

1 **Supplemental Materials**

2 **Supplementary Table 1: Overview of ICD-, Procedure, and ATC codes**

Category	Type	Codes
Study population		
TAVI	NOMESCO †	KFMD11, KFMD12 & KFMD14 <i>Transfemoral access:</i> KFMD14 <i>Other access:</i> KFMD11, KFMD12
Surgical bioprostheses	NOMESCO	KFMD10
Mechanical prostheses	NOMESCO	KFMD00
CABG (+ SAVR)	NOMESCO	KFNA.x*, KFNB.x, KFNC.x, KFND.x & KFNE.x (Combined with Procedure codes from surgical bioprostheses and mechanical prostheses)
PCI (+TAVI)	NOMESCO	KFNG.x (Combined with Procedure codes from TAVI)
Exclusion Criteria		
Aortic Stenosis (AS)	ICD-10	I35.0, I35.2, I06.0 & I06.2
	ICD-8	39500, 39502, 39590 & 3959

Prior AVR or Repair	NOMESCO	KFM.x, KFCA60 & KFCA70
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To find isolated SAVR procedures patients with combined surgery were excluded

Combined surgery on <u>Mitral Valve</u>	NOMESCO	KFK.x
Combined surgery on <u>Tricuspid valve</u>	NOMESCO	KFG.x
Combined surgery on <u>Pulmonary valve</u>	NOMESCO	KFJE.x & KFJF.x
Combined surgery for arrhythmias	NOMESCO	KFPB.x & KFPD.x
Combined surgery other	NOMESCO	KFCA10, KFCA20, KFCA30, KFCA40, KFCA50, KFCA60, KFCA70, KFCA96, KFCB10, KFCB20, KFCB30, KFCB40, KFCB50, KFCB96, KFHA10, KFHA20, KFHA96, KFLD00, KFLD10, KFLD20, KFLE00, KFLE10 & KFLE20

Comorbidities

Cardiac implantable electronic devices	Danish procedure codes for medical examinations	BFCA0, BFCB0
Diabetes	ICD-10	E10.x to E14.x
	ICD-8	250
Dialysis (chronic)	Danish procedure codes for medical examinations	BJFD2
Renal disease	ICD-10	E10.2, E11.2, E13.2, E14.2 I12.0 I13.x N02.x to N08.x, N11.x, N12.x, N14.x, N15.8, N15.9, N16.0, N16.2 to N16.4, N16.8, N18.x, N19.x, N26.x Q61.2, Q61.3, Q61.5, Q61.9 Z99.2
	ICD-8	25002 403, 404, 40039 581, 582, 583, 584, 59009, 59320 75310, 75311, 75319
Liver disease	ICD-10	B15.x to B19.x, C22.x, D68.4C I98.2, K70.x to K77.0, Q61.8A, Z94.4

	ICD-8	070, 155, 571 to 573
Atrial fibrillation/flutter	ICD-10	I48
	ICD-8	42793, 42794
Congestive heart failure	ICD-10	I09.9, I11.0, I13.0, I13.2, I42.x, I50.x, J81.9, I25.5
	ICD-8	425, 428, 4270, 4271
Ischemic heart disease	ICD-10	I20.x to I25.x
	ICD-8	410 to 414
Ischemic/haemorrhagic stroke	ICD-10	I60.x to I64.x
	ICD-8	430, 431, 432,433,434, 436
Peripheral Vascular Disease	ICD-10	I70.x & I74.x
(PAD)	ICD-8	440, 440
Chronic obstructive lung disease	ICD-10	J42.x, J43.x, J44.x
	ICD-8	490, 491, 492
Malignancy	ICD-10	C00.x to C97.x (not in C44.x)
	ICD-8	140 to 209 (not in 173)

Medicine

Antihypertensive medication	ATC	C02A, C02B, C02C, C02DB, C02DD, C02DG, C03A, C03B, C03C, C03D, C03EB01 & C03EB02, C07, C08, C09,
Betablockade	ATC	C07 & C09BX
Lipid Lowering medication	ATC	C10
Anticoagulant Therapy	ATC	B01AA, B01AE, B01AF
Vitamin-K antagonists		
NOAC ²		
Glucose Lowering medication	ATC	A1

