Additional file contents:

Table S1: *S. aureus* VAP data: observational studies (Benchmark groups)

Author	Year	Ref	Notes [a]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
A'court	1993	1	Tr	9	150	33	22.0	4	2.7	
Alvarez-Lerma	1996	2		9.2	6494	519	8.0	102	1.6	
Antonelli	1994	3	B, Tr	11.9	124	41	33.1	10	8.1	
Apostolopoulou	2003	4	Sr	12.6	175	56	32.0	9	5.1	
Baker	1996	5	US, B, Tr, Sr	999	514	30	5.8	5	1.0	
Bekaert	2011	6		8	4479	685	15.3	133	3.0	49
Bercault_IHT	2005	7		9	118	31	26.3	2	1.7	
Bercault_noINT	2005	7	I	11	118	12	10.2	2	1.7	
Berrouane_all	1998	8	B, Tr	11	565	129	22.8	71	12.6	14
Bochicchio	2004	9	US, Tr, Sr	10.5	678	125	18.4	50	7.4	9
Bonten'94	1994	10	B, Sr		64	11	17.2	3	4.7	
Boots	2008	11	B	10.6	412	58	14.1	32	7.8	17
Bornstain	2004	12	B	8.5	747	80	10.7	17	2.3	6
Braun	1986	13	US, Tr, Sr	6	66	15	22.7	6	9.1	
Bregeon	1997	14	B	10.3	660	223	33.8	34	5.2	
Bronchard	2004	15	B, Tr, Sr	17	109	45	41.3	26	23.9	1
Cade	1993	16		4	98	35	35.7	13	13.3	10
Cavalcanti	2006	17	B, Tr	5	190	62	32.6	18	9.5	
Cenderero	1999	18	B	6.5	123	19	15.4	9	7.3	3
Chaari	2015	19	Tr	8.2	175	48	27.4	6	3.4	
Chastre	1998	20	B, Sr	19	243	84	34.6	18	7.4	
Chevret	1993	21		5	255	55	21.6	23	9.0	
Cook_non-trauma	2010	22		5.5	2080	70	3.4	14	0.7	12
Cook_trauma	2010	22	Tr, US	7.3	511	91	17.8	15	2.9	10
Craven-medical	1988	23	US	4	277	47	17.0	9	3.2	
Craven-surgical	1988	23	US	3.6	521	49	9.4	12	2.3	
Daschner	1988	24	Sr	6	116	36	31.0	13	11.2	
de_Latore	1995	25	B, Sr	10.2	80	12	15.0	3	3.8	
Ertugrul	2006	26	Tr	9.7	100	28	28.0	12	12.0	11
Evans	2010	27	US, Tr	8	416	101	24.3	40	9.6	22
Ewig	1999	28	B, Tr	6	48	10	20.8	5	10.4	0
Fagon'89	1989	29	B, Sr	13	567	49	8.6	17	3.0	
Gacouin	2009	30	B	11	361	76	21.1	21	5.8	9
Garrouste-Orgas	1997	31	B	11	86	31	36.0	13	15.1	13
George	1998	32	US	6	223	28	12.6	8	3.6	4
Georges	2000	33	B, Sr	18	135	35	25.9	11	8.1	
Giard	2008	34	B	8	7236	946	13.1	193	2.7	
Gruson-95-96	2000	35	B	11.6	1004	231	23.0	67	6.7	40
Gruson-97-98	2000	35	B	11.9	1029	161	15.6	54	5.2	20
Gruson-99-01	2003	36	B	11.6	823	134	16.3	26	3.2	

Table S1 (continued): *S. aureus* VAP data: observational studies (Benchmark groups)

