



The Impact of the Affordable Care Act on patients listed for cardiac transplant

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INTRODUCTION

Thirty-one states and Washington DC began enacting The Affordable Care Act (ACA) on January 1st, 2014 in order increase access to health care by¹:

- Expanding access to Medicaid (government insurance) for lower income patients.
- Providing subsidies for and increased access to private insurance.
- Mandating individuals to be covered by some form of health insurance.

Early reports showed an increase in patients listed for organ transplant in states that adopted the ACA².

However, government insurance has been associated with decreased post-transplant survival and increased rejection after heart transplant (HTx)^{3,4}.

We evaluated how the ACA impacted patients being listed for heart transplant (HTx) and changes in their outcomes.

METHODS

Patients age ≥ 18 years, listed for initial HTx between January 1, 2010-March 31, 2017 were selected from the UNOS database. Patients were stratified by whether their state enacted the ACA (ACA state) or did not (non-ACA state) and whether it occurred prior to enactment (pre-ACA) or after (post-ACA) (Figure 1):

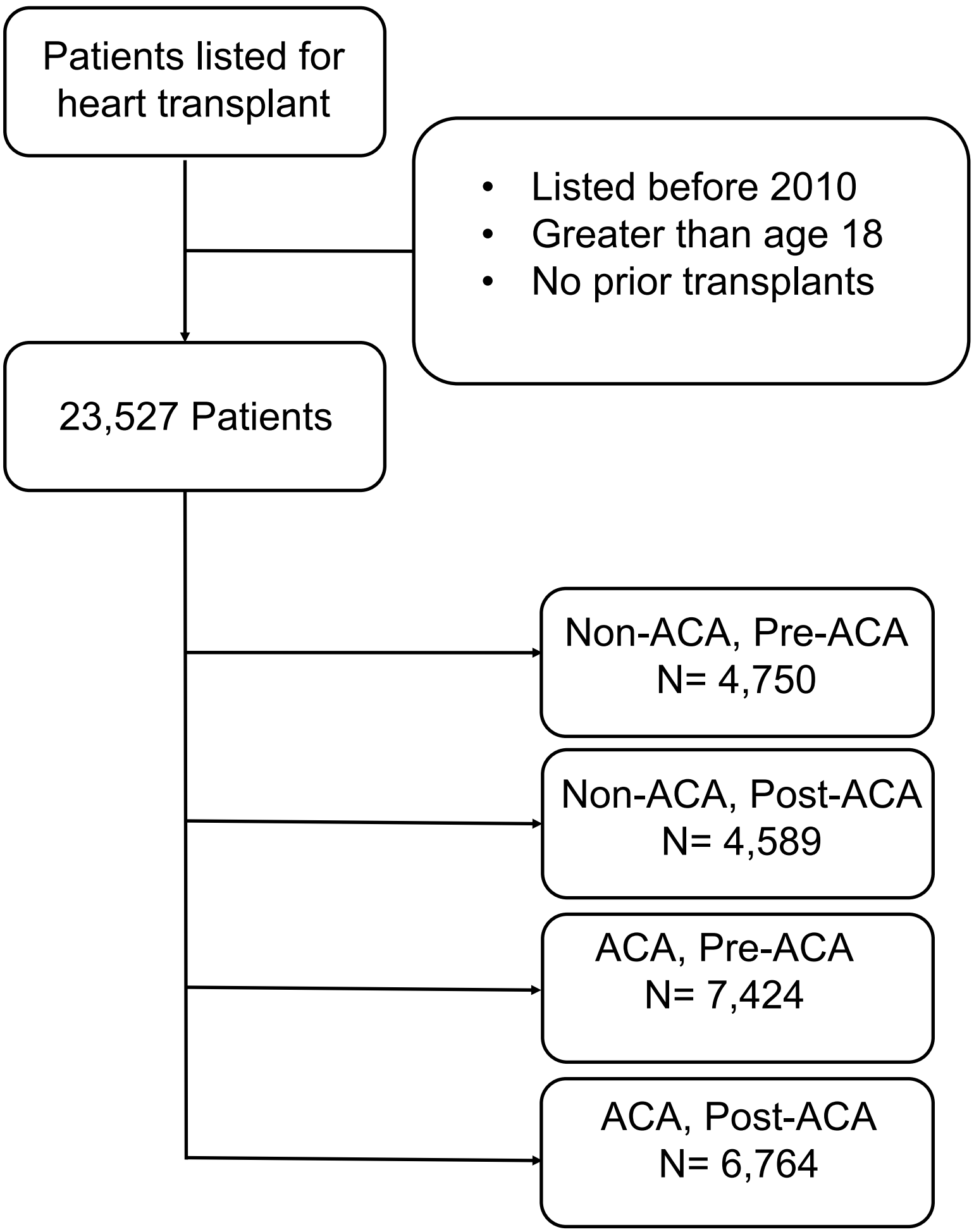
- non-ACA state, pre-ACA
- non-ACA state, post-ACA
- ACA state, pre-ACA
- ACA state, post-ACA