*“.x” indicates every sub-classification of diagnosis code or ATC code

†The Nordic Medico-Statistical Committee. *Classification of surgical procedures*

²New Oral Anticoagulant

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5 **Supplementary Table 2: ICD-10 Coding algorithms for Charlson Comorbidities**

Comorbidities	Type	Codes (Within the last 5 years from index date)
Charlson Comorbidity Index		
Myocardial infarction	ICD-10	I21.x*, I22.x, I125.2
Congestive Heart Failure	ICD-10	I109.9, I11.0, I113.0, II3.2, I125.5, I142.0, I142.5-I142.9, I143.x, I50.x, P29.0
Peripheral vascular disease	ICD-10	I70.x, I71.x, I73.1, I73.8, I73.9, I77.1, I79.0, I79.2, K55.1, K55.8, K55.9, Z95.8, Z95.9
Cerebrovascular disease	ICD-10	G45.x, G46.x, H34.0, I60.x-I69.x
Dementia	ICD-10	F00.x-F03.x, F05.1, G30.x, G31.1
Chronic pulmonary disease	ICD-10	I27.8, I27.9, J40.x-J47.x, J60.x-J67.x, J68.4, J70.1, J70.3
Rheumatic disease	ICD-10	M05.x, M06.x, M31.5, M32.x-M34.x, M35.1, M35.3, M36.0
Peptic ulcer disease	ICD-10	K25.x-K28.x
Mild liver disease	ICD-10	B18.x, K70.0-K70.3, K70.9, K71.3-K71.5, K71.7, K73.x, K74.x, K76.0, K76.2-K76.4, K76.8, K76.9, Z94.4
Moderate to severe liver disease	ICD-10	I85.0, I85.9, I86.4, I98.2, K70.4, K71.1, K71.2, K72.9, K76.5-K76.7

Diabetes without complications	ICD-10	E10.0, E10.1, E10.6, E10.8, E10,9, E11.0, E11.1, E11.6, E11.8, E11.9, E12.0, 12.1, E12.6, E12.8, E12.9, E13.0, E13.1, E13.6, E13.8, E13.9, E14.0, E14.1, E14.6, E14.8, E14.9
Diabetes with chronic complication	ICD-10	E10.2-E10.5, E10.7, E11.2-E11.5, E11.7, E12.2-E12.5, E12.7, E13.2-E13.5, E13.7, E14.2-E14.5, E14.7
Renal disease	ICD-10	I12.0, I13.1, N03.2-N03.7, N05.2, N05.7, N18.x, N19.x, N25.0, Z49.0, Z49.2, Z94.0, Z99.2
Hemiplegia or paraplegia	ICD-10	G04.1, G11., G80.1, G80.2, G81.x, G82.x, G83.0-G83.4, G83.9
Any malignancy including lymphoma and leukemia except malignant neoplasm of the skin	ICD-10	C00.x-C26.x, C30.x-C34.x, C37.x-C41.x, C43.x, C45.x-C58.x, C60.x- C76.x, C81.x-C85.x, C88.x, C90.x-C97.x
Metastatic solid tumor	ICD-10	C77.x-C80.x
AIDS/HIV	ICD-10	B20.x- B22.x, B24.x

*“.x” indicates every sub-classification of diagnosis code or ATC code

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9 **Supplementary Table 3: Baseline Characteristics of SAVR combined with CABG.**

SAVR + CABG				
	2008-2011	2012-2015	2016-2020	P-value*
Demographics				
Number of AVR	1477	1315	938	<0.001
Age (years), median [25 th -75 th percentile]	74.5 [68.7 - 79.0]	74.7 [69.4 - 78.7]	72.7 [67.3 - 76.5]	<0.001
Age groups, n(%)				<0.001
<75	778 (52.7)	674 (51.3)	615 (65.6)	
≥75	699 (47.3)	641 (48.7)	323 (34.4)	
Sex (Male), n(%)	1056 (71.5)	1026 (78.0)	774 (82.5)	<0.001
Peri-hospital				
Length of stay (days), median[25th-75th percentile]	10 [7 - 16]	9 [6 - 14]	7 [6 - 11]	<0.001
Implantation of pacemaker, n(%)	48 (3.3)	42 (3.2)	33 (3.5)	0.914
History of cardiovascular disease, n(%)				
Atrial Fibrillation	337 (22.8)	334 (25.4)	186 (19.8)	0.213
CIED	51 (3.5)	47 (3.6)	25 (2.7)	0.564
Heart Failure	339 (23.0)	259 (19.7)	146 (15.6)	<0.001

