

Table 2. Summary Data for Studies Included in the Meta-Analysis

Study, Year (Reference)	Diagnostic Technique	Duration of Catheterization	Prevalence, %	Test Results, <i>n</i>			
				True-Positive	False-Positive	True-Negative	False-Negative
Maki et al., 1977 (64)	Qualitative catheter segment culture	Short term	10	5	21	24	0
Maki et al., 1977 (25)	Qualitative catheter segment culture	Short term	1.6	4	37	209	0
Cleri et al., 1980 (26)	Qualitative catheter segment culture	Short term	9.3	13	33	103	0
Jones et al., 1986 (56)	Qualitative catheter segment culture	Short and long term	3.1	12	99	268	0
Nahass et al., 1990 (57)	Qualitative catheter segment culture	Short term	8.7	5	25	48	2
Whitman and Boatman, 1995 (58)	Qualitative catheter segment culture	Long term	65.5	13	2	8	6
Cooper and Hopkins, 1985 (59)	Semi-quantitative catheter segment culture	Short term	3.6	12	29	289	0
Gutierrez et al., 1992 (60)	Semi-quantitative catheter segment culture	Short term	12.2	10	14	72	2
Cercenado et al., 1990 (61)	Semi-quantitative catheter segment culture	Short term	12.9	17	36	85	1
Rello et al., 1991 (92)	Semi-quantitative catheter segment culture	Short term	13.2	13	18	67	0
Maki et al., 1977 (25)	Semi-quantitative catheter segment culture	Short term	1.6	4	21	225	0
Aufwerber et al., 1991 (63)	Semi-quantitative catheter segment culture	Short term	3.1	15	122	403	2
Kite et al., 1999 (37)	Semi-quantitative catheter segment culture	Short and long term	44.6	45	28	34	5
Kite et al., 1997 (52)	Semi-quantitative catheter segment culture	Short term	9.8	18	69	133	4
Maki et al., 1977 (64)	Semi-quantitative catheter segment culture	Short term	10.0	5	11	34	0
Raad et al., 1992 (65)	Semi-quantitative catheter segment culture	Short term	13.2	8	15	96	9
Snydman et al., 1982 (29)	Semi-quantitative catheter segment culture	NR	6.6	5	7	63	0
Collignon et al., 1986 (66)	Semi-quantitative catheter segment culture	Short term	1.7	11	122	610	2
Widmer et al., 1992 (67)	Semi-quantitative catheter segment culture	Short term	3.8	5	6	145	1
Jones et al., 1986 (56)	Semi-quantitative catheter segment culture	Short and long term	3.1	7	25	342	5
Maki et al., 1996 (68)	Semi-quantitative catheter segment culture	Short term	2.7	10	93	296	1
Collignon et al., 1987 (93)	Semi-quantitative catheter segment culture	Short and long term	3.1	5	41	271	5
Moyer et al., 1983 (70)	Semi-quantitative catheter segment culture	Short term	6.8	5	15	53	0
Widmer et al., 2003 (71)	Semi-quantitative catheter segment culture	Short term	6.8	55	19	913	13
Rello et al., 1989 (92)	Semi-quantitative catheter segment culture	Long term	16.0	6	12	30	2
Widmer et al., 2003 (71)	Quantitative catheter segment culture	Short term	6.8	42	19	913	26
Rello et al., 1989 (92)	Quantitative catheter segment culture	Long term	16.0	5	5	37	3
Cleri et al., 1980 (26)	Quantitative catheter segment culture	Short term	8.7	13	11	125	0
Brun-Buisson et al., 1987 (27)	Quantitative catheter segment culture	Short term	6.0	20	24	287	0
Rello et al., 1991 (62)	Quantitative catheter segment culture	Short term	13.2	7	13	72	6
Kite et al., 1999 (37)	Quantitative catheter segment culture	Short term	44.6	48	15	47	2
Gutierrez et al., 1992 (60)	Quantitative catheter segment culture	Short term	12.2	11	14	72	1
Kite et al., 1997 (52)	Quantitative catheter segment culture	Short term	9.0	15	32	170	5
Sherertz et al., 1990 (28)	Quantitative catheter segment culture	Short term	70.1	68	5	11	13
Raad et al., 1992 (65)	Quantitative catheter segment culture	Short term	15.3	13	5	72	1

