APPENDIX – A

Ovid Medline (June week 1 2016) and Medline in-process (June 2016):

1. Aortic Stenosis.mp. or exp Aortic Valve Stenosis/
2. (aortic valve implantation or TAVR or transcatheter or transfemoral or transapical or transaxillary or SAVR or heart valve replacement or surgical aortic valve replacement or surgical AVR or SAVR or TAVI or aortic valve replacement or transvascular).af.
3. exp Cohort Studies/
4. 1 and 2 and 3
5. limit 4 to yr="2006 -Current"
6. limit 5 to humans

Ovid EMBASE:

1. aortic stenosis.mp. or exp aorta stenosis/
2. (aortic valve implantation or heart valve implantation or TAVR or TAVI or transcatheter or transfemoral or transapical or transaxillary or SAVR or heart valve replacement or surgical aortic valve replacement or surgical AVR or SAVR or aortic valve replacement or transvascular).af.
3. cohort.tw.
4. 1 and 2 and 3
5. limit 4 to yr="2006 -Current"
6. limit 5 to human

APPENDIX – B

Article ID:			
Author:	Year:	Journal:	Title:

Paper:		
• Published ≥2005	**YES**	**NO**

Population[3]:		
• Aortic valve stenosis patients	**YES**	**NO**
• Adults (≥ 18 years old)	**YES**	**NO**

Intervention:		
• Transcatheter Aortic Valve Implant or,	**YES**	**NO**
• Surgical Aortic Valve intervention		

Outcomes reported:		
• Mortality	**YES**	**NO**
• Change in NYHA		
• Stroke		
• MI		
• Atrial fibrillation		
• Structural valve deterioration		
• Valve in valve		
ALL OUTCOMES SHOULD BE SEEN AT 2 YEARS OR GREATER THAN 2 YEARS. Anything before 2 years, EXCLUDE		

Type of article[7]:		
• Cohort study (retrospective or prospective)	**YES**	**NO**

Duplicated population:		
• If duplicated, does this study provide new information?	**YES**	**NO**
• If duplicated, is study more recent?		

Study inclusion:	
• All the answers are YES	**INCLUDE**
• Any answer is NO	**EXCLUDE**

APPENDIX C – Baseline demographics and population characteristics

Study	Recruitment Period	N	Age (Mean ± SD)	% Male	Coronary Artery Disease (CAD) %	Chronic Obstructive Pulmonary Disease (COPD) (%)	Diabetes (%)	HTN (%)	Atrial fibrillation (%)	Left Ventricular Ejection Fraction (LVEF)	NYHA III/IV (%)	Prior Coronary Artery Bypass Grafting (CABG) (%)	Prior Myocardial Infarct (MI) (%)	Log Euro Score II (Mean ± SD)	Concomitant CABG-SAVR	Outcomes
Accola 2008	1989 - 2003	801	74.0 ± 4.4	62.30%	55.20%	NR	NR	NR	NR	NR	NR	49.70%	NR	NR	52.80%	Survival
Ali 2011	1991 - 2001	147	62.0 ± 12.0	70.00%	NR	NR	6.80%	38.10%	NR	NR	53.00%	NR	NR	NR	29.90%	Survival
Amabile 2014	1997 - 2004	500	74.5 ± 9.6	52.00%	35.00%	NR	22.00%	NR	NR	58.60%	41.00%	NR	NR	NR	24.40%	Stroke, SVI in SAVR, Survival
Anselmi 2014	1994 - 2004	955	74.7 ± 6.8	63.00%	NR	NR	NR	NR	NR	59.00%	41.90%	1.80%	NR	§8.6% ± 7.8%	14.60%	Stroke, SVI in SAVR, Survival
Ashikhmina 2011	1993 - 2007	2890	78.0 ± 5.0	63.00%	NR	NR	NR	NR	NR	57.00%	73.00%	12.00%	NR	NR	52.00%	Length of Stay, SVD i SAVR, Survival
Aupart 2006	1984 - 2003	1049	72.6 *(39.0-91.0)	63.00%	NR	NR	NR	NR	7.90%	NR	36.00%	NR	NR	NR	26.00%	SVD in SAVR, Survival
Auriemma 2006	1993 - 2004	318	69.0 ± 9.0	73.00%	27.00%	NR	NR	NR	NR	NR	68.00%	NR	NR	NR	27.00%	SVD in SAVR, Survival
Aydin 2014	1990 - 2012	114	76.6 *(70.0-87.0)	56.00%	24.50%	22.80%	22.80%	77.20%	14.90%	56.90%	86.00%	2.60%	28.90%	NR	25.40%	Afib, Stroke, Length of Stay, Survival
Barone-Rochette 2014	2005 - 2012	154	74.0 ± 9.0	62.00%	29.00%	12.00%	23.00%	62.00%	9.00%	60.00%	27.00%	NR	NR	§7.1% ± 5.5%	28.60%	Survival
Beholz 2010	2004 - 2006	256	74.5 ± 6.4	45.00%	NR	NR	24.00%	73.00%	10.00%	NR	62.90%	NR	NR	NR	23.00%	Survival
Benhameid 2008	1982 - 1992	161	69.0 ± 6.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	SVD in SAVR, Survival
Bernet 2007	1993 - 2003	1161	62.0 ± 12.0	65.00%	30.00%	6.70%	11.60%	NR	16.60%	NR	55.00%	NR	NR	NR	NR	Survival
Bourguignon 2015	1984 - 2008	2559	70.7 ± 10.4	68.40%	NR	NR	NR	NR	9.10%	NR	34.80%	NR	NR	NR	23.10%	SVD in SAVR, Survival

