

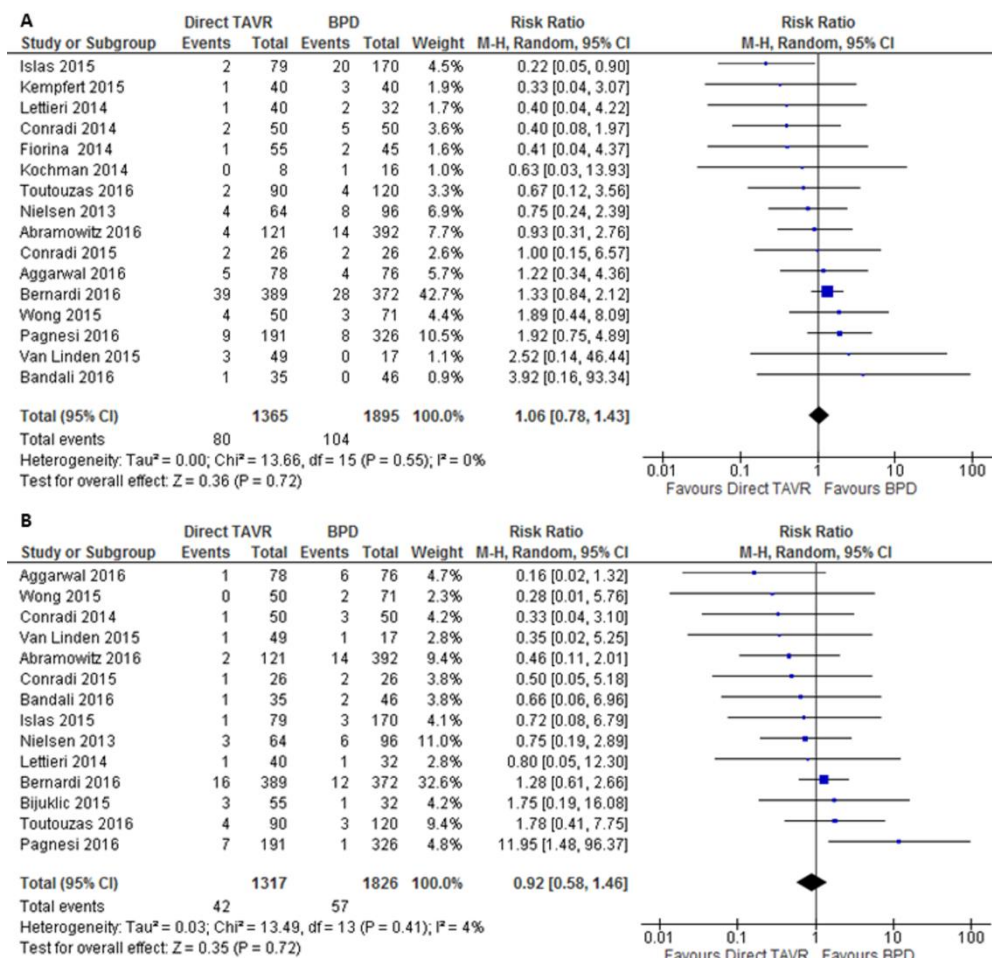
Online supplementary appendix

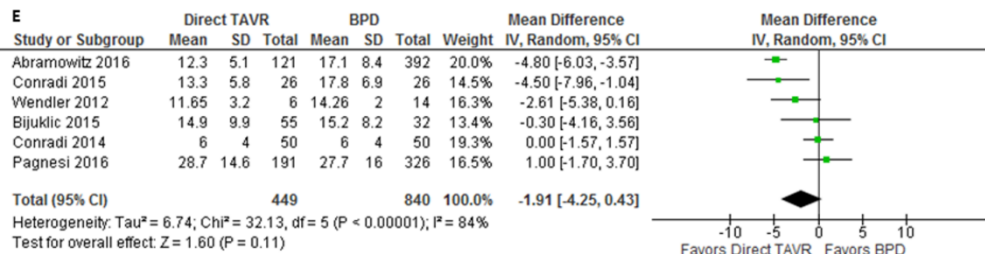
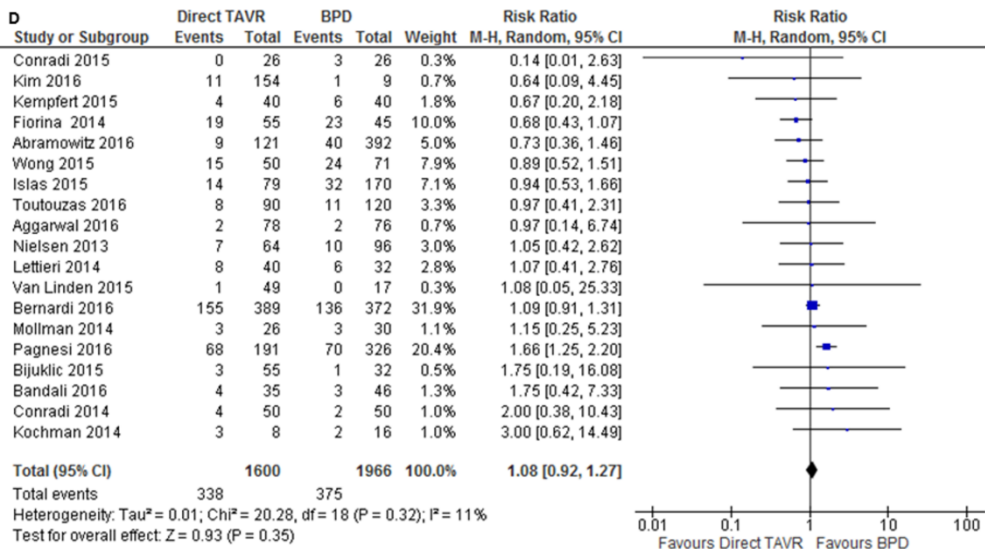
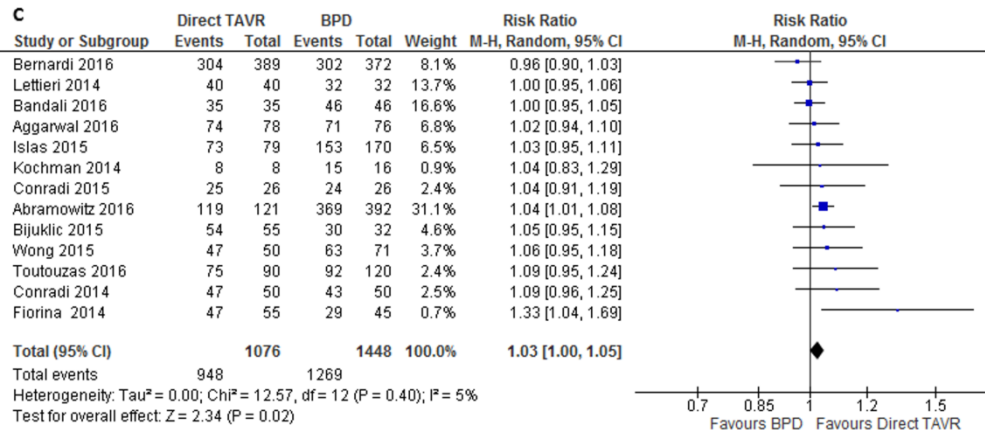
Auffret et al, Feasibility, safety and efficacy of direct TAVR.

