Supplementary material

Weryński P, Skorek P, Wójcik A, et al. Recent achievements in transcatheter closure of ventricular septal defects: a systematic review of literature and a meta-analysis. Kardiol Pol. 2021; 79: 161-169. doi:10.33963/KP.15708

PRISMA 2009 Flow Diagram

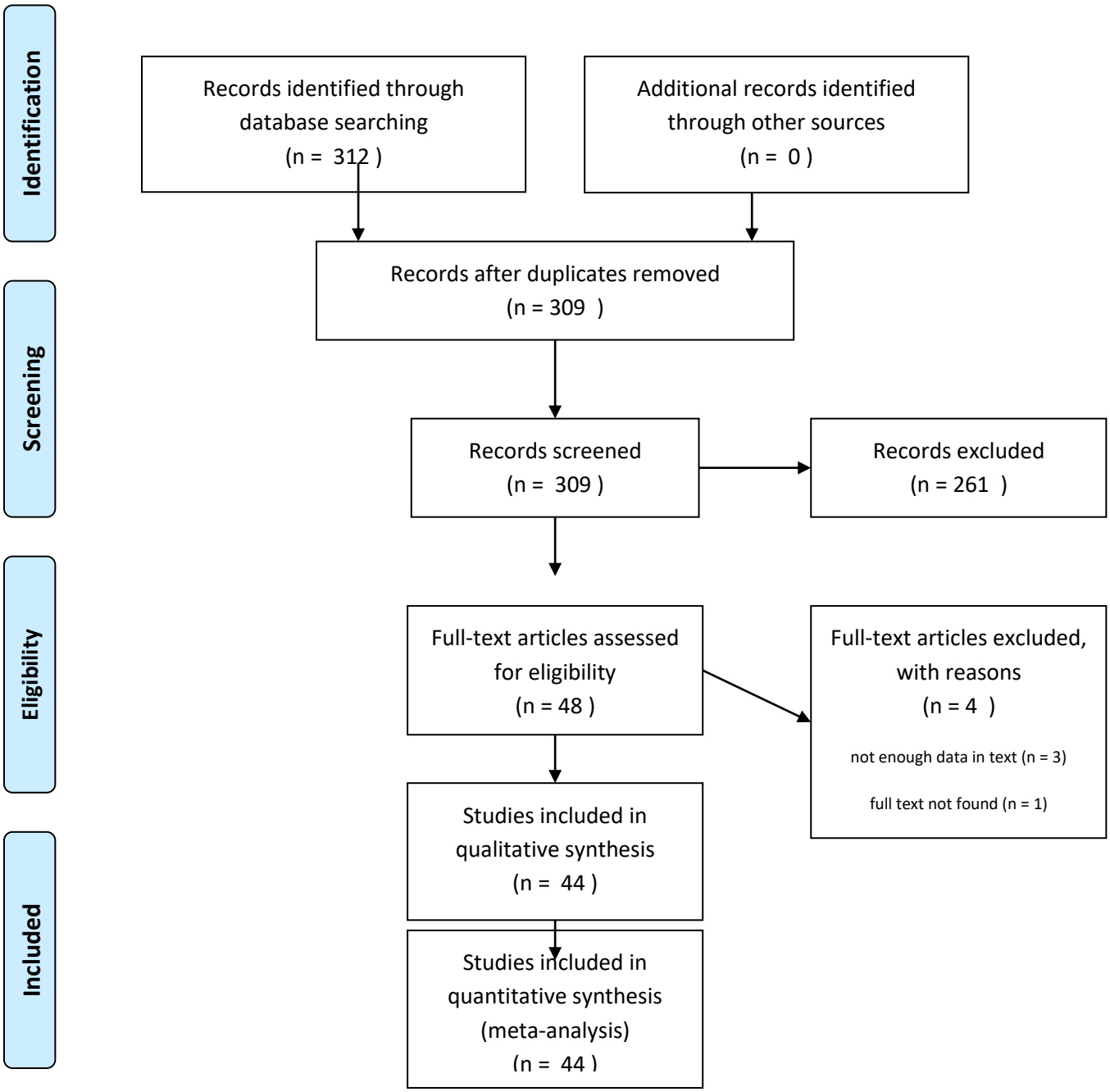

Figure S1 The PRISMA Flow Diagram with study algorithm [5]. Modified from: Moher D, Liberati A, Tetzlaff J, Altman DG. The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA Statement. Open Med. 2009; 3: 123-130.

Table S2 Summary of analyzed studies.

