

Supplemental Table 1: Characteristics of included studies

Study	Study design	All Catheters Cultured	Age	Sterile precautions for insertion	Site cleaning agents prior to insertion	Site	N CRBSI	Total Catheters	Total catheter-days	Arterial CRBSI/ 1000 Catheters
Ersoz et al, 1970(26)	Prospective cohort	No	Adults	Sterile gloves only	NR	Femoral	0	63	189	0
Gardner et al, 1974(29)	Prospective cohort	No	Adult	No	Alcohol	Radial/ Femoral/ Brachial	0	536	1822	0
Adams et al, 1975(22)	Prospective cohort	No	Neonates	NR	70% Isopropanol followed by Povidone-Iodine	Radial	0	20	36	0
Band and Maki, 1979(24)	Prospective cohort	Yes	Adult	Sterile gloves only	Povidone-Iodine	Radial/ Femoral/ Brachial/ Dorsalis Pedis	5	130	572	38.46
Adams et al, 1980(23)	Prospective cohort	No	Neonates	NR	Povidone-Iodine	Radial	0	147	7056	0
Puri et al, 1980(57)	Prospective cohort	Yes	Adult	NR	Povidone-Iodine	Radial/ Femoral/ Brachial/ Axillary	0	59	NR	0
Singh et al, 1982(60)	Prospective cohort	Yes	Adult	Maximum barrier precautions	NR	Radial/ Femoral	2	52	NR	3.85
Soderstrom et al, 1982(44)	Prospective cohort	No	Adults	NR	1% Povidone-Iodine	Radial/ Femoral	3	329	NR	9.12
Pinilla et al, 1983(56)	Prospective cohort	Yes	Adults	Sterile gloves only	10% Povidone-Iodine	Radial/ Femoral	0	172	NR	0
Russell et al, 1983(43)	Prospective cohort	No	Adults	Sterile gloves only	Povidone-Iodine	Femoral/ Radial	3	261	1184	11.50

Shinozaki et al, 1983(59)	Prospective cohort	Yes	Adult	NR	NR	Radial	0	117	NR	0
Thomas et al, 1983(45)	Prospective cohort	No	Adult	NR	NR	Radial/ Femoral	0	186	913	0
Martin et al, 1984(62)	Prospective cohort	Yes	Adult	Maximum barrier precautions	Povidone-Iodine	Radial	0	107	963	0
Damen et al, 1985(50)	Prospective cohort	No	Adults	NR	Povidone-Iodine	Radial/ Femoral/ Brachial/ Dorsalis Pedis/Ulnar	0	643	NR	0
Damen et al, 1986(25)	Prospective cohort	Yes	Adults	Maximum barrier precautions	Povidone-Iodine	Radial/ Femoral/ Brachial/ Dorsalis Pedis/ Ulnar	0	269	544	0
Weiss et al, 1986(63)	Prospective cohort	No	Adults	NR	NR	Radial	0	118	NR	0
Naguib et al, 1987(40)	Yes	Yes	Adults	Nonsterile	Alcohol-based	Radial/ Dorsalis Pedis	0	46	54	0
Norwood et al, 1988(55)	Prospective cohort	Yes	Adults	Sterile gloves only	Povidone-Iodine	Axillary /Femoral/ Radial	0	96	390	0
Ducharme et al, 1988(51)	Prospective cohort	No	Adults	Maximum barrier precautions	1% Poloxamer Iodine	Radial/ Brachial/ Dorsalis pedis/ Tibial	0	70	NR	0
Leroy et al, 1989 (34)	Prospective Cohort	No	Adults	NR	Iodophor based treatment	Radial	0	193	1245	0
Eyer et al, 1990(52)	Prospective RCT	Yes	Adult	Maximum barrier precautions	NR	NR	7	327	NR	21.41
Gabel-Hughes et al, 1990(61)	Prospective RCT	No	Adults	NR	Iodophor or triclosan	Radial		63	108	0

