

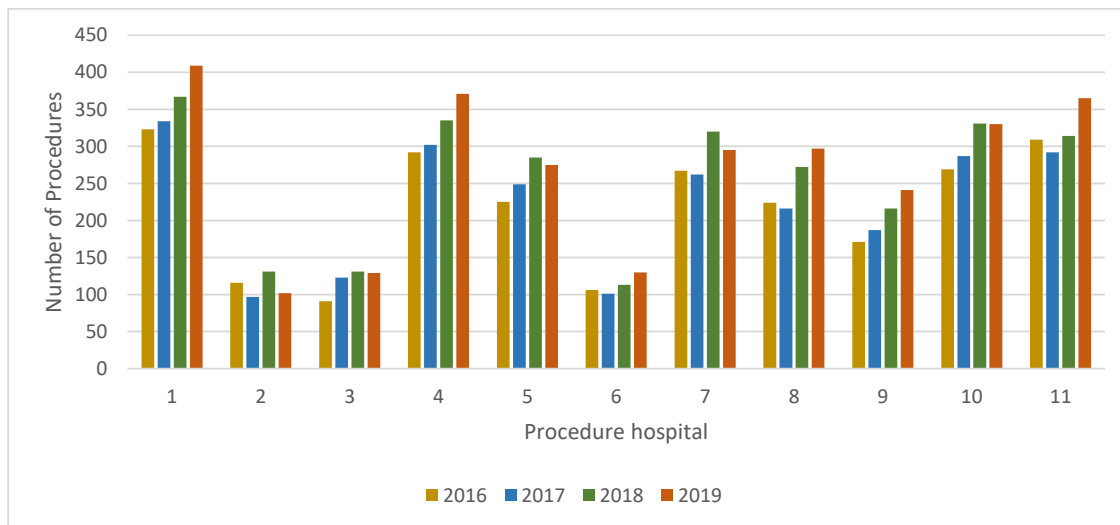
Drivers and Outcomes of Variation in Surgical versus Transcatheter Aortic Valve**Replacement in Ontario, Canada: a population-based study****SUPPLEMENTAL MATERIAL****Figure S1:** Number of procedures by hospital and fiscal year

Table S1: Baseline characteristics by TAVR/SAVR ratio tertiles

Baseline Characteristic	Total N=10,602	TAVR/SAVR Tertiles			P-value
		Low N=2,404	Medium N=4,828	High N=3,370	
Demographic characteristics					
Age (mean \pm SD)	75.70 \pm 10.10	74.77 \pm 9.70	75.50 \pm 10.15	76.64 \pm 10.23	<.001
Sex (% female)	3,972 (37.5%)	842 (35.0%)	1,779 (36.8%)	1,351 (40.1%)	<.001
Rural Residence, N (%)	1,571 (14.8%)	741 (30.8%)	603 (12.5%)	227 (6.7%)	<.001
Income quintile, N (%)					<.001
1	2,031 (19.2%)	476 (19.8%)	856 (17.7%)	699 (20.7%)	
2	2,262 (21.3%)	529 (22.0%)	982 (20.3%)	751 (22.3%)	
3	2,109 (19.9%)	465 (19.3%)	1,013 (21.0%)	631 (18.7%)	
4	2,043 (19.3%)	480 (20.0%)	1,011 (20.9%)	552 (16.4%)	
5	2,127 (20.1%)	446 (18.6%)	951 (19.7%)	730 (21.7%)	
Medical Comorbidities, N (%)					
Congestive Heart Failure	5,167 (48.7%)	920 (38.3%)	2,336 (48.4%)	1,911 (56.7%)	<.001
Cardiac arrhythmia	1,986 (18.7%)	427 (17.8%)	864 (17.9%)	695 (20.6%)	0.003
Peripheral vascular disease	313 (3.0%)	59 (2.5%)	161 (3.3%)	93 (2.8%)	0.083
Cerebrovascular disease	357 (3.4%)	62 (2.6%)	162 (3.4%)	133 (3.9%)	0.018
COPD	3,067 (28.9%)	729 (30.3%)	1,402 (29.0%)	936 (27.8%)	0.106
Dementia	435 (4.1%)	78 (3.2%)	191 (4.0%)	166 (4.9%)	0.005
Cancer	631 (6.0%)	130 (5.4%)	261 (5.4%)	240 (7.1%)	0.002
Dialysis	268 (2.5%)	51 (2.1%)	116 (2.4%)	101 (3.0%)	0.085
Interstitial lung disease	92 (0.9%)	18 (0.7%)	46 (1.0%)	28 (0.8%)	0.652