Baseline characteristics were compared using student t-test and Chi-squared analyses for continuous and categorical variables, respectively.

Likelihood of transplant and post-transplant survival were analyzed using cox-regression where undergoing transplantation and mortality after transplant were considered the respective statistical events, respectively.

Post-transplant survival at one year was evaluated with Kaplan Meier analysis and compared using the log-rank test.

Figure 1: Flow diagram of patients being excluded and then stratified into groups by whether their state enacted the Affordable Care Act (ACA) or did not (non-ACA) and whether it occurred prior to enactment (pre-ACA) or after (post-ACA)



Since enactment of ACA there was a significant increase in the portion of Medicare and Medicaid patients and a decrease in private insurance in ACA states at the time of listing. Further, there was no change in non-ACA states (Figure 1).

ACA states had a greater portion of Medicaid patients in the pre-ACA era. This discrepancy continued in the post-ACA era and the difference increased from 4.3% to 7.4% (Figure 1).

Post-transplant survival at one year was not significantly different for patients with Medicare, Medicaid, or private insurance (Figure 3).

Likelihood of transplant was associated with age ≥ 55 , use of CF LVAD, non-O blood group, and non-ACA state, but not with insurance type (Figure 4).

Factors associated with post-transplant mortality included age ≥ 55 , non-ACA state, and post-ACA era. Notably, mortality was increased with Medicaid and Medicare as compared to private insurance (Figure 5).

Figure 2: Change in proportion of patients listed with Medicaid, Medicare, Other, and Private insurance between non-ACA and ACA states in the pre- and post-ACA eras.

