

**Table S2. Overview of reviews results**

Author, year published	Number of RCTs	Effect size (95% CI) <sup>a</sup>	Quality of evidence (GRADE)	Heterogeneity (I <sup>2</sup> statistic, p value)
<b>VAP incidence</b>				
Huang et al, 2018 <sup>b</sup>	9	0.59 (0.48 to 0.75), p < 0.00001	Low	0%; p = 0.47
Sun et al, 2017	13	0.54 (0.46 to 0.64), p < 0.00001	Moderate	0%; p = 0.72
Mao et al, 2016	20	0.55 (0.48 to 0.63), p < 0.00001	High	0%; p = 0.85
Caroff et al, 2016	17	0.58 (0.51 to 0.67), p < 0.00001	Moderate	0%; p = 0.74
Frost et al, 2013	9	0.52 (0.42 to 0.65), p = N/A	Very low	N/A; p = 0.87
Leasure et al, 2012	10	0.52 (0.43 to 0.64), p < 0.00001	Very low	0%; p = 0.92
Wang et al, 2012	10	0.56 (0.45 to 0.69), p < 0.00001	Moderate	0%; p = 0.94
Muscedere et al, 2011	13	0.55 (0.46 to 0.66), p < 0.00001	Moderate	0%; p = 0.80
Dezfulian et al, 2005	5	0.51 (0.33 to 0.71), p = N/A	Very low	N/A; p = 0.87
<b>Overall mortality</b>				
Sun et al, 2017	7	0,89 ( 0,73 to 1,09), p = 0,25	Moderate	0%; p = 0.90
Caroff et al, 2016	14	0.93 (0.84 to 1.03), p = 0.19	Moderate	0%; p = 0.69
Leasure et al, 2012	9	0.91 (0.80 to 1.05), p = 0.21	Very low	0%; p = 0.95
Wang et al, 2012	9	0.97 (0.84 to 1.12), p = 0.65	Moderate	0%; p = 0.82
Dezfulian et al, 2005	4	1.1 (0.80 to 1.4), p = N/A	Very low	N/A; N/A
<b>Hospital mortality</b>				

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Mao et al, 2016	7	0,92 ( 0,80 to 1,05), p = 0,20	High	0%; p = 0.82
Frost et al, 2013	4	0.96 (0.81 to 1.12), p = N/A	Very low	N/A
Muscedere et al, 2011	6	0.97 (0.83 to 1.13), p = 0.65	Moderate	0%; p = 0.98
<b>ICU mortality</b>				
Mao et al, 2016	8	0,98 ( 0,85 to 1,13), p = 0,77	High	0%; p = 0.88
Frost et al, 2013	4	1.05 (0.86 to 1.28), p = N/A	Very low	N/A
Muscedere et al, 2011	6	0.97 (0.83 to 1.13), p = 0.95	Moderate	0%; p = 0.81
<b>Duration of mechanical ventilation</b>				
Sun et al, 2017	6	-3.29 days (-4.53 to -2.05), p < 0.00001	Moderate	62%; p = 0.02
Mao et al, 2016	6	-1.17 days (-2.28 to -0.06), p = 0.006	Moderate	54%; p = 0.06
Caroff et al, 2016	8	-0.65 days (-1.59 to 0.28), p = 0.17	Low	67%; p = 0.003
Frost et al, 2013	6	-1.04 days (-2.79 to 0.71), p = N/A	Very low	N/A
Leasure et al, 2012	6	-1.47 days (-2.27 to -0.67), p = 0.0003	Very low	66%; p = 0.01
Wang et al, 2012	5	-1.55 days (-2.40 to -0.71), p = 0.0003	Low	71%; p = 0.009
Muscedere et al, 2011	7	-1.08 days (-2.04 to -0.12), p = 0.03	Moderate	86%; p < 0.00001

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Dezfulian et al, 2005	3	-1.8 days (-2.1 to -1.5), p = N/A	Very low	N/A; p = 0.004
<b>Hospital length of stay</b>				
Sun et al, 2017	3	-4.27 days (-7.36 to -1.18), p = 0.007	Moderate	45%; p = 0.16
Mao et al, 2016	3	-1.44 days (-3.93 to 1.04), p = 0.25	High	0%; p = 0.99
Caroff et al, 2016	5	-0.57 days (-2.44 to 1.30), p = 0.55	Moderate	0%; p = 0.87
Leasure et al, 2012	2	-1.41 days (-3.97 to 1.15), p = 0.28	Very low	0%; p = 0.98
Wang et al, 2012	3	-1.44 days (-3.93 to 1.04), p = 0.25	Moderate	0%; p = 0.99
<b>ICU length of stay</b>				
Mao et al, 2016	4	-1.64 days (-3.95 to 0.66), p = 0.16	Moderate	81%; p = 0.001
Caroff et al, 2016	7	-1.04 days (-2.40 to 0.33), p = 0.14	Low	64%; p = 0.01
Leasure et al, 2012	5	-1.97 days (-3.91 to -0.02), p = 0.05	Very low	86%; p < 0.00001
Wang et al, 2012	4	-2.04 days (-4.18 to 0.09), p = 0.06	Low	90%; p < 0.00001
Muscedere et al, 2011	7	-1.52 days (-2.94 to -0.11), p = 0.03	Low	77%; p = 0.002
Dezfulian et al, 2005	3	-1.4 days (-2.1 to -0.08), p = N/A	Very low	N/A; p < 0.001

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<b>Time to VAP</b>				
Mao et al, 2016	7	3.92 days (2.56 to 5.27), p < 0.00001	Moderate	92%; p < 0.00001
Frost et al, 2013	8	2.89 days (0.09 to 5.69), p = N/A	Very low	N/A
Leasure et al, 2012	7	4.04 days (2.60 to 5.47), p < 0.00001	Very low	93%; p = 0.00001
Wang et al, 2012	8	2.66 days (1.06 to 4.26), p = 0.001	Low	61%; p = 0.01
Dezfulian et al, 2005	4	3.1 days (2.7 to 3.4), p = N/A	Very low	N/A; p < 0.001

a. Risk ratio (RR) for mortality and incidence of VAP; Mean difference for duration of mechanical ventilation, ICU/hospital length of stay and Time to VAP.

b. Effect size obtained by pooled of VAP caused by nonfermentative bacteria and enterobacteria [OR=0.73 (0.53 to 1.01), p = 0.06; I<sup>2</sup>= 0%, p = 0.99] and VAP caused by Gram-positive cocci and H influenzae organisms; [OR=0.29 (0.18 to 0.48), p < 0.00001; I<sup>2</sup>= 0%, p = 0.48].

N/A, not available