Author	Year	Ref	Notes [a]	MV D	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
Guérin	1997	37	B	8.9	260	27	10.4	3	1.2	1
Guimaraes	2006	38	Sr	7	278	106	38.1	7	2.5	7
Gursel	2010	39		10	92	59	64.1	13	14.1	12
Heyland	1999	40	US, B	16	1014	177	17.5	64	6.3	4
Hugonnet	2007	41	B	4.8	936	209	22.3	55	5.9	
Hyllienmark	2007	42	B	5	221	33	14.9	2	0.9	0
Ibáñez	2000	43		7.6	30	6	20.0	3	10.0	
Ibrahim'00	2000	44	US, Sr	4.7	1882	397	21.1	143	7.6	81
Jacobs	1990	45	Sr		24	13	54.2	2	8.3	
Jaillette	2011	46		15	439	137	31.2	22	5.0	13
Jaimes	2007	47	Sr	9.6	270	60	22.2	10	3.7	
Jimenez	1989	48	Sr	5.6	77	18	23.4	2	2.6	
Kallel	2005	49	Tr	13.7	241	77	32.0	15	6.2	2
Kanafani	2003	50	Sr	17	70	33	47.1	3	4.3	0
Kollef' 93	1993	51	US, Sr	7.4	277	43	15.5	9	3.2	
Kollef '95	1995	52	US, Sr		314	87	27.7	17	5.4	8
Kollef '97	1997	53	US, Sr	5.4	521	77	14.8	25	4.8	12
Kollef'14_All	2014	54	US	11.4	1873	293	15.6	65	3.5	27
Koss– N	2001	55	US	10.3	87	17	19.5	3	3.4	
Koss– P	2001	55	I	7.5	66	24	36.4	4	6.1	
Kunac	2014	56	US, B, Tr	5	716	206	28.8	62	8.7	40
Lepelletier	2010	57	T, Tr	13	161	34	21.1	34	21.1	5
Luna	2003	58	B	7.6	427	63	14.8	19	4.4	13
Luyt	2005	59		35	290	69	23.8	12	4.1	4
Magnason	2008	60			280	21	7.5	1	0.4	
Magret_non-trauma	2010	61		5	2082	337	16.2	84	4.0	42
Magret_trauma	2010	61	Tr	5	354	128	36.2	32	9.0	10
Mahul	1992	62	B, Sr	16.6	145	30	20.7	10	6.9	
Makris	2011	63	I, B	20	152	44	28.9	3	2.0	
Markowicz	2000	64	B, Sr	11.7	744	162	21.8	74	9.9	40
Memish	2000	65	Sr	8	202	41	20.3	16	7.9	
Michel	2005	66	B		299	41	13.7	12	4.0	1
Moine	2002	67	B, Sr	9.7	764	89	11.6	19	2.5	14
Myny	2005	68	Sr	6	385	89	23.1	27	7.0	7
Nguile-Makao	2010	69	B	7	2873	434	15.1	89	3.1	
Nielsen	1992	70		3.8	242	23	9.5	5	2.1	
Noor	2005	71	Sr	6	250	70	28.0	11	4.4	7
Nseir	2005	72	Sr	24	1241	77	6.2	15	1.2	8

Table S1 (continued): *S. aureus* VAP data: observational studies (Benchmark groups)

