CQ 12-4　敗血症患者の治療開始初期では経腸栄養を消費エネルギーよりも少なく投与するか？

検索データベース

■MEDLINE (PubMed/Ovid)
■CENTRAL
■医学中央雑誌
□その他（　　）

検索式とヒット数

PubMed search strategy（検索日　　2019　年　4　月　28 日）

#1	((("Sepsis"[Mesh] or "Sepsis"[tiab] or "critical illness"[Mesh] or "critical illness"[tiab]) or (seps*[tiab] OR septicem*[tiab] OR septicaem*[tiab] OR "blood stream infection"[tiab] OR endotoxi*[tiab]) or ("Systemic Inflammatory Response Syndrome"[Mesh] OR "Systemic Inflammatory Response Syndrome"[tiab] OR "SIRS"[tiab]) or ("Critical Illness"[Mesh] OR "Critical Care"[Mesh] OR "Intensive Care Units"[Mesh] OR stressed[tiab] OR "critically ill"[tiab] OR "critical care"[tiab] OR "intensive care"[tiab] or "acute disease"[Mesh] or "acute disease"[tiab]) or ("Respiration, Artificial*"[Mesh] or "Postoperative Period")))))	776099
#2	((((((("underfeeding"[Mesh] or "underfeeding"[tiab] or "full feeding"[Mesh] or "full feeding"[tiab] or "hypocaloric"[Mesh] or "hypocaloric"[tiab] or "trophic"[tiab] or "Energy Intake*"[Mesh]))))))	71518
#3	((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab] NOT (animals [mh] NOT humans [mh])))	3888733
#4	#1 and #2 and #3	566

Key PMID:すべて含む

CENTRAL search strategy（検索日　2019 年　4 月　30 日）

ID	Search	Hits

#1	MeSH descriptor: [Sepsis] explode all trees	3998
#2	(sepsis):ti,ab,kw	10248
#3	MeSH descriptor: [Critical Illness] explode all trees	1845
#4	(critical illness):ti,ab,kw	3785
#5	(seps*):ti,ab,kw	10617
#6	(septicem*):ti,ab,kw	791
#7	(septicaem*):ti,ab,kw	342
#8	MeSH descriptor: [Systemic Inflammatory Response Syndrome] explode all trees	4328
#9	(Systemic Inflammatory Response Syndrome):ti,ab,kw	1194
#10	("SIRS"):ti,ab,kw	676
#11	MeSH descriptor: [Critical Illness] explode all trees	1845
#12	("critical illness"):ti,ab,kw	2988
#13	MeSH descriptor: [Critical Care] explode all trees	1918
#14	("critical care"):ti,ab,kw	3515
#15	MeSH descriptor: [Intensive Care Units] explode all trees	3260
#16	(Intensive Care Units):ti,ab,kw	5825
#17	MeSH descriptor: [] explode all trees	0
#18	(stressed):ti,ab,kw	958
#19	MeSH descriptor: [Critical Illness] explode all trees	1845

#20	(critically ill):ti,ab,kw	5980
#21	MeSH descriptor: [Critical Illness] explode all trees	1845
#22	(critically ill):ti,ab,kw	5980
#23	(critical care):ti,ab,kw	8789
#24	("intensive care"):ti,ab,kw	20327
#25	MeSH descriptor: [Acute Disease] explode all trees	9257
#26	(acute disease):ti,ab,kw	41120
#27	MeSH descriptor: [Respiration, Artificial] explode all trees	5721
#28	(Respiration, Artificial*):ti,ab,kw	3431
#29	MeSH descriptor: [Postoperative Period] explode all trees	5523
#30	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29	87145
#31	MeSH descriptor: [] explode all trees	0
#32	(underfeeding):ti,ab,kw	67
#33	MeSH descriptor: [] explode all trees	0
#34	(full feeding):ti,ab,kw	1232
#35	MeSH descriptor: [] explode all trees	0
#36	(hypocaloric):ti,ab,kw	919
#37	(trophic):ti,ab,kw	339

#38	MeSH descriptor: [Energy Intake] explode all trees	5007
#39	#31 or #32 or #33 or #34 or #35 or #36 or #37 or #38	7254
#40	#30 and #39	680

医学中央雑誌 search strategy（検索日　2019 年 4 月　26 日）

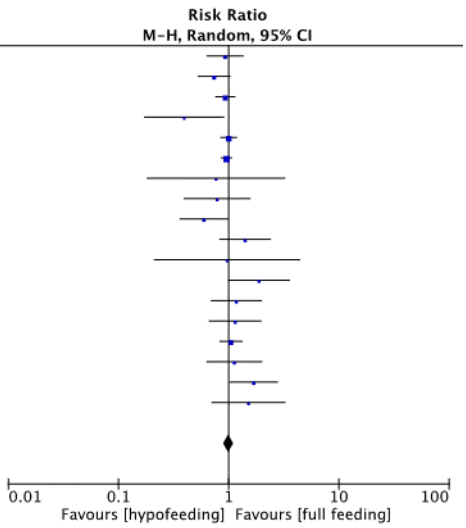
#1	(敗血症/TH or 敗血症/TA)	46668
#2	(危篤/TH or 危篤/TA)	220
#3	#1 or #2	46863
#4	underfeeding/TA	24
#5	(カロリー制限/TH or カロリー制限/TA)	2166
#6	(エネルギー摂取量/TH or エネルギー摂取量/TA)	9635
#7	full/TA and (給餌/TH or feeding/TA)	13
#8	#4 or #5 or #6 or #7	9905
#9	#3 and #8	49