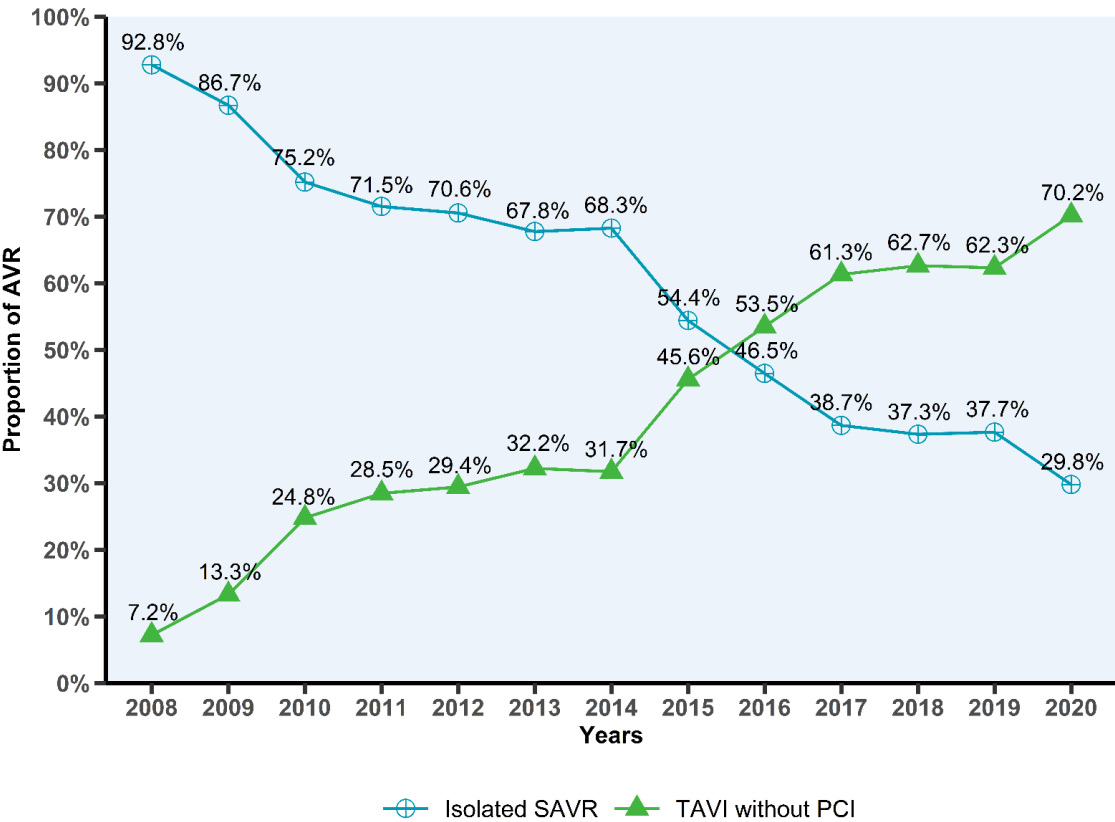
IHD	1280 (86.7)	1166 (88.7)	825 (88.0)	0.413
Comorbidity, medical history of n(%)				
AKI	67 (4.5)	68 (5.2)	33 (3.5)	0.251
Diabetes	348 (23.6)	350 (26.6)	271 (28.9)	<0.001
Cancer	180 (12.2)	199 (15.1)	140 (14.9)	0.032
CKD	86 (5.8)	69 (5.2)	50 (5.3)	0.840
COPD	152 (10.3)	117 (8.9)	76 (8.1)	0.087
Dialysis	27 (1.8)	21 (1.6)	10 (1.1)	0.289
Hypertension	975 (66.0)	897 (68.2)	535 (57.0)	<0.001
PAD	138 (9.3)	124 (9.4)	63 (6.7)	0.055
Prior Stroke / TIA	177 (12.0)	164 (12.5)	106 (11.3)	0.644
Charlson Comorbidity Index, n(%)				0.019
Charlson: 0	651 (44.1)	596 (45.3)	481 (51.3)	
Charlson: 1-2	601 (40.7)	528 (40.2)	363 (38.7)	
Charlson: ≥ 3	225 (15.2)	191 (14.5)	94 (10.0)	
Prehospital medication (<6 month), n(%)				
Anticoagulant treatment	215 (14.6)	216 (16.4)	143 (15.2)	0.434
Beta-blocker	781 (52.9)	632 (48.1)	346 (36.9)	<0.001