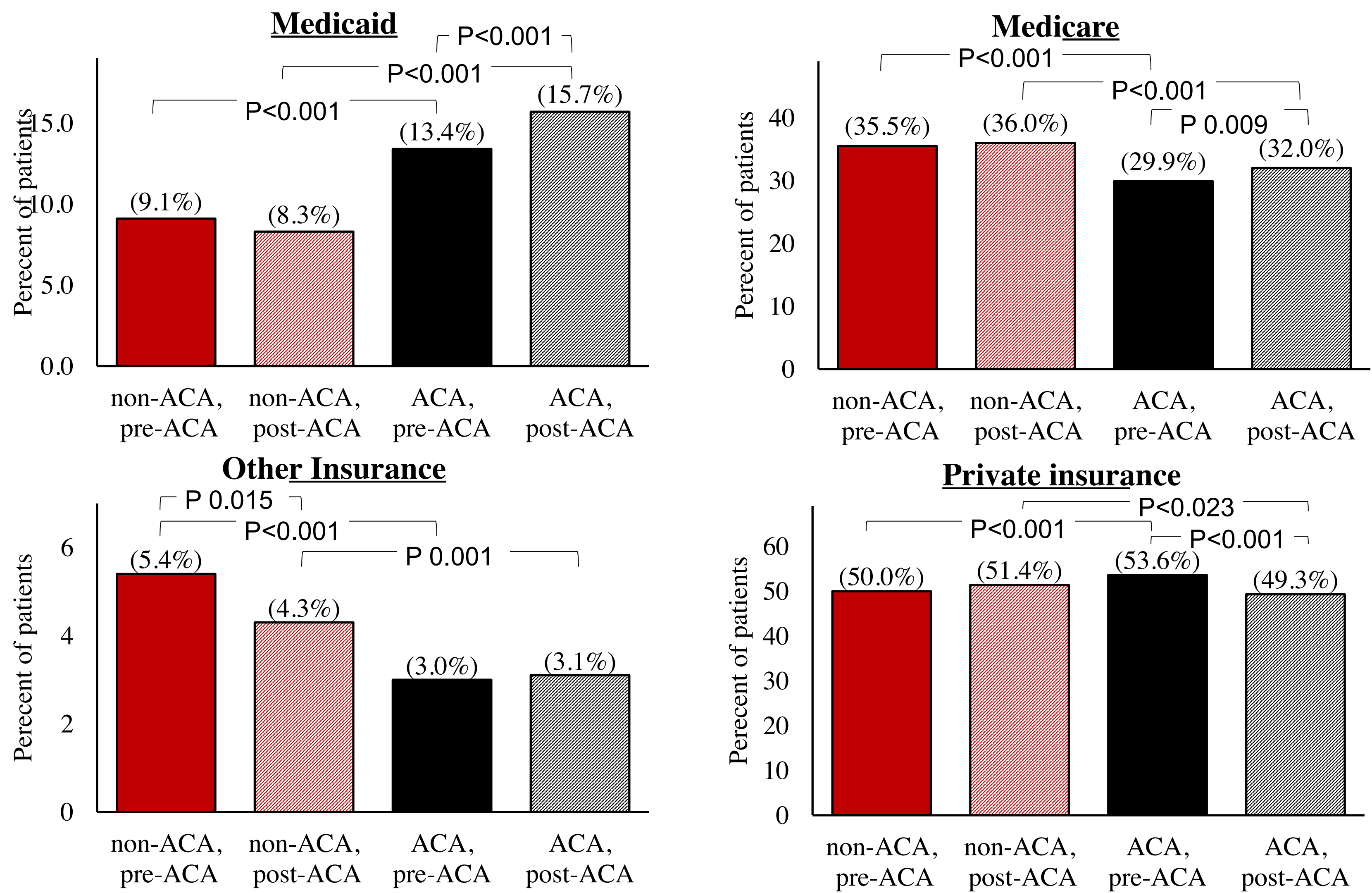


Table 1: Comparison of baseline characteristics between study groups								
	non-ACA (n=19)			ACA (n=32)			non-ACA vs ACA	
	pre-ACA	post-ACA	p Value	pre-ACA	post-ACA	p Value	pre-ACA	post-ACA
Listed	4750	4589	-	7424	6764	-	-	-
Transplanted n(%)	3196 (67.3%)	2612 (56.9%)	<0.001	4993 (67.3%)	3829 (56.6%)	<0.001	0.973	0.743
Days to HTx (mean±stdev)	229 ± 317	151 ± 185	<0.001	234 ± 322	160 ± 188	<0.001	0.487	0.067
Age (mean±stdev)	52.7 ± 12.3	53.3 ± 12.2	0.180	53.0 ± 12.5	53.2 ± 12.4	0.315	0.172	0.747
Age > 65 n(%)	745 (15.7%)	827 (18.0%)	0.003	1275 (17.2%)	1249 (18.5%)	0.045	0.031	0.548
Male Gender n(%)	3532 (74.4%)	3408 (74.3%)	0.918	5487 (73.9%)	5055 (74.1%)	0.261	0.581	0.573
CF LVAD n(%)	1543 (32.5%)	1487 (32.4%)	0.934	2600 (35.0%)	2517 (37.2%)	0.007	0.004	<0.001
Diagnosis n(%)								
IdCM	1761 (37.1%)	1714 (37.4%)	0.782	2482 (33.4%)	2453 (36.3%)	<0.001	<0.001	0.239
IsCM	1692 (35.6%)	1451 (31.6%)	<0.001	2564 (34.5%)	1961 (29.0%)	<0.001	0.221	0.003
OCM	293 (6.2%)	484 (10.5%)	<0.001	628 (8.5%)	679 (10.0%)	0.001	<0.001	0.381
Other	1004 (21.1%)	940 (20.5%)	0.437	1750 (23.6%)	1671 (24.7%)	0.115	0.002	<0.001

Figure 3: Comparisons of one-year post-transplant survival for patients listed with Medicaid, Medicare, Other, and Private insurance between non-ACA and ACA states and pre- and post-ACA eras.

