



INTRODUCTION

- Radial artery use at the time of multivessel coronary artery bypass grafting (CABG) has a Class I indication, yet the optimal harvesting technique remains uncertain¹
- While randomized controlled trials have shown comparable early patency and survival, these studies are limited by small sample sizes, short follow-up, and significant expertise, selection, and publication biases²⁻⁵

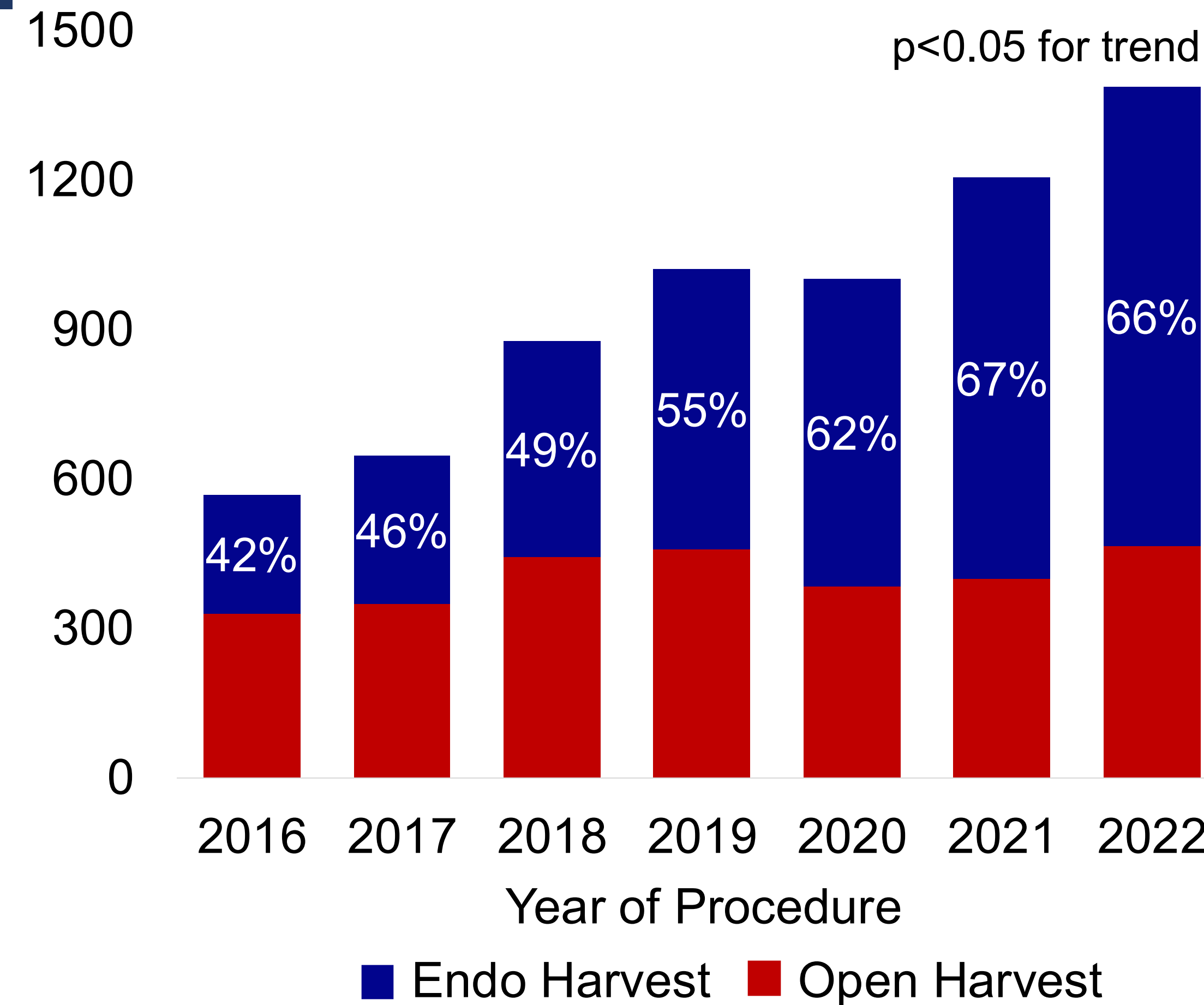
OBJECTIVE

- To compare long-term major adverse cardiac events after multivessel CABG using endoscopic versus open radial artery harvesting at the population level

