

Racial Disparities in Preemptive Kidney Transplantation Among Adult End Stage Renal Disease (ESRD) Incident Patients, 2006-2018

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Background

- **Preemptive kidney transplants (PKT):** performed for patients diagnosed with **end-stage renal disease (ESRD)** before dialysis.
 - Preferred treatment for ESRD
 - Associated with improved quality of life and survival compared to dialysis
 - Earlier kidney transplants have better graft survival.
- High rates of chronic kidney disease (CKD), a precursor to ESRD, among racial/ethnic minority groups
 - African Americans and Hispanics have high rates of diabetes and high blood pressure, contributing to high CKD rates
- However, financial, medical, and psychosocial criteria may prevent racial and ethnic minority groups from receiving PKT

Objective

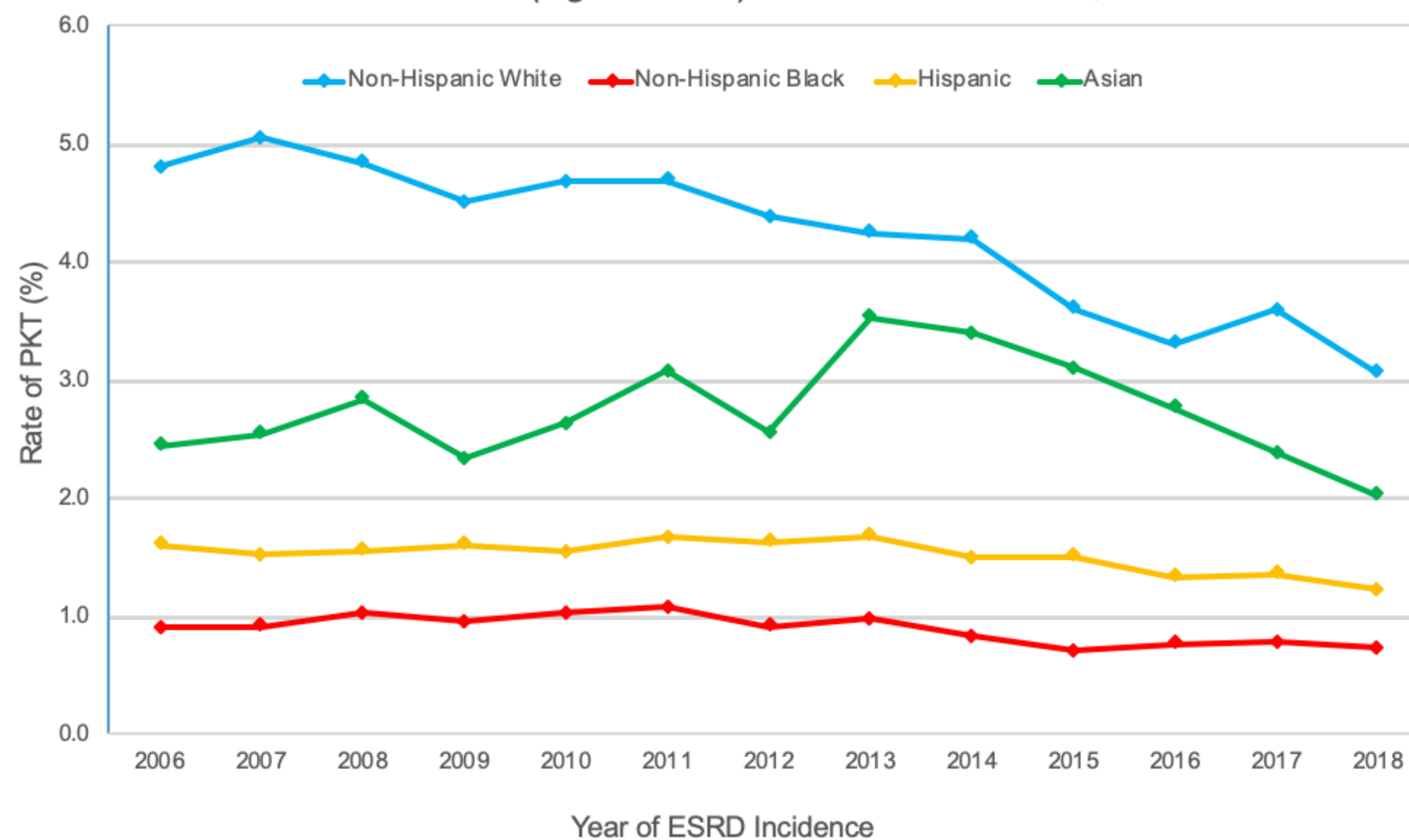
To evaluate racial disparities over time (2006-2018) among PKT recipients among all ESRD incident adult patients (ages 19-74) in the United States.