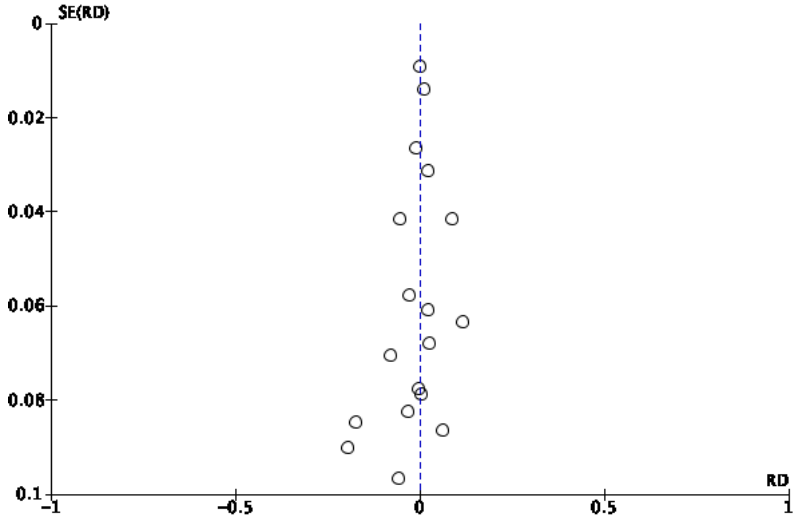
Overall Mortality

Study or Subgroup	hypofeeding Events	Total	full feeding Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Allingstrup2017	34	99	37	100	6.0%	0.93 [0.64, 1.35]
Arabi2011	38	116	52	117	7.1%	0.74 [0.53, 1.03]
Arabi2015	131	438	140	436	12.7%	0.93 [0.76, 1.14]
Braunschweig2015	6	38	16	40	1.5%	0.39 [0.17, 0.90]
Casaer2011	257	2328	255	2312	14.7%	1.00 [0.85, 1.18]
Chapman2018	505	1966	523	1948	18.5%	0.96 [0.86, 1.06]
Charles2014	3	41	4	42	0.5%	0.77 [0.18, 3.22]
Desachy2008	11	50	14	50	2.2%	0.79 [0.40, 1.56]
Doig2015	21	164	35	163	3.8%	0.60 [0.36, 0.98]
Heidegger2013	28	152	20	153	3.4%	1.41 [0.83, 2.39]
Moses2009	3	30	3	29	0.5%	0.97 [0.21, 4.41]
Peake2014	20	54	11	56	2.5%	1.89 [1.00, 3.55]
Petro2016	18	46	18	54	3.5%	1.17 [0.70, 1.98]
Rice2011	22	98	20	102	3.3%	1.14 [0.67, 1.96]
Rice2012	118	508	109	492	11.0%	1.05 [0.83, 1.32]
Rugeles2016	18	60	16	60	3.0%	1.13 [0.64, 1.99]
Singer2011	27	56	16	56	3.8%	1.69 [1.03, 2.77]
Wischmeyer2017	17	73	8	52	1.8%	1.51 [0.71, 3.24]
Total (95% CI)		**6317**		**6262**	**100.0%**	**0.99 [0.89, 1.10]**
Total events	1277		1297			

Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 25.60$, df = 17 (P = 0.08); $I^2 = 34\%$

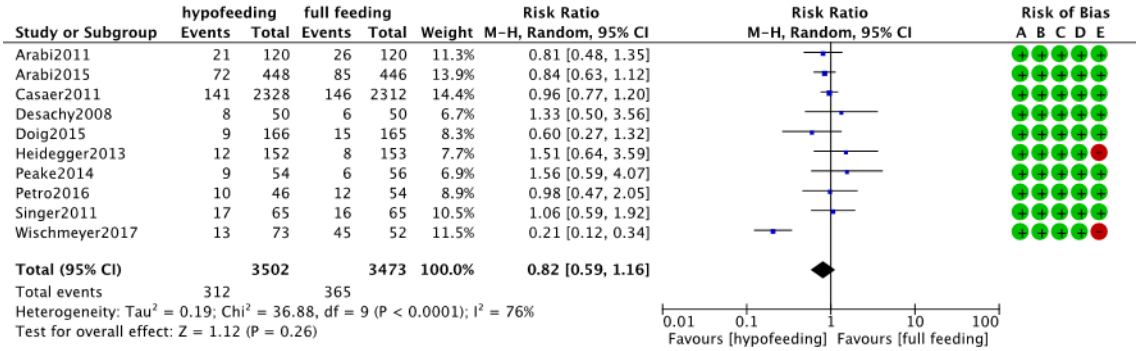
Test for overall effect: Z = 0.18 (P = 0.85)