Lipid-lowering medication	1123 (76.0)	989 (75.2)	744 (79.3)	0.086
RAS inhibition	752 (50.9)	764 (58.1)	551 (58.7)	<0.001

***All P-values were test of trend by each calendar year**

Abbreviations: Cardiac Implantable Electronic Devices (CIED), Ischemic Heart Disease (IHD), Chronic Kidney Disease (CKD), Chronic Obstructive Pulmonary Disease (COPD), Peripheral Artery Disease (PAD), Transient Ischemic Attack (TIA)

11 **Supplementary Figure 1: Annual proportion of isolated AVRs without revascularization (CABG or PCI)**



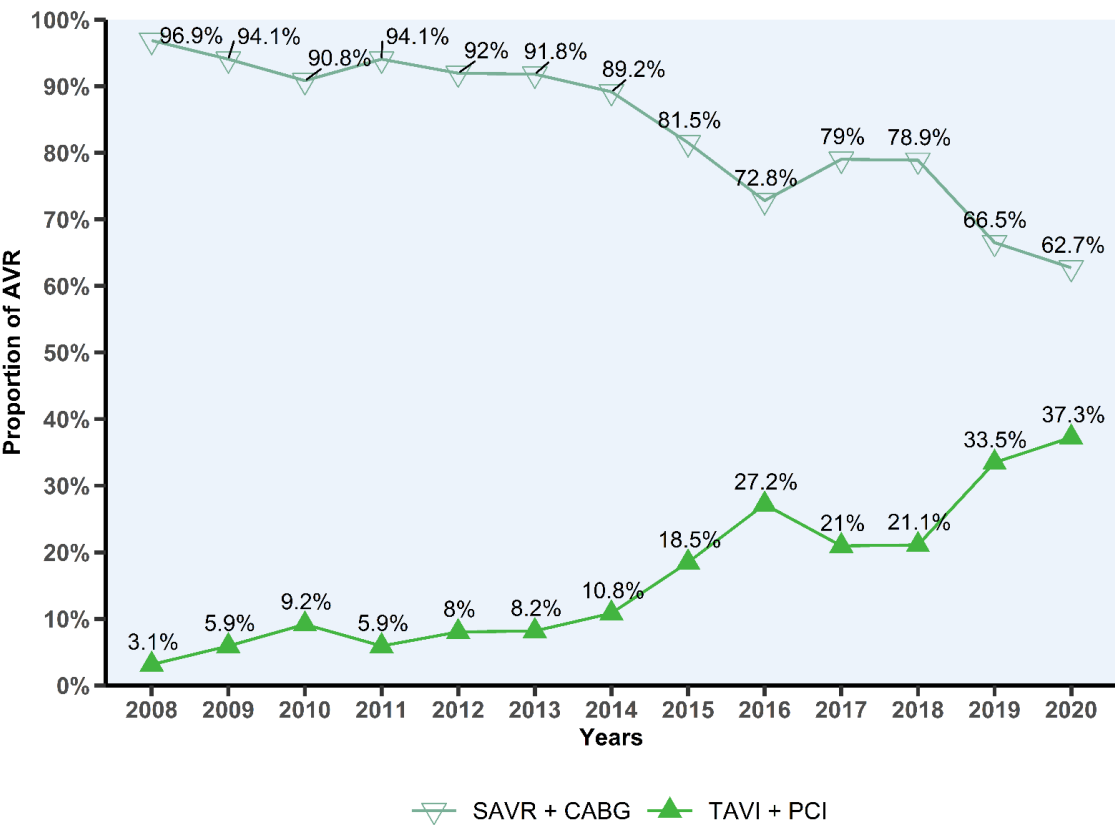
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13 Legend: The proportion of isolated AVR procedures without any type of revascularization procedure (CABG or PCI), isolated SAVR in

14 **light blue** and TAVI without PCI in **green**. AVR=aortic valve replacement, SAVR = surgical aortic valve replacement, TAVI =

15 transcatheter aortic valve implantation.

