

**Supplemental Tables:****Supplemental Table-1. ICD-10 and OPCS4 codes used to define the population studied**

Codelist	Coding System	Code	Description	Phenotype
Aortic Stenosis	ICD 10	I060	Rheumatic aortic stenosis	Classified by the presence of any one relevant code
	ICD 10	I062	Rheumatic aortic stenosis with insufficiency	
	ICD 10	I350	Nonrheumatic aortic (valve) stenosis	
	ICD 10	I352	Aortic (valve) stenosis with insufficiency	
	ICD 10	Q230	Congenital stenosis of aortic valve	
TAVI - Surgical approach	OPCS4	K26	Plastic repair of aortic valve	Defined by the presence of codes K26, Y494, and either Y53 or Y68.
	OPCS4	Y494	Transapical approach to heart	
	OPCS4	Y53	Approach to organ under image control	
	OPCS4	Y68	Other approach to organ under image control	
TAVI - Transluminal approach	OPCS4	K26	Plastic repair of aortic valve	Defined by the presence of codes K26, Y79, and either Y53 or Y68.
	OPCS4	Y79	Approach to organ through artery	
	OPCS4	Y53	Approach to organ under image control	
	OPCS4	Y68	Other approach to organ under image control	
SAVR	OPCS4	K26	Plastic repair of aortic valves	Classified by the presence of any one relevant code unless already identified as TAVI.
	OPCS4	K261	Allograft replacement of aortic valve	
	OPCS4	K262	Xenograft replacement of aortic valve	
	OPCS4	K263	Prosthetic replacement of aortic valve	
	OPCS4	K264	Replacement of aortic valve NEC	
	OPCS4	K265	Aortic valve repair NEC Includes: Aortic valvuloplasty NEC	
	OPCS4	K268	Other specified	
	OPCS4	K269	Unspecified	

**Supplemental Table-2. Sociodemographic characteristics and comorbidities split by Sex**

	SAVR			TAVI		
	Male (N=89,250)	Female (N=50,735)	P-value	Male (N=22,550)	Female (N=17,105)	P-value
<b>Age (years)</b>						
Mean (SD)	69.8 (10.9)	72.0 (10.6)	<0.001	80.2 (7.9)	81.6 (7.4)	<0.001
Median (Min, Max)	71.5 (18.0, 98.7)	73.8 (18.0, 101.3)		81.4 (20.8, 101.9)	82.7 (21.0, 100.5)	
<b>Ethnicity</b>						
White	85680 (96.0 %)	48755 (96.1 %)	<0.001	21595 (95.8 %)	16345 (95.6 %)	<0.001
Asian or Asian British	2090 (2.3 %)	1055 (2.1 %)		630 (2.8 %)	440 (2.6 %)	
Black or Black British	520 (0.6 %)	390 (0.8 %)		165 (0.7 %)	200 (1.2 %)	
Mixed/Multiple ethnic groups	295 (0.3 %)	155 (0.3 %)		70 (0.3 %)	70 (0.4 %)	
Unknown	670 (0.8 %)	380 (0.7 %)		85 (0.4 %)	50 (0.3 %)	
<b>IMD Quintiles</b>						
1	12755 (14.3 %)	8095 (16.0 %)	<0.001	2815 (12.5 %)	2330 (13.6 %)	<0.001
2	15735 (17.6 %)	9215 (18.2 %)		3650 (16.2 %)	3130 (18.3 %)	
3	19110 (21.4 %)	10865 (21.4 %)		4810 (21.3 %)	3615 (21.1 %)	
4	20175 (22.6 %)	11065 (21.8 %)		5370 (23.8 %)	3735 (21.8 %)	
5	19565 (21.9 %)	10405 (20.5 %)		5615 (24.9 %)	4110 (24.0 %)	
Unknown	1910 (2.1 %)	1090 (2.1 %)		290 (1.3 %)	190 (1.1 %)	
<b>Comorbidities</b>						
CAD	37520 (42.0 %)	17950 (35.4 %)	<0.001	10035 (44.5 %)	5500 (32.1 %)	<0.001
Diabetes	20645 (23.1 %)	10255 (20.2 %)	<0.001	7685 (34.1 %)	4770 (27.9 %)	<0.001
Hypertension	61735 (69.2 %)	35915 (70.8 %)	<0.001	19130 (84.8 %)	14510 (84.8 %)	0.95
Asthma/COPD	16880 (18.9 %)	11250 (22.2 %)	<0.001	7050 (31.3 %)	5545 (32.4 %)	0.016
Cerebrovascular disease	7750 (8.7 %)	3655 (7.2 %)	<0.001	3155 (14.0 %)	1915 (11.2 %)	<0.001
CKD	15850 (17.8 %)	7935 (15.6 %)	<0.001	9205 (40.8 %)	6465 (37.8 %)	<0.001
Heart Failure	22590 (25.3 %)	11655 (23.0 %)	<0.001	10320 (45.8 %)	7050 (41.2 %)	<0.001
PAD	7435 (8.3 %)	3290 (6.5 %)	<0.001	3740 (16.6 %)	2015 (11.8 %)	<0.001