FIRST AUTHOR	PPUBLISHED YEAR	COUNTRY	TOTAL NO OF PATIENTS	DEVICE TYPES	VSD TYPE	AGE OF PATIENTS [YEARS]	TIME OF FOLLOW-UP [MONTHS]
Mijangos-Vázquez R et al. [8]	2020	Mexico, Egypt	119	ADO I (n=55), ADO II (n=51), AVP (n= 12)	pmVSD	5# (0.7-54)	36 (25.7) *
Tanidir IC et al. [9]	2020	Turkey	98	LifeTech™ multifunctional occluder device (MF-Konar),	pmVSD (n=84), mVSD (n=14) 14 pts	3,8# (range 0.45-50)	7.47 (4.97)*
Shah JH et al. [10]	2020	India	376	Cardi-O-Fix VSD occluder, Shanghai shape memory alloy occluder, ADO I	pmVSD	8.67 (3)*	78#
Houeijeh A et al. [11]	2020	France	46	Nit-Occlud Lê VSD coil	pmVSD	13.9#	27 (range 2-50)#

Haddad RN et al. [12]	2019	Lebanon	20	KONAR-MF™ VSD occluder	pmVSD	6.4#	8.2 (3)*
Li H et al. [13]	2019	China	253	Amplatzer Membranous VSD Occluder (n=7), Amplatzer-like occluders including Membranous Symmetric VSD Occluder (n=167), Cera™ Membranous VSD (Symmetric) Occluder (n=79 pts)	pmVSD	3.5#	36 (range 6–60)#
Haddad RN et	2019	Lebanon	51	ADO I (n=8), ADO II (n=27), AmplatzerMus	pmVSD	7.4 (6.9)*	6.47 (range 2-29.8)#

al.[14]				cular VSD Occluder (n=17)			
Bu H et al. [15]	2019	China	46	The VSD occluder (Shanghai Shape Memory Alloy Co, Ltd,, Shanghai, China)	pmVSD	6.5 (2.3)*	21.8 (4.7)*
Kouakou NYN et al. [16]	2019	Côte d'Ivoire, South Korea	6	ADO I, ADO II, AVP II, Cocoon membranous VSD occluder	Postoperative VSD	17.7#	33#
Pillai AA et al. [17]	2019	India	49	Amplatzer membranous VSD occluder	pmVSD	1.5#	20 (range 6-72.5)*
Huang Y et al. [18]	2019	China	22	ADO I	doubly committed subarter	10# (range 1-57)	12.3*

					ial VSD		
Shrestha M et al.[19]	2019	Thailand	133	PFM coil (n=59), ADO (n=22), ADO II (n=20), CVO-ME (n=6), CDO (n=5), LMFO (n=5), LVO-MS (n=6) and 6 other devices	pmVSD	7# (0.75-28)	12
Udink Ten Cate FEA et al. [20]	2019	Germany, Netherlands, Egypt, India,	222	ADO I (n=174), Liftech duct occluder (n=44)	pmVSD	7#	6 (range 6 months – 6 years)#
He L et al. [21]	2019	China	20	improved PDA occluder (Starway Medical Technology, Inc., Beijing,	pmVSD	20.7 (12.3)*	28,8*

				China)			
Esmaeili A et al. [22]	2018	Germany	15	ADO II	pmVSD	5# (range 0.3-21)	30*
Wang S et al. [23]	2018	China	118	Occluder from Starway Medical Technology Inc,, Beijing, China	pmVSD	11.7 (12.5)*	40.8 (27.6)*
Park H et al. [24]	2018	South Korea	13	The Cocoon VSD occluder	pmVSD (n=9), mVSD (n=2), postoperative VSD (n=2)	5.8# (range 0.58-48)	10 (6)*
Ghosh S et al. [25]	2018	India	19	ADO-II (n=17), ADO-I (n=2)	pmVSD (n=11), subaorti	8 (4)*	18 (range 12–36)*

					c VSD (n=6), subarterial VSD (n=2)		
Nguyen HL et al. [26]	2018	Vietnam, South Korea, India	386	ADO (n=7), Cocoon Duct Occluders (n=149), Cera PDA Occluders (n=69), Nit-Occlud Lê VSD coil (n=71)	pmVSD	15 (12.6) vs 16.8 (14)*	61.4 (24.1)*
Mandal KD et al. [27]	2018	China	186	Lifetech Scientific Shenzhen Co, Ltd (Shenzhen, China), Shanghai pmVSD occluder made by Shanghai	pmVSD	5.4 (2.8)*	18,4 (range 6-120)*

				shape memory alloy Co, Ltd (Shanghai, China)			
Narin N et al. [28]	2018	Turkey	12	ADO II, ADO II-additional size	pmVSD (n=8), mVSD (n=3), postoperative VSD (n=1)	0.67*	8,5#
Zhao LJ et al. [29]	2018	China	102	ADO (n=250) , conventional membranous ventricular septal occluder (n=52)	pmVSD	5.0 (3.7) vs 4.8 (2.8)*	26,2#
El Shedoudy S et al. [30]	2018	Egypt	80	Nit-Occlud Lê VSD Coil	pmVSD (n=77), mVSD (n=2), Gerbode	5.34 (3)	36