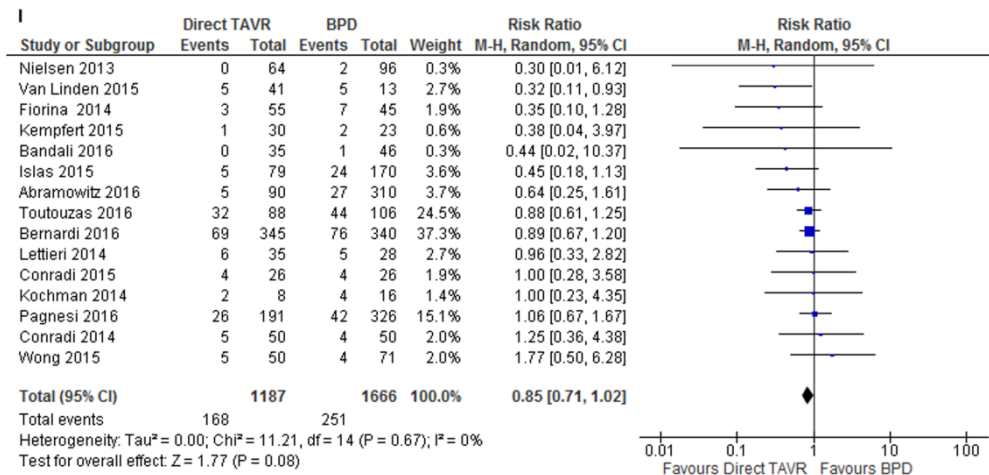
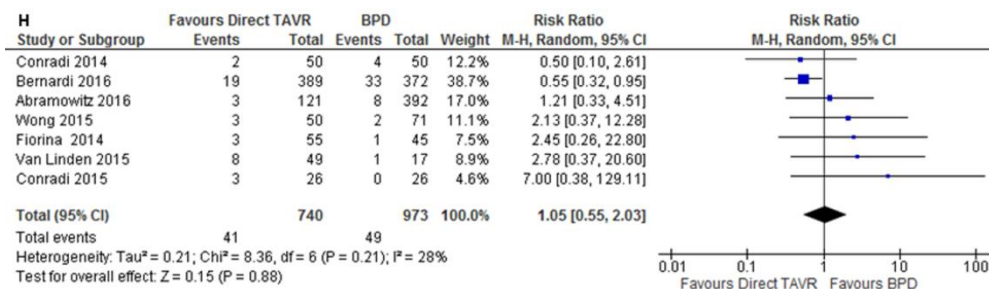
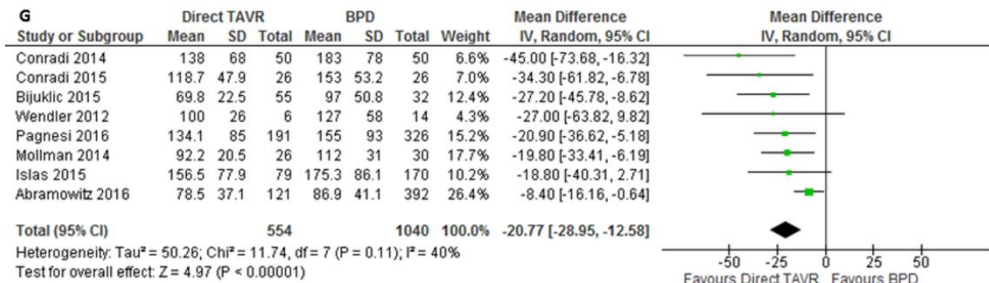
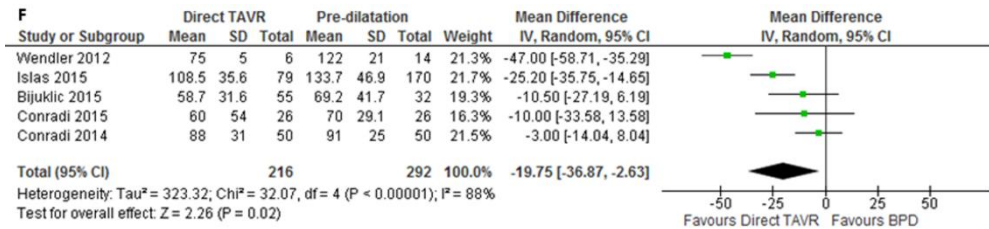
Search strategy: MEDLINE (PubMed database)

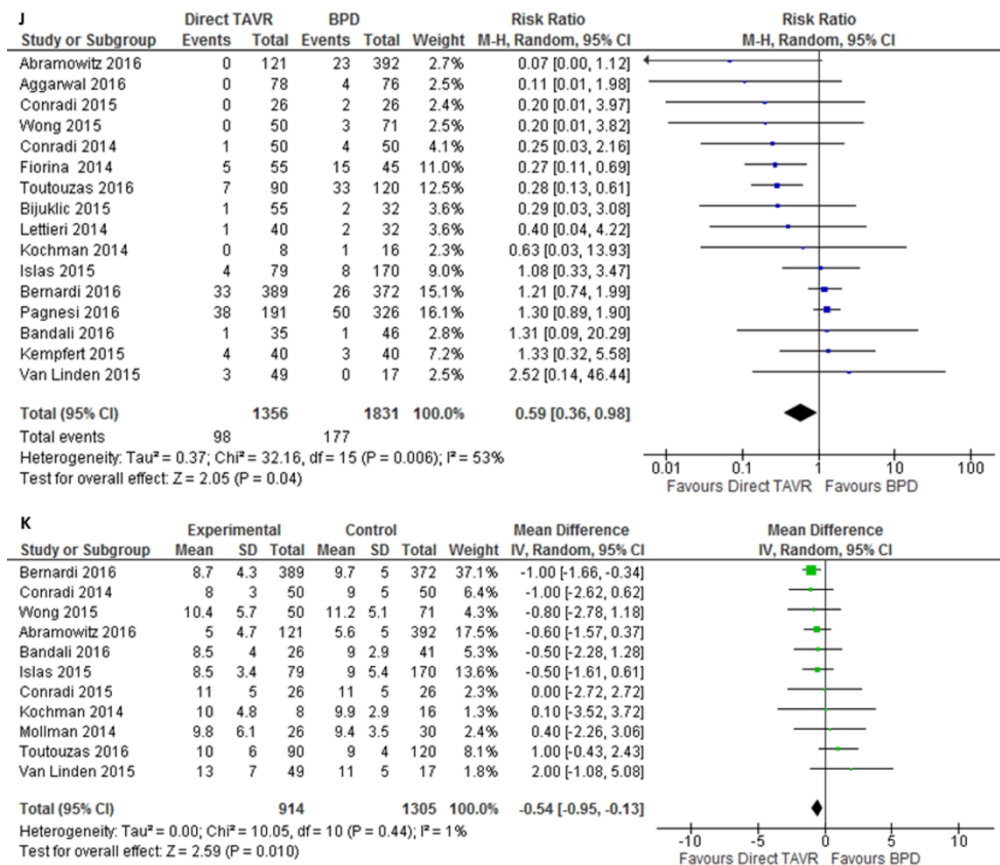
("Transcatheter Aortic Valve Replacement"[Mesh] OR "transcatheter aortic valve replacement" OR "transcatheter aortic valve implantation" OR "TAVR" OR "TAVI" OR "percutaneous aortic valve" OR "transcutaneous aortic valve") AND ("Balloon Valvuloplasty"[Mesh] OR "direct" OR "predilation" OR "predilatation" OR "balloon valvuloplasty" OR "balloon" OR "valvuloplasty" OR "dilation" OR "dilatation").