Liver disease	167 (1.6%)	31 (1.3%)	73 (1.5%)	63 (1.9%)	0.195
Renal disease	534 (5.0%)	84 (3.5%)	223 (4.6%)	227 (6.7%)	<.001
Diabetes	4,465 (42.1%)	1,017 (42.3%)	1,990 (41.2%)	1,458 (43.3%)	0.178
Hypertension	9,312 (87.8%)	2,110 (87.8%)	4,224 (87.5%)	2,978 (88.4%)	0.486
Dyslipidemia	6,056 (57.1%)	1,065 (44.3%)	2,870 (59.4%)	2,121 (62.9%)	<.001
Frailty	2.02 ± 3.71	1.69 ± 3.11	1.99 ± 3.70	2.30 ± 4.08	<.001
Prior Cardiac Procedure, N (%)					
CABG	899 (8.5%)	186 (7.7%)	427 (8.8%)	286 (8.5%)	0.282
PCI	2,347 (22.1%)	500 (20.8%)	947 (19.6%)	900 (26.7%)	<.001
Valve surgery	716 (6.8%)	123 (5.1%)	295 (6.1%)	298 (8.8%)	<.001
Pacemaker	591 (5.6%)	105 (4.4%)	267 (5.5%)	219 (6.5%)	0.002
ICD	99 (0.9%)	13 (0.5%)	51 (1.1%)	35 (1.0%)	0.074
Prior Stroke	191 (1.8%)	27 (1.1%)	97 (2.0%)	67 (2.0%)	0.017
Status of Procedure, N (%)					
Urgent	1,766 (16.7%)	338 (14.1%)	977 (20.2%)	451 (13.4%)	<.001
Elective	8,836 (83.3%)	2,066 (85.9%)	3,851 (79.8%)	2,919 (86.6%)	<.001
Wait time (median days + IQR)	81 (37-140)	63 (28-110)	81 (35-135)	98 (51-168)	<.001
Complications, N (%)					
Acute kidney injury	191 (1.8%)	36 (1.5%)	68 (1.4%)	87 (2.6%)	<.001
Dialysis	226 (2.1%)	31 (1.3%)	91 (1.9%)	104 (3.1%)	<.001
Bleeding	765 (7.2%)	143 (5.9%)	372 (7.7%)	250 (7.4%)	0.021
Stroke/TIA	191 (1.8%)	20 (0.8%)	90 (1.9%)	81 (2.4%)	<.001
Pacemaker during hospitalization	774 (7.3%)	159 (6.6%)	340 (7.0%)	275 (8.2%)	<.001

ICD	37 (0.3%)	7 (0.3%)	17 (0.4%)	13 (0.4%)	0.834
CRT-P	39 (0.4%)	12 (0.5%)	18 (0.4%)	9 (0.3%)	0.356
CRT-D	52 (0.5%)	13 (0.5%)	25 (0.5%)	14 (0.4%)	0.746
Length of stay (median days + IQR)	6 (3-10)	5 (4-9)	6 (3-11)	5 (2-8)	<.001
Hospital factors					
Total acute care hospital beds (mean \pm SD)	455.64 \pm 222.32	299.82 \pm 73.70	442.16 \pm 251.64	586.09 \pm 162.21	<.001
Total number of procedures (mean \pm SD)	575.84 \pm 178.54	400.32 \pm 195.71	637.10 \pm 133.30	613.29 \pm 136.97	<.001
Teaching hospital	8,303 (78.3%)	920 (38.3%)	4,013 (83.1%)	3,370 (100.0%)	<.001

*To death or end of study. TAVI: transcatheter aortic valve implantation. SAVR: surgical aortic valve replacement. SD: standard deviation. COPD: chronic obstructive pulmonary disease.