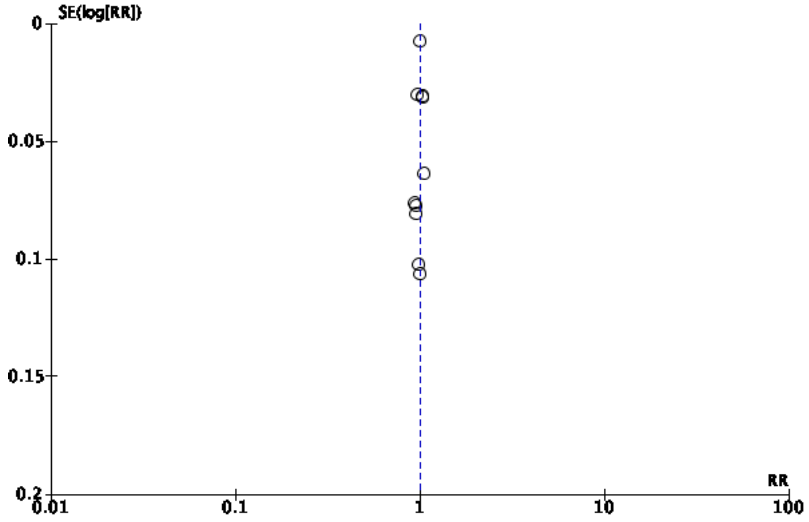


ICU

Mortality



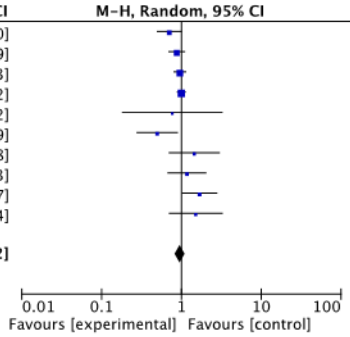
Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Incomplete outcome data (attrition bias)
(**D**) Selective reporting (reporting bias)
(**E**) Other bias



Hospital Mortality

Study or Subgroup	hypofeeding Events	Total	full feeding Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Arabi2011	36	120	51	120	11.3%	0.71 [0.50, 1.00]
Arabi2015	108	447	123	445	17.3%	0.87 [0.70, 1.09]
Caeser2011	242	2328	251	2312	20.9%	0.96 [0.81, 1.13]
Chapman2018	470	1981	468	1967	24.4%	1.00 [0.89, 1.12]
Charles2014	3	41	4	42	1.0%	0.77 [0.18, 3.22]
Doig2015	15	166	30	165	5.3%	0.50 [0.28, 0.89]
Peake2014	14	54	10	56	3.7%	1.45 [0.71, 2.98]
Petro2016	17	46	17	54	5.9%	1.17 [0.68, 2.03]
Singer2011	27	56	16	56	6.8%	1.69 [1.03, 2.77]
Wischmeyer2017	17	73	8	52	3.4%	1.51 [0.71, 3.24]
Total (95% CI)		**5312**		**5269**	**100.0%**	**0.96 [0.83, 1.12]**
Total events	949		978			

Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 17.36$, df = 9 (P = 0.04); $I^2 = 48\%$
Test for overall effect: Z = 0.52 (P = 0.60)



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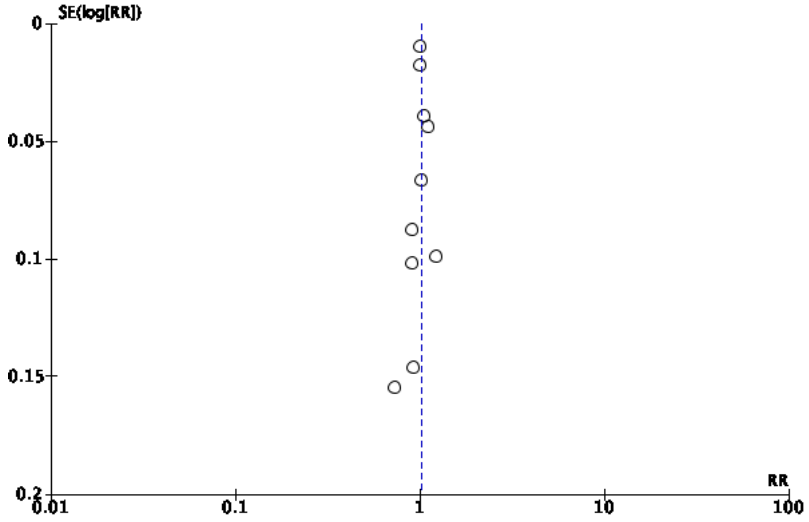
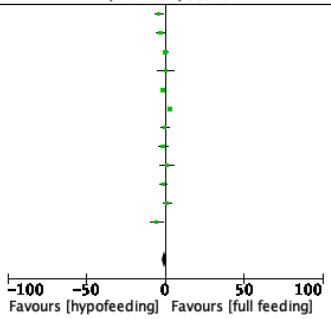