**Supplemental Table-3. Socio-demographic characteristics and comorbidities split by Ethnicity**

	SAVR						TAVI					
	White (N=134,43)	Asian or Asian British (N=3,145)	Black or Black British (N=910)	Mixed/ Multiple ethnic groups (N=450)	Un-known (N=1,050)	P-value	White (N=37,945)	Asian or Asian British (N=1,075)	Black or Black British (N=365)	Mixed/ Multiple ethnic groups (N=140)	Un-known (N=130)	P-value
<b>Age (years)</b>												
Mean (SD)	70.8 (10.7)	64.2 (13.5)	65.7 (13.7)	66.9 (13.4)	69.9 (12.0)	<0.001	80.9 (7.6)	77.4 (9.2)	80.0 (8.4)	78.4 (9.5)	76.5 (9.3)	<0.001
Median (Min, Max)	72.5 (18.0, 101.3)	67.0 (18.1, 93.7)	69.2 (19.4, 93.7)	69.2 (19.5, 90.8)	72.7 (18.9, 94.7)		82.1 (20.8, 101.9)	79.0 (22.1, 96.2)	81.3 (45.7, 94.3)	80.4 (34.8, 99.5)	77.7 (32.9, 92.6)	
<b>Sex</b>												
Male	85680 (63.7 %)	2090 (66.4 %)	520 (57.1 %)	295 (65.6 %)	670 (63.8 %)	<0.001	21595 (56.9 %)	630 (58.8 %)	165 (45.5 %)	70 (51.1 %)	85 (62.9 %)	<0.001
Female	48755 (36.3 %)	1055 (33.6 %)	390 (42.9 %)	155 (34.4 %)	380 (36.2 %)		16345 (43.1 %)	440 (41.2 %)	200 (54.5 %)	70 (48.9 %)	50 (37.1 %)	
<b>IMD Quintiles</b>												
1	19400 (14.4 %)	890 (28.2 %)	385 (42.2 %)	85 (18.4 %)	90 (8.7 %)	<0.001	4760 (12.5 %)	225 (20.9 %)	130 (35.6 %)	30 (19.9 %)	10 (1.5 %)	<0.001
2	23650 (17.6 %)	840 (26.7 %)	265 (29.0 %)	80 (17.8 %)	120 (11.3 %)		6350 (16.7 %)	265 (24.7 %)	130 (35.1 %)	30 (19.9 %)	10 (3.8 %)	
3	28975 (21.6 %)	620 (19.7 %)	130 (14.1 %)	105 (23.8 %)	145 (14.0 %)		8070 (21.3 %)	245 (22.8 %)	70 (18.6 %)	35 (24.1 %)	10 (9.1 %)	
4	30530 (22.7 %)	400 (12.8 %)	80 (8.7 %)	80 (17.3 %)	155 (14.7 %)		8870 (23.4 %)	180 (16.6 %)	20 (5.8 %)	20 (14.9 %)	10 (9.1 %)	
5	29345 (21.8 %)	365 (11.6 %)	45 (4.7 %)	80 (17.6 %)	135 (13.0 %)		9510 (25.1 %)	150 (14.0 %)	15 (4.1 %)	30 (20.6 %)	20 (14.4 %)	
Unknown	2530 (1.9 %)	35 (1.1 %)	10 (1.2 %)	25 (5.1 %)	400 (38.2 %)		380 (1.0 %)	10 (1.0 %)	10 (0.8 %)	10 (0.7 %)	80 (62.1 %)	

