



National Trend in On-pump versus Off-pump Coronary Artery Bypass Grafting in Veterans

Sarah Halbert^{1,2}, Jared Antevil^{1,3}, Gregory Trachiotis^{1,3}

1) Washington DC Veterans Affairs Medical Center, Washington DC 2) MedStar Georgetown University Hospital, Washington, DC 3) George Washington University School of Medicine and Health Sciences, Washington DC

BACKGROUND

- There is interest in performing CABG without the use of cardiopulmonary bypass (“off pump”) in order to potentially reduce morbidity and length of hospitalization and recovery.
- However, there remains no consensus on best use, with conflicting outcomes results from RCTs, cohort, and registry-based studies.
- Investigation within the US Veteran population remains limited.

AIM

To evaluate **usage trends** and **perioperative outcomes** of **ON-** and **OFF-pump CABG** in **United States (US) Veterans**.

METHODS

- Retrospective review of prospectively collected Veterans Affairs records: CDW, VINCI, VASQIP
- Patients who underwent isolated CABG between 2008-2021, divided into groups based on ON- vs OFF-pump technique
- Propensity matching performed using nearest neighbor algorithm and a 0.1 caliper for preoperative risk factors.
- Cox Proportional-Hazards models were used to analyze the independent association between technique and outcomes.

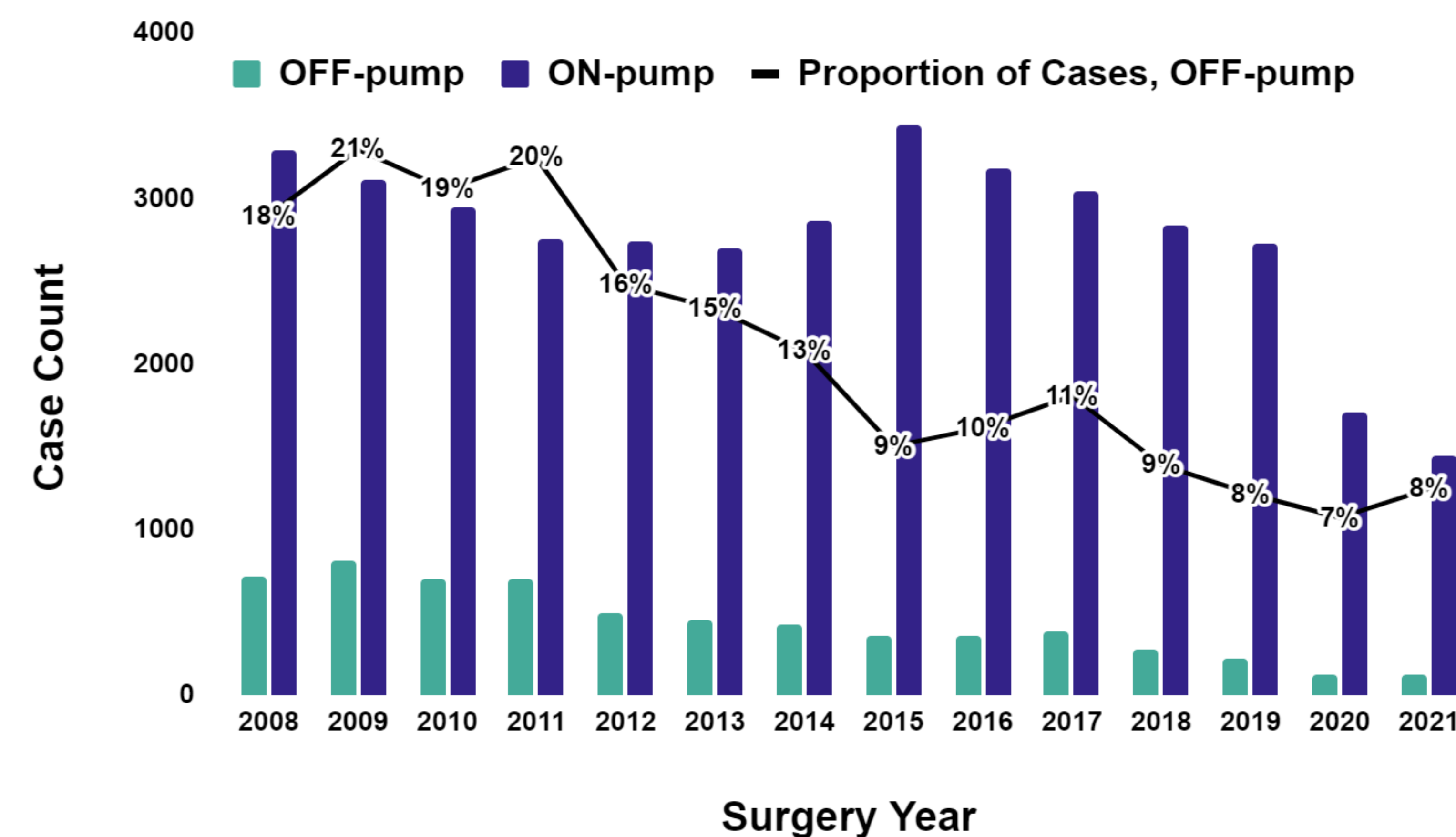
STUDY POPULATION

44,960 Veteran Health Administration (VHA) patients who underwent isolated CABG between 2008-2021

**OFF Pump
(n=6,169)**

**ON Pump
(n=38,791)**

National Trend in On-pump versus Off-pump CABG in Veterans



The proportion of off-pump procedures decreased: 18.8% between 2008-2012, 11.6% between 2013-2017, and 8.6% from 2018-2021 ($\chi^2=712.78$, $df=2$, $p<.001$).

PROPENSITY MATCHED COHORT

Groups were propensity matched with respect to age, left ventricular ejection fraction, and histories of COPD, DM, HTN, smoking, and prior cardiac surgery

12,130 VHA patients who underwent isolated CABG between 2008-2021

**OFF Pump
(n=6,169)**

**ON Pump
(n=5,961)**

COX PROPORTIONAL-HAZARDS MODEL

Variables	OFF Pump N(%)	ON Pump N(%)	aHR	95% CI	p
Death	88 (1.4)	120 (2.0)	2.60	1.50-4.51	<0.001**
Stroke	55 (0.9)	87 (1.5)	1.61	1.09-2.38	0.016*
Renal Failure	33 (0.5)	73 (1.2)	2.31	1.46-3.66	<0.001**
Atrial Fibrillation	707 (11.5)	1267 (21.3)	1.39	1.23-1.57	<0.001**
Prolonged Intubation	286 (4.6)	334 (5.6)	1.53	1.27-1.85	<0.001**

- Patients who underwent On-pump CABG had increased rates of death, stroke, acute renal failure, atrial fibrillation, and prolonged intubation at 30 days postoperatively
- On-pump patients experienced increased length of stay (Beta=0.05, $p<.001$)

CONCLUSIONS

Even though off-pump CABG is independently associated with decreased risk of perioperative morbidity and mortality, its use within the VA system is decreasing over time, suggesting more selective use as overall volume has decreased. The use of off-pump CABG has the potential to improve perioperative outcomes, and it remains an important tool for revascularization in the veteran population.