Author	Year	Ref	Notes [a]		MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
Papazian	1996	73	B, Sr		16	586	97	16.6	20	3.4	
Potgieter	1987	74	Sr		9.2	250	51	20.4	23	9.2	6
Raineri	2010	75	I, B	B	4.4	822	44	5.4	11	1.3	4
Raineri	2010	75	B	B	5.6	827	68	8.2	22	2.7	3
Ramirez	2016	76	B	B	7	440	71	16.1	8	1.8	
Rello'91	1991	77	B, Sr	B	7.9	264	58	22.0	15	5.7	
Rello'92	1992	78	B	B		208	53	25.5	22	10.6	0
Rello'96	1996	79	B, Sr	B	8	83	21	25.3	0.5	0.0	
Rello'02	2002	80	US, Sr		5.4	9080	842	9.3	143	1.6	
Rello'03	2003	81	Sr	T	7	99	18	18.2	2	2.0	1
Resende	2013	82		T	24	126	33	26.2	5	4.0	
Reusser	1989	83	Sr	T	7	40	15	37.5	6	15.0	
Rezai	2017	84		T		562	205	36.5	24	4.3	
Rincón-Ferrari	2004	85	B, Tr	B	10	310	72	23.2	27	8.7	
Rodrigues	2009	86		T	10	233	64	27.5	11	4.7	6
Rodriguez	1991	87	US, Tr, Sr	T	11	294	130	44.2	37	12.6	14
Ruiz-Santana	1987	88	Sr	B	7	1005	180	17.9	12	1.2	8
Salahuddin	2004	89	I	T		333	43	12.9	3	0.9	
Salahuddin	2004	89		T		344	19	5.5	3	0.9	
Salata	1987	90	US, B, Sr	B	13.5	51	21	41.2	2	3.9	
Shahin	2013	91	US	T	6	267	29	10.9	6	2.2	
Sofianou	2000	92	Sr	T	8	198	67	33.8	13	6.6	13
Stéphan	2006	93	Tr, Sr	T	5	175	78	44.6	43	24.6	2
Tan	2016	94		T	9	618	286	46.3	23	3.7	
Tejada-Artigas	2001	95	B, Tr, Sr	B	8	103	23	22.3	11	10.7	
Timsit	1996	96	B, Sr	B	12	387	56	14.5	18	4.7	
Torres	1990	97	B, Sr	B	4	322	78	24.2	2	0.6	
Trouillet	1998	98	B	B	17	498	135	27.1	52	10.4	32
Urli	2002	99		T		178	116	65.2	40	22.5	20
Valles	2007	100	Sr	T	12	60	40	66.7	9	15.0	0
Vanhems	2011	101	B			3387	367	10.8	137	4.0	
Verhamme	2007	102			7.7	4000	298	7.4	56	1.4	7
Violan	1998	103	B, Sr	B	13	314	82	26.1	26	8.3	1
Woske	2001	104	B, Sr	B	15	103	49	47.6	29	28.2	1
Xie	2011	105			2.5	4155	868	20.9	92	2.2	41
Zahar	2009	106	B		8.84	1233	208	16.9	51	4.1	

Table S1 footnotes

Tr – Data originating from a study for which the majority of ICU admission were for trauma

US - Data originating from a study based in the United States of America or Canada

B – VAP diagnosis based on bronchoscopic based methods for sampling.

Sr - These studies were cited in the following source systematic reviews.

- Agrafiotis M, Siempos II, Ntaidou TK, Falagas ME. Attributable mortality of ventilator-associated pneumonia: a meta-analysis. The International Journal of Tuberculosis and Lung Disease. 2011 Sep 1;15(9):1154-63.
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Table S2: *S. aureus* VAP data: non-antibiotic-based methods of VAP prevention [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
control groups										
Acosta-escribano	2010	107	Tr, Sr	8.9	54	31	57.4	4	7.4	8.9
Bonten '95	1995	108	B, Pl, Sr	9.2	74	16	21.6	7	9.5	9.2
Boots'06_All	2006	109	Sr	13.2	381	59	15.5	28	7.3	13.2
Combes	2000	110	Tr, Sr	11.3	50	4	8.0	4	8.0	11.3
Cook	1998	111	US, Pl, Sr	7	596	114	19.1	44	7.4	7
Daumal	1999	112			174	25	14.4	7	4.0	
Djedaini	1995	113	B		61	6	9.8	0.5	0.0	
Drakulovic	1999	114	Sr	7.8	47	11	23.4	4	8.5	7.8
Dreyfuss	1991	115	B, Sr	12.8	35	11	31.4	2	5.7	12.8
Dreyfuss	1995	116	B, Sr	12.5	70	8	11.4	2	2.9	12.5
Driks	1987	117	Sr		69	16	23.2	4	5.8	
Fabian_all	1993	118	US, Tr, Sr	6	278	81	29.1	32	11.5	6
Forestier	2008	119	B, Pl, Tr, Sr		106	21	19.8	11	10.4	
Heyland	1999	120	US, Pl	7.8	46	7	15.2	0.5	0.0	7.8
Holzapfel_C_93	1993	121	B, Sr	9.5	149	17	11.4	8	5.4	9.5
Holzapfel_C_99	1999	122	B	14	200	51	25.5	21	10.5	14
Kappstein	1991	123	Tr		55	25	45.5	9	16.4	
Kirschenbaum	2002	124	US, Sr	12	20	10	50.0	1	5.0	12
Kirton	1997	125	US, Tr, Sr	16.3	140	22	15.7	6	4.3	16.3
Knight	2009	126	Pl, Sr	5	129	17	13.2	1	0.8	5
Kollef '95	1995	127	US, Sr	15	300	80	26.7	22	7.3	15
Kollef '97	1997	128	US, Sr	5.6	521	77	14.8	42	8.1	5.6
Kollef '98	1998	129	US, Sr	3.7	147	15	10.2	7	4.8	3.7
Kostadima	2005	130			21	8	38.1	3	14.3	
Lacherade '05	2005	131	B, Sr	14.9	184	53	28.8	16	8.7	14.9
Lacherade '10	2010	132	B, Sr	8	164	42	25.6	8	4.9	8
Laueny	2014	133	Tr	10	91	11	12.1	6	6.6	10
Lorente '03	2003	134	B	14.8	116	26	22.4	8	6.9	14.8
Lorente '04	2004	135	B, Sr	16	143	33	23.1	6	4.2	16
Lorente'05	2005	136	B, Sr	12.7	233	42	18.0	11	4.7	12.7
Lorente'06	2006	137	B, Sr	9.5	221	31	14.0	8	3.6	9.5
Lorente'06	2006	138	B, Sr	20.8	51	8	15.7	5	9.8	20.8
Lorente'07	2007	139	Sr	11.1	140	31	22.1	8	5.7	11.1
Lorente'14	2014	140		11.1	150	33	22.0	5	3.3	11.1