METHODS

- We identified 6,840 adults aged ≥ 65 years who underwent isolated, first-time, multi-vessel (2-4 grafts), non-emergent CABG with radial artery use between 2015 to 2022 using the Centers for Medicare and Medicaid database validated against clinical records
- Patients were stratified into endoscopic (n=3,938) and open (n=2,902) radial harvest groups
- Primary endpoint was a composite of major adverse cardiac events (MACE) defined as death, myocardial infarction, or repeat revascularization (PCI or CABG) at 5-years (median follow-up 3.1 years)
- Secondary endpoints included 30-day all-cause mortality, length of stay, and a 5-year MACE stratified by annual endoradial institutional volume
- Outcomes were compared in a Cox-proportional hazard model after 1:1 propensity matching, performed for over 30 pre-operative variables with exact matching for number of bypass grafts

Radial Artery Utilization During Multivessel CABG



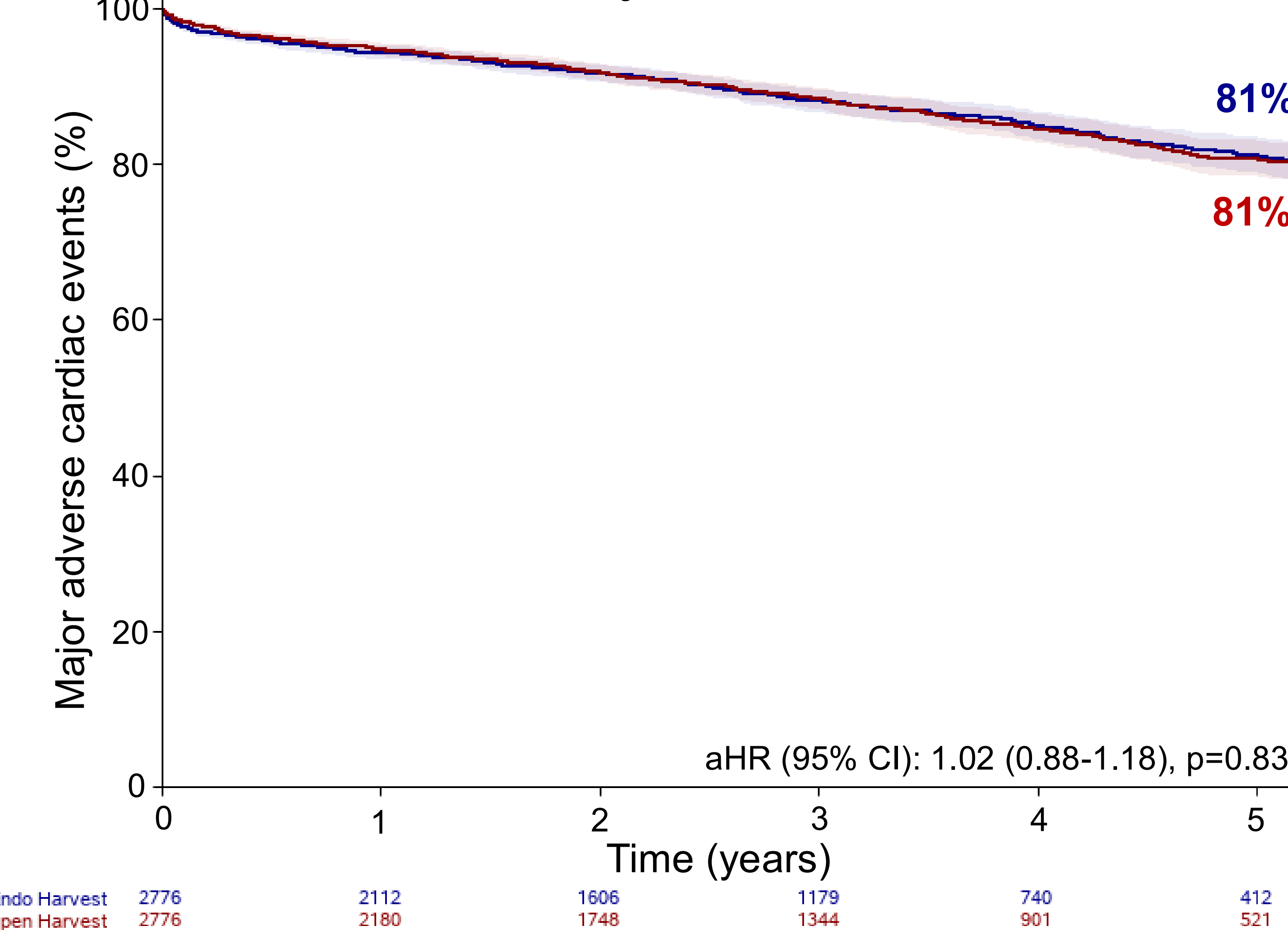