CABG: coronary artery bypass graft. PCI: percutaneous coronary intervention. ICD: implantable cardioverter-defibrillator. CRT-P: cardiac resynchronization therapy pacemaker. CRT-D: cardiac resynchronization therapy defibrillator

Table S2: Median odds ratio and variance partition coefficients of cox proportional models for receipt of TAVR instead of SAVR

	VPC	MOR (95% CrI)
Null model	0.13	1.93 (1.55 – 3.02)
Patient factors	0.16	2.12 (1.66 – 3.68)
Patient + Hospital factors	0.23	2.56 (1.86 – 4.9)
Patient + Hospital factors + Year of procedure	0.28	2.94 (2.03 – 6.23)

VPC: variance partition coefficient. MOR: median odds ratio. CrI: credibility interval

Table S3: 80% interval odds ratio (IOR-80) of hospital factors from cox proportional models for receipt of TAVR instead of SAVR adjusted for patient, hospital factors and year of procedure

Hospital factors	IOR-80
Acute care hospital beds (per 50)	0.15—8.44
Number of procedures (per 100)	0.09—4.93
Teaching hospital	0.57—31.65

Table S4: Baseline characteristics by type of procedure for aortic stenosis (patients who received isolated SAVR only)

Baseline Characteristic	Total N=8,170	TAVR N=5,025	SAVR N=3,145	P-value
Demographic characteristics				
Age (mean \pm SD)	76.65 \pm 10.42	81.57 \pm 7.43	68.77 \pm 9.63	<.001
Sex (% female)	3,429 (42.0%)	2,172 (43.2%)	1,257 (40.0%)	0.004
Rural Residence, N (%)	1,161 (14.2%)	568 (11.3%)	593 (18.9%)	<.001
Income quintile , N (%)				0.258
1	1,599 (19.6%)	1,011 (20.1%)	588 (18.7%)	
2	1,772 (21.7%)	1,101 (21.9%)	671 (21.3%)	
3	1,639 (20.1%)	1,018 (20.3%)	621 (19.7%)	
4	1,516 (18.6%)	898 (17.9%)	618 (19.7%)	
5	1,621 (19.8%)	984 (19.6%)	637 (20.3%)	
Medical Comorbidities, N (%)				
Congestive Heart Failure	4,342 (53.1%)	3,319 (66.0%)	1,023 (32.5%)	<.001
Cardiac arrhythmia	1,654 (20.2%)	1,298 (25.8%)	356 (11.3%)	<.001
Peripheral vascular disease	255 (3.1%)	217 (4.3%)	38 (1.2%)	<.001
Cerebrovascular disease	289 (3.5%)	218 (4.3%)	71 (2.3%)	<.001
COPD	2,469 (30.2%)	1,752 (34.9%)	717 (22.8%)	<.001
Dementia	379 (4.6%)	347 (6.9%)	32 (1.0%)	<.001
Cancer	517 (6.3%)	379 (7.5%)	138 (4.4%)	<.001
Dialysis	221 (2.7%)	167 (3.3%)	54 (1.7%)	<.001
Interstitial lung disease	79 (1.0%)	64 (1.3%)	15 (0.5%)	<.001