Bourguignon 2016	1984 - 2008	516	59.5 ± 4.4	80.80%	NR	NR	NR	NR	5.90%	NR	32.20%	NR	NR	NR	12.10%	SVD in SAVR, Survival
Christ 2013	1993 - 2001	188	53.0 ± 7.0	79.00%	9.60%	NR	NR	NR	NR	NR	NR	NR	NR	NR	7.00%	Survival
Christ 2014	N/A	54	53.0 ± 8.0	NR	NR	NR	NR	NR	NR	NR	2.00%	NR	NR	NR	NR	Survival
Christ 2014	1993 - 2001	120	53.0 ± 8.0	82.50%	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Survival
Concistre 2013	2005 - 2010	142	77.1 ± 9.9	51.00%	NR	14.10%	18.30%	73.20%	NR	55.40%	NR	NR	NR	NR	15.50%	Survival
D'onofrio 2013	2008 - 2012	774	81.0 ± 7.0	42.00%	NR	31.90%	27.00%	NR	22.00%	NR	80.00%	NR	NR	NR	11.20%	Survival
Dagenais 2010	1995 - 2009	94	NR	71.90%	NR	17.70%	29.20%	77.90%	9.40%	NR	37.90%	NR	NR	NR	100.00%	Survival
Dalen 2015	2007 - 2014	267	76.9 ± 5.2	36.00%	4.10%	14.20%	26.20%	NR	NR	NR	NR	NR	1.50%	NR	0.00%	Length of Stay, Survival
de Vincentiis 2008	1991 - 2005	345	82.0 ± 2.0	43.50%	NR	NR	NR	NR	19.40%	NR	87.50%	NR	NR	NR	43.50%	Survival
Dewey 2008	1998 - 2006	309	78.5 ± 7.6	51.80%	NR	NR	35.60%	NR	NR	NR	64.90%	48.20%	10.50%	NR	NR	Survival
Ding 2010	1998 - 2003	221	77.0 ± 2.0	72.00%	53.00%	NR	23.00%	44.00%	30.00%	55.00%	NR	NR	NR	NR	NR	Survival
Dubois 013	2008 - 2011	163	82.0 ± 5.0	49.00%	64.00%	36.00%	30.00%	70.00%	37.00%	53.00%	92.00%	23.00%	18.00%	17-35	11.00%	Survival
Eichinger 2008	1985 - 1996	455	73.0 ± 9.0	53.00%	NR	NR	NR	NR	NR	NR	45.00%	NR	NR	NR	38.00%	SVD in SAVR, Survival
ElBardissi 2011	1996 - 2009	249	84.0 ± 3.0	45.00%	NR	NR	15.00%	76.00%	NR	NR	54.00%	18.00%	NR	NR	NR	Survival
Elhmidi 2014	2000 - 2011	2197	67.1 ± 12.0	58.70%	NR	NR	NR	NR	NR	NR	67.30%	NR	2.30%	6.2% ± 6.1%	NR	Survival
Englberger 2014	2007 - 2009	141	76.1 ± 5.7	38.30%	NR	NR	NR	NR	NR	NR	63.10%	NR	NR	NR	NR	Survival
Ennker 2009	1996 - 2005	1014	73.0 ± 8.0	50.00%	NR	NR	25.00%	66.00%	18.50%	58.00%	47.90%	NR	10.00%	NR	38.00%	Survival
Filsoufi 2008	1998 - 2006	1308	64.9 ± 12.0	62.90%	55.50%	7.20%	13.80%	62.40%	NR	49.00%	35.60%	NR	11.80%	§14.8% ± 12.7%	28.70%	Stroke, Survival
Flameng 2010	1991 - 2003	564	74.0 ± 5.0	51.00%	NR	NR	NR	67.00%	NR	NR	48.00%	NR	NR	NR	47.00%	Survival
Fuchs 2010	1998 - 2005	408	70.0 ± 11.0	47.00%	NR	9.00%	20.00%	67.00%	NR	NR	30.00%	NR	NR	NR	25.00%	Survival
Gaudino 2011	2003 - 2009	873	79.0 ± 5.0	51.00%	NR	5.00%	NR	4.00%	NR	NR	11.00%	NR	NR	NR	NR	Length of Stay, Survival
George 2014	2001 - 2012	119	92.0 ± 2.0	57.00%	NR	13.50%	12.00%	82.00%	43.00%	50.00%	NR	NR	21.00%	NR	NR	Length of Stay, Survival

Gerckens 2011	2005 - 2006	52	81.0 ± 6.0	36.00%	NR	NR	NR	NR	NR	NR	87.00%	NR	NR	§27.4 % ± 15.1%	NR	SVD in TAV
Glaseret 2014	2002 - 2008	355	76.0 ± 9.0	54.00%	NR	7.00%	12.00%	NR	16.00%	70.00%	NR	NR	NR	NR	NR	Survival
Glauber 2015	2004 - 2014	593	74.0 ± 6.0	52.00%	NR	13.00%	21.00%	70.00%	NR	60.00%	NR	0.50%	3.00%	5.76	NR	Stroke, Survival
Grossi 2008	1996 - 2006	731	NR	49.90%	NR	17.60%	17.10%	NR	NR	NR	NR	NR	NR	17.20%	NR	Survival
Grupper 2014	2004 - 2012	416	76.0 ± 14.0	42.00%	NR	NR	32.00%	59.00%	NR	NR	NR	NR	NR	NR	NR	Survival
Gunter 2013	2002 - 2012	2379	67.2 ± 13.4	63.20%	NR	21.90%	30.80%	82.10%	NR	NR	43.10%	NR	22.70%	NR	36.20%	Survival
Gurvitch 2010	2005 - 2006	70	84.7 ± 7.6	NR	NR	NR	24.30%	NR	NR	NR	NR	NR	78.60%	§31.7 % ± 16.0 %	NR	SVD in TAV
Hartzell 2011	2004 - 2005	362	75.1 ± 10.5	48.00%	42.50%	NR	21.30%	86.20%	NR	NR	18.20%	7.70%	15.70%	NR	41.80%	Survival
Higgins 2011	1982 - 2003	3343	68.1 ± 11.2	65.70%	NR	7.80%	10.00%	23.20%	7.80%	NR	75.70%	NR	9.20%	NR	43.70%	Survival
Hong 2013	1995 - 2010	351	60.0 ± 12.0	61.00%	NR	NR	12.00%	NR	NR	NR	6.00%	NR	NR	NR	NR	Survival
Horst 2011	2004 - 2009	143	71.0 ± 7.0	57.00%	NR	NR	NR	NR	10.00%	NR	NR	NR	NR	NR	3.50%	Survival
Hosono 2013	1993 - 2009	132	76.1 ± 3.7	46.20%	NR	NR	18.90%	59.10%	9.10%	NR	54.50%	NR	0	NR	16.70%	Survival
Howell 2010	1997 - 2007	801	61.0 ± 13.0	56.00%	NR	6.00%	9.00%	43.00%	NR	NR	12.00%	NR	NR	4.9	NR	Survival
Iturra 2014	2002 - 2011	502	80.0 *(49.0-96.0)	55.00%	80.00%	NR	NR	83.00%	9.00%	63.00%	64.00%	20.00%	9.00%	NR	54.00%	Survival
Joshi 2014	1999 – 2013	281	60.0 ***(46.0-71.0)	NR	NR	13.00%	7.00%	53.00%	13.00%	NR	NR	NR	NR	NR	NR	SVD in SAVR
Kapadia 2014	2007 - 2009	358	NR	NR	NR	24.00%	NR	NR	NR	NR	NR	NR	NR	NR	NR	SVD in TAV
Kato 2008	1986 - 2006	84	72.5 ± 5.0	50.00%	17.90%	11.90%	3.60%	NR	4.80%	NR	NR	NR	NR	NR	20.20%	Survival
Kimiyoshi 2007	2000 - 2004	233	73.5 ± 10.5	66.50%	100.00%	9.00%	30.00%	NR	8.20%	NR	74.20%	NR	30.00%	NR	NR	Survival
Kobayashi 2009	2000 - 2004	233	73.6 ± 10.6	66.50%	NR	9.00%	30.00%	77.70%	9.00%	NR	74.20%	NR	NR	NR	100.00%	Survival
Koos 2013	2008 - 2012	76	83.0 ± 6.0	36.80%	NR	35.50%	19.70%	96.10%	NR	NR	93.40%	NR	NR	21.0 % ± 12.0 %	NR	SVD in TAV
Kulik 2006	1990 - 2002	664	65.4 ± 13.5	65.50%	NR	NR	NR	NR	NR	NR	41.40%	NR	NR	NR	NR	Survival
Levy 2008	1990 - 2005	217	71.0 ± 8.0	77.00%	28.00%	NR	25.00%	NR	27.00%	28.00%	83.00%	NR	23.00%	NR	34.00%	Survival
Linneweber 2010	2002 - 2008	35	73.0 ± 6.0	NR	NR	NR	NR	NR	NR	NR	100.00%	NR	NR	§‡11.9%	14.30%	SVD in SAVR, Survival
Luciani 2008	2000 - 2007	154	71.0 ± 9.0	62.00%	NR	NR	NR	NR	0.10%	NR	62.00%	NR	NR	NR	22.00%	Survival
Matsumoto 2015	2000 - 2002	207	74.0 ± 8.0	43.50%	NR	NR	22.70%	NR	NR	NR	15.00%	NR	NR	NR	25.10%	SVD in SAVR, Survival

