

Interaction Between Race and Insurance Coverage for Gastroenteropancreatic Neuroendocrine Tumor Outcomes

Veronica E. Nkie, DO, MPH^a, K. Kerrick Akinola, MD^b, Chandler McLeod, MS, PhD^b, Ryan C Fields, MD, FACS^c, Timothy M Pawlik, MD, MPH, PhD, FACS^d, George Poultsides, MD, FACS^e, Clifford S Cho, MD, FACS^f, Sharon Weber, MD, FACS^g, Kamran Idrees, MD, FACS^h, Flavio G Rocha, MD, FACSⁱ, Shishir K Maithel, MD, FACS^b, J. Bart Rose, MD, MAS^b, Gillis Andrea, MD, MSPH^b

a-Madigan Army Medical Center, Transitional, Joint Base Lewis-McChord, USA, b-University of Alabama at Birmingham, General Surgery, Birmingham, Alabama, USA, c-Division of Surgical Oncology, Washington University, St Louis, MO, d-Division of Surgical Oncology, Ohio State, Columbus, OH, e-Division of Surgical Oncology, Stanford University, Stanford, CA, f-Department of Surgery, University of Michigan, Ann Arbor, MI, g-Division of Surgical Oncology, University of Wisconsin, Madison, WI, h-Division of Surgical Oncology, Vanderbilt University, Nashville, TN, i-Division of Surgical Oncology, Knight Cancer Institute, Oregon Health and Science University

BACKGROUND

- Incidence of Gastroenteropancreatic Neuroendocrine tumors (GEP-NETs) has steadily risen over the last few decades.
- Disparities in access and outcomes from GEP-NETs are described for minorities and those with low socioeconomic status.
- Health insurance is the primary gateway to healthcare access in the United States, and significantly affects patient outcomes.
- Study Aim: Assess the differential impact of the lack of health insurance by race on survival of patients with GEP-NETs.

Demographics		Overall (n=1605)	White (n=1283)	Black (n=225)
Gender	Male	820 (51%)	678 (53%)	92 (41%)
	Female	785 (49%)	605 (47%)	133 (59%)
Health Insurance	Private (PIP)	979 (61%)	795 (62%)	117 (52%)
	Government (GIP)	556 (61%)	441 (34%)	92 (41%)
	Uninsured/Unknown (UIP)	70 (4.4%)	47 (3.7%)	16 (7.1%)
p-value <0.05				

Table 1: GEPNET Demographics

METHODS:

- Database: US Neuroendocrine Tumor Study Group (USNETSG); patients with surgically resected neuroendocrine tumors
- Health insurance categories consisted of Uninsured/Unknown (UI), Government Insurance (GI), and Private Insurance (PI) patients.
- Retrospective cohort study of adult patients recently diagnosed with GEP-NETs (2005-2016).
- Univariate and multivariable Cox proportional hazard analyses to evaluate impact of health insurance on progression-free (PFS), recurrence-free (RFS) and overall survival (OS)
- Stratified multivariable analysis of the data by Black and White race.