Table S2 (continued): *S. aureus* VAP data: non-antibiotic-based methods of VAP prevention [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
control groups										
Manzano	2008	141			63	16	25.4	9	14.3	2
Martin	1993	142	US, Pl	4	66	6	9.1	1	1.5	
Morrow	2010	143	US, B, Pl, Sr	9.6	73	28	38.4	14	19.2	
Nseir	2011	144	B	8	61	16	26.2	3	4.9	
Pickworth	1993	145	US, Tr, Sr	2.9	44	5	11.4	1	2.3	
Pneumatikos	2006	146	Pl, Tr	15	40	11	27.5	4	10.0	
Prod'hom_A	1994	147	Sr	6	81	18	22.2	5	6.2	
Reigneir	2013	148	B	7	222	35	15.8	17	7.7	
Rumbak	2004	149	US		60	15	25.0	5	8.3	
Ryan_C	1993	150	US, Sr	5.1	56	7	12.5	1	1.8	
Smulders	2002	151	Sr	7.1	75	12	16.0	3	4.0	
Staudinger	2010	152	B, Sr	14	75	17	22.7	2	2.7	
Thomachot	1998	153	B	12	66	21	31.8	7	10.6	
Thomachot	1999	154	Tr	11.1	77	24	31.2	8	10.4	
Thomachot	2002	155	Tr	9.5	84	22	26.2	7	8.3	
Valencia	2007	156	B, Sr	6	69	10	14.5	2	2.9	0
Zeng	2016	157		17	117	59	50.4	16	13.7	