Liver disease	137 (1.7%)	101 (2.0%)	36 (1.1%)	0.003
Renal disease	459 (5.6%)	393 (7.8%)	66 (2.1%)	<.001
Diabetes	3,341 (40.9%)	2,201 (43.8%)	1,140 (36.2%)	<.001
Hypertension	7,159 (87.6%)	4,693 (93.4%)	2,466 (78.4%)	<.001
Dyslipidemia	4,683 (57.3%)	3,177 (63.2%)	1,506 (47.9%)	<.001
Frailty	2.20 ± 3.96	2.90 ± 4.51	1.09 ± 2.49	<.001
Prior Cardiac Procedure, N (%)				
CABG	841 (10.3%)	796 (15.8%)	45 (1.4%)	<.001
PCI	1,896 (23.2%)	1,625 (32.3%)	271 (8.6%)	<.001
Valve surgery	659 (8.1%)	542 (10.8%)	117 (3.7%)	<.001
Pacemaker	541 (6.6%)	473 (9.4%)	68 (2.2%)	<.001
ICD	89 (1.1%)	77 (1.5%)	12 (0.4%)	<.001
Prior Stroke	153 (1.9%)	115 (2.3%)	38 (1.2%)	<.001
Status of Procedure, N (%)				
Urgent	1,141 (14.0%)	739 (14.7%)	402 (12.8%)	
Elective	7,029 (86.0%)	4,286 (85.3%)	2,743 (87.2%)	0.015
Wait time (median days + IQR)	81 (37-140)	114 (64-180)	57 (24-101)	<.001
Complications, N (%)				
Acute kidney injury	191 (1.8%)	86 (1.7%)	105 (1.9%)	0.508
Dialysis	226 (2.1%)	111 (2.2%)	115 (2.1%)	0.601
Bleeding	765 (7.2%)	373 (7.4%)	392 (7.0%)	0.434
Stroke/TIA	191 (1.8%)	100 (2.0%)	91 (1.6%)	0.166
Pacemaker during hospitalization	774 (7.3%)	513 (10.2%)	261 (4.7%)	<.001

ICD	37 (0.3%)	19 (0.4%)	18 (0.3%)	0.629
CRT-P	39 (0.4%)	23 (0.5%)	16 (0.3%)	0.147
CRT-D	52 (0.5%)	28 (0.6%)	24 (0.4%)	0.35
Postoperative outcomes, N (%)				
Length of stay (median days + IQR)	6 (3-10)	3 (1-7)	7 (5-11)	<.001
30-day all cause readmission	842 (10.3%)	539 (10.7%)	303 (9.6%)	0.114
90-day all cause readmission	1,435 (17.6%)	972 (19.3%)	463 (14.7%)	<.001
All-cause readmission to maximum follow-up	4,553 (42.9%)	2,469 (49.1%)	2,084 (37.4%)	<.001
30-day all cause mortality	167 (2.0%)	122 (2.4%)	45 (1.4%)	0.002
90-day all cause mortality	276 (3.4%)	219 (4.4%)	57 (1.8%)	<.001
Overall mortality to maximum follow-up	1,425 (13.4%)	929 (18.5%)	496 (8.9%)	<.001
Follow-up from procedure*(median days + IQR)	657 (333-1,062)	515 (259-876)	811 (453-1,177)	<.001
Hospital factors				
Total acute care hospital beds	455.64 ± 222.32	472.33 ± 213.79	440.59 ± 228.71	<.001
Total number of procedures	575.84 ± 178.54	569.77 ± 175.81	581.31 ± 180.81	<.001

*To death or end of study. TAVI: transcatheter aortic valve implantation. SAVR: surgical aortic

valve replacement. SD: standard deviation. COPD: chronic obstructive pulmonary disease.

CABG: coronary artery bypass graft. PCI: percutaneous coronary intervention. ICD: implantable cardioverter-defibrillator. CRT-P: cardiac resynchronization therapy pacemaker. CRT-D: cardiac resynchronization therapy defibrillator. IQR: interquartile range. TIA: transient ischemic attack.