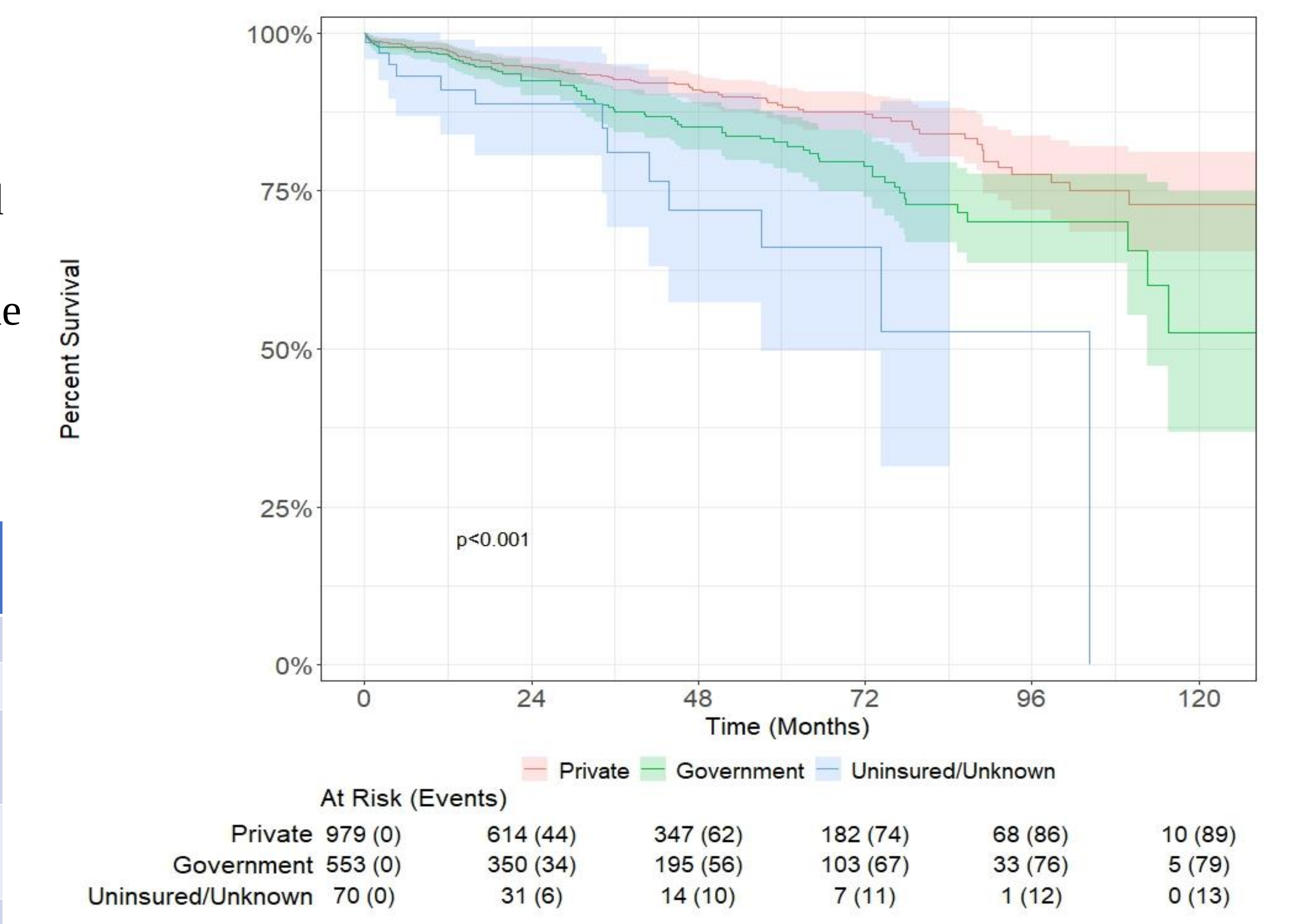


Figure 1: Overall Survival by Insurance Status

Variable		OS		PFS		RFS	
		HR	95% CI	HR	95% CI	HR	95% CI
Gender	Female	-	-	-	-	-	-
	Male	1.39	0.97, 1.98	1.95	1.11, 3.42	0.92	0.69, 1.21
Race	White	-	-	-	-	-	-
	Black	0.85	0.49, 1.48	0.63	0.26, 1.51	0.49	0.29, 0.85
Health Insurance	PI	-	-	-	-	-	-
	GI	0.96	0.65, 1.43	1.15	0.64, 2.08	0.94	0.68, 1.29
	UI	2.89	1.48, 5.63	1.81	0.49, 6.68	0.12	0.02, 0.83
p-value<0.05							

Table 2: Multivariable Cox Proportional Hazard Models Impact of Demographics on OS, PFS, RFS