Table S2: *S. aureus* VAP data: non-antibiotic-based methods of VAP prevention [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
intervention groups										
Acosta-escribano	2010	107	Tr, Sr	7.3	50	16	32.0	8	16.0	
Bonten '95	1995	108	B, Sr	9.2	67	15	22.4	4	6.0	
Cook	1998	111	US, Sr	8	604	98	16.2	36	6.0	
Daumal	1999	112			187	30	16.0	9	4.8	
Djedaini	1995	113			68	8	11.8	2	2.9	
Drakulovic	1999	114	Sr	9.5	39	2	5.1	0.5	0.0	0
Dreyfuss	1995	115	B, Sr	10	61	6	9.8	0.5	0.0	
Dreyfuss	1991	116	B, Sr	10	28	8	28.6	1	3.6	
Driks	1987	117	Sr		61	7	11.5	0.5	0.0	
Forestier	2008	119	B, Tr, Sr		102	19	18.6	12	11.8	
Heyland	1999	120	US	8.5	49	3	6.1	1	2.0	
Holzapfel_I_99	1999	121	B	16	199	37	18.6	7	3.5	
Kantorova All	2004	158	Tr, Sr		287	25	8.7	5	1.7	
Kappstein	1991	123	Tr		49	12	24.5	11	22.4	
Kirton	1997	125	US, Tr, Sr	20.4	140	9	6.4	6	4.3	
Knight	2009	126		5	130	12	9.2	0.5	0.0	
Lacherade '05	2005	131	B, Sr	13.5	185	47	25.4	18	9.7	6
Lacherade '10	2010	132	B, Sr	7	169	25	14.8	2	1.2	0
Laueny	2014	133	Tr	15	98	37	37.8	17	17.3	0
Lorente '03	2003	134	B, Sr	13.7	114	29	25.4	7	6.1	
Lorente '04	2004	135	B, Sr	20	161	37	23.0	14	8.7	6
Lorente'05	2005	136	B, Sr	12.1	210	43	20.5	10	4.8	8
Lorente'06	2006	137	B, Sr	9.9	236	33	14.0	8	3.4	3
Lorente'06	2006	138	B, Sr	19.5	53	21	39.6	2	3.8	0
Lorente'07	2007	139	Sr	10.5	140	11	7.9	2	1.4	1
Lorente'14	2014	140		10.5	134	15	11.2	1	0.7	1
Manzano	2008	141			64	6	9.4	4	6.3	1
Martin	1993	142	US	4	65	2	3.1	0.5	0.0	
Morrow	2010	143	US, B, Sr	9.5	73	13	17.8	8	11.0	
Nseir	2011	144	B	8	61	6	9.8	1	1.6	

Table S2: *S. aureus* VAP data: non-antibiotic-based methods of VAP prevention [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
intervention groups										
Pneumatikos	2006	146	Tr	16	39	6	15.4	2	5.0	
Prod'hom_R	1994	147	Sr	6	80	22	27.5	4	5.0	
Prod'hom_S	1994	147	Sr	5	83	11	13.3	2	2.4	
Reigneir	2013	148	B	7	227	38	16.7	10	4.4	
Rumbak	2004	149	US		60	3	5.0	1	1.7	
Ryan_S	1993	150	US, Sr	5.6	58	8	13.8	2	3.4	
Smulders	2002	151		7.9	75	3	4.0	1	1.3	
Staudinger	2010	152	B, Sr	8	75	8	10.7	2	2.7	
Thomachot	1998	153	B	12	70	26	37.1	8	11.4	
Thomachot	1999	154	Tr	12.3	63	21	33.3	7	11.1	
Thomachot	2002	155	Tr	8.6	71	10	14.1	5	7.0	
Valencia	2007	156	B, Sr	5	73	11	15.1	2	2.7	1
Zeng	2016	157		12	118	43	36.4	12	10.2	

Table S2 footnotes

a. Study interventions; histamine 2 receptor antagonist; proton pump inhibitor; feeding by the gastric route; feeding by the small bowel route; open tracheal suction system; closed tracheal suction system; Heated humidifier; heat and moisture exchanger changed every 24 hours; heat and moisture exchanger changed every 48 hours; subglottic secretion drainage; no circuit changes; circuit changes at 48 hours.

b. Notes

Pl – topical placebo used to achieve observe binding

Tr – Data originating from a study for which the majority of ICU admission were for trauma

US - Data originating from a study based in the United States of America or Canada

B – VAP diagnosis based on bronchoscopic based methods for sampling.

Sr - These studies were cited in the following source systematic reviews.