Table S5: Baseline characteristics by type of procedure for aortic stenosis (patients without a previous open heart operation)

Baseline Characteristic	Total N=10,602	TAVR N=5,025	SAVR N=5,577	P-value
Demographic characteristics				
Age (mean \pm SD)	75.70 \pm 10.10	81.57 \pm 7.43	70.40 \pm 9.22	<.001
Sex (% female)	3,972 (37.5%)	2,172 (43.2%)	1,800 (32.3%)	<.001
Rural Residence, N (%)	1,571 (14.8%)	568 (11.3%)	1,003 (18.0%)	<.001
Income quintile, N (%)				0.003
1	2,031 (19.2%)	1,011 (20.1%)	1,020 (18.3%)	
2	2,262 (21.3%)	1,101 (21.9%)	1,161 (20.8%)	
3	2,109 (19.9%)	1,018 (20.3%)	1,091 (19.6%)	
4	2,043 (19.3%)	898 (17.9%)	1,145 (20.5%)	
5	2,127 (20.1%)	984 (19.6%)	1,143 (20.5%)	
Medical Comorbidities, N (%)				
Congestive Heart Failure	5,167 (48.7%)	3,319 (66.0%)	1,848 (33.1%)	<.001
Cardiac arrhythmia	1,986 (18.7%)	1,298 (25.8%)	688 (12.3%)	<.001
Peripheral vascular disease	313 (3.0%)	217 (4.3%)	96 (1.7%)	<.001
Cerebrovascular disease	357 (3.4%)	218 (4.3%)	139 (2.5%)	<.001
COPD	3,067 (28.9%)	1,752 (34.9%)	1,315 (23.6%)	<.001
Dementia	435 (4.1%)	347 (6.9%)	88 (1.6%)	<.001
Cancer	631 (6.0%)	379 (7.5%)	252 (4.5%)	<.001
Dialysis	268 (2.5%)	167 (3.3%)	101 (1.8%)	<.001
Interstitial lung disease	92 (0.9%)	64 (1.3%)	28 (0.5%)	<.001

Liver disease	167 (1.6%)	101 (2.0%)	66 (1.2%)	<.001
Renal disease	534 (5.0%)	393 (7.8%)	141 (2.5%)	<.001
Diabetes	4,465 (42.1%)	2,201 (43.8%)	2,264 (40.6%)	<.001
Hypertension	9,312 (87.8%)	4,693 (93.4%)	4,619 (82.8%)	<.001
Dyslipidemia	6,056 (57.1%)	3,177 (63.2%)	2,879 (51.6%)	<.001
Frailty	2.02 ± 3.71	2.90 ± 4.51	1.23 ± 2.56	<.001
Prior Cardiac Procedure, N (%)				
CABG	899 (8.5%)	796 (15.8%)	103 (1.8%)	<.001
PCI	2,347 (22.1%)	1,625 (32.3%)	722 (12.9%)	<.001
Valve surgery	716 (6.8%)	542 (10.8%)	174 (3.1%)	<.001
Pacemaker	591 (5.6%)	473 (9.4%)	118 (2.1%)	<.001
ICD	99 (0.9%)	77 (1.5%)	22 (0.4%)	<.001
Prior Stroke	191 (1.8%)	115 (2.3%)	76 (1.4%)	<.001
Status of Procedure, N (%)				
Urgent	1,766 (16.7%)	739 (14.7%)	1,027 (18.4%)	<.001
Elective	8,836 (83.3%)	4,286 (85.3%)	4,550 (81.6%)	<.001
Wait time (median days + IQR)	81 (37-140)	114 (64-180)	57 (24-101)	<.001
Complications, N (%)				
Acute kidney injury	191 (1.8%)	86 (1.7%)	105 (1.9%)	0.508
Dialysis	226 (2.1%)	111 (2.2%)	115 (2.1%)	0.601
Bleeding	765 (7.2%)	373 (7.4%)	392 (7.0%)	0.434
Stroke/TIA	191 (1.8%)	100 (2.0%)	91 (1.6%)	0.166
Pacemaker during hospitalization	774 (7.3%)	513 (10.2%)	261 (4.7%)	<.001