Supplementary Figure 1- Individual meta-analyses of each endpoint for the comparison of direct TAVR versus TAVR performed with BPD (main analysis).





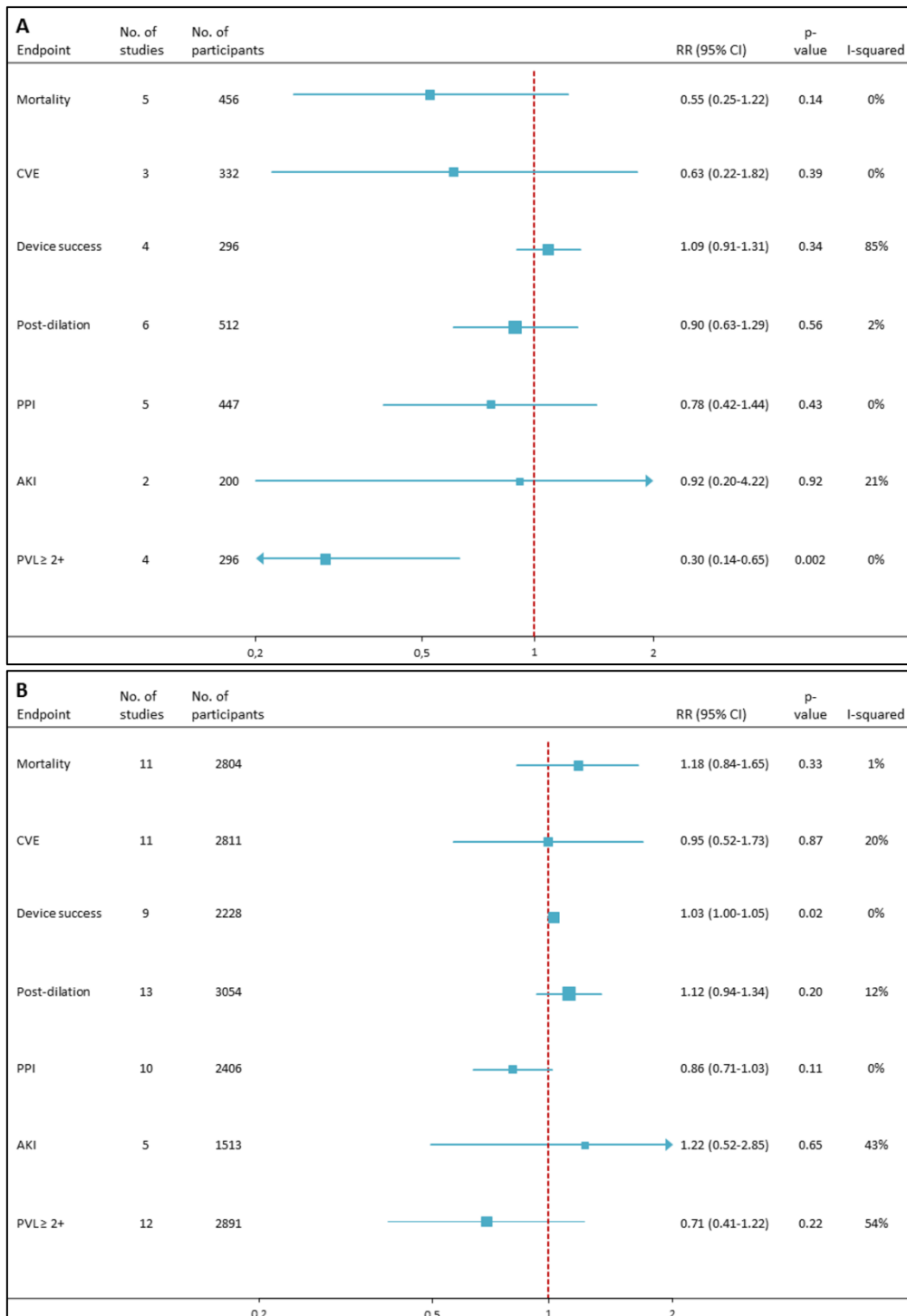




Individual meta-analysis for A) Short-term mortality ; B) Short-term cerebrovascular events ; C) Device success; D) Need for balloon post-dilation; E) Fluoroscopy time; F) Procedure time; G) Total contrast used; H) Acute kidney injury; I) Permanent pacemaker implantation; J) Moderate or severe paravalvular leak; and K) Post-procedural mean transvalvular gradient.

BPD= balloon pre-dilation; TAVR= Transcatheter aortic valve replacement.

Supplementary Figure 2- Summary RRs of dichotomous endpoints (stratified analysis according to the timing of publication).



Forest plot of summary RRs for the comparison of direct TAVR versus TAVR performed with BPD for A) studies published before 2015 and B) studies published since 2015. RRs lower than 1 favor

direct TAVR except for device success for which a RR greater than 1 favors direct TAVR.

AKI= Acute Kidney Injury; BPD= Balloon pre-dilation; CVE= Cerebrovascular events; PPI=

Permanent pacemaker implantation; PVL= Paravalvular leak; TAVR= Transcatheter aortic

valve replacement.

