Supplemental Table 1. Key covariates and coding details

Key covariates	Database	Coding details
Stroke/ TIA	CIHI-DAD NACRS	ICD-10: I60, I61, I63 (excluding I63.6), I64, H34.0, H34.1, G45 (excluding G45.4)
Myocardial infarction	CIHI-DAD NACRS	ICD-10: I21, I22, I25.2
Acute kidney injury	CIHI-DAD NACRS	Include where a diagnosis code for acute kidney injury (see codes below) occurs with ≥ 1 code for dialysis (see CCI codes below) during same admission Acute kidney injury ICD-10: N17.0-N17.9, O08.4, T79.5, O90.4 Dialysis CCI: IPZ21HQBR, IPZ21HPD4, 1PZ21HQBS
Vascular complications	CIHI-DAD NACRS	ICD-10: T82.0, T82.2, T82.3, T82.5-T82.9
Atrial fibrillation	CIHI-DAD NACRS	ICD-10: I48
Endocarditis	CIHI-DAD NACRS	ICD-10: I33, I39, I01.1, I35.8, T82.6, I05.9, I08.0, I08.1, I08.2, I08.3, I08.9, I07.9
Permanent pacemaker implantation	CIHI-DAD	CCI: 1HZ53GRNM, 1HZ53GRNK, 1HZ53GRNL, 1HZ53LANL, 1HZ53LANM, 1HZ53LANK, 1HZ53GRFR, 1HZ53LAFR, 1HZ53SYFR
Defibrillator	CIHI-DAD	CCI: 1HZ53GRFS, 1HZ53LAFS
Chronic dialysis	CIHI-DADOHIP	CCI: 1PZ21HQBR, 1PZ21HPD4, 1PZ21HQBS OHIP: R849, R850, G323, G325, G326, G330, G331, , G860, G333, G083, G091, G085, G295, G082, G090, G092, G093, G094, G861, G862, G863, G864, G865, G866, G294, G095, G096

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		Two codes 90 at least 90 days apart but not more than 150 days apart.
Chronic obstructive pulmonary disease	CIHI-DAD NACRS	I278, I279, J40-J47, J60-J67, J684, J701, J703
Cancer	CIHI-DAD NACRS	Primary Cancer: ICD-10: C00-C26, C30-C34, C37-C41, C43, C45-C58, C60-C76, C81-C85, C88, C90-C97 Metastatic Cancer: - ICD-10: C77-C80
Dementia	ICES DEMENTIA COHORT	ICES-validated algorithm: earliest of either the earliest hospitalization or same-day-surgery record with a dementia diagnosis; the earliest date of the first of three physician outpatient visits for dementia that were at least 30 days apart in a 2-year period during follow-up; or the earliest dispensing date in a prescription drug reimbursement record for any cholinesterase inhibitor. ICD-9: 46.1x, 290.0x, 290.1x, 290.2x, 290.3x, 290.4x, 294.1x, 294.2x, 331.0x, 331.1x, 331.5x ICD-10: F00, F01, F02, F03, G30 OHIP DX CODE: 290, 331 ODB: SUBCLASS NAME = 'CHOLINESTERASE INHIBITOR'

CIHI-DAD, Canadian Institute for Health Information- Discharge Abstract Database.

OHIP, Ontario Health Insurance Plan.

ICD, International Classification of Diseases.

CCI, Canadian Classification of Health Interventions.

References:

The reference below is pasted in from the ICES web page describing the ICES derived cohorts, including the DEMENTIA cohort. This is the paper listed as the citation for the DEMENTIA cohort dataset:

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Jaakkimainen RL , Bronskill SE, Tierney M, Hermann N, Green D, Young J, Ivers N, Butt D, Tu K. Identification of physician-diagnosed Alzheimer's disease and related dementias in population-based administrative data: a validation study using family physicians' electronic medical records. Journal of Alzheimer's Disease, 54(2016): 337-349.