Study Design

- Retrospective analysis of ESRD-Incident patients and creation of linear regression models to evaluate and model racial and ethnic disparities in PKT.
- **Population:** US Adult ESRD-incident patients (ages 19 to 74)
 - n = 1,439,810 people
- **Study Period:** 2006-2018
- **Data Source:** ESRD Medical Evidence Form (CMS 2728)
- **Independent Variable:** Race/Ethnicity
- **Outcome:** proportion of PKT recipients
- Linear model comparing PKT rates in different racial/ethnic groups
 - Adjusted for biological/clinical factors, geography, socioeconomic (SES) factors, and access to pre-ESRD nephrology care.

Results

Rates of PKT for Different Racial and Ethnic Groups Among All ESRD-Incident Adults (Ages 19-74) in the United States, 2006-2018



Rates of PKT (%) Among Different Racial and Ethnic Groups Based on Linear Regression Models

	Non-Hispanic White	Non-Hispanic Black	Hispanic	Asian
Model 1	4.0%	1.2%	1.6%	2.5%
Model 2	4.0%	1.3%	1.8%	2.5%
Model 3	3.9%	1.4%	2.2%	2.6%
Model 4	3.7%	1.5%	2.4%	2.5%

- ❖ Model 1 adjusts for clinical factors: age, sex, BMI, primary ESRD cause, and comorbidities
- ❖ Model 2 further adjusts geography (ESRD network and states)
- ❖ Model 3 further adjusts SES factors: (employment status and insurance type)
- ❖ Model 4 further adjusts access to pre-ESRD nephrology care
- ❖ All models adjust for ESRD incident year.
- ❖ All results are statistically significant (p < 0.001)

Age-Stratified Percentage Point Differences Between PKT rates of Non-Hispanic Whites and Other Racial/Ethnic Groups

Age	Non-Hispanic Black	Hispanic	Asian
19-74	2.8	2.4	1.5
19-44	5.5	5.1	3
45-64	2.9	2.4	1.8
65-74	0.8	0.6	0.3

❖ Adjusted for clinical factors

Conclusions

- Persistent racial and ethnic disparities exist for PKT among all ESRD-incident adult patients.
 - **3.3, 2.5, and 1.6 fold-difference** and **2.8, 2.4, and 1.5 percentage point differences** between the PKT rates for NH Whites and NH Blacks, Hispanics, and Asians, respectively (Adjusted for clinical factors)
 - Racial disparities still exist after adjusting for clinical, geographical, socioeconomic, and access factors.
 - **2.5, 1.5, and 1.5 fold-difference** and **2.2, 1.3, and 1.2 percentage point difference** for PKT rates between NH Whites and NH Blacks, Hispanics, and Asians, respectively. (Model 4)
- Greater racial/ethnic disparities for younger ESRD-incident patients (age 19-44).
- Racial/ethnic disparities decrease over time; however, attenuation in disparities is due to a decrease in PKT rates for NH whites rather than meaningful increase in PKT rates for racial and ethnic minority groups.

Limitations

- Limited to data available on the ESRD Medical Evidence Form
 - Missing values for certain covariates
- Models do not consider transplant evaluation, referral, or waitlist times to PKT, etc.

Policy Implications

- Despite the effects of the ACA and implementation of the new Kidney Allocation System (2014), racial/ethnic disparities still exist for PKT.
- July 2019 Executive Order on *Advancing American Kidney Health*
 - Aims to have 80% of ESRD incident patients receive home-dialysis or transplants and double the available transplant kidneys
- Current and future policies must take into consideration the great racial/ethnic disparities that persist among PKT recipients and maintain narrowing racial disparities as a goal.