McLean 2011	1996 - 2009	4124	68.0 **(60.0-74.0)	55.40%	NR	9.90%	8.20%	NR	NR	NR	9.90%	NR	3.80%	NR	NR	Survival
Milano 2012	2000 - 2005	85	76.0 ± 6.0	27.00%	NR	NR	NR	NR	11.50%	58.00%	49.40%	NR	NR	NR	13.00%	SVD in SAVR, Survival
Muneretto 2014	2010 - 2013	163	79.7 ± 5.0	40.50%	22.70%	30.10%	21.50%	76.00%	25.10%	54.10%	71.80%	NR	4.90%	§19.3% ± 12.3%	NR	Survival
Muneretto 2015	2007 - 2014	991	80.0 ± 3.0	44.20%	31.00%	24.30%	28.70%	NR	NR	NR	64.80%	NR	6.70%	NR	NR	Survival
Nyawo 2007	1998 - 2003	102	71.6 ± 7.8	56.90%	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Survival
Nyugen 2014	2002-2013	255	75.6 ± 9.2	77.20%	NR	38.80%	46.70%	95.30%	2.30%	46.50%	NR	100.00%	NR	NR	NR	Survival
Okamura 2012	2005-2009	78	72.9 ± 7.7	6.40%	23.10%	NR	15.40%	15.40%	6.40%	NR	44.90%	NR	NR	NR	16.70%	Survival
Oliveira 2012	2002 - 2006	114	78.5 ± 2.5	38.60%	NR	NR	18.40%	NR	14.00%	NR	39.50%	NR	NR	NR	NR	Survival
Orlowska-Baranowska 2012	1998-2008	1143	61.5 ± 11.0	58.20%	21.00%	NR	NR	39.00%	NR	NR	65.00%	16.00%	NR	NR	NR	Survival
Papadopoulos 2014	2005 - 2012	219	74.4 ± 8.0	56.20%	39.70%	25.60%	28.80%	76.60%	NR	42.80%	NR	NR	NR	18.9 % ± 2.7 %	NR	SVD in SAVR, Survival
Petrov 2014	2005 - 2012	128	70.5 ± 9.5	50.80%	6.60%	15.00%	29.00%	87.50%	NR	59.50%	NR	NR	NR	NR	NR	Survival
Redlich 2011	1996 - 2010	60	73.0 ± 6.0	75.00%	88.00%	30.00%	18.00%	83.00%	30.00%	49.00%	78.00%	NR	48.00%	§27.0% ± 17.0%	0.00%	Stroke, Length of Stay, SVD i SAVR, Survival
Rodes-Cabau 2014	N/A	539	84.1 ± 6.2	57.70%	76.20%	43.80%	40.60%	91.10%	50.50%	52.30%	94.10%	NR	NR	NR	NR	Survival
Rubio Alvarez 2010	1978 - 2008	202	68.2 ± 8.7	15.30%	NR	NR	NR	NR	NR	NR	88.10%	NR	NR	NR	0.00%	Survival
Santarpino 2015	2010	626	80.3 ± 5.6	44.70%	NR	23.60%	35.00%	90.60%	NR	56.10%	NR	NR	NR	20.6% ± 14.5%	10.90%	Length of Stay, Survival
Scherner 2014	2008 - 2012	136	75.4 ± 10.9	62.50%	75.70%	11.00%	35.30%	NR	22.00%	52.80%	80.90%	NR	NR	NR	66.20%	Survival
Schymik 2015	2008 - 2012	1141	73.8 ± 7.9	52.00%	37.20%	NR	NR	NR	NR	62.40%	NR	NR	4.20%	§7.3 ± 3.0	NR	Survival
Senage 2014	2002 - 2007	617	76.1 ± 6.3	45.20%	NR	NR	19.60%	NR	15.40%	57.00%	30.50%	NR	6.80%	10.5% ± 10.1%	30.80%	SVD in SAVR, Survival
Sezai 2015	2000 - 2013	75	82.3 ± 2.3	48.00%	NR	5.00%	24.00%	NR	NR	58.30%	69.30%	NR	NR	NR	24.00%	Survival
Stassano 2006	1992 - 2002	175	62.7 ± 8.9	77.10%	100.00%	NR	NR	NR	NR	48.90%	62.20%	NR	16.60%	NR	NR	Survival