ICU stay

Study or Subgroup	hypofeeding Mean	SD	Total	full feeding Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Allingstrup2017	7.3	5.26	99	11.3	12.8	100	8.3%	−4.00 [−6.71, −1.29]
Arabi2011	11.7	8.1	120	14.5	15.5	120	7.5%	−2.80 [−5.93, 0.33]
Arabi2015	14	9.7	448	13.7	8.92	446	11.0%	0.30 [−0.92, 1.52]
Braunschewig2015	16.1	11.5	38	15.5	12.8	40	4.3%	0.60 [−4.79, 5.99]
Caeser2011	4	3.7	2328	5	5.2	2312	11.9%	−1.00 [−1.26, −0.74]
Charles2014	16.7	2.7	41	13.5	1.1	42	11.4%	3.20 [2.31, 4.09]
Heidegger2013	13	11	152	13	10	153	9.0%	0.00 [−2.36, 2.36]
Moses2009	8.5	5.84	30	9.83	5.46	29	8.0%	−1.33 [−4.21, 1.55]
Peake2014	13.8	12.1	54	12.7	12.7	56	5.2%	1.10 [−3.53, 5.73]
Rugeles2013	9.5	5.5	40	10.4	5	40	9.1%	−0.90 [−3.20, 1.40]
Rugeles2016	12	7.3	60	10.5	8	60	8.2%	1.50 [−1.24, 4.24]
Singer2011	11.7	8.4	65	17.2	14.6	65	6.0%	−5.50 [−9.59, −1.41]
Total (95% CI)			3475			3463	100.0%	−0.57 [−1.98, 0.84]

Heterogeneity: $Tau^2 = 4.30$; $Chi^2 = 97.74$, df = 11 ($P < 0.00001$); $I^2 = 89\%$
Test for overall effect: Z = 0.80 (P = 0.43)



Risk of bias legend
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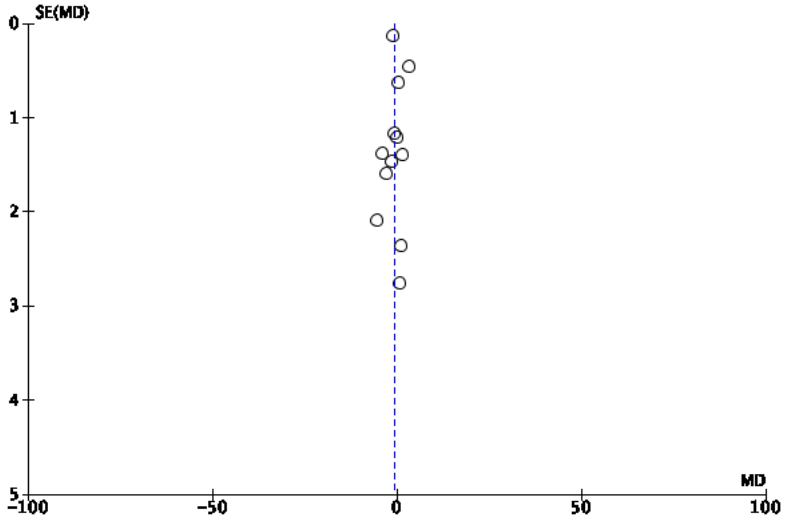
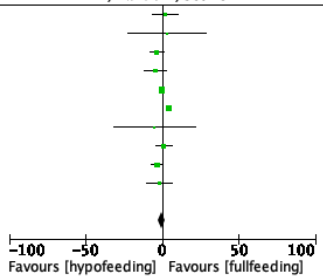
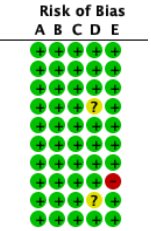


Hospital Stay

Study or Subgroup	hypofeeding Mean	SD	Total	full feeding Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Allingstrup2017	33.7	29.3	99	31.7	30.8	100	5.8%	2.00 [−6.35, 10.35]
Arabi2011	70.2	106.9	120	67.2	93.6	120	0.8%	3.00 [−22.42, 28.42]
Arabi2015	32.3	29	448	35.7	36.4	446	12.7%	−3.40 [−7.72, 0.92]
Braunschewig2015	22.8	14.3	38	27.2	18.2	40	7.1%	−4.40 [−11.64, 2.84]
Caeser2011	16.7	13.4	2328	17	12.6	2312	21.9%	−0.30 [−1.05, 0.45]
Charles2014	35.2	4.9	41	31	2.5	42	20.1%	4.20 [2.52, 5.88]
Desachy2008	51	75	50	56	59	50	0.8%	−5.00 [−31.45, 21.45]
Heidegger2013	32	23	152	31	23	153	10.7%	1.00 [−4.16, 6.16]
Moses2009	11.5	5.84	30	14.8	8.19	29	14.5%	−3.30 [−6.94, 0.34]
Singer2011	31.8	27.3	65	33.8	22.9	65	5.5%	−2.00 [−10.66, 6.66]
Total (95% CI)			3371			3357	100.0%	−0.35 [−2.68, 1.99]