Baseline Characteristics

	Endo Harvest (n=3,938)	Open Harvest (n=2,902)	P-value	Endo Harvest (n=2,776)	Open Harvest (n=2,776)	SMD
Age, years (IQR)	69.0 (66.0, 73.0)	70.0 (66.0, 74.0)	0.002	70.0 (66.0, 73.0)	70.0 (66.0, 73.0)	2.9
Female	661 (16.8%)	559 (19.3%)	0.008	497 (17.9%)	528 (19.0%)	2.9
Previous MI	1332 (33.8%)	1100 (37.9%)	<0.001	998 (36.0%)	1031 (37.1%)	2.5
Atrial fibrillation	624 (15.8%)	468 (16.1%)	0.75	439 (15.8%)	438 (15.8%)	0.1
Diabetes	1898 (48.2%)	1391 (47.9%)	0.83	1333 (48.0%)	1337 (48.2%)	0.3
Stroke	157 (4.0%)	146 (5.0%)	0.04	129 (4.6%)	130 (4.7%)	0.2
Dialysis	50 (1.3%)	29 (1.0%)	0.30	37 (1.3%)	28 (1.0%)	3.1
Prior pacemaker	107 (2.7%)	92 (3.2%)	0.27	77 (2.8%)	87 (3.1%)	2.1
Off pump	725 (18.4%)	294 (10.1%)	<0.001	389 (14.0%)	293 (10.6%)	9.9
Total grafts						
2	836 (21.2%)	584 (20.1%)	0.27	576 (20.7%)	576 (20.7%)	0.0
3	1786 (45.4%)	1234 (42.5%)	0.02	1211 (43.6%)	1211 (43.6%)	0.0
4	1316 (33.4%)	1084 (37.4%)	0.001	989 (35.6%)	989 (35.6%)	0.0