Subramanian 2012	2006 - 2010	79	80.4 ± 3.6	49.00%	NR	9.00%	52.00%	94.00%	NR	55%	NR	NR	NR	13.0% ± 7.0%	NR	Length of Stay
Svennevig 2007	1977 - 1987	816	55.6 ± 13.0	70.70%	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	17.00%	SVD in SAVR, Survival
Timek 2015	1997 - 2012	2379	83.0 ± 2.0	77.00%	NR	10.00%	30.00%	NR	NR	53.00%	57.00%	73.80%	NR	NR	49.00%	Survival
Umezu 2009	1990 - 2007	64	58.3 ± 9.0	NR	NR	NR	100.00%	NR	NR	NR	NR	NR	NR	NR	0.10%	Afib, SVD i SAVR, Survival
Une 2015	1970 - 2012	2341	67.8 ± 13.4	66.90%	NR	NR	NR	NR	NR	57.80%	36.30%	NR	NR	NR	38.20%	Survival
Vohra 2010	2003 - 2006	68	77.0 *(60.0-89.0)	26.50%	NR	NR	NR	NR	NR	NR	88.20%	NR	NR	NR	33.80%	Survival
Wang 2014	2007 - 2011	183	77.9 ± 4.6	55.20%	NR	NR	20.20%	59.00%	30.00%	NR	87.00%	NR	15.30%	10.3	NR	Survival
Wenaweser 2011	2007 - 2010	442	81.7 ± 6.0	48.00%	61.10%	NR	22.90%	76.50%	23.80%	52.00%	56.80%	17.20%	17.90%	§22.3% ± 14.6%	10.40%	Stroke, Length of Stay, Survival
Yakubov 2015	2011 - 2012	489	83.2 ± 8.7	47.90%	81.80%	23.50%	41.50%	NR	NR	NR	91.80%	39.50%	NR	22.6% ± 17.1%	NR	SVD in TAV
Yamane 2011	1997 - 2010	308	78.5 ± 5.0	55.00%	66.00%	22.00%	26.00%	77.00%	NR	52.20%	58.10%	NR	19.00%	NR	46.10%	Length of Stay, Survival
Yamashita 2012	1982 - 2002	1061	NR	54.00%	NR	8.00%	7.00%	21.00%	12.00%	NR	75.00%	NR	4.00%	NR	NR	Survival
Yoshikawa 2008	1980 - 1999	221	55.0 ± 14.1	57.00%	NR	NR	NR	NR	NR	69.90%	NR	NR	NR	NR	NR	Survival
Zannis 2007	1998 - 2003	102	71.7 ± 7.8	56.90%	61.80%	NR	NR	NR	NR	56.80%	NR	NR	NR	NR	NR	Survival

† = Median + 25^{th}-75^{th} percentile

‡ = Mean but no standard deviation available

§ = Euroscore I

* = Median and range

** = Median and IQR

***= Mean and range

APPENDIX – D

Assessment of quality in individual studies using QUIPS

Study	Study Participation	Study Attrition	Prognostic Factor Measurement	Outcome Measurement	Study Confounding	Statistical Analysis and Reporting	Overall RoB	Study Design
Accola 2008	Low	Low	Low	Low	Low	Low	Low	Prospective
Ali 2011	Low	N/A	Low	Low	Low	Low	Low	Retrospective
Amabile 2014	Moderate	High	Low	Low	Low	Low	High	Prospective
Anselmi 2014	Low	High	Low	Low	Low	Low	Moderate	Retrospective
Ashikhmina 2011	Low	Moderate	Low	Low	Low	Low	Low	Retrospective
Aupart 2006	Low	Low	Low	Low	Low	Low	Low	Prospective
Auriemma 2006	Low	Low	Low	Low	Moderate	Low	Low	Retrospective
Aydin 2014	Low	Low	Low	Low	Low	Low	Low	Retrospective
Barone-Rochette 2014	Low	Low	Low	Low	Low	Low	Low	Prospective
Beholz 2010	Low	High	Low	Low	Low	Low	Moderate	Prospective
Benhameid 2008	Low	Low	Low	Low	Low	Low	Low	Retrospective
Bernet 2007	High	N/A	Moderate	Moderate	Low	Moderate	High	Retrospective
Bourguignon 2015	Low	Moderate	Low	Low	Low	Low	Low	Prospective
Bourguignon 2016	Low	Low	Low	Low	Low	Low	Low	Retrospective
Celiento 2014	Moderate	High	Low	Low	Moderate	Low	High	Retrospective
Christ 2013	Low	Low	Low	Low	Low	Low	Low	Retrospective
Christ 2014	Low	Low	Low	Low	Low	Low	Low	Retrospective
Christ 2014	Low	Low	Low	Low	Low	Low	Low	Retrospective
Concistre 2013	Low	Low	Low	Low	Low	Low	Low	N/A
D'onofrio 2013	Moderate	Moderate	Moderate	Moderate	Low	Moderate	High	Prospective
Dagenais 2010	Moderate	Low	Low	Low	Moderate	Low	Moderate	Retrospective
Dalen 2015	Low	Low	Low	Low	Low	Low	Low	Retrospective
de Vincentiis 2008	Low	Low	Low	Low	Low	Low	Low	Retrospective
Dewey 2008	High	Low	High	Low	Low	Low	High	Retrospectie
Ding 2010	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	Not Listed

Doss 2012	Low	Low	Low	Low	Low	Low	Low	Retrospective
Dubois 013	Low	Moderate	Moderate	Low	Low	Moderate	Moderate	Prospective
Eichinger 2008	Low	Low	Low	Low	Low	Low	Low	Not Listed
ElBardissi 2011	Low	Low	Low	Low	Low	Low	Low	Prospective
Elhmidi 2014	Low	Low	Low	Low	Low	Low	Low	Retrospective
Englberger 2014	Moderate	Low	Low	Low	High	Low	High	Prospective
Ennker 2009	High	Low	Low	Low	Low	Low	Moderate	Prospective
Filsoufi 2008	Low	Low	Low	Low	Low	Low	Low	Retrospective
Flameng 2010	Low	Low	Low	Low	Low	Low	Low	Not Listed
Fuchs 2010	Low	Low	Low	Low	Low	Low	Low	Not Listed
Gaudino 2011	Low	Low	Low	Low	Low	Low	Low	Prospective
George 2014	Low	Low	Low	Moderate	Low	Moderate	Moderate	Retrospective
Gerckens 2011	Low	Low	Low	Low	Low	Low	Low	Prospective
Glaseret 2014	Low	Low	Low	Moderate	Low	Moderate	Moderate	Not Listed
Glauber 2015	Low	Low	Low	Moderate	Low	Low	Low	Retrospective
Grossi 2008	High	N/A	Moderate	Low	Low	Low	High	Prospective
Grupper 2014	Low	Low	Low	Low	Low	Low	Low	Retrospective
Gunter 2013	Moderate	Moderate	Low	Low	Low	Low	Moderate	Retrospective
Gurvitch 2010	Low	N/A	Low	Low	Low	Low	Low	Prospective
Hartzell 2011	Moderate	High	Low	Low	High	Low	High	Retrospective
Higgins 2011	Low	N/A	Low	Low	High	Low	Moderate	Retrospective
Hong 2013	Low	Low	Low	Low	Low	Low	Low	Prospective
Horst 2011	High	Low	Low	Low	Low	Low	Moderate	Retrospective
Hosono 2013	Moderate	Low	Low	Low	High	Low	High	Retrospective
Howell 2010	Low	Low	Low	Low	Low	Low	Low	Prospective
Iturra 2014	Low	Low	Low	Low	Low	Low	Low	Not Listed
Kapadia 2014	Low	Low	Low	Low	Low	Low	Low	Not Listed
Kato 2008	Low	Low	Low	Low	Low	Low	Low	Prospective
Kimiyoshi 2007	Low	Low	Low	Low	Low	Low	Low	Retrospective
Kobayashi 2009	Moderate	Low	Low	Low	High	Low	High	Retrospective
Koos 2013	High	N/A	Low	Low	Moderate	Low	High	Retrospectie