Table continued

Table 2—Continued (top right)

Sensitivity, %	Specificity, %	Positive Predictive Value, %	Negative Predictive Value, %	Indeterminate Test Results, n/nt
100	53	19	100	NR
100	85	9	100	NR
100	76	28	100	NR
100	73	10	100	NR
71	66	17	96	NR
68	80	86	57	NR
100	91	29	100	NR
83	84	41	97	NR
94	70	32	98	0
100	79	41	100	NR
100	91	16	100	NR
88	77	10	99	NR
90	55	62	87	NR
82	66	21	97	NR
100	76	31	100	NR
47	86	35	91	NR
100	90	41	100	NR
85	83	8	99	NR
83	96	45	96	NR
58	93	21	93	NR
91	76	9	99	NR
50	87	10	98	NR
100	78	25	100	NR
81	98	74	99	NR
75	71	33	93	NR
62	98	69	99	NR
63	88	50	92	NR
100	92	54	100	NR
100	92	45	100	0
54	85	35	92	NR
96	76	76	95	NR
92	84	44	98	NR
75	84	32	97	NR
84	69	93	45	NR
93	94	72	99	NR

Table 2—Continued (bottom left)

Study, Year (Reference)	Diagnostic Technique	Duration of Catheterization	Prevalence, %	Test Results, <i>n</i>			
				True-Positive	False-Positive	True-Negative	False-Negative
Maki et al., 1996 (68)	Quantitative catheter segment culture	Short term	2.7	8	66	323	3
Kelly et al., 1996 (73)	Quantitative catheter segment culture	Short term	3.4	13	98	293	1
Douard et al., 1999 (32)	Quantitative catheter septum culture	Long term	8.8	14	0	155	1
Bjornson et al., 1982 (75)	Quantitative catheter segment culture	Short and long term	13.5	8	4	60	2
Snydman et al., 1982 (29)	IVD-drawn qualitative blood culture	NR	0.05	2	8	87	3
Bozzetti et al., 1985 (76)	IVD-drawn qualitative blood culture	Short term	3.1	7	35	213	1
Paya et al., 1989 (77)	IVD-drawn qualitative blood culture	Short term	28.8	15	12	25	0
Whitman and Boatman, 1995 (58)	IVD-drawn qualitative blood culture	Long term	65.5	16	3	7	3
Raucher et al., 1984 (78)	IVD-drawn qualitative blood culture	Long term	6.5	9	21	107	0
Capdevila et al., 1992 (31)	IVD-drawn qualitative blood culture	Short term	15.8	17	10	80	0
Moyer et al., 1983 (70)	IVD-drawn qualitative blood culture	Short term	6.0	4	5	58	0
Paya et al., 1989 (77)	IVD-drawn quantitative blood culture	Short term	28.8	12	6	31	3
Snydman et al., 1982 (29)	IVD-drawn quantitative blood culture	NR	0.05	1	5	90	4
Raucher et al., 1984 (78)	IVD-drawn quantitative blood culture	Long term	6.5	9	5	123	0
Capdevila et al., 1992 (31)	IVD-drawn quantitative blood culture	Short term	15.8	14	1	89	3
Moyer et al., 1983 (70)	IVD-drawn quantitative blood culture	Short term	7.4	4	0	62	1
Franklin et al., 2004 (91)	IVD-drawn quantitative blood culture	Long term	58.0	111	36	65	29
Catton et al., 2002 (94)	IVD-drawn quantitative blood culture	Long term	40.4	80	11	111	3
Flynn et al., 1988 (34)	Paired Lysis-centrifugation‡ quantitative blood cultures	Long term	61.5	7	0	5	0
Sanchez-Conde, 2003 (79)	Paired Lysis-centrifugation‡ quantitative blood cultures	Short term	73.6	106	1	51	39
Douard et al., 1991 (74)	Paired Lysis-centrifugation‡ quantitative blood cultures	Long term	13.2	7	0	46	0
Douard et al., 1994 (33)	Paired Lysis-centrifugation‡ quantitative blood cultures	Short and long term	62.0	30	0	22	6
Mosca et al., 1987 (80)	Paired Lysis-centrifugation‡ quantitative blood cultures	Long term	30.7	8	0	18	0
Paya et al., 1989 (77)	Paired Lysis-centrifugation‡ quantitative blood cultures	Short term	28.8	7	4	33	8
Fortun et al., 2000 (81)	Paired Lysis-centrifugation‡ quantitative blood cultures	Short term	18.6	21	3	93	1
Capdevila et al., 1992 (31)	Paired quantitative blood cultures	Short term	15.8	16	0	90	1
Raucher et al., 1984 (78)	Paired quantitative blood cultures	Long term	19.2	5	0	21	0
Douard et al., 1999 (32)	Paired Lysis-centrifugation‡ quantitative blood cultures	Long term	8.8	12	0	155	3
Blot et al., 1999 (35)	Differential time to positivity	Short and long term	19.7	16	1	68	1
Malgrange et al., 2001 (83)	Differential time to positivity	Long term	35.7	27	29	34	8
Sanchez-Conde, 2003 (79)	Differential time to positivity	Short term	73.6	135	5	47	10
Rjinders et al., 2001 (84)	Differential time to positivity	Short term	30.0	2	4	3	1
Blot et al., 1998 (82)	Differential time to positivity	Long term	66.6	27	0	14	1
Gaur et al., 2002 (89)	Differential time to positivity	Long term	28.5	8	0	24	1
Mermel et al., 1998 (85)	Differential time to positivity	NR	46.8	11	5	12	4
Raad et al., 2004 (90)	Differential time to positivity	Short term*	48.0	29	3	36	7
Raad et al., 2004 (90)	Differential time to positivity	Long term	62.0	67	11	33	5
Seifert et al., 2003 (36)	Differential time to positivity	Short term	43.1	18	4	25	4
Rushforth et al., 1993 (86)	Acridine orange leukocyte cytospin	Long term	32.6	27	4	60	4
Tighe et al., 1996 (49)	Acridine orange leukocyte cytospin	NR	14.0	2	0	43	5
Baum et al., 1998 (87)	Acridine orange leukocyte cytospin	Short term	28.5	2	2	8	2
Kite et al., 1999 (37)	Acridine orange leukocyte cytospin and Gram stain	Short and long term	44.6	48	5	57	2
Bong et al., 2003 (88)	Acridine orange leukocyte cytospin	Short term	20.0	10	4	36	0