- Messori A, Trippoli S, Vaiani M, Gorini M, Corrado A: Bleeding and pneumonia in intensive care patients given ranitidine and sucralfate for prevention of stress ulcer: meta-analysis of randomised controlled trials. *BMJ* 2000, 321:1103–1106.
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Table S3: *S. aureus* VAP data: studies of topical antiseptic based methods of VAP prevention [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
control groups										
Cabov	2010	159	Pl		30	6	20	2	6.7	
Caruso	2009	160	B	11	132	31	23.5	5	4	5
Fourrier'00	2000	161	Sr	18	30	15	50.0	3	10.0	
Fourrier'05	2005	162	Pl, Sr	10.6	114	12	10.5	2	1.8	1
Genuit (C & T)	2001	163	US		78	27	34.6	7	9.0	
Koeman	2006	164	Pl, Sr	7	130	23	17.7	5	3.8	
Kollef'08	2008	165	US	4	743	56	7.5	16	2.2	
Lorente'12	2012	166	Sr	9.1	219	24	11.0	4	1.8	3
Mori H	2006	167		6	414	25	6.0	5	1.2	4
Panchachai	2009	168	Pl, Sr	4	83	15	18.1	3	3.6	
Seguin – CC	2006	169	B, Tr, Sr	12	31	13	41.9	7	22.6	0
Seguin – SC	2006	169	B, Pl, Tr, Sr	10	31	12	38.7	7	22.6	0
Seguin	2014	170	B, Pl, Tr		72	20	27.8	11	15.3	
Tantipong	2008	171	Pl, Sr		52	10	19.2	0.5	0.0	
intervention groups										
Cabov	2010	159			30	1	3.3	0.5	0.0	
Camus MCh	2005	178, 200	B, Sr		130	24	18.5	1	0.8	1
Caruso	2009	160	B	11	130	14	10.8	1	0.8	
Fourrier'00	2000	161	Sr	13	30	5	16.7	0.5	0.0	
Fourrier'05	2005	162	Sr	11.7	114	13	11.4	1	0.9	0
Koeman-Ch	2006	164	Sr	9.2	127	13	10.2	2	1.6	
Kollef'08_silverETT	2008	165	US, B	4	766	37	4.8	9	1.2	
Lorente'12	2012	166	Sr	9.7	217	21	9.7	4	1.8	2
Mori H	2006	167		5.9	1248	25	2.0	7	0.6	1
Panchachai	2009	168	Sr	3	88	14	15.9	2	2.3	
Pobo	2009	172	B		73	18	24.7	9	12.3	
Seguin-PVI	2006	169	B, Tr, Sr	9	36	3	8.3	3	8.3	0
Seguin	2014	170	B, Tr, Sr		78	24	30.8	14	17.9	
Tantipong	2008	171	Sr		58	5	8.6	0.5	0.0	

Table S3 footnotes

a. Study interventions; chlorhexidine alone; chlorhexidene with toothbrushing; chlorhexidene with mupirocin; saline installation; sliver endotracheal tubing; povidone-iodeine.

b. Notes

Pl – topical placebo used to achieve observe binding

Tr – Data originating from a study for which the majority of ICU admission were for trauma

US - Data originating from a study based in the United States of America or Canada

B – VAP diagnosis based on bronchoscopic based methods for sampling.

Sr - These studies were cited in the following source systematic reviews.

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Table S4: *S. aureus* VAP data: studies of SDD [a]