Heterogeneity: Tau² = 6.33; Chi² = 31.99, df = 9 (P = 0.0002); I² = 72%
Test for overall effect: Z = 0.29 (P = 0.77)





Risk of bias legend
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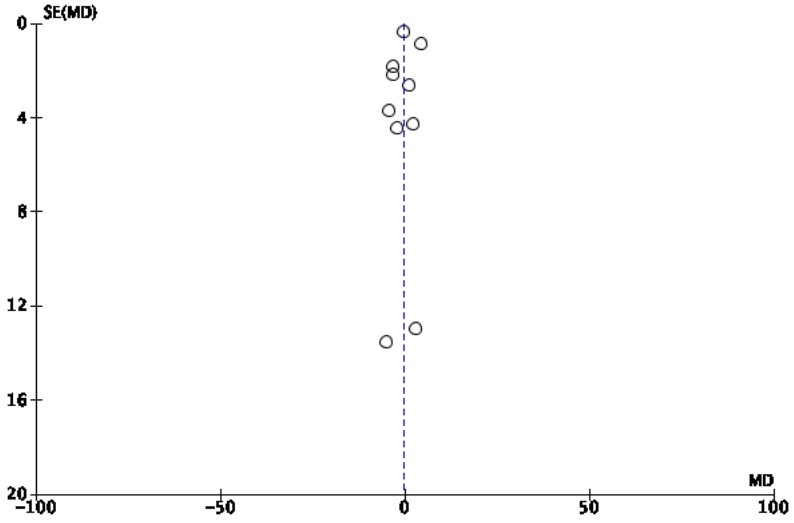
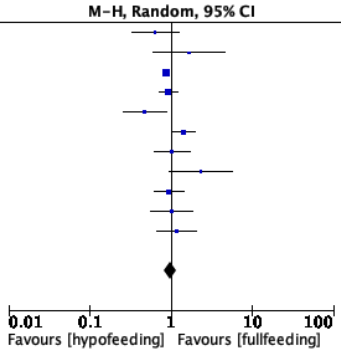
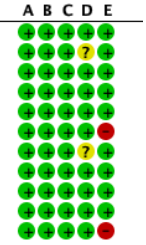


Any Infection

Study or Subgroup	hypofeeding Events	Total	full feeding Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Allingstrup2017	12	99	19	100	5.4%	0.64 [0.33, 1.24]
Braunschewig2015	8	38	5	40	2.6%	1.68 [0.60, 4.70]
Caeser2011	531	2328	605	2312	22.3%	0.87 [0.79, 0.96]
Charles2014	29	41	32	42	15.8%	0.93 [0.72, 1.20]
Doig2015	13	166	27	165	5.9%	0.48 [0.26, 0.89]
Heidegger2013	58	152	41	153	13.0%	1.42 [1.02, 1.98]
Moses2009	15	30	14	29	7.8%	1.04 [0.62, 1.74]
Petro2016	12	46	6	54	3.3%	2.35 [0.96, 5.76]
Rice2011	30	98	33	102	10.4%	0.95 [0.63, 1.42]
Singer2011	20	73	14	52	6.6%	1.02 [0.57, 1.82]
Wischmeyer2017	23	73	14	52	7.0%	1.17 [0.67, 2.05]
Total (95% CI)		3144		3101	100.0%	0.99 [0.83, 1.18]
Total events	751		810			

Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 19.72$, df = 10 (P = 0.03); $I^2 = 49\%$
Test for overall effect: Z = 0.15 (P = 0.88)





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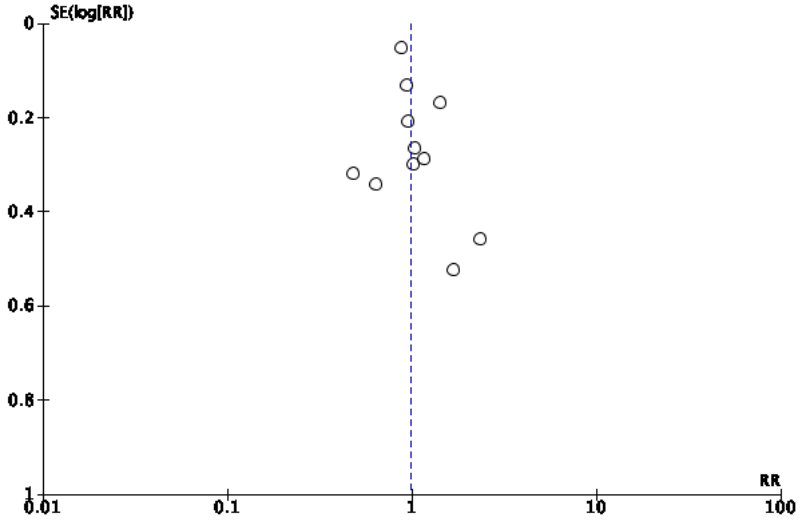
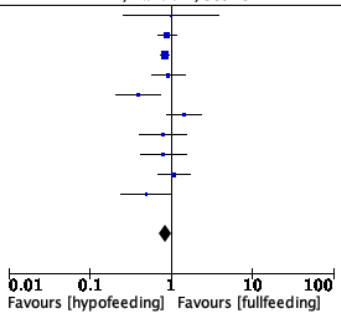
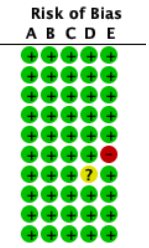