ICD	37 (0.3%)	19 (0.4%)	18 (0.3%)	0.629
CRT-P	39 (0.4%)	23 (0.5%)	16 (0.3%)	0.147
CRT-D	52 (0.5%)	28 (0.6%)	24 (0.4%)	0.35
Postoperative outcomes, N (%)				
Length of stay (median days + IQR)	6 (3-10)	3 (1-7)	7 (5-11)	<.001
30-day all cause readmission	940 (10.2%)	414 (10.6%)	526 (9.8%)	0.228
90-day all cause readmission	1,573 (17.0%)	747 (19.2%)	826 (15.5%)	<.001
All-cause readmission to maximum follow-up	4,553 (42.9%)	2,469 (49.1%)	2,084 (37.4%)	<.001
30-day all cause mortality	202 (2.2%)	100 (2.6%)	102 (1.9%)	0.034
90-day all cause mortality	309 (3.3%)	171 (4.4%)	138 (2.6%)	<.001
Overall mortality to maximum follow-up	1,425 (13.4%)	929 (18.5%)	496 (8.9%)	<.001
Follow-up from procedure*(median days + IQR)	657 (333-1,062)	515 (259-876)	811 (453-1,177)	<.001
Hospital factors				
Total acute care hospital beds	455.64 ± 222.32	472.33 ± 213.79	440.59 ± 228.71	<.001
Total number of procedures	575.84 ± 178.54	569.77 ± 175.81	581.31 ± 180.81	<.001

*To death or end of study. TAVI: transcatheter aortic valve implantation. SAVR: surgical aortic valve replacement. SD: standard deviation. COPD: chronic obstructive pulmonary disease.

CABG: coronary artery bypass graft. PCI: percutaneous coronary intervention. ICD: implantable cardioverter-defibrillator. CRT-P: cardiac resynchronization therapy pacemaker. CRT-D: cardiac resynchronization therapy defibrillator. IQR: interquartile range. TIA: transient ischemic attack.

Table S6: Factors associated with the likelihood of receiving TAVR instead of SAVR among patients with aortic stenosis (patients who received isolated SAVR only)

Variable	Odds Ratio	95% CI
Demographic characteristics		
Age	1.23	1.22 - 1.24
Female sex	1.31	1.13 - 1.51
Rural Residence	0.83	0.67 - 1.02
Income quintile		
1	Ref	
2	1.03	0.82 - 1.3
3	1.01	0.8 - 1.28
4	0.8	0.63 - 1.01
5	0.92	0.72 - 1.16
Medical Comorbidities		
Congestive Heart Failure	2.32	1.98 - 2.72
Cardiac arrhythmia	1.24	1.02 - 1.5
Peripheral vascular disease	3.61	2.19 - 5.96
Cerebrovascular disease	0.87	0.57 - 1.31
COPD	1.62	1.37 - 1.9
Dementia	3.88	2.44 - 6.17
Cancer	1.27	0.94 - 1.72
Dialysis	1.86	1.1 - 3.14
Interstitial lung disease	1.89	0.79 - 4.48
Liver disease	4.95	2.8 - 8.73
Renal disease	2.08	1.34 - 3.23
Diabetes	1.11	0.96 - 1.29
Hypertension	1.22	0.97 - 1.53
Dyslipidemia	0.92	0.8 - 1.07
Frailty	1.09	1.07 - 1.12
Prior Cardiac Procedure		
CABG	22.72	15.36 - 33.63
PCI	3.59	2.93 - 4.39
Valve surgery	3.41	2.47 - 4.7
Pacemaker (includes CRT-P)	1.73	1.19 - 2.5
ICD (includes CRT-D)	1.65	0.66 - 4.11
Hospital Factors		
Acute care hospital beds		
Per 50	1.09	0.93 - 1.28
Number of procedures		
Per 100	0.72	0.68 - 0.76
Teaching Hospital	3.8	0.68 - 21.28
Year of procedure		
2016	Ref	
2017	1.35	1.08 - 1.68
2018	2.6	2.1 - 3.23
2019	7.15	5.7 - 8.96