Author	Year	Ref	Notes [b]	MV D	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
control groups										
Abele-Horn	1997	173	Tr, Sr	15	30	20	66.7	5	16.7	
Aerdts	1991	174	Sr	23	39	27	69.2	4	10.3	
Bergmans CC	2001	175	B, Pl, Sr	11	78	24	30.8	6	7.7	
Blair	1991	176	Sr	4	130	37	28.5	7	5.4	
Bonten CC	1994	177	B, Sr		21	0.5	0.0	0.5	0.0	
Camus	2005	178, 200	B, Pl, Sr		126	30	23.8	8	6.3	2
Ferrer	1994	179	B, Pl, Sr	12.6	41	10	24.4	2	4.9	2
Gastinne	1992	180	Pl, Sr		225	34	15.1	10	4.4	2
Georges	1994	181	B, Pl, Tr, Sr		33	15	45.5	1	3.0	
Hammond	1994	182	Pl, Tr	5.9	33	1	3.0	3	9.1	
Jacobs	1992	183	Sr		43	4	9.3	0.5	0.0	
Karvouniaris	2015	184	Pl	9	84	25	29.8	4	4.8	
Korinek	1993	185	B, Pl, Sr	15	60	25	41.7	16	26.7	
Laggner	1994	186	Pl, Sr	19.9	34	4	11.8	0.5	0.0	
Langlois-Karaga	1995	187	Pl, Tr, Sr		50	28	56.0	15	30.0	
Palomar	1997	188	Tr, Sr	6.4	42	21	50.0	8	19.0	
Palomar Ctx	1997	188	Tr, Sr		46	14	30.4	3	6.5	
Quinio	1995	189	Pl, Tr, Sr	9	72	37	51.4	16	22.2	
Rocha	1992	190	Pl, Sr	13	54	25	46.3	15	27.8	
Rolando	1993	191	L, Sr	7.3	31	11	35.5	1	3.2	
Sanchez-Garcia	1998	192	Pl, Sr	10	140	57	40.7	7	5.0	6
Stoutenbeek '07	2007	193	Tr, Sr	8	200	46	23.0	40	20.0	
Ulrich	1989	194	Sr	7.8	52	26	50.0	5	9.6	
Unertl	1987	195	Sr	11	20	9	45.0	5	25.0	
Verwaest [c]	1997	196	Sr	19	185	40	21.6	9	4.9	5
Wiener	1995	197	US, B, Pl, Sr	10	31	8	25.8	4	12.9	2
Winter CC	1992	198	B, Sr	8	92	17	18.5	1	1.1	

Table S4 (continued): *S. aureus* VAP data: studies of SDD [a]

Author	Year	Ref	Notes [b]	MVD	Patients (n)	VAP (n)	VAP %	S aureus (n)	S aureus %	MRSA (n)
intervention groups										
Abele-Horn	1997	173	Tr, Sr	13	58	13	22.4	9	15.5	
Bergmans	2001	175	B, Sr	10	87	9	10.3	3	3.4	
Blair	1991	176	Sr	5	126	11	8.7	1	0.8	
Bonten TAP	1994	177	B, Sr		22	0.5	0.0	0.5	0.0	
Camus PT	2005	178, 200	B, Sr		130	15	11.5	6	4.6	5
Camus PT&MCh	2005	178, 200	B, Sr		129	10	7.8	1	0.8	1
Ferrer	1994	179	B, Sr	13.5	39	7	17.9	3	7.7	3
Gastinne	1992	180	Sr		220	26	11.8	15	6.8	6
Georges	1994	181	B, Tr, Sr		31	3	9.7	0.5	0.0	
Hammond	1994	182	Tr	6.5	39	6	15.4	4	10.3	
Jacobs	1992	183	Sr		36	0.5	0.0	0.5	0.0	
Karvouniaris	2015	184		13.5	84	14	16.7	5	6.0	
Koeman-Col	2006	164	Sr	8.5	128	16	13	5	3.8	
Korinek	1993	185	B, Tr, Sr	14	63	15	23.8	9	14.3	
Laggner	1994	186	Sr	15.8	33	1	3.0	0.5	0.0	
Langlois-Karaga	1995	187	Tr, Sr		47	14	29.8	5	10.6	
Palomar_1	1997	188	Tr, Sr	10.8	41	7	17.1	5	12.2	
Quinio	1995	189	Tr, Sr	9.1	76	19	25.0	9	11.8	
Rocha	1992	190	Tr, Sr	13	47	7	14.9	5	10.6	
Rolando	1993	191	L, Sr	9	28	8	28.6	2	7.1	
Sanchez-Garcia	1998	192	Sr	9	131	38	29.0	5	3.8	5
Stoutenbeek '07	2007	193	Tr, Sr	9	201	19	9.5	18	9.0	
Ulrich	1989	194	Sr	10.7	48	7	14.6	2	4.2	
Verwaest OA [c]	1997	196	Sr	22	193	22	11.4	6	3.1	4
Verwaest PTA [c]	1997	196	Sr	22	200	31	15.5	9	4.5	5
Wiener	1995	197	US, B, Sr	10	30	8	26.7	1	3.3	0
Winter	1992	198	B, Sr	6	91	3	3.3	0.5	0.0	