Pneumonia

Study or Subgroup	hypofeeding Events	Total	full feeding Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Allingstrup2017	4	99	4	100	1.5%	1.01 [0.26, 3.93]
Arabi2015	81	448	90	446	18.4%	0.90 [0.68, 1.17]
Caeser2011	381	2328	447	2312	28.6%	0.85 [0.75, 0.96]
Charles2014	18	41	20	42	9.6%	0.92 [0.58, 1.47]
Doig2015	14	166	22	102	6.2%	0.39 [0.21, 0.73]
Heidegger2013	32	152	22	153	8.9%	1.46 [0.89, 2.40]
Moses2009	10	30	12	29	5.6%	0.81 [0.41, 1.57]
Rice2011	14	98	18	102	6.0%	0.81 [0.43, 1.54]
rice2012	37	508	33	492	10.1%	1.09 [0.69, 1.71]
Singer2011	9	65	18	65	4.9%	0.50 [0.24, 1.03]
Total (95% CI)		3935		3843	100.0%	0.86 [0.72, 1.02]
Total events	600		686			

Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 14.14$, df = 9 (P = 0.12); $I^2 = 36\%$
Test for overall effect: Z = 1.71 (P = 0.09)





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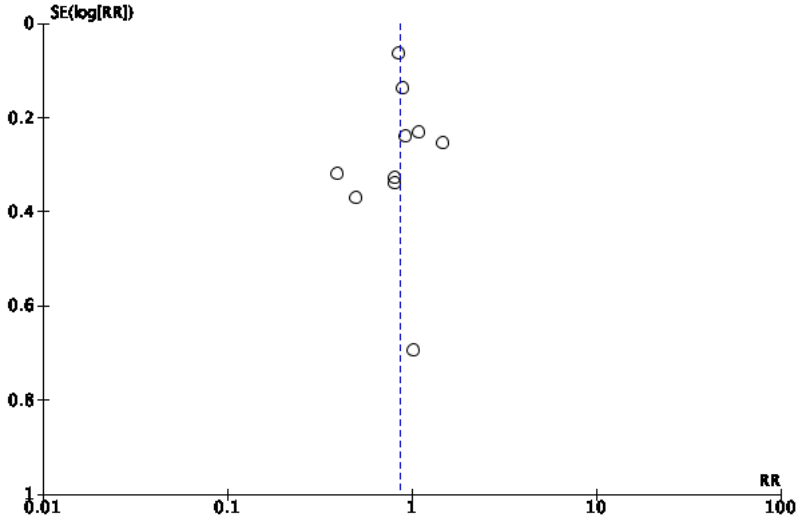
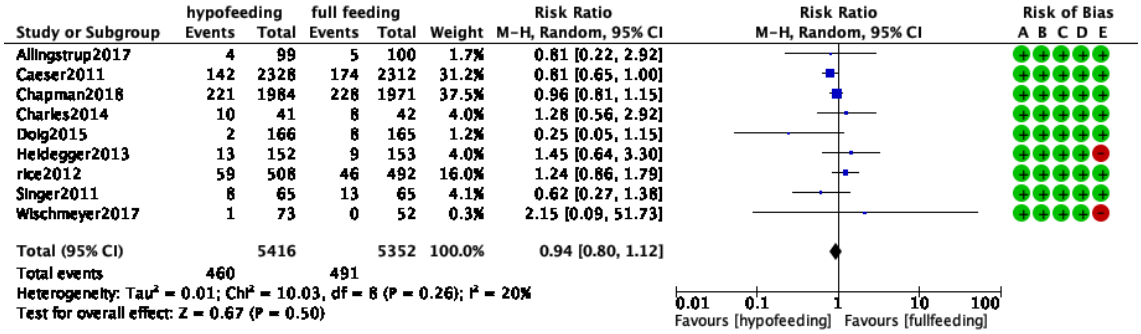


