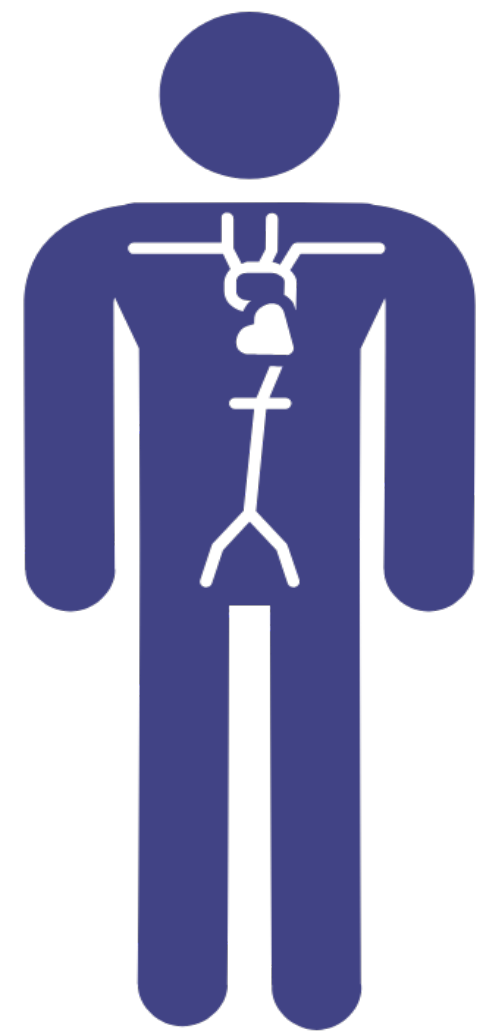


# Prevalence of Aortic Surgeries in Illinois by Specialty

Matthew C Chia MD, Joseph M Feinglass PhD, Ashley K Vavra MD

## Background



- Aortic surgeries are performed by different specialties, both surgical (vascular, cardiothoracic) and interventional (radiology, cardiology)
- Regional distributions of aortic surgeries are unclear in Illinois

## Research Objectives

- To quantify the prevalence of open aneurysm repair (OAR), endovascular aneurysm repair (EVAR), and thoracic endovascular aortic repair (TEVAR) in Illinois
- To assess variations in practice patterns between geographic regions across the state

## Methods



- Data were obtained from the Illinois Hospital Association Comparative Health Care and Hospital Data Reporting Services for **2018**

- Procedures were identified using *International Classification of Diseases, 10<sup>th</sup> ed, Procedure Coding System*
- Operating clinician specialty was determined by manual lookup by National Provider Identifier

**Table 1. Distribution of Physicians and Procedures by Region in Illinois**

	Total	Cook County	Collar County	Downstate Illinois	P
<b>Vascular Surgeons, n (%)</b>	101 (47.2)	49 (62.0)	15 (30.0)	37 (43.5)	<b>0.002</b>
<b>Interventional Radiologists</b>	24 (11.2)	8 (10.1)	9 (18.0)	7 (8.2)	
<b>Interventional Cardiologists</b>	45 (21.0)	10 (12.7)	15 (30.0)	20 (23.5)	
<b>Cardiothoracic Surgeons</b>	38 (17.8)	12 (15.2)	11 (22.0)	15 (17.7)	
<b>General Surgeons</b>	6 (2.8)	0 (0.0)	0 (0.0)	6 (7.1)	
<b>Total</b>	214 (100.0)	79 (100.0)	50 (100.0)	85 (100.0)	
<b>EVAR, n (%)</b>	1018 (64.7)	334 (65.0)	266 (67.2)	418 (63.0)	<b>0.463</b>
<b>TEVAR</b>	460 (29.2)	149 (29.0)	103 (26.0)	208 (31.3)	
<b>Open Aneurysm Repair</b>	96 (6.1)	31 (6.0)	27 (6.8)	38 (5.7)	
<b>Total</b>	1574 (100.0)	514 (100.0)	396 (100.0)	664 (100.0)	

**Table 2. Characteristics of Endovascular Procedures in Illinois by Clinician Specialty**

	Vascular Surgery (n = 916)	Interv. Radiology (n = 67)	Interv. Cardiology (n = 196)	Cardiac Surgery (n = 286)	General Surgery (n = 13)	P
<b>Age, median (IQR)</b>	73 (68 - 80)	70 (66 - 80)	74 (67 - 80)	74 (68 - 80)	66 (63 - 81)	0.482
<b>Male, n (%)</b>	683 (75)	46 (69)	150 (77)	217 (76)	9 (70)	0.695
<b>Non-white race/ethnicity, n (%)</b>	208 (23)	14 (21)	33 (17)	41 (14)	0 (0)	<b>0.005</b>
<b>Charlson Index, median (IQR)</b>	2 (1 - 4)	2 (1 - 3)	2 (1 - 3)	2 (1 - 3)	2 (1 - 4)	0.523
<b>% Rurality, median (IQR)</b>	1 (0 - 14)	10 (0 - 20)	4 (0 - 20)	9 (1 - 24)	24 (16 - 54)	<b>&lt; 0.001</b>
<b>Public or uninsured, n (%)</b>	771 (84)	59 (88)	165 (84)	231 (81)	12 (92)	0.531
<b>Need for ICU, n (%)</b>	670 (73)	49 (73)	92 (47)	221 (77)	9 (70)	<b>&lt; 0.001</b>
<b>Discharge home, n (%)</b>	777 (88)	51 (77)	181 (94)	239 (85)	11 (92)	<b>0.004</b>
<b>Length of Stay, median (IQR)</b>	2 (1 - 4)	2 (1 - 7)	1 (1 - 3)	1 (1 - 4)	1 (1 - 4)	<b>&lt; 0.001</b>

## Results

- Total study population n = 1,574 inpatient visits
- 214 clinicians performed aortic surgery in Illinois in 2018, with significantly more vascular surgeons in Cook County when compared to adjacent counties (Dupage, Kane, Lake, McHenry, Will)
- Most aortic surgeries were endovascular, and were distributed similarly across Cook County, collar counties, and the remainder of Illinois (Table 1)
- Age, gender, and Charlson comorbidity indices were not different between specialties performing EVAR or TEVAR
- Vascular surgeons performed a majority of endovascular procedures (n = 916, 58.2%), with other specialties performing a smaller proportion in Illinois (Table 2)
- Patients treated by interventional cardiologists were less likely to require postoperative ICU stay and were more likely to discharge home (Table 2)

## Limitations

- Retrospective analysis of billing data with limited clinical variables
- Patient demographics vary across Illinois, confounding relationships between specialty and outcome

## Conclusions

- Although vascular surgeons perform the majority of endovascular procedures in Illinois, non-vascular surgeons do perform aortic surgery, especially outside of Cook County
- Further work to evaluate distribution of surgeons and interventionalists may identify a need for vascular surgeons in certain geographic areas.