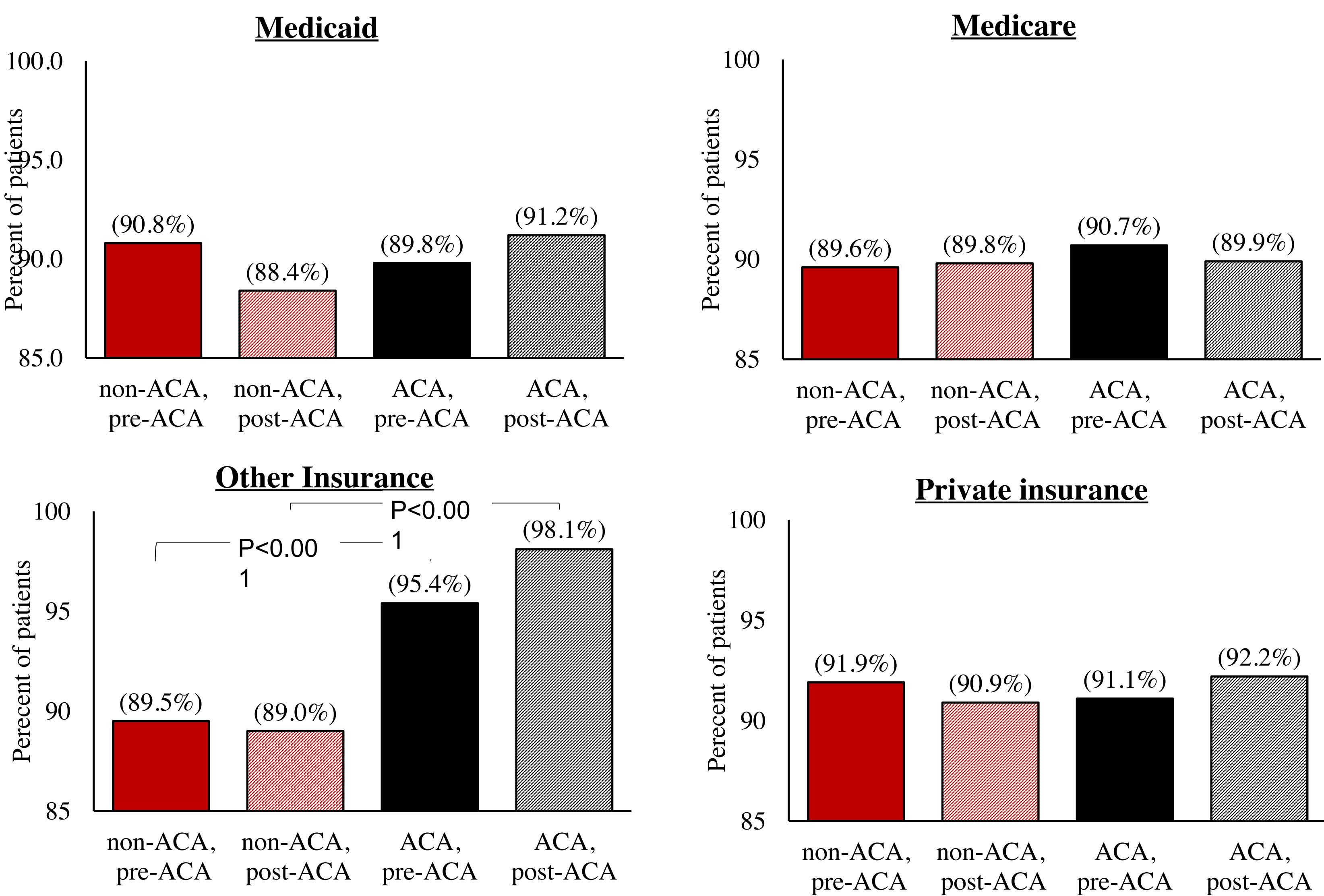


Figure 4: Forest plot showing the effect of parameters on likelihood of HTx

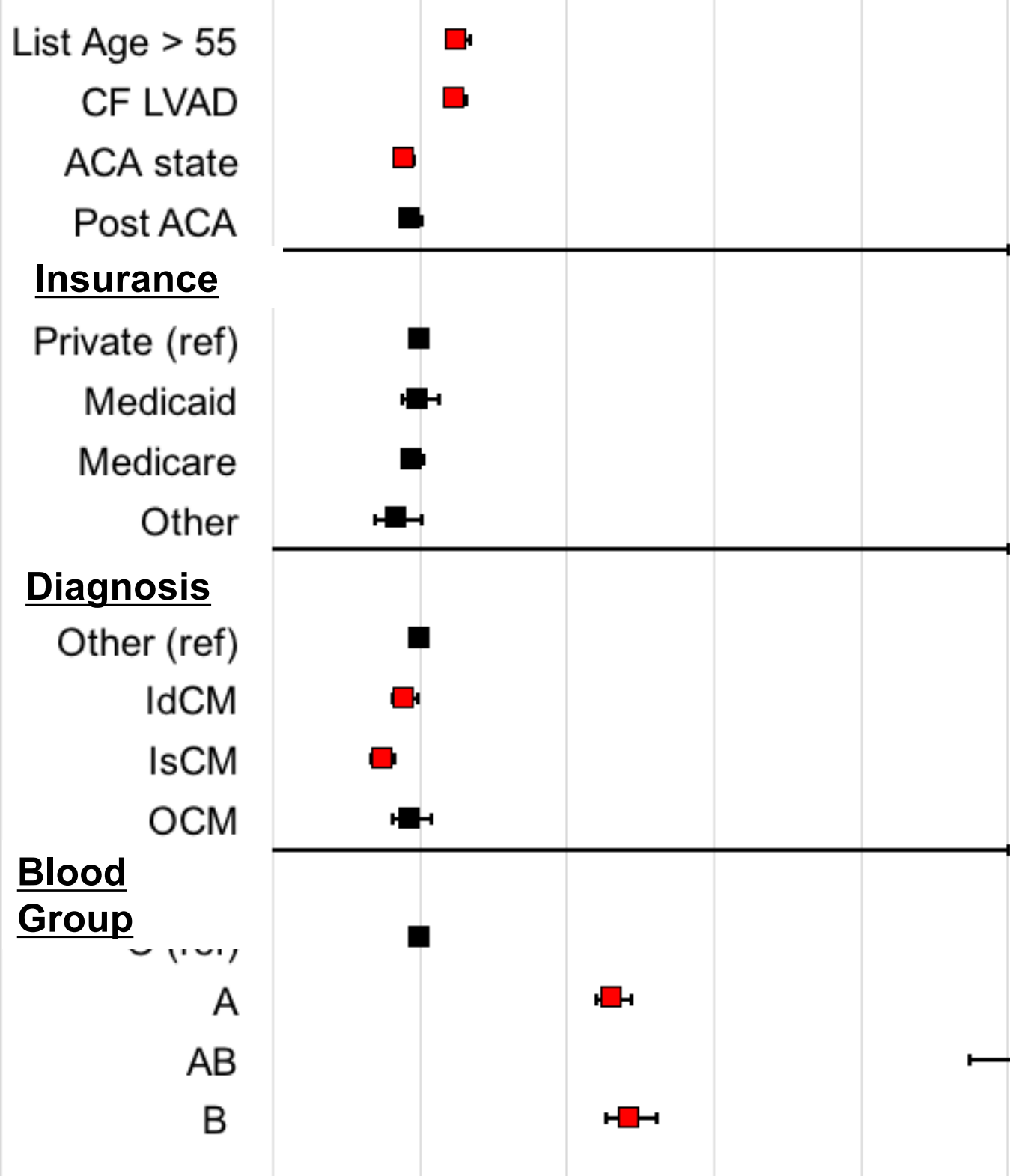
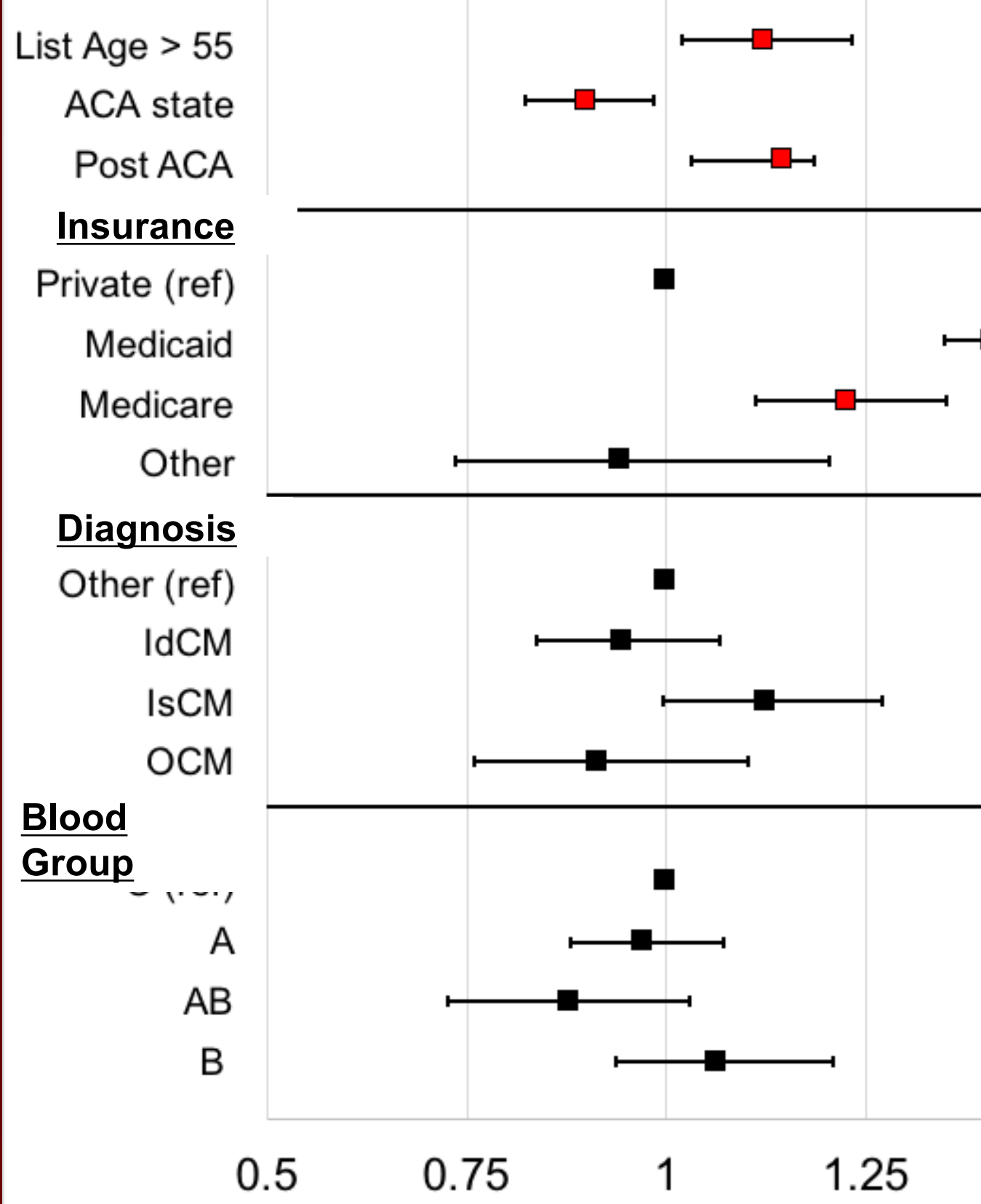


Figure 5: Forest plot showing the effect of parameters on post HTx mortality



CONCLUSION

In states that have enacted the Affordable Care Act, the insurance status of patients being listed for heart transplant has shifted from private to government sponsored (Medicare/Medicaid) Insurance.

While insurance status did not impact likelihood of transplant, government insurance (Medicare and Medicaid) was associated with increased post-transplant mortality as compared to private insurance.

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