Comorbidities												
CAD	53470 (39.8 %)	1295 (41.2 %)	280 (31.0 %)	165 (36.9 %)	255 (24.5 %)	<0.001	14800 (39.0 %)	535 (49.7 %)	135 (36.4 %)	50 (36.9 %)	15 (9.8 %)	<0.001
Diabetes	28880 (21.5 %)	1385 (44.1 %)	350 (38.6 %)	120 (26.7 %)	160 (15.4 %)	<0.001	11505 (30.3 %)	670 (62.5 %)	185 (50.4 %)	55 (40.4 %)	40 (30.3 %)	<0.001
Hypertension	93795 (69.8 %)	2315 (73.6 %)	715 (78.5 %)	330 (73.3 %)	500 (47.4 %)	<0.001	32105 (84.6 %)	980 (91.5 %)	330 (91.0 %)	125 (88.7 %)	100 (75.0 %)	<0.001
Asthma/COPD	27065 (20.1 %)	675 (21.5 %)	165 (18.3 %)	90 (20.2 %)	130 (12.6 %)	<0.001	12040 (31.7 %)	385 (36.1 %)	95 (26.0 %)	50 (34.0 %)	25 (18.2 %)	<0.001
Cerebrovascular disease	10960 (8.2 %)	275 (8.8 %)	75 (8.4 %)	40 (8.7 %)	55 (5.1 %)	0.006	4845 (12.8 %)	145 (13.7 %)	60 (16.2 %)	15 (9.2 %)	10 (5.3 %)	0.012
CKD	22725 (16.9 %)	635 (20.2 %)	240 (26.3 %)	75 (16.4 %)	110 (10.6 %)	<0.001	14890 (39.2 %)	505 (46.9 %)	190 (52.3 %)	65 (47.5 %)	20 (16.7 %)	<0.001
Heart Failure	32765 (24.4 %)	840 (26.7 %)	275 (30.5 %)	115 (26.0 %)	250 (23.8 %)	<0.001	16535 (43.6 %)	550 (51.4 %)	175 (47.4 %)	75 (54.6 %)	35 (26.5 %)	<0.001
PAD	10455 (7.8 %)	150 (4.7 %)	65 (6.9 %)	25 (5.6 %)	35 (3.3 %)	<0.001	5525 (14.6 %)	150 (14.1 %)	45 (12.1 %)	15 (12.1 %)	15 (9.8 %)	0.284

**Supplemental Table-4. Sociodemographic characteristics and comorbidities split by IMD quintile**

	SAVR							TAVI						
	1 (N= 20,845 )	2 (N= 24,950 )	3 (N= 29,975 )	4 (N= 31,245 )	5 (N= 29,970 )	Un-known (N= 3,000)	P- value	1 (N= 5,145 )	2 (N= 6,775 )	3 (N= 8,430 )	4 (N= 9,105)	5 (N= 9,725)	Un-known (N= 480)	P- value
<b>Age (years)</b>														
Mean (SD)	68.1 (11.7)	69.6 (11.2)	70.9 (10.6)	71.5 (10.2)	71.9 (10.3)	69.7 (11.4)	<0.001	78.7 (8.5)	80.0 (8.1)	80.9 (7.6)	81.3 (7.4)	81.9 (7.1)	79.6 (8.0)	<0.001
Median (Min, Max)	70.1 (18.0, 95.6)	71.5 (18.0, 98.7)	72.6 (18.1, 100.5)	73.1 (18.1, 101.3)	73.6 (18.2, 99.0)	71.8 (18.9, 96.6)		80.0 (21.0, 97.6)	81.3 (25.2, 100.3)	82.1 (21.0, 101.9)	82.5 (20.8, 101.4)	82.9 (24.1, 99.5)	81.0 (22.1, 94.2)	
<b>Sex</b>														
Male	12755 (61.2 %)	15735 (63.1 %)	19110 (63.8 %)	20175 (64.6 %)	19565 (65.3 %)	1910 (63.7 %)	<0.001	2815 (54.8 %)	3650 (53.8 %)	4810 (57.1 %)	5370 (59.0 %)	5615 (57.7 %)	290 (60.5 %)	<0.001
Female	8095 (38.8 %)	9215 (36.9 %)	10865 (36.2 %)	11065 (35.4 %)	10405 (34.7 %)	1090 (36.3 %)		2330 (45.2 %)	3130 (46.2 %)	3615 (42.9 %)	3735 (41.0 %)	4110 (42.3 %)	190 (39.5 %)	
<b>Ethnicity</b>														
White	19400 (93.1% )	23650 (94.8% )	28975 (96.7% )	30530 (97.7% )	29345 (97.9 %)	2530 (84.3 %)	<0.001	4760 (92.5 %)	6350 (93.7%)	8070 (95.7 %)	8870 (97.5 %)	9510 (97.8 %)	380 (79.7 %)	<0.001
Asian or Asian British	890 (4.3%)	840 (3.4%)	620 (2.1%)	400 (1.3%)	365 (1.2%)	35 (1.1 %)		225 (4.4%)	265 (3.9%)	245 (2.9%)	180 (2.0%)	150 (1.5%)	10 (2.3%)	
Black or Black British	385 (1.8%)	265 (1.1%)	130 (0.4%)	80 (0.3%)	45 (0.1%)	10 (0.4 %)		130 (2.5%)	130 (1.9%)	70 (0.8%)	20 (0.2%)	15 (0.2%)	10 (0.6%)	
Mixed or Multiple	85	80	105	80	80 (0.3%)	25 (0.8 %)		30 (0.5%)	30 (0.4%)	35 (0.4%)	20 (0.2%)	30 (0.3%)	10 (0.2%)	