OR: odds ratio. COPD: chronic obstructive pulmonary disease. CABG: coronary artery bypass graft. PCI: percutaneous coronary intervention. ICD: implantable cardioverter-defibrillator.

CRT-P: cardiac resynchronization therapy pacemaker. CRT-D: cardiac resynchronization therapy defibrillator.

Table S7: Factors associated with the likelihood of receiving TAVR instead of SAVR among patients with aortic stenosis (patients without a previous open heart operation)

Variable	Odds Ratio	95% CI
Demographic characteristics		
Age	1.24	1.22 - 1.25
Female sex	2.1	1.85 - 2.39
Rural Residence	0.83	0.69 - 1
Income quintile		
1	Ref	
2	1.14	0.93 - 1.4
3	1.11	0.9 - 1.37
4	0.87	0.71 - 1.07
5	1.03	0.83 - 1.26
Medical Comorbidities		
Congestive Heart Failure	2.11	1.84 - 2.42
Cardiac arrhythmia	1.28	1.09 - 1.52
Peripheral vascular disease	2.47	1.68 - 3.62
Cerebrovascular disease	0.99	0.7 - 1.41
COPD	1.66	1.45 - 1.91
Dementia	2.43	1.74 - 3.39
Cancer	1.27	0.98 - 1.65
Dialysis	2.11	1.34 - 3.32
Interstitial lung disease	1.24	0.62 - 2.46
Liver disease	3.73	2.26 - 6.13
Renal disease	1.67	1.17 - 2.38
Diabetes	1.03	0.9 - 1.17
Hypertension	1.03	0.83 - 1.28
Dyslipidemia	0.83	0.73 - 0.95
Frailty	1.08	1.06 - 1.11
Prior Cardiac Procedure		
PCI	2.75	2.35 - 3.22
Pacemaker (includes CRT-P)	1.94	1.42 - 2.65
ICD (includes CRT-D)	1.58	0.71 - 3.53
Hospital Factors		
Acute care hospital beds		
Per 50	1.11	0.95 - 1.3
Number of procedures		
Per 100	0.68	0.64 - 0.72
Teaching Hospital	4.38	0.78 - 24.42
Year of procedure		
2016	Ref	
2017	1.5	1.23 - 1.82
2018	2.78	2.3 - 3.36
2019	7.53	6.18 - 9.17

OR: odds ratio. COPD: chronic obstructive pulmonary disease. CABG: coronary artery bypass graft. PCI: percutaneous coronary intervention. ICD: implantable cardioverter-defibrillator.

CRT-P: cardiac resynchronization therapy pacemaker. CRT-D: cardiac resynchronization therapy defibrillator.

Table S8: Median odds ratio and variance partition coefficients of Cox proportional models for receipt of TAVR instead of SAVR (patients who received isolated SAVR only)

	VPC	MOR
Null model	0.09	1.75
Patient factors	0.13	1.95
Patient + Hospital factors	0.24	2.64
Patient + Hospital factors + Year of procedure	0.25	2.73

