Do Social Determinants of Health Contribute to Inactivation of Adult Kidney Candidates?

Poster #: P1.07.219

G.R. Lyden[1], C. Henry[2], M.J. McCarthy[2], L. Gray-Davis[2], E.J. Davis[1], A. Hart[1]

[1]Scientific Registry of Transplant Recipients, Hennepin Healthcare Research Institute, Minneapolis, MN, USA; [2]Patient Affairs Committee, Organ Procurement and Transplantation Network, Richmond, VA, USA

Introduction

- Prior research has found that White kidney candidates are more quickly reactivated after inactivation compared with Black and Hispanic kidney candidates, in US transplant registry analyses spanning 2014 to 2021 (Kulkarni et al, 2019; Kim et al, 2024).
- Race is one of the "social determinants of health." Others include gender, socioeconomic status, and geographic location (Singh et al, 2017).
- In 2024, the Patient Affairs Committee of the Organ Procurement and Transplantation Network (OPTN) requested a contemporary analysis to answer this question: Among adult kidney candidates, are there disparities in the use of inactive status by social determinants of health?

Methods

- N=188,348 adult kidney candidates from the Scientific Registry of Transplant Recipients
- Period-prevalent cohort from January 1, 2021, through December 31, 2023
- Multivariable Fine-Gray models for 3 time-to-event outcomes:
    1. Time from listing to first inactivation
    2. Time from listing inactive to first activation
    3. Time from any inactivation to next activation
- The activation outcome included transplant while inactive (eg, living donor). All other removals were competing events.
- Covariates were: age, race, ethnicity, sex at birth, education, insurance type, working for income, body mass index (BMI), OPTN region, dialysis time, and waiting time.

Figure 1: Waitlist outcomes for adult kidney candidates, 2021-2023.

Results

Model 1: Time to first inactivation
- 35% of kidney candidates from 2021-2023 were inactivated on their listing date (Figure 1).
- Probability of inactivation varied widely by region, and was higher for patients with any of the following (Figure 2):
    - Older age, female sex, non-Asian race, non-Latino ethnicity, higher BMI, Medicaid insurance (versus private)

Model 2: Time to first activation, if listed inactive
- Most common reason for listing inactive: incomplete workup (71%)
- 69% were activated within 1 year
- Time to first activation varied widely by region, and was longer for patients with any of the following:
    - Older age, female sex, less than college education, higher BMI, Medicaid or Medicare insurance, not working for income

Model 3: Time spent inactive
- Most common reasons for inactivation in 2021-2023: incomplete workup (43%), temporarily too sick (27%)
- 65% were activated within 1 year
- Time spent inactive varied widely by region, and was longer for patients with any of the following (Figure 3):
    - Older age, Black race, Pacific Islander race, Latino ethnicity, less than college education, higher BMI, Medicaid or Medicare insurance, not working for income, new listing or already waited 2+ years at inactivation
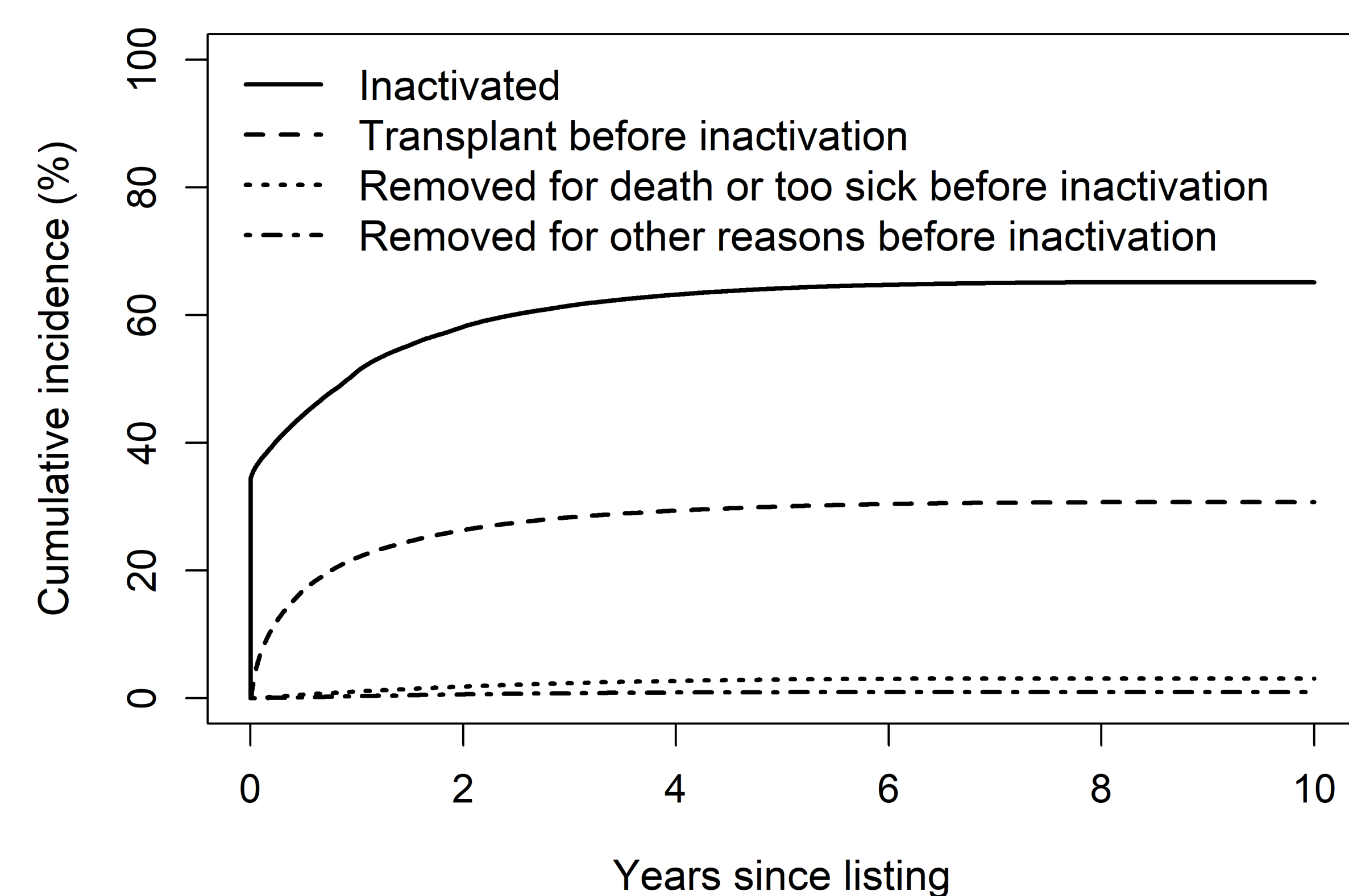

