

**Table S4.** Bacteremia and local signs of infection as an outcome of the cannulation technique in arteriovenous fistulas in RCT studies

First author	Study design	Average age (years)	Sample size		Outcome		P Value	Notes
			Experimental group	Control group	Experimental group	Control group		
Bacteremia and local signs of infection related to access (n = events)								
Struthers J. et al. (2010) [26]	RCT	BH = 61 TRL = 60	28	28	1	0	--	- 1 local infection, had antibiotic therapy
MacRae J. et al. (2012) [13]	RCT	BH = 70.3 SN = 66.7	70	70	50/1000 HD sessions 3	22.4/1000 HD sessions 0	= 0.003	- Rate of localized signs of infection - BH - 3 S. aureus bacteremia and 9 Site abscesses that had antibiotic therapy
Vaux E. et al. (2013) [27]	RCT	BH = 62 UP = 64	58	69	0.12/1000 AVF days 0	0 0.09/1000 AVF days	--	BH 2 exit-site infections UP = 2 Bacteremia.
MacRae J. et al. (2014) [16]	RCT	BH = 70.3 SN = 66.7	70	69	3 9	0 0	< 0.001	- BH – 3 Localized/exit site - BH 9 S. aureus bacteremia - Median time to first infection for buttonhole was 11.1 months
Chan M. et al. (2014) [28]	CCT	BH = 60.9 RL = 64.1	45	38	5 (11%)	3 (8%)	0.62	- Bacteriemia.
Peralta R. et al. (2022) [19]	RCT	MuST= 68.48 BH = 68.78 RL = 65.95	59	56 57	0	1 (1.8%) 0	--	- Localized signs of infection

Abbreviations: RCT: randomized clinical trial; CCT: controlled clinical trial; BH: Buttonhole; TRL: traditional RL; UP: usual practice; SN: standard needling; MuST: multiple single cannulation technique; RL: rope-ladder; HD: hemodialysis