Supplemental Table 2. Primary end points at 1, 3 and 5 years. Competing risk model reporting subdistribution hazard rations and 95% confidence intervals of primary outcomes occurring from date of discharge to 1, 3 and 5 years for patients undergoing TAVR vs. SAVR.

	At 1 year			At 3 years			At 5 years		
	TAVR N (%)	SAVR N (%)	Hazard Ratio (95% CI)	TAVR N (%)	SAVR N (%)	Hazard Ratio (95% CI)	TAVR N (%)	SAVR N (%)	Hazard Ratio (95% CI)
All-cause mortality	299 (11.72)	334 (3.64)	1.37 (1.12-1.68)	641 (25.13)	761 (8.29)	1.58 (1.38-1.81)	815 (31.95)	1,204 (13.11)	1.58 (1.41-1.78)
Non-CV mortality	152 (5.96)	168 (1.83)	1.45 (1.10-1.90)	344 (13.48)	445 (4.85)	1.50 (1.25-1.79)	457 (17.91)	735 (8.00)	1.50 (1.29-1.75)
CV mortality	147 (5.76)	166 (1.81)	1.28 (0.95-1.72)	297 (11.64)	316 (3.44)	1.70 (1.38-2.09)	358 (14.03)	469 (5.11)	1.72 (1.44-2.07)

TAVR, transcatheter aortic valve replacement. SAVR, surgical aortic valve replacement. N, the number of events. CI, confidence interval. CV mortality, cardiovascular mortality.

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Supplemental Table 3. Sensitivity analysis results. Competing risk model reporting subdistribution hazard ratios and 95% confidence intervals of primary and secondary outcomes occurring from date of discharge to 1, 3 and 5 years for patients undergoing TAVR vs. SAVR.

	At 1 year			At 3 years			At 5 years		
	Sensitivity analysis model 1	Sensitivity analysis model 2	Original model	Sensitivity analysis model 1	Sensitivity analysis model 2	Original model	Sensitivity analysis model 1	Sensitivity analysis model 2	Original model
All-cause mortality	1.52 (1.21-1.90)	1.35 (1.10-1.65)	1.37 (1.12-1.68)	1.59 (1.37-1.85)	1.57 (1.37-1.80)	1.58 (1.38-1.81)	1.56 (1.37-1.77)	1.58 (1.40-1.77)	1.58 (1.41-1.78)
Non-CV mortality	1.53 (1.14-2.06)	1.43 (1.08-1.89)	1.45 (1.10-1.90)	1.44 (1.19-1.75)	1.49 (1.25-1.79)	1.50 (1.25-1.79)	1.44 (1.23-1.70)	1.50 (1.29-1.74)	1.50 (1.29-1.75)
CV mortality	1.50 (1.07-2.11)	1.25 (0.93-1.68)	1.28 (0.95-1.72)	1.86 (1.47-2.35)	1.68 (1.37-2.07)	1.70 (1.38-2.09)	1.77 (1.45-2.17)	1.71 (1.43-2.06)	1.72 (1.44-2.07)
Ischemic stroke	0.99 (0.65-1.52)	1.07 (0.71-1.60)	1.07 (0.71-1.61)	1.24 (0.91-1.70)	1.30 (0.97-1.74)	1.30 (0.97-1.74)	1.13 (0.84-1.52)	1.17 (0.90-1.53)	1.17 (0.90-1.53)
Hemorrhagic stroke	1.31 (0.60-2.82)	1.05 (0.53-2.08)	1.06 (0.53-2.10)	1.18 (0.63-2.20)	1.10 (0.62-1.94)	1.10 (0.63-1.95)	1.14 (0.64-2.01)	1.13 (0.66-1.93)	1.14 (0.67-1.94)
MI	2.12 (1.44-3.12)	1.77 (1.26-2.50)	1.77 (1.26-2.50)	2.30 (1.75-3.01)	1.92 (1.52-2.43)	1.92 (1.51-2.43)	2.24 (1.77-2.85)	1.96 (1.59-2.43)	1.96 (1.58-2.42)
Incident AF	0.80 (0.58-1.11)	0.73 (0.54-0.98)	0.73 (0.54-0.98)	1.08 (0.84-1.38)	1.05 (0.83-1.33)	1.05 (0.83-1.33)	1.17 (0.94-1.49)	1.14 (0.92-1.42)	1.14 (0.92-1.42)
Endocarditis	1.17 (0.80-1.73)	1.07 (0.75-1.55)	1.07 (0.75-1.54)	1.35 (0.98-1.84)	1.23 (0.92-1.65)	1.23 (0.92-1.65)	1.24 (0.93-1.66)	1.16 (0.89-1.52)	1.16 (0.89-1.52)