Supplementary table 1- Sizing method and devices iterations used in selected studies.

Author^{ref}	Sizing method	Devices used	BEV iterations- Direct TAVR group (%)	BEV iterations- BPD group (%)
Abramowitz ¹⁵	CT / 3D-TEE	SAPIEN; XT	SAPIEN (33); XT (67)	SAPIEN (38); XT (62)
Aggarwal ²⁵	ND	XT; SAPIEN 3	XT (55); SAPIEN 3 (45)	XT (89); SAPIEN 3 (11)
Bandali ²⁶	ND	XT	XT (100)	XT (100)
Bernardi ²⁹	ND	MCV; XT	XT (23)	XT (25)
Bijuklic ⁸	CT / TEE	XT; SAPIEN 3	SAPIEN 3 (100)	XT (59), SAPIEN 3 (41)
Conradi ¹⁶	CT	XT; SAPIEN 3	XT (65); SAPIEN 3 (35)	XT (65); SAPIEN 3 (35)
Conradi ¹⁷	CT	XT	XT (100)	XT (100)
Fiorina ⁶	ND	MCV	-	-
Islas ¹⁸	2D/3D-TEE	MCV; XT	XT (65)	XT (68)
Kempfert ¹⁹	ND	XT	XT (100)	XT (100)
Kim ²⁰	ND	SAPIEN 3	SAPIEN 3 (100)	SAPIEN 3 (100)
Kochman ²¹	ND	MCV	-	-
Lettieri ²⁷	ND	MCV	-	-
Mollman ³	ND	XT	XT (100)	XT (100)
Nielsen ²⁸	CT / TEE	SAPIEN	SAPIEN (100)	SAPIEN (100)
Pagnesi ²⁷	CT	XT; SAPIEN 3; MCV	-	-
Toutouzas ⁷	ND	MCV	-	-
Van Linden ²³	CT	SAPIEN 3	SAPIEN 3 (100)	SAPIEN 3 (100)
Wendler ²⁴	3D-TEE	XT	XT (100)	XT (100)
Wong ²²	CT	SAPIEN; XT	SAPIEN (ND); XT (ND)	SAPIEN (ND); XT (ND)

BEV= Balloon-expandable valve; BPD= Balloon pre-dilation; CT= Computed tomography; TAVR= Transcatheter aortic valve replacement; TEE= Transesophageal echocardiography; XT= SAPIEN XT valve.