Figure 2: Hazard ratios from Fine-Gray model for time from listing to first inactivation.
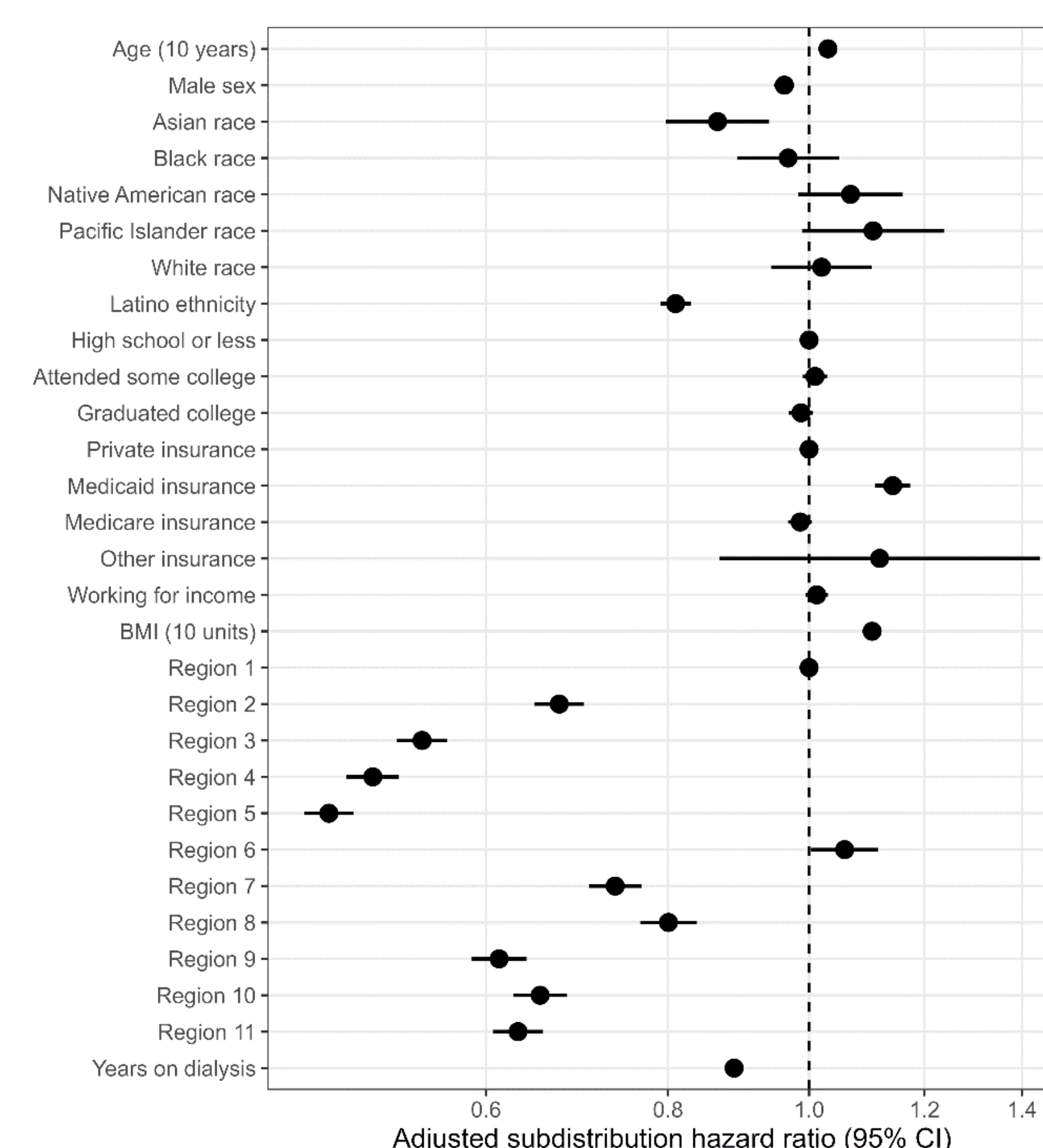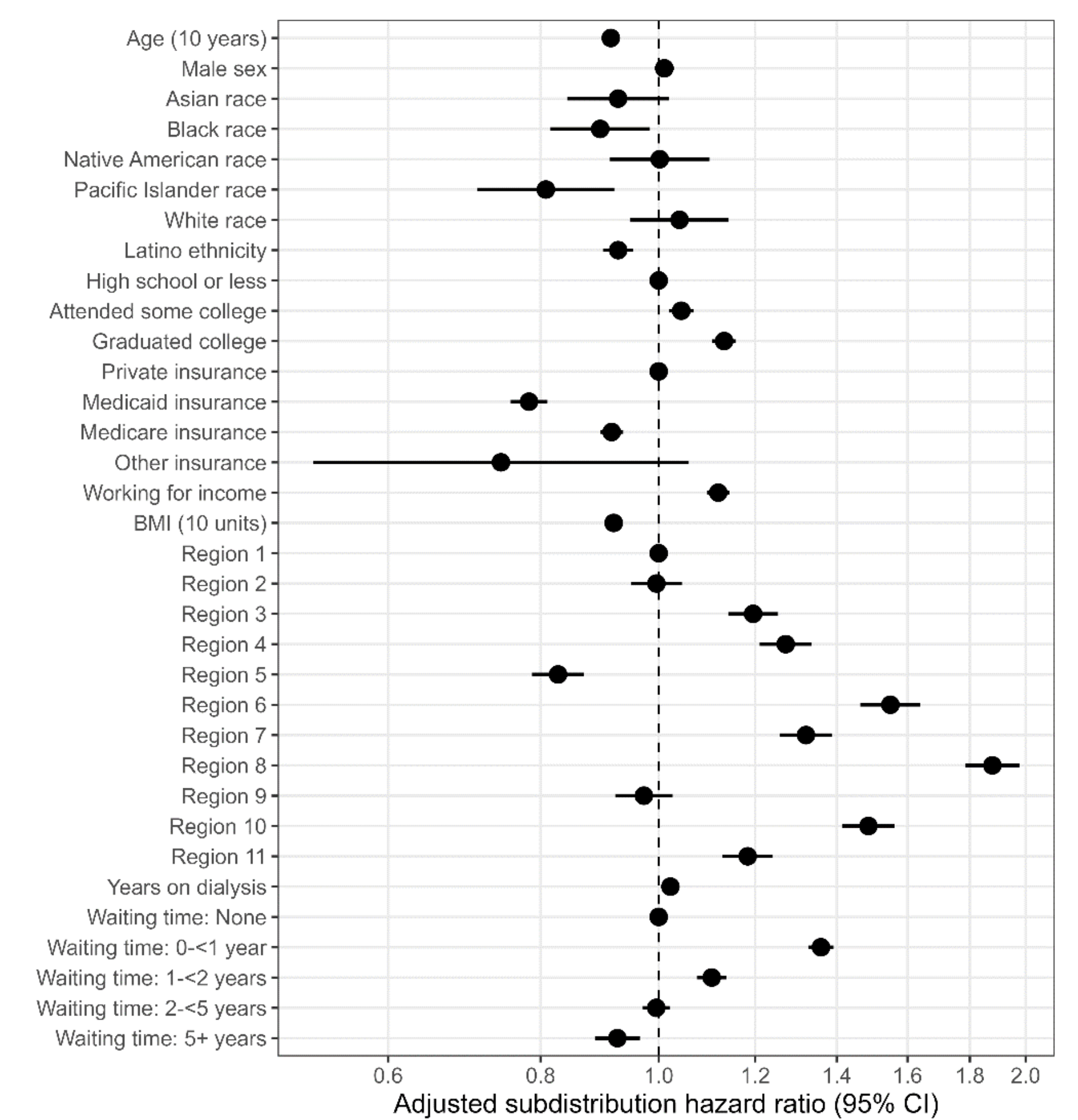

Figure 3: Hazard ratios from Fine-Gray model for time from inactivation to next activation (or transplant).

Conclusions

- Use of inactive status for adult kidney candidates varies by social determinants of health, with wide variability in practice across regions.
- Addressing these inequities may require policy or process improvements, such as simplified communication and education of waitlist status for candidates, improved data collection and reporting of inactive status, and standardization of practices across transplant centers.