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Reintervention, any	4.16 (1.86-9.31)	2.00 (0.96-4.15)	2.00 (0.97-4.16)	2.62 (1.39-4.94)	1.73 (0.96-3.11)	1.73 (0.96-3.11)	2.26 (1.25-4.07)	1.64 (0.93-2.88)	1.64 (0.93-2.89)
Complication (valve)	1.47 (1.00-2.18)	1.40 (0.98-1.99)	1.40 (0.98-2.00)	1.32 (0.97-1.80)	1.35 (1.02-1.79)	1.35 (1.02-1.79)	1.21 (0.91-1.60)	1.25 (0.96-1.62)	1.25 (0.96-1.62)
AKI	1.85 (0.86-3.95)	1.64 (0.80-3.39)	1.65 (0.80-3.40)	1.63 (0.88-3.03)	1.53 (0.85-2.75)	1.53 (0.85-2.76)	1.44 (0.82-2.52)	1.41 (0.83-2.39)	1.41 (0.83-2.39)
Pacemaker	0.99 (0.61-1.58)	0.99 (0.64-1.54)	0.99 (0.64-1.54)	1.13 (0.78-1.62)	1.11 (0.79-1.57)	1.11 (0.79-1.56)	1.31 (0.94-1.84)	1.32 (0.95-1.84)	1.32 (0.95-1.83)
Defibrillator	2.37 (0.40-14.13)	0.94 (0.22-4.05)	0.94 (0.22-4.03)	5.65 (1.36-23.52)	2.00 (0.70-5.73)	1.99 (0.70-5.71)	4.25 (1.23-14.67)	1.75 (0.66-4.60)	1.74 (0.66-4.58)
Readmission	0.91 (0.84-0.98)	0.89 (0.83-0.95)	0.89 (0.82-0.95)	0.96 (0.90-1.03)	0.95 (0.89-1.01)	0.95 (0.89-1.01)	0.97 (0.91-1.04)	0.96 (0.90-1.02)	0.96 (0.90-1.02)
CHF readmission	0.88 (0.73-1.06)	0.87 (0.73-1.03)	0.87 (0.73-1.03)	1.19 (1.02-1.39)	1.18 (1.02-1.37)	1.18 (1.02-1.37)	1.27 (1.10-1.47)	1.28 (1.12-1.47)	1.28 (1.11-1.46)
Angina readmission	2.29 (1.33-3.94)	1.94 (1.21-3.11)	1.93 (1.21-3.10)	2.34 (1.64-3.33)	1.87 (1.37-2.54)	1.86 (1.37-2.54)	2.23 (1.62-3.08)	1.86 (1.40-2.49)	1.86 (1.39-2.48)

TAVR, transcatheter aortic valve replacement. SAVR, surgical aortic valve replacement. N, the number of events. CI, confidence interval. CV mortality, cardiovascular mortality.

Sensitivity analysis model 1: adding index procedure year to the calculation of weights

Sensitivity analysis model 2: adding binary (Yes/No) variable of new-onset cardiovascular medications to the calculation of weights.