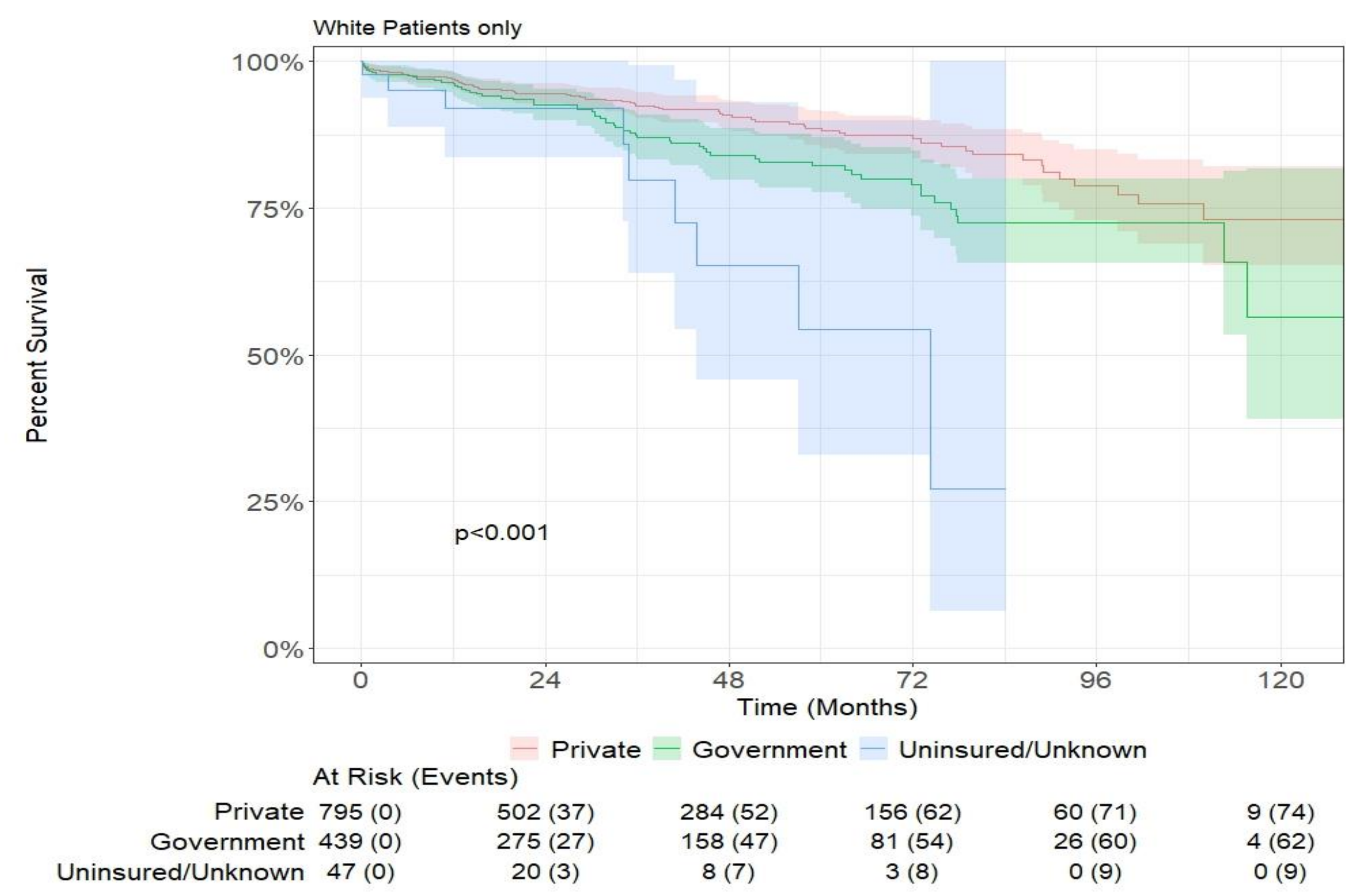


Figure 2: OS, Stratification By Race, White Patients

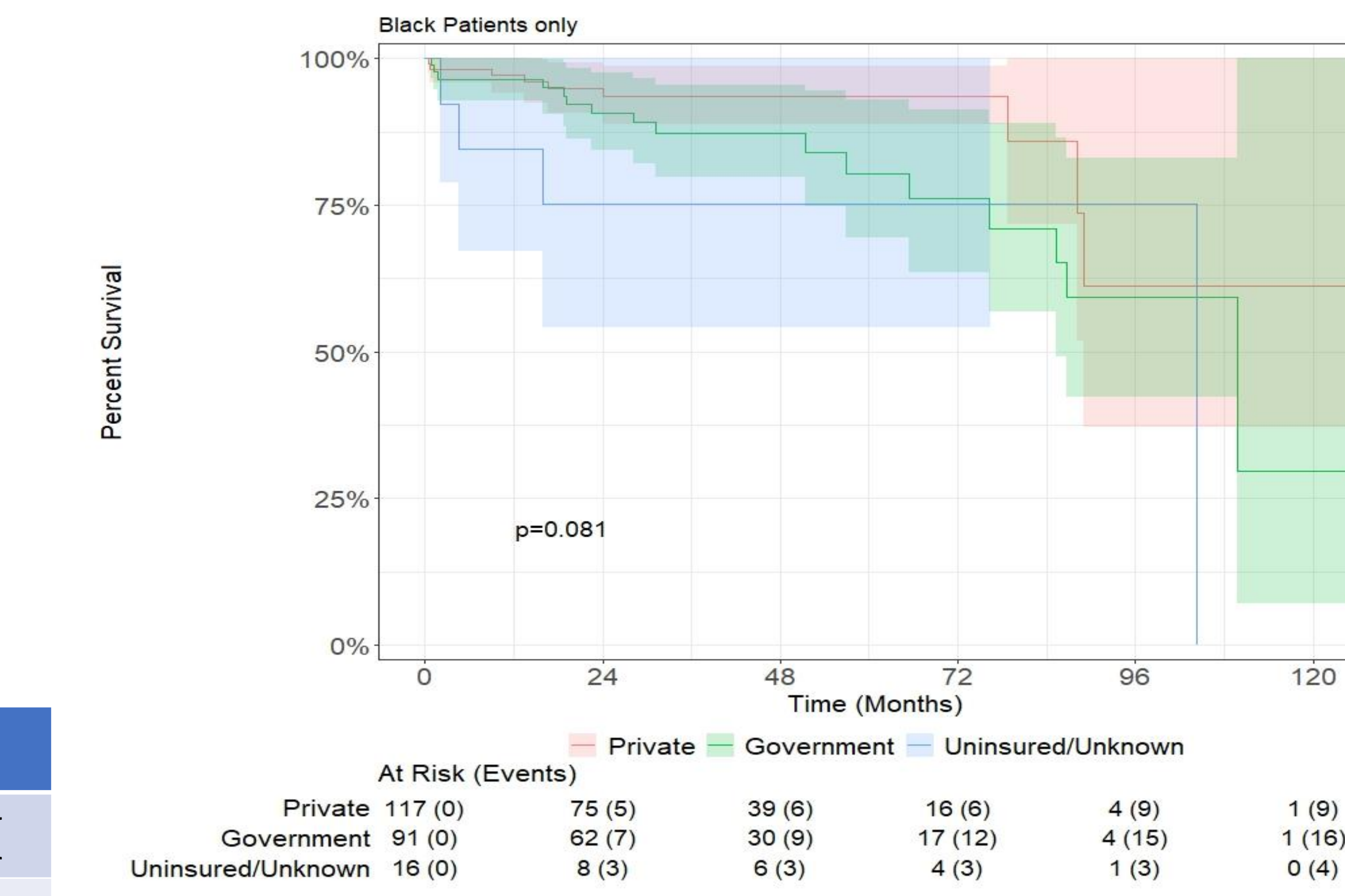


Figure 3: OS, Stratification By Race, Black Patients

Conclusion

- Race and Health insurance are important predictors of OS of patients with GEP NETs.
- UIP demonstrated significantly lower OS compared to patients with GIP or PIP
- When stratifying for race, White UIP demonstrated statistically significant increased overall risk of death from GEPNETs