					defect (n=1)		
He L et al. [31]	2018	China	121	Modified self-expandable double-disk occluder (ShangHai Shape Memory Alloy, Shanghai, China)	pmVSD	4#	24
Lin MT et al. [32]	2017	Taiwan	105	ADO I (n=67), ADO (n=II 34)	pmVSD	19.5#	24*
Shyu TC et al. [33]	2017	Taiwan	16	ADO	subarterial VSD (n=9) supracristal, (n=7) intracristal	35.6# (range 3-65.6)	12

El-Sisi A et al. [34]	2017	Egypt	30	ADO I (n=13), ADO II (n=17)	pmVSD	4# (range 1-13)	11(range 6–24) *
Haas NA et al. [35]	2017	Germany, Netherlands, Belgium, Ukraine, Russia, Switzerland, Italy	111	Nit-Occlud Lê VSD coil	pmVSD (n=81), mVSD (n=30)	5.1#	31.3#
Zhou W et al. [36]	2016	China	12	LifeTech (n=7), ADO II (n=1), AGA PLUG II (n=1), Shanghai shapememory (n=3)	Postoperative VSD	8.13 (5.39)*	12
Hua N et al. [37]	2016	United States of America	16	AVP-II	pmVSD	2.56 (range: 0.5-27.3)#	12#
Thakkar B et al.	2016	India	297	SHSMA-179, Cardio-o-fix-85	pmVSD	9 (3.12)*	18.23 (13.15)*

[38]				(n=257), ADO I (n=33)			
Polat TB et al. [39]	2016	Turkey	26	ADO II	pmVSD (n=21), mVSD (n=3), postoperative (n=2)	2.7 (2.8)*	12#
Wang J et al. [40]	2016	China	337	symmetrical concentric pmVSD occlude (n=302), asymmetrical concentric pmVSD occlude (n=35) (Starway Medical Technology,Inc., Beijing, China)	pmVSD	29.2 (10.7)*	71#

Bai Y et al. [41]	2016	China	117	MDVOs (Shanghai Shape Memory Alloy Ltd, Shanghai, China) according to the Amplatzer occluder	pmVSD	31.1 (12.5)*	110#
Ghaderian M et al. [42]	2015	Iran	110	Amplatzer VSD Occluder.	pmVSD	4.7 (5.6)*	10.9 (3.6)*
Chen F et al. [43]	2015	China	38	The zero eccentric VSD occluder was chosen for closure (Shanghai Shape Memory Alloy Ltd, Shanghai, China)	intracristal VSD with aortic cusp prolapsed	25.3 (14.0)*	14.2#

Ghaderian M et al. [44]	2015	Iran	28	ADO	pmVSD	4.7 ±6.3*	8.3 (3.6)*
Chen GL et al. [45]	2015	China	65	The HeartR™ VSD Occluder (Lifetech Scientific (Shenzhen) Corporation, P.R.C)	intracristal VSD (n=47), pmVSD (n=18)	6 (3)*	12
Mahimaranga iah J et al. [46]	2015	India	126	Lifetech Patent ductus arteriosus occluders (n=81), ADO II (n=45)	pmVSD	8#	12
Kanaan M et al. [47]	2015	Germany	31	ADO II	pmVSD (n=20), mVSD (n=10), ruptured sinus	2,52#	41#

					valsalva (n=1)		
Vijayalakshmi IB et al. [48]	2015	India	12	ADO II	Gerbode defects	6,7*	9,5#
Narin N et al. [49]	2015	Turkey	21	ADO II	pmVSD (n=19), mVSD (n=2)	8.7 (4.51)*	12
Odemis E et al. [50]	2014	Turkey	20	Nit-Occlud Lê VSD coil	pmVSD (n=19), ventricular septalan eurysmal tissue (n=1)	7.3 (4.0)*	12.3 (6.6)*
Tzikas A et al. [S51]	2014	Canada	19	Amplatzer Membranous VSD Occluder	pmVSD (n=16), residual pmVSD	6#	14 (3)*

				2	(n=2), residual Gerbode defect (n=1)		

*mean (Standard deviation); #median (Interquartile range); ADO- AMPLATZER™ Duct Occluder; AVP- AMPLATZER™ Vascular Plug; mVSD- muscular ventricular septal defect; NG- not given-number of cases; pmVSD- perimembranous ventricular septal defect; VSD- ventricular septal defect.