Bacteremia



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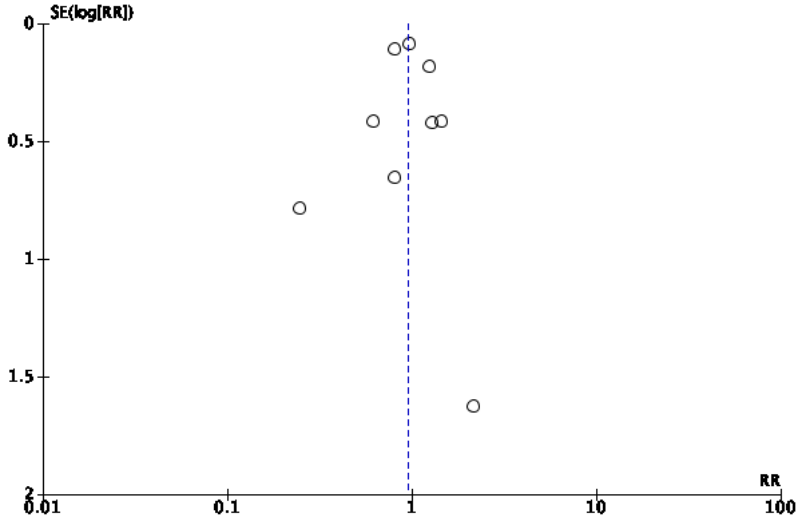

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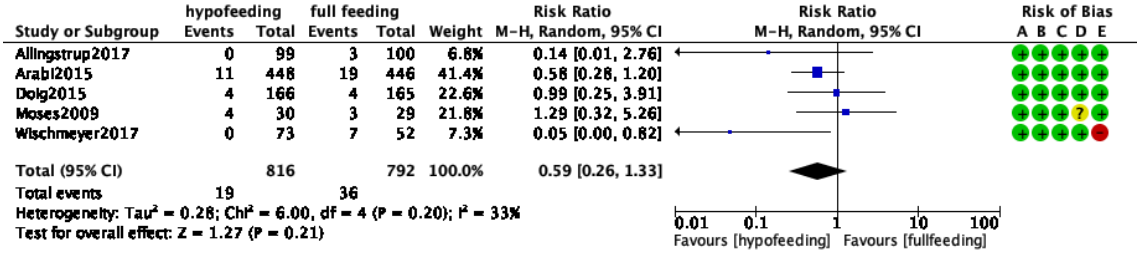