Footnotes

a. Treatment abbreviations

- Topical antibiotic components include; topical polymyxin; topical tobramycin; topical amphotericin; topical gentamicin; topical ciprofloxacin, topical vancomycin; topical nystatin; topical neomycin; topical nalidixic acid; topical norfloxacin; topical oflaxcin; nebulized polymyxin; nebulized saline.
- Parenteral antibiotic components include; Amoycillin-clavulinate; systemic ampicillin; systemic Cefuroxime; systemic cefotaxime; systemic ciprofloxacin; systemic vancomycin; systemic ciprofloxacin; systemic trimethoprim; systemic oflaxcin; systemic ceftazidime.

b. Notes

Pl – topical placebo used to achieve observe binding

Tr – Data originating from a study for which the majority of ICU admission were for trauma

L - Data originating from a study for which all patients had severe liver disease or transplantation.

US - Data originating from a study based in the United States of America or Canada

B – VAP diagnosis based on bronchoscopic based methods for sampling.Sr - These studies were derived from the following source systematic reviews

Sr - These studies were cited in the following source systematic reviews.

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c. Note, the number of MRSA strains in the groups of the study by Verwaest [196] is calculated using the proportion of MRSA (55%) among the overall numbers of isolates from all sites of infection in Table 6 of this publication.

Table S5: *S. aureus* bacteremia data: all studies

author	Year	Ref	Notes	Patients (n)	S aureus bacteremia (n)	S aureus bacteremia %
Observational studies						
A'court	1993	1	Tr	150	5	3.3
Cade	1993	16		98	1	1.0
Craven-medical	1988	23	US	526	4	0.8
Craven-surgical	1988	23	US	799	10	1.3
Ertugrul	2006	26	Tr	100	9	9.0
Kollef '97_all	1997	54	US	680	6	0.9
Kunac	2014	56	Tr, US	206	6	2.9
Magnason	2008	60		280	1	0.4
Reusser	1989	83		40	1	2.5
Urli	2002	99		178	12	6.7
Non antibiotic and anti-septic studies						
Holzapfel_C_93	1993	121		149	6	4.0
Holzapfel_C_99	1999	122		200	2	1.0
Holzapfel_I_99	1999	122		199	2	1.0
Camus MCh	2005	178, 200		130	1	0.8
Fourrier'00	2000	161		30	1	3.3
Fourrier'05	2005	162	Pl	114	0.5	0.0
Fourrier'00	2000	161		30	0.5	0.0
Fourrier'05	2005	162	Pl	114	1	0.9

Table S5: *S. aureus* bacteremia data: all studies (continued)

author	Year	Ref	Notes	Patients (n)	S aureus bacteremia (n)	S aureus bacteremia %
SDD studies – control groups						
Camus	2005	178, 200		126	1	0.8
Ferrer	1994	179	Pl	41	2	4.9
Jacobs	1992	183		43	0.5	0.0
Laggner	1994	186	Pl	34	0.5	0.0
Quinio	1995	189	Tr, Pl	72	4	5.6
Rocha	1992	190	Tr, Pl	54	3	5.6
Rolando	1993	191	L	31	3	9.7
Stoutenbeek '07	2007	193	Tr	200	5	2.5
Verwaest	1997	196		185	3	1.6
SDD studies – intervention groups						
Camus PT	2005	178, 200		130	3	2.3
Camus MCh&PT	2005	178, 200		129	2	1.6
Ferrer	1994	179	Pl	39	0.5	0.0
Jacobs	1992	183		36	0.5	0.0
Laggner	1994	186	Pl	33	1	3.0
Quinio	1995	189	Tr, Pl	76	8	10.5
Rocha	1992	190	Tr, Pl	47	2	4.3
Rolando	1993	191	L	28	0.5	0.0
Stoutenbeek '07	2007	193	Tr	201	8	4.0
Verwaest OA	1997	196		193	7	3.6
Verwaest PTA	1997	196		200	10	5.0

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