Kulik 2006	Moderate	Low	Low	Low	Low	Low	Low	Prospective
Levy 2008	Moderate	Low	Low	Low	Low	Low	Low	Retrospective
Linneweber 2010	Moderate	Low	Low	Low	Low	Low	Low	Prospective
Luciani 2008	Moderate	Low	Low	Low	Moderate	Low	Moderate	Retrospective
Mahmut 2013	High	Low	Low	Low	Moderate	Low	High	Prospective
Matsumoto 2015	Low	Low	Low	Low	Low	Low	Low	Prospective
McLean 2011	Low	Low	Low	Low	Low	Moderate	Low	Prospective
Milano 2012	High	Low	Low	Low	Low	Low	Moderate	Retrospectie
Muneretto 2014	Low	Low	Low	Low	Low	Low	Low	Prospective
Muneretto 2015	Low	Low	Low	Low	Low	Moderate	Low	Retrospective
Nyawo 2007	Low	Low	Low	Low	Low	Low	Low	Prospective
Nyugen 2014	Low	Moderate	Moderate	Low	Low	Low	Moderate	Retrospective
Okamura 2012	Low	Low	Low	Low	Low	Moderate	Low	NR
Oliveira 2012	Low	Low	Low	Low	Low	Low	Low	Retrospective
Orlowska-Baranowska 2012	Moderate	High	High	Low	Moderate	Low	High	Prospective
Papadopoulos 2014	Low	Low	Low	Low	Low	Low	Low	Prospective
Petrov 2014	Low	Low	Low	Low	Low	Low	Low	Prospective
Redlich 2011	Low	Low	Low	Low	Low	Low	Low	Retrospective
Rodes-Cabau 2014	Moderate	Low	Moderate	Low	Low	Low	Moderate	Retrospective
Rubio Alvarez 2010	Moderate	Low	Low	Low	Low	Low	Low	Retrospective
Santarpino 2015	Moderate	High	Low	Low	Low	Low	High	Retrospective
Scherner 2014	Low	High	Low	Low	Low	Low	Moderate	Retrospective
Schymik 2015	Low	Low	Low	Low	Low	Low	Low	Prospective
Senage 2014	Moderate	Moderate	Low	Low	Low	Low	Moderate	Prospective
Sezai 2015	High	Moderate	Moderate	Low	Low	Low	High	Retrospective
Stassano 2006	Moderate	Moderate	Low	Low	Low	Low	Moderate	Prospective
Subramanian 2012	Moderate	High	Low	Low	Low	Low	High	Retrospective
Svennevig 2007	High	High	Low	Low	Low	Low	High	Retrospective
Timek 2015	High	N/A	Low	Low	Moderate	Low	High	Retrospective
Umezu 2009	High	Low	Low	Low	High	Low	High	Retrospective

Une 2015	Low	High	Low	Low	Low	Low	Moderate	Retrospective
Vohra 2010	High	Low	Low	Low	High	Low	High	Retrospective
Wang 2014	Moderate	N/A	Low	Low	Moderate	Low	Moderate	Retrospective
Wenaweser 2011	Low	Low	Low	Low	Low	Low	Low	Prospective
Yakubov 2015	Moderate	High	Low	Low	Low	Low	High	Prospective
Yamane 2011	Low	Low	Low	Low	Low	Low	Low	Retrospective
Yamashita 2012	High	Moderate	Low	Low	Low	Low	High	Retrospective
Yoshikawa 2008	High	Low	Moderate	Low	Low	Low	High	Retrospectie
Zannis 2007	High	N/A	Low	Low	Low	Low	Moderate	Prospective