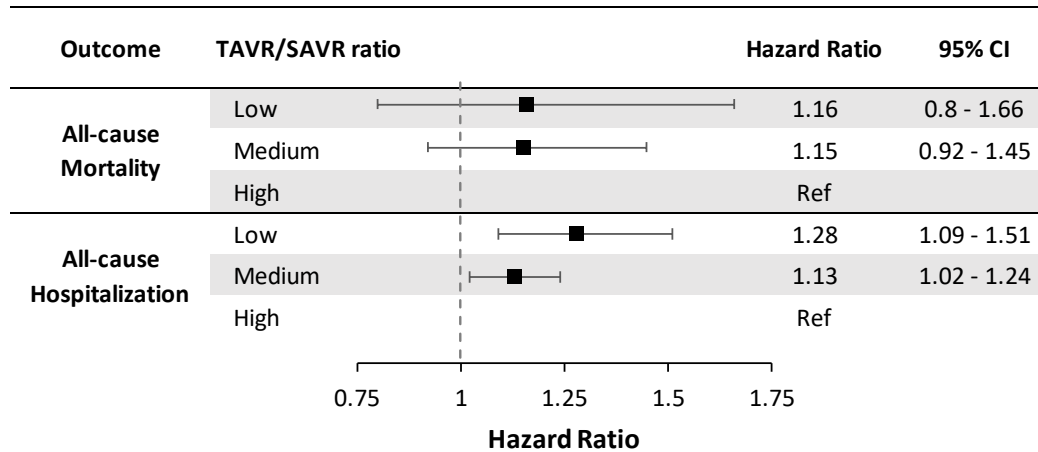
VPC: variance partition coefficient. MOR: median odds ratio.

Table S9: Median odds ratio and variance partition coefficients of Cox proportional models for receipt of TAVR instead of SAVR (patients without a previous open heart operation)

	VPC	MOR
Null model	0.13	1.94
Patient factors	0.15	2.07
Patient + Hospital factors	0.24	2.66
Patient + Hospital factors + Year of procedure	0.25	2.73

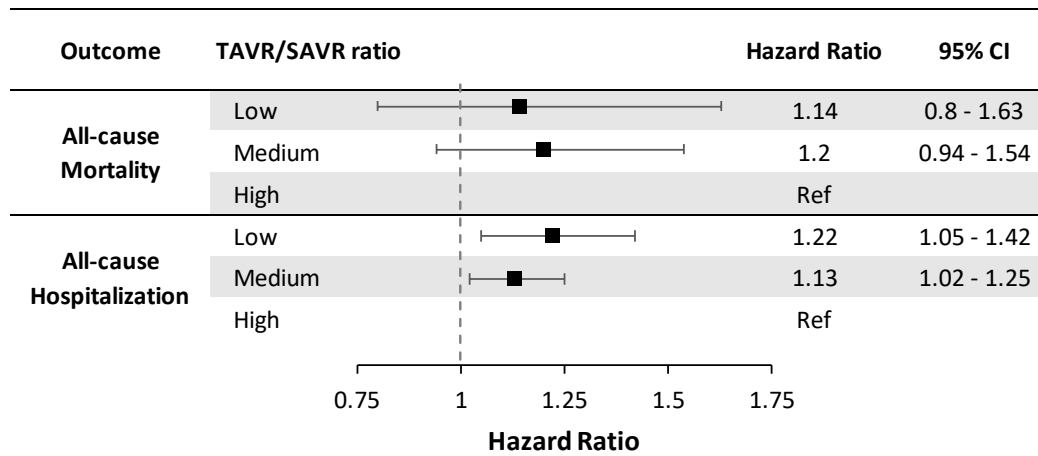
VPC: variance partition coefficient. MOR: median odds ratio.

Table S10: Association between TAVR/SAVR ratios and clinical outcomes (patients who received isolated SAVR only).



Models adjusted for patient and hospital factors, patients' admission status, hospital length of stay and in-hospital periprocedural complications. HR: hazard ratio.

Table S11: Association between TAVR/SAVR ratios and clinical outcomes (patients without a previous open heart operation).



Models adjusted for patient and hospital factors, patients' admission status, hospital length of stay and in-hospital periprocedural complications. HR: hazard ratio.