* IVD = intravascular device; NR = not reported.

† Indeterminate test results were not included in calculation of the test performance.

‡ Isolator system (Wampole Laboratories, Cranbury, New Jersey).

Table 2—Continued (bottom right)

Sensitivity, %	Specificity, %	Positive Predictive Value, %	Negative Predictive Value, %	Indeterminate Test Results, n/nt
73	83	11	83	NR
93	75	11	99	NR
93	100	100	99	NR
80	94	100	98	NR
40	92	20	96	NR
88	86	16	99	NR
100	68	55	100	NR
84	70	84	70	NR
100	84	30	10	NR
100	89	62	100	NR
100	92	44	100	NR
80	84	66	91	NR
20	95	16	95	NR
100	96	64	100	NR
82	99	93	96	NR
80	100	100	98	NR
79	64	79	69	NR
96	91	88	97	NR
100	100	100	100	1/13
73	98	99	56	NR
100	100	100	100	NR
83	100	100	78	NR
100	100	100	100	NR
47	89	63	80	NR
95	97	87	98	NR
94	100	100	98	NR
100	100	100	100	NR
80	100	100	98	NR
94	99	94	91	19/93
77	54	48	54	0
93	90	96	82	NR
67	43	33	75	25/37
96	100	100	93	22/64
89	100	100	96	24/57
73	71	68	75	0
81	92	91	84	5947/6138
93	75	86	87	5947/6138
82	86	81	86	NR
87	94	87	93	NR
29	100	100	89	NR
50	80	50	80	NR
96	92	90	96	0
100	90	71	100	NR