16 **Supplementary Figure 2: Annual proportion of AVRs combined with revascularization (CABG or PCI)**



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18 Legend: Proportion of SAVR combined with CABG (same date as SAVR) and TAVI with PCI (within 90 days before TAVI) out of all

19 AVR procedures combined with a revascularization procedure. SAVR + CABG in **dim green** and TAVI + PCI in **green**. AVR=aortic

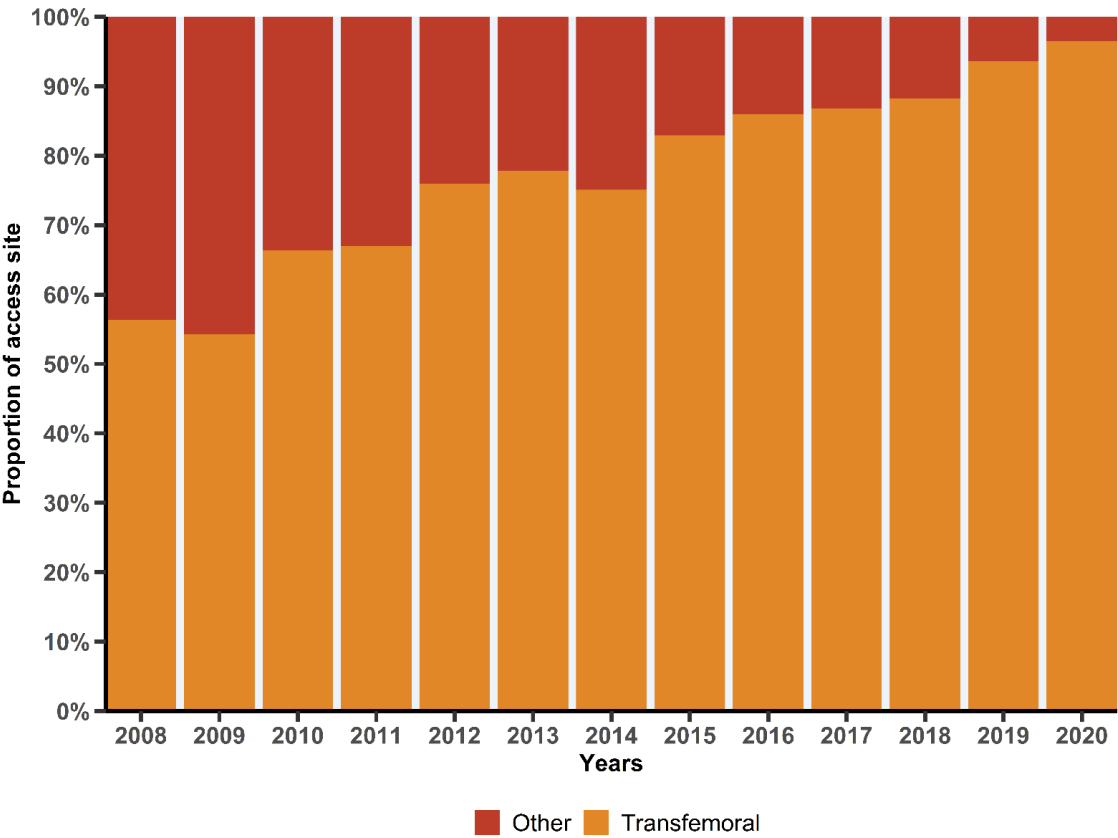
20 valve replacement, CABG = coronary artery bypass grafting, PCI = percutaneous coronary intervention, SAVR = surgical aortic valve

21 replacement, TAVI = transcatheter aortic valve implantation.