Appendix – E

Forest plots for pooled estimate of effect

Figure 1A - Incidence rate of stroke by valve type

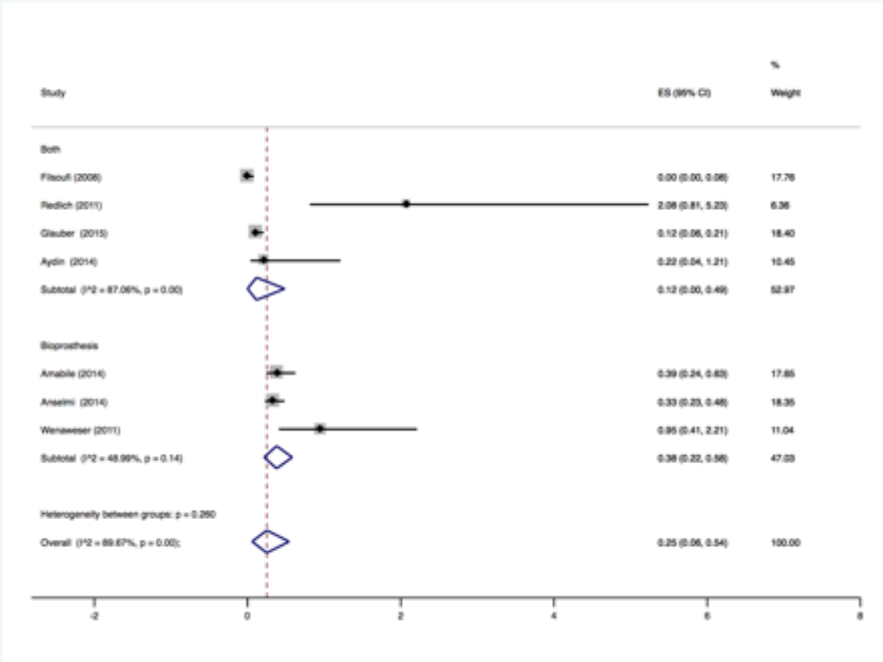


Figure 2A - Incidence rate of stroke by study quality

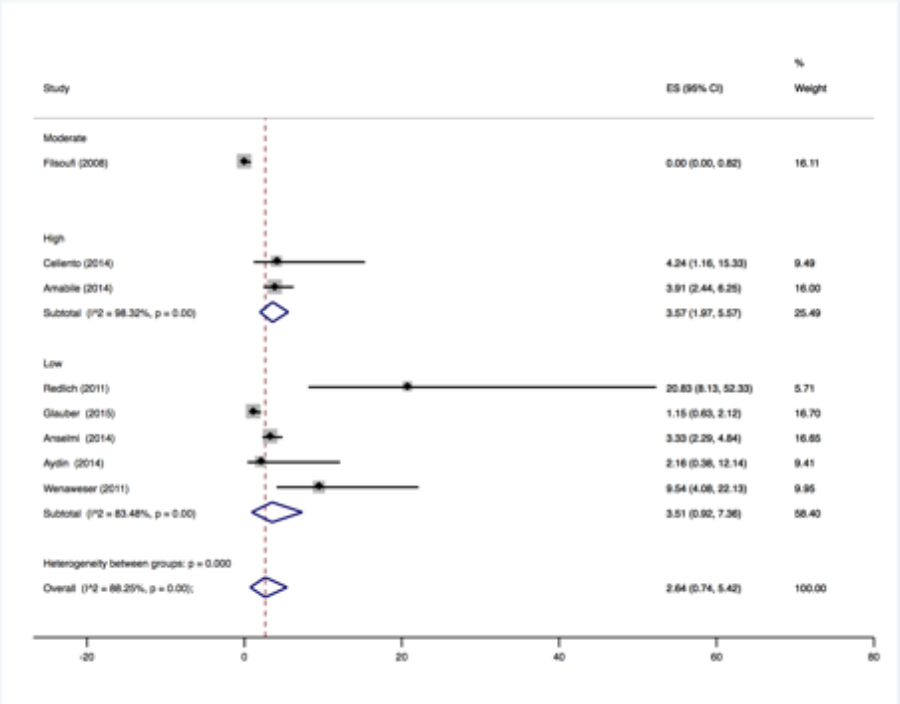


Figure 3A - Incidence rate of atrial fibrillation post SAVR

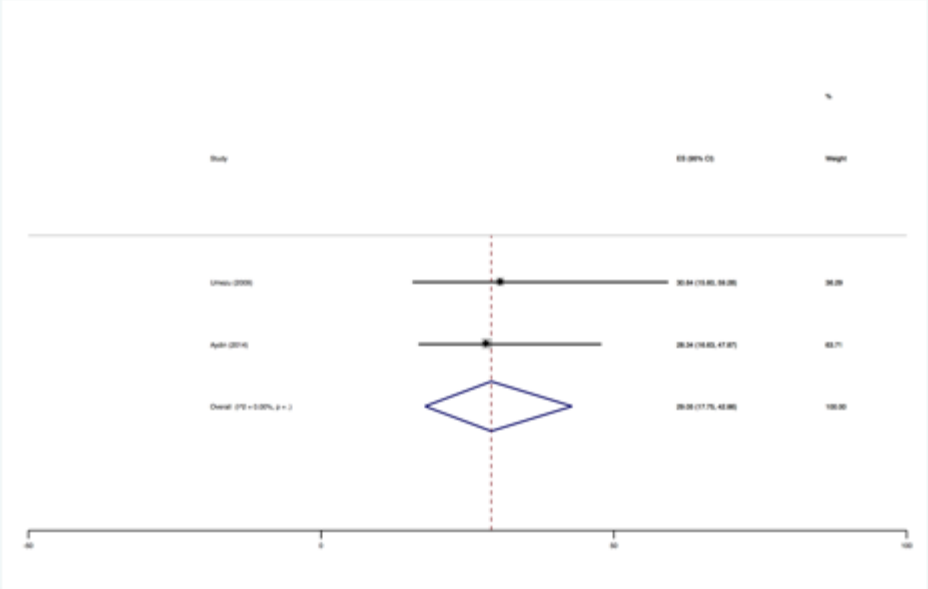
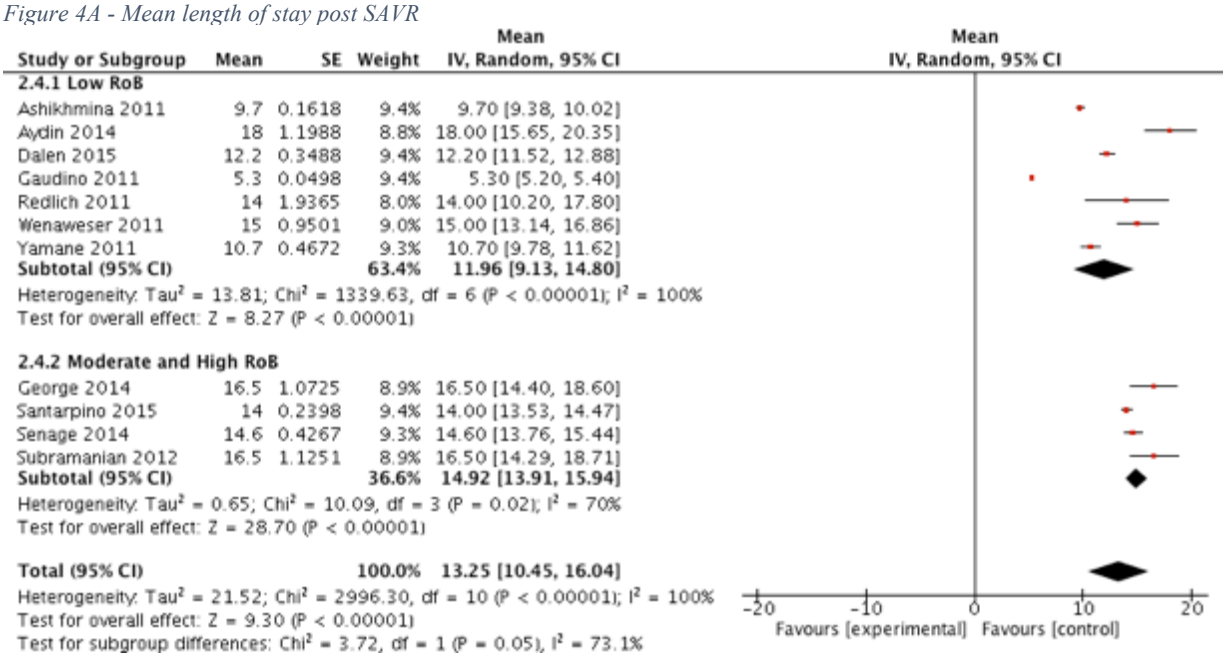