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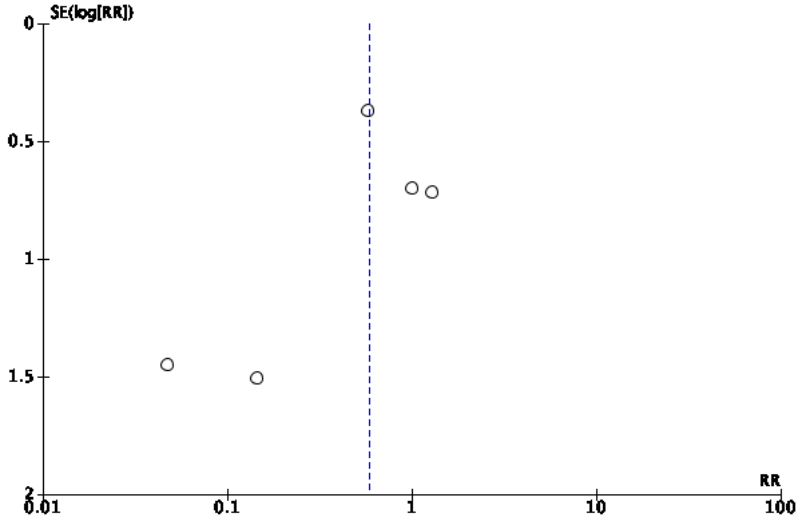
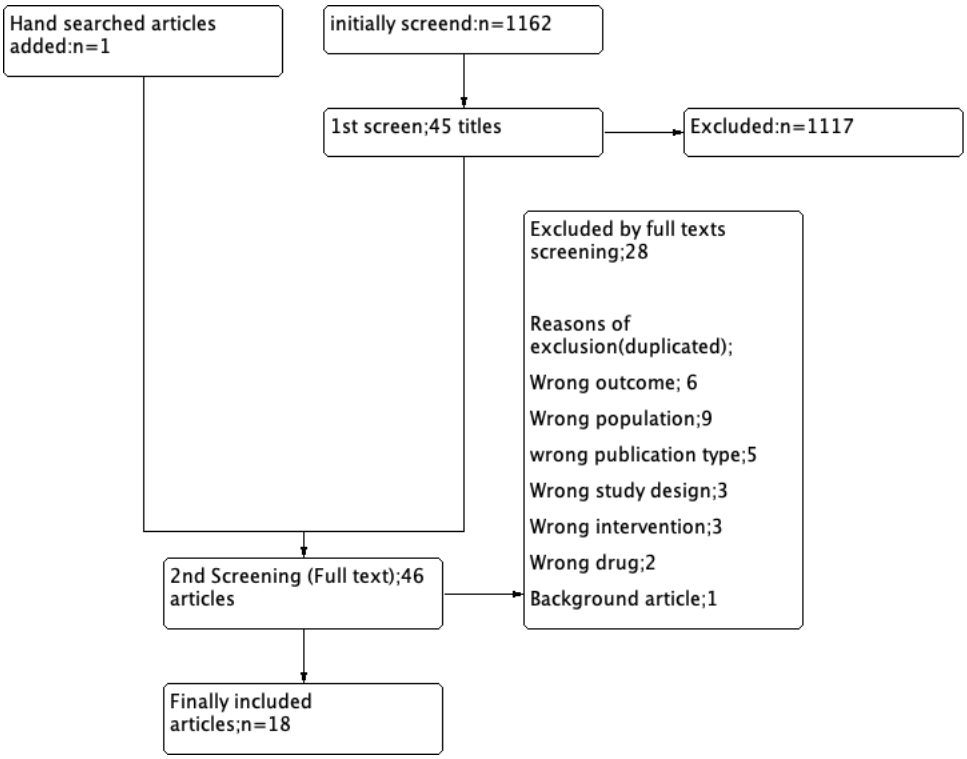
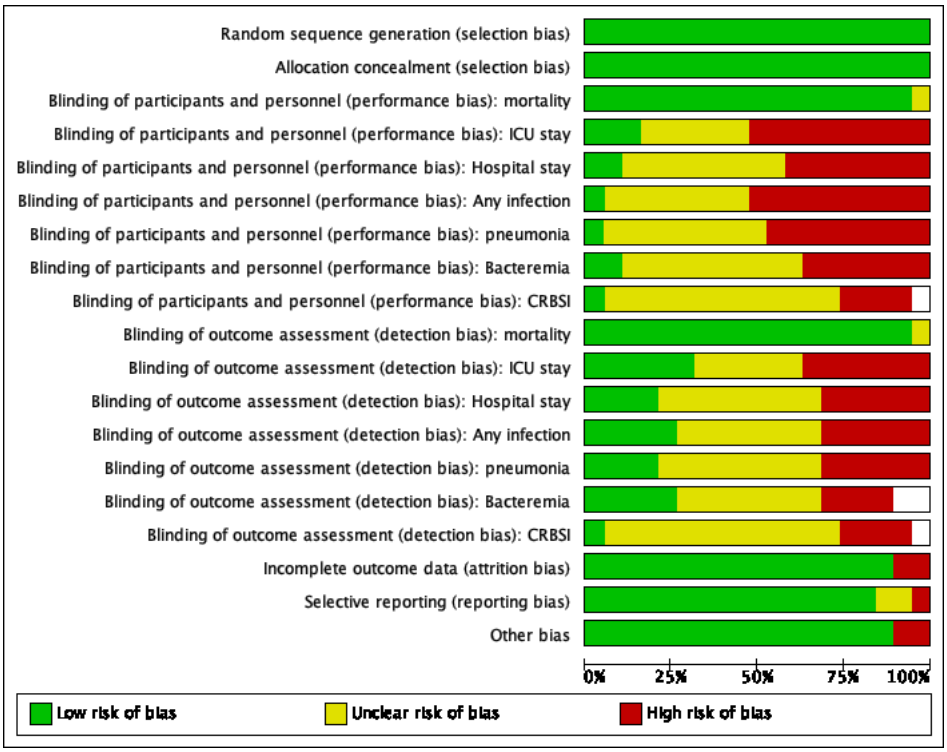
(D) Selective reporting (reporting bias)
(E) Other bias




Hand searched articles added:n=1
initially screend:n=1162
1st screen;45 titles
Excluded:n=1117
Excluded by full texts screening;28
Reasons of exclusion(duplicated);
Wrong outcome; 6
Wrong population;9
wrong publication type;5
Wrong study design;3
Wrong intervention;3
Wrong drug;2
Background article;1
2nd Screening (Full text);46 articles
Finally included articles;n=18


Random sequence generation (selection bias)
Allocation concealment (selection bias)
Blinding of participants and personnel (performance bias): mortality
Blinding of participants and personnel (performance bias): ICU stay
Blinding of participants and personnel (performance bias): Hospital stay
Blinding of participants and personnel (performance bias): Any infection
Blinding of participants and personnel (performance bias): pneumonia
Blinding of participants and personnel (performance bias): Bacteremia
Blinding of participants and personnel (performance bias): CRBSI
Blinding of outcome assessment (detection bias): mortality
Blinding of outcome assessment (detection bias): ICU stay
Blinding of outcome assessment (detection bias): Hospital stay
Blinding of outcome assessment (detection bias): Any infection
Blinding of outcome assessment (detection bias): pneumonia
Blinding of outcome assessment (detection bias): Bacteremia
Blinding of outcome assessment (detection bias): CRBSI
Incomplete outcome data (attrition bias)
Selective reporting (reporting bias)
Other bias
0%
25%
50%
75%
100%
Low risk of bias
Unclear risk of bias
High risk of bias