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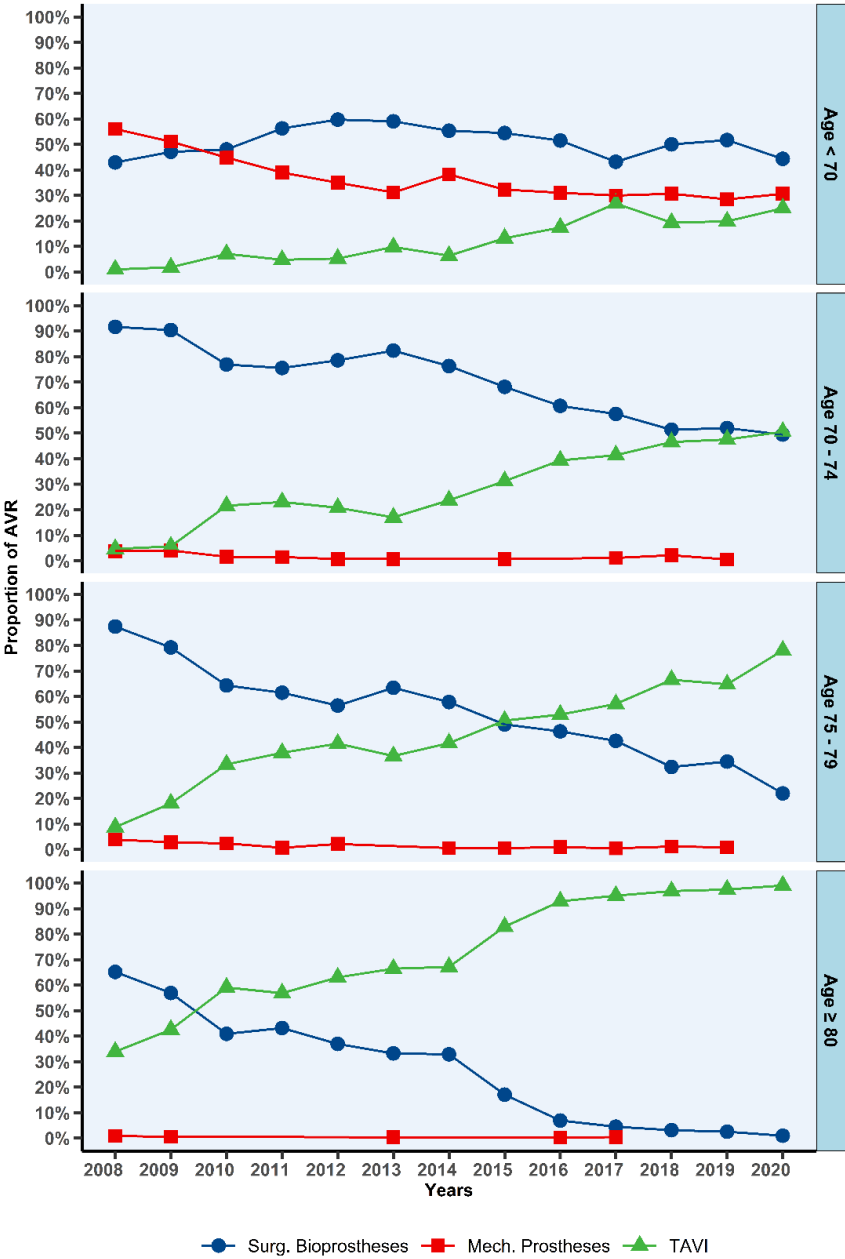
24 **Supplementary Figure 3: Annual proportion of TAVI access sites**



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26 Legend: Annual proportion of TAVI access sites out of total number of TAVI procedures. Other access types in **red** and transfemoral
27 access in **orange**. TAVI = transcatheter aortic valve implantation.

28 **Supplementary Figure 4: The proportion of isolated AVRs according to age in four age**
29 **categories**



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31 Legend: Annual proportion of surgical bioprostheses, mechanical prostheses, and TAVI according
32 to age in four age categories: <70, 70-74, 75-79 and ≥80 years of age. Surgical bioprostheses in
33 **blue**, mechanical prostheses in **red**, and TAVI in **green**. AVR=aortic valve replacement, TAVI =
34 transcatheter aortic valve implantation.