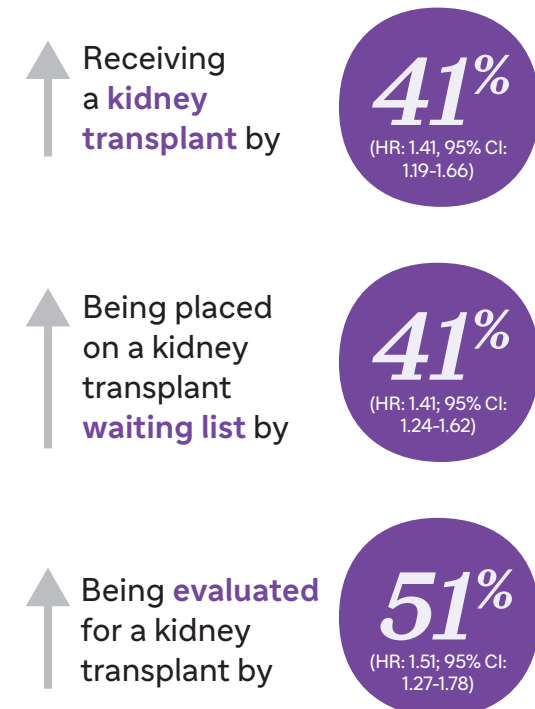
Key patient baseline characteristics associated with **decreased likelihood** of receiving KDE^{2,3}:



Not actual patients.

- **Younger adult age**
(OR: 0.92; 95% CI: 0.86-0.97 for 45-64 vs 65+ years)[†]
- **Black race**
(OR: 0.92; 95% CI: 0.87-0.97; vs White)[†]
- **Hispanic ethnicity**
(OR: 0.72; 95% CI: 0.67-0.79; vs non-Hispanic)[†]
- **Higher SDI scores**
(OR: 0.68; 95% CI: 0.64-0.73 for higher deprivation in Q4 [>81.0] vs Q1 [≤33.0])[†]
- **Public assistance income or food stamps/SNAP**
(OR: 0.66; 95% CI: 0.62-0.70 for percentage of households in Q4 [>20.83%] vs Q1 [≤7.84%])[†]
- **Unemployment**
(OR: 0.75; 95% CI: 0.70-0.81; vs retirement due to age/preference)[†]

Compared with patients who did not receive KDE, receipt of KDE **increased the likelihood** of³:



KDE was associated with increased likelihood of receiving a **kidney transplant** among appropriate patients with ESRD. However, certain **sociodemographic factors** may be associated with **lower KDE uptake** and require targeted interventions to improve KDE utilization²

To learn how to increase KDE, please contact transplant@sanofi.com.

See reverse side for additional study information and limitations ►

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Education on kidney transplantation is one of the required topics included in the KDE services.¹

1.5%

Of all eligible patients with ESRD received KDE²
(7,838 of 519,902)

>2X

Higher likelihood of receiving KDE in patients with moderate comorbidities²
(CCI score of 6-10 vs 0-5 for mild)

Study Design^{2,3}

- Retrospective cohort study used data from the Medicare-linked United States Renal Data System (USRDS), which was supplemented with neighborhood-level information from the Agency for Healthcare Research and Quality SDOH database and the American Community Survey
- The study included US patients aged ≥ 18 years who had a CMS ESRD form (CMS-2728) fill date (index date) between June 30, 2011, and September 30, 2019; an ESRD diagnosis ± 30 days of the fill date; and ≥ 1 year preindex activity, including diagnosis and medication histories
- Patients who received KDE were identified within 2 years before the index date
- Baseline period was defined as within 1 year preindex date
- The study used bivariate logistic regression to generate odds ratio and 95% CIs to assess association of patient characteristics and SDOH with receipt of KDE
- Quartiles (eg, Q1, Q4) presented for certain variables were based on the distribution of the total sample to create clinically meaningful categories
- SDI scores ranged between 1-100, with higher scores indicating higher deprivation

Study Limitations²

- Study was a retrospective analysis of the USRDS database
- Health care professionals may perform KDE but not report or bill for it
- Patients could have been offered KDE but declined; determining the proportion of patients to whom this might apply was not possible
- Study could not identify patients who received KDE > 2 years before the ESRD diagnosis; consequently, these patients may have been included in the non-KDE cohort
- Results must be interpreted with caution

References: 1. Kidney disease education. Medicare.gov. Accessed January 9, 2025. <https://www.medicare.gov/coverage/kidney-disease-education>.
2. Preblich R, et al. *J Am Soc Nephrol*. 2024;35(suppl 10). Kidney Week 2024 abstract TH-PO848. 3. Data on file. Sanofi; 2025.

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