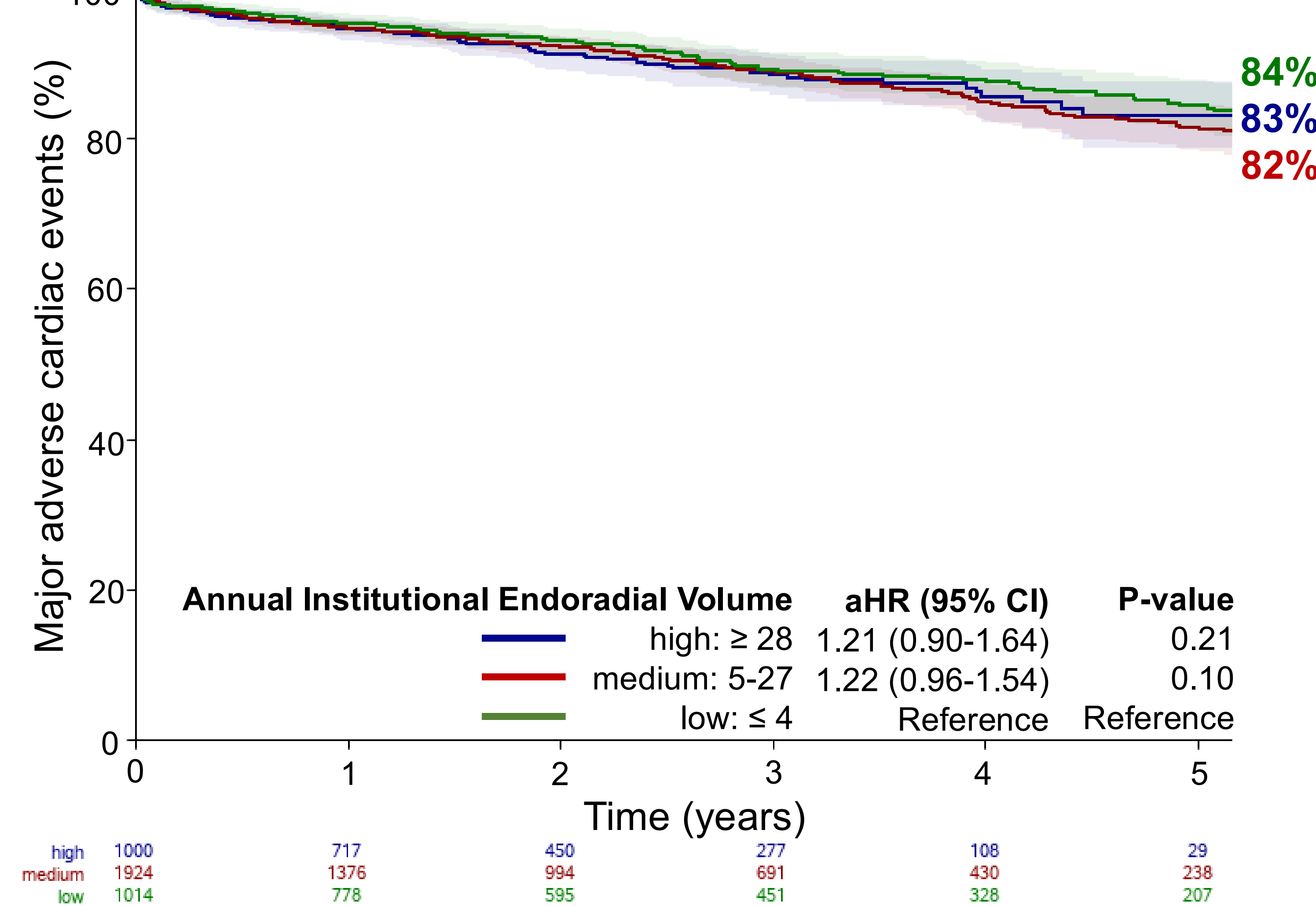
RESULTS

	Endo Harvest (n=2,776)	Open Harvest (n=2,776)	P-value
In-hospital			
Stroke	30 (1.1%)	24 (0.9%)	0.41
Pacemaker placement	18 (0.6%)	26 (0.9%)	0.89
Bleeding	28 (1.0%)	41 (1.5%)	0.11
Atrial fibrillation	711 (25.6%)	764 (27.5%)	0.26
Length of stay, days (IQR)	6.0 (5.0, 9.0)	7.0 (5.0, 9.0)	0.02
30-day mortality	40 (1.4%)	32 (1.2%)	0.35
1-year			
Wound complications	110 (4.0%)	134 (4.8%)	0.12
Vascular complications	9 (0.3%)	11 (0.4%)	0.65

Freedom from Major Adverse Cardiac Events



Freedom from Major Adverse Cardiac Events Stratified by Endoradial Institutional Volume



CONCLUSIONS

- In the United States, endoscopic harvesting has emerged as the preferred approach for radial artery conduit procurement during CABG
- Endoscopic radial artery harvesting was associated with reduced length of stay and equivalent short- and long-term outcomes compared to open harvesting
- These findings support the safety and feasibility of endoscopic radial harvesting across a broad range of surgical experience

REFERENCES

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