ethnic groups	(0.4%)	(0.3%)	(0.4%)	(0.2%)										
Unknown	90 (0.4%)	120 (0.5%)	145 (0.5%)	155 (0.5%)	135 (0.5%)	400 (13.4%)		10 (0.0%)	10 (0.1%)	10 (0.1%)	10 (0.1%)	20 (0.2%)	80 (17.1%)	
<b>Comorbidities</b>														
CAD	9225 (44.3%)	10295 (41.3%)	11970 (39.9%)	12120 (38.8%)	10900 (36.4%)	955 (31.8%)	<0.001	2240 (43.5%)	2755 (40.7%)	3395 (40.3%)	3500 (38.5%)	3515 (36.2%)	125 (25.7%)	<0.001
Diabetes	5575 (26.7%)	6150 (24.6%)	6545 (21.8%)	6470 (20.7%)	5610 (18.7%)	555 (18.5%)	<0.001	2055 (39.9%)	2385 (35.2%)	2635 (31.3%)	2615 (28.7%)	2630 (27.1%)	140 (28.8%)	<0.001
Hypertension	14705 (70.5%)	17660 (70.8%)	20995 (70.0%)	21850 (69.9%)	20625 (68.8%)	1815 (60.5%)	<0.001	4510 (87.6%)	5805 (85.7%)	7225 (85.7%)	7600 (83.5%)	8155 (83.9%)	350 (73.1%)	<0.001
Asthma/ COPD	5570 (26.7%)	5585 (22.4%)	5795 (19.3%)	5810 (18.6%)	4940 (16.5%)	430 (14.4%)	<0.001	2125 (41.3%)	2420 (35.7%)	2675 (31.8%)	2635 (29.0%)	2640 (27.2%)	100 (20.5%)	<0.001
Cerebrovascular disease	1750 (8.4%)	2070 (8.3%)	2500 (8.3%)	2485 (7.9%)	2425 (8.1%)	175 (5.8%)	<0.001	695 (13.5%)	895 (13.2%)	1090 (12.9%)	1165 (12.8%)	1190 (12.2%)	30 (6.3%)	<0.001
CKD	3765 (18.1%)	4495 (18.0%)	5220 (17.4%)	5180 (16.6%)	4750 (15.9%)	375 (12.5%)	<0.001	2285 (44.4%)	2805 (41.4%)	3425 (40.6%)	3530 (38.8%)	3530 (36.3%)	100 (20.7%)	<0.001
Heart Failure	5920 (28.4%)	6690 (26.8%)	7430 (24.8%)	7275 (23.3%)	6525 (21.8%)	410 (13.6%)	<0.001	2505 (48.7%)	3200 (47.3%)	3725 (44.2%)	3895 (42.8%)	3940 (40.5%)	110 (22.5%)	<0.001
PAD	1975 (9.5%)	2045 (8.2%)	2190 (7.3%)	2255 (7.2%)	2065 (6.9%)	195 (6.4%)	<0.001	870 (16.9%)	1035 (15.2%)	1235 (14.7%)	1255 (13.8%)	1275 (13.1%)	80 (16.9%)	<0.001

**Supplemental Figure Legends:**

**Supplemental Figure-1. Forest plots for cardiovascular mortality following SAVR (left) and TAVI (right), adjusted for age, sociodemographic characteristics, comorbidities and treatment-period (Model-2).**

**Supplemental Figure-2. Forest plots for hospitalisation with heart failure following SAVR (left) and TAVI (right), adjusted for age and sociodemographic characteristics (Model-1)**

**Supplemental Figure-3. Forest plots for hospitalisation with heart failure following SAVR (left) and TAVI (right), adjusted for age, sociodemographic characteristics, comorbidities and treatment-period (Model-2)**