Figure 4A - Mean length of stay post SAVR



APPENDIX – F

Individual studies used in pooled estimate of survival post SAVR

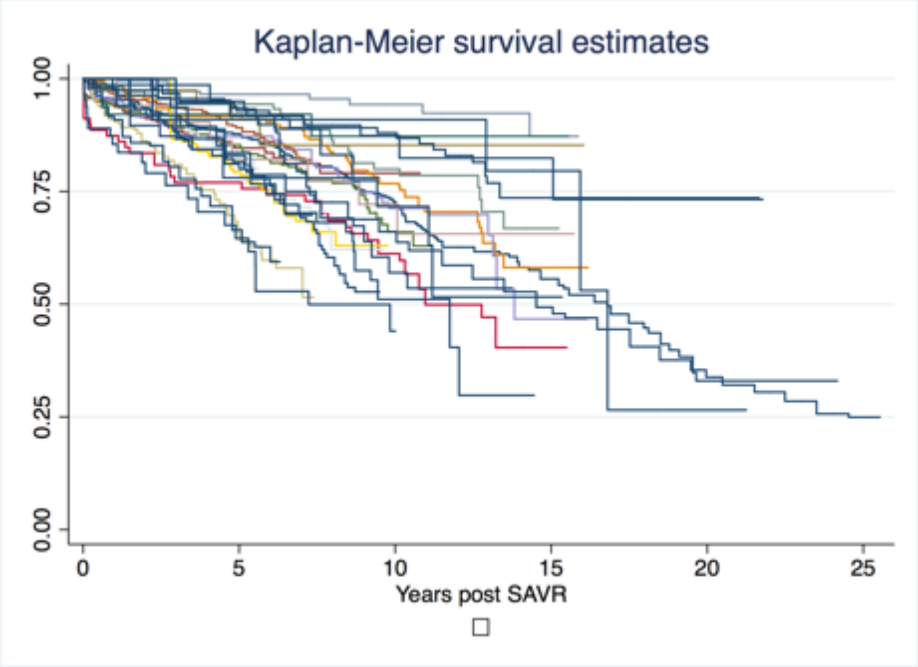


Figure 5 Individual studies with mean age =<65

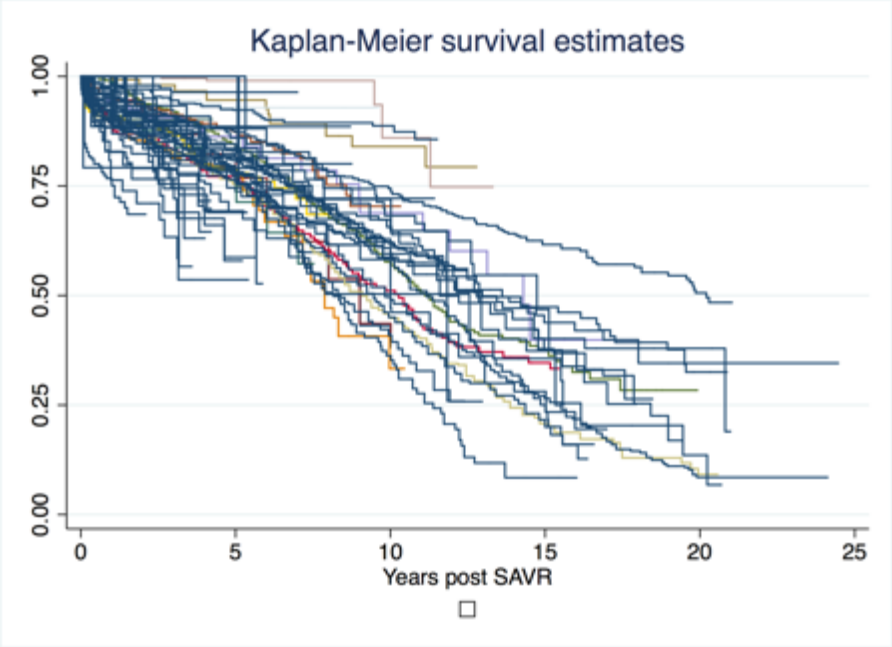


Figure 6 Individual studies with mean age between 65 – 75

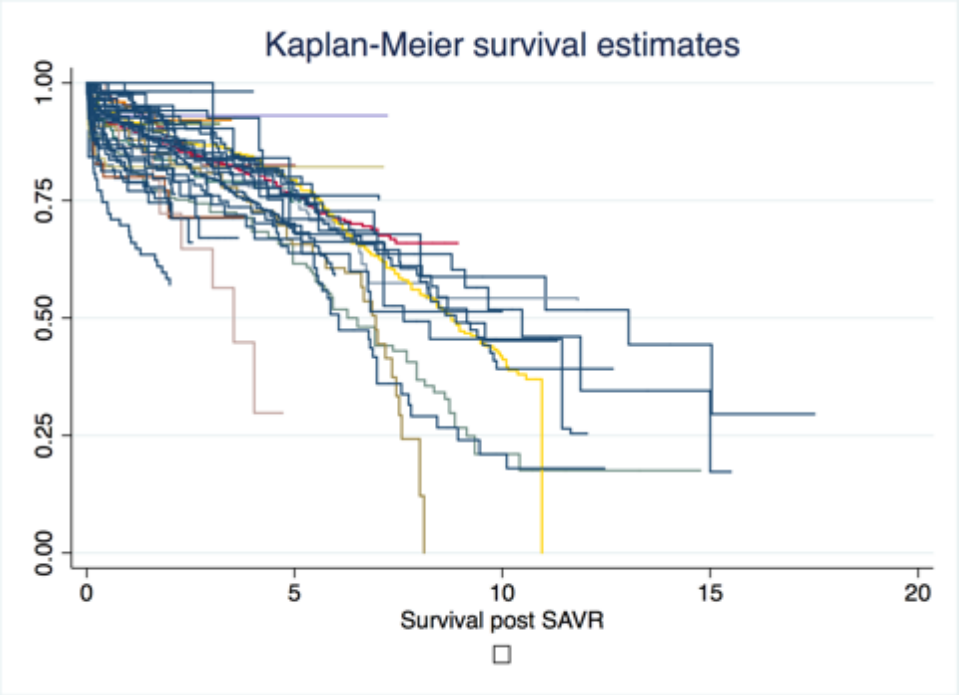


Figure 7 Individual studies with mean age between 75 – 85

APPENDIX – G

Definitions of SVD

Study ID	Definition of SVD in SAVR
Amabile	Leaflet calcification, leaflet tear
Anselmi	SVD was defined as dysfunction or deterioration of the prosthesis (excluding infection or thrombosis) evident on echocardiography and/or at reoperation
Ashikhmina	Echocardiographic evidence of SVD
Aupart	An echocardiographic definition of structural failure was indicated by a mean gradient >40 mmHg or aortic insufficiency of grade 3 or 4 (based on a scale of 1 to 4).
Auriemma	Leaflet tear, leaflet prolapse, primary valve failure with significant regurgitation and increased NYHA class
Bourguignon (2015)	The bioprosthesis was considered to have deteriorated on strict echocardiographic assessment whenever severe aortic stenosis (mean transvalvular gradient > 40 mm Hg) or severe aortic regurgitation (effective regurgitant orifice area > 0.30 cm2, vena contracta > 0.6 cm) was observed, even if the patient was asymptomatic.
Bourguignon (2016)	Bioprosthetic valve deterioration was solely evaluated on echocardiogram based on the following criteria: severe aortic stenosis (mean transvalvular gradient >40 mmHg) and/or severe aortic regurgitation (effective regurgitant orifice area >0.30 cm2 , vena contracta >0.6 cm).
Eichinger	Structural valve deterioration was defined according to the guidelines published in 1996 [6] as a decrease of one New York Heart Association (NYHA) functional class resulting from an intrinsic abnormality of the valve that causes stenosis or regurgitation. Additionally, a mean pressure gradient exceeding 40 mm Hg was defined as structural valve deterioration
Ennker	Cusps' rupture, mean gradient of 30 mmHg
Flameng	The diagnosis of SVD was based on echocardiographic findings. Two types of SVD were diagnosed. A stenosis-type SVD was diagnosed when echocardiographic follow-up showed calcification of the leaflets. When the leaflets became thickened and less pliable, but the pressure gradient across the valve increased above the value at baseline to values 55 mm Hg, the valve was also diagnosed as stenotic
1078Joshi	Patients with EVD (early valve deterioration) were identified as having symptomatic stenosis or regurgitation within 6 years of implantation leading to reoperation AND " This study was carried out in accordance with the American Association for Thoracic Surgery/Society for Thoracic Surgeons/European Association for Cardio-Thoracic Surgery guidelines (2008 guidelines) for reporting valve morbidity and mortality to the best of our abilities"
Luciani	Definitions were establised according to recently recommended guidelines (1996 guidelines) (Edmunds LH Jr, Clarke RE, Cohn LH, et al: Guidelines for reporting mortality and morbidity after cardiac valvular operations. J Thorac Cardiovasc Surg 1996;112:708-711)
Mahmut	Structural valve degeneration was defined as an increase in transprosthetic mean gradient ≥ 10 mmHg and/or worsening