based solution						0				
Furfaro et al, 1991(49)	Prospective cohort	Yes	Children	NR	NR	Radial/ Femoral/ Brachial/ Dorsalis Pedis	0	340	908	0
Landers et al, 1991(33)	Prospective cohort	Yes	Neonates	Maximum barrier precautions	Povidone-Iodine	Umbilical	10	189	2494	52.9
Maki et al, 1991(37)	Prospective RCT	Yes	Adults	Sterile gloves only	2% Chlorhexidine , 70% alcohol or povidone-iodine	Radial/Femoral	2	492	2255	4.06
Gronbeck <i>et al.</i> , 1993(54)	Prospective cohort	No	Adults	NR	NR	Radial/Femoral	0	506	NR	0
Raad et al, 1993(58)	Prospective cohort	Yes	Adults	Maximum barrier precautions	70% isopropanol followed by povidone-iodine	Radial/ Femoral	4	71	NR	56.3
Frezza et al, 1998(53)	Retrospective	No	Adults	NR	NR	Radial/ Brachial/ Femoral	2	2121	NR	0.09
Martin et al, 2001(38)	Prospective cohort	No	Adults	Maximum barrier precautions	Povidone-Iodine	Radial/ pedal	0	265	3838	0
El Hamamsy et al, 2003(48)	Retrospective	No	Adults	Maximum barrier precautions	0.5% Chlorhexidine gluconate	Radial/ Femoral/ Brachial	9	8300	48140	1.08
Rjinders et al, 2003(42)	Prospective RCT	Yes	Adults	Both maximum barrier precautions and non-sterile placement	0.5% Chlorhexidine gluconate	Radial/pedal	4	272	2343	14.7

Lorente et al, 2004(36)	Prospective cohort	Yes	Adult	Maximum barrier precautions	10% Povidone-Iodine	Radial/ Pedal	3	1231	7171	2.44
Misset et al, 2004(39)	Prospective cohort	No	Adults	Maximum barrier precautions	10% Povidone-Iodine	NR	0	295	914	0
Traore et al, 2005(46)*	Prospective cohort	Yes	Adult	Maximum barrier precautions	0.5% Chorhexidine gluconate	Radial/Brachial/ Femoral	1	299	2452	3.34
Lorente et al, 2006(35)	Prospective cohort	Yes	Adults	Maximum barrier precautions	10% Povidone-iodine	Radial/ Brachial/ Dorsalis Pedis/ Femoral	10	2949	17057	3.40
Esteve et al, 2007(27)	Prospective RCT	No	Adults	Maximum barrier precautions	10% Povidone-iodine	Radial/ Femoral	38	1034	9695	3.92
Khalifa et al, 2008(32)	Prospective cohort	Yes	Adult	Maximum barrier precautions	10% Povidone-Iodine	Radial/ Femoral	7	381	2361	18.37
Haddad et al, 2008(30)	Prospective cohort	No	Adults	Sterile gloves only	Povidone-iodine	Femoral	12	2264	4368	5.30
Koh et al, 2008*; Koh et al, 2010(15, 16)	Prospective cohort	Yes	Adults and children	Sterile gloves only	0.5% Chlorhexidine	Radial/ Femoral/ Brachial	1	321	1082	3.12
Hammar skjold et al, 2010(31)	Prospective cohort	Yes	Adults	Sterile gloves only	0.5% Chlorhexidine	Radial/ Femoral / Brachial/ Ulnar	0	600	2567	0
Lorente et al, 2010(19, 20)	Prospective cohort	Yes	Adults	Maximum barrier precautions	Povidone-iodine	Pedal/ Femoral / Brachial	33	1400	8399	3.93
Lucet et al,	Prospective	Yes	Adults	Maximum	5% Povidone-	Radial/		1727	11624	0.49

2010; Timsit 2009(17, 18)*	RCT			barrier precautions	Iodine	Femoral				
							8			
Esteve et al, 2011(28)	Prospective cohort	Yes	Adult	Maximum barrier precautions	0.5% Chorhexidine gluconate	Radial/ Femoral	51	1543	14437	33.1
Lorente et al, 2011(21)	Prospective cohort	Yes	Adults	Maximum barrier precautions	Povidone- iodine	Cubital	0	449	2709	0
Pirrachio et al, 2011(41)	Retrospectiv e	No	Adult	Maximum barrier precautions	Povidone- Iodine	Radial/ Femoral	29	3247	16656	8.9
Timsit et al, 2012(47)*	Prospective RCT	Yes	Adults	Maximum barrier precautions	2% Chlorhexidine gluconate	Radial/ Femoral	12	2201	16904	5.45

Studies marked with a * included analysis of unpublished data.