	of transprosthetic regurgitation ≥ 1/3 class between 1-year and last follow-up echocardiograms.
Matsumoto	We defined structural valve deterioration (SVD) as leaflet degradation requiring reoperation, which exclude prosthetic valve endocarditis
Milano	SPF incompetence due to a commissural tear with minimal calcification, SPF dysfunction (details of operative findings are not available)
Senage	SVD of the bioprosthesis was defined according to the latest recommendations (different guidelines)17 and according to precise echocardiographic criteria: progression of aortic transprosthetic gradient ≥30 mmHg associated with a decreased effective orifice area ≤1 cm,2 or intraprosthetic aortic regurgitation >2/4
Svennevig	Mechanical valve failure was defined as any case of mechanical rupture of the valve

APPENDIX – H

Life tables for mortality

Low RoB Studies								
Interval		Beg. Total	Deaths	Lost	Survival	Std. Error	[95% Conf. Int.]	
					Age≤65			
0	1	2261	70	76	0.9685	0.0037	0.9604	0.9750
1	2	2115	37	73	0.9513	0.0046	0.9414	0.9595
2	3	2005	106	61	0.9002	0.0065	0.8867	0.9122
3	4	1838	48	150	0.8757	0.0072	0.8608	0.8891
4	5	1640	49	116	0.8486	0.008	0.8322	0.8635
5	6	1475	44	157	0.8218	0.0087	0.8041	0.8381
6	7	1274	48	59	0.7901	0.0095	0.7709	0.8080
7	8	1167	64	197	0.7428	0.0106	0.7214	0.7629
8	9	906	44	49	0.7057	0.0114	0.6826	0.7275
9	10	813	29	176	0.6775	0.0121	0.6531	0.7006
10	11	608	36	46	0.6358	0.0132	0.6093	0.6611
11	12	526	21	80	0.6083	0.0139	0.5804	0.6350
12	13	425	19	48	0.5795	0.0148	0.5500	0.6078
13	14	358	20	67	0.5438	0.0159	0.5121	0.5743
14	15	271	6	80	0.5297	0.0165	0.4968	0.5614
15	16	185	5	94	0.5105	0.018	0.4747	0.5451
16	17	86	5	27	0.4753	0.0226	0.4303	0.5188
17	18	54	3	10	0.4462	0.0267	0.3932	0.4977
18	19	41	4	10	0.3966	0.0333	0.3312	0.4612
19	20	27	4	6	0.3305	0.041	0.2518	0.4111
24	25	17	0	17	0.3305	0.041	0.2518	0.4111
					65<Age<75			
0	1	13520	665	949	0.949	0.0019	0.9451	0.9527
1	2	11906	497	1265	0.9072	0.0026	0.9020	0.9121
2	3	10144	273	1139	0.8813	0.003	0.8754	0.8870
3	4	8732	337	1010	0.8452	0.0034	0.8384	0.8518
4	5	7385	230	1061	0.8169	0.0038	0.8093	0.8242
5	6	6094	336	652	0.7693	0.0044	0.7606	0.7777
6	7	5106	268	605	0.7264	0.0048	0.7167	0.7357
7	8	4233	257	365	0.6803	0.0053	0.6697	0.6906
8	9	3611	195	428	0.6412	0.0057	0.6299	0.6523
9	10	2988	193	407	0.5968	0.0061	0.5846	0.6087
10	11	2388	195	172	0.5462	0.0066	0.5332	0.5591

11	12	2021	119	751	0.5067	0.007	0.4928	0.5204
12	13	1151	127	141	0.4472	0.008	0.4315	0.4627
13	14	883	84	173	0.4	0.0086	0.3831	0.4169
14	15	626	65	145	0.353	0.0094	0.3347	0.3714
15	16	416	54	87	0.3019	0.0103	0.2818	0.3221
16	17	275	45	48	0.2477	0.0112	0.2261	0.2699
17	18	182	24	70	0.2073	0.012	0.1843	0.2313
18	19	88	18	17	0.1604	0.0135	0.1350	0.1877
19	20	53	10	13	0.1259	0.0143	0.0995	0.1555
20	21	30	1	1	0.1216	0.0145	0.0951	0.1516
24	25	28	0	28	0.1216	0.0145	0.0951	0.1516
				75≤Age<85				
0	1	6903	620	480	0.9069	0.0036	0.8997	0.9137
1	2	5803	403	392	0.8418	0.0045	0.8326	0.8505
2	3	5008	204	431	0.8059	0.005	0.7959	0.8155
3	4	4373	216	537	0.7635	0.0055	0.7525	0.7741
4	5	3620	499	298	0.6538	0.0066	0.6407	0.6664
5	6	2823	183	421	0.608	0.0069	0.5943	0.6214
6	7	2219	75	335	0.5857	0.0071	0.5716	0.5995
7	8	1809	312	447	0.4705	0.0082	0.4544	0.4864
8	9	1050	97	40	0.4262	0.0086	0.4093	0.4429
9	10	913	19	486	0.4141	0.0088	0.3969	0.4312
10	11	408	9	52	0.4043	0.0091	0.3864	0.4222
11	12	347	79	168	0.2829	0.0131	0.2575	0.3088
12	13	100	0	98	0.2829	0.0131	0.2575	0.3088
13	14	2	0	1	0.2829	0.0131	0.2575	0.3088
14	15	1	0	1	0.2829	0.0131	0.2575	0.3088
				Age≥85				
0	1	119	25	11	0.7797	0.0389	0.6917	0.8454
1	2	83	2	25	0.7576	0.0408	0.6663	0.8272
2	3	56	1	12	0.7425	0.0427	0.6473	0.8155
3	4	43	9	8	0.5711	0.0599	0.4455	0.6784
4	5	26	2	5	0.5225	0.0639	0.3910	0.6385
5	6	19	0	19	0.5225	0.0639	0.3910	0.6385