Appendix 1. Search strategy

Embase
10-08-2021

No.	Query	Results
#30	#29 NOT #28 = RCT	1532
#29	#16 AND #27	1697
#28	#15 AND #27 = SR	280
#27	(#24 OR #25) NOT #18 NOT #19	1812
#26	#25 NOT #18 NOT #19	1697
#25	#16 AND #23	2283
#24	#15 AND #23	404
#23	#22 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	6356
#22	#5 OR #21	11334
#21	#6 AND #7 AND #8	1093
#20	#19 NOT #18	510
#19	#16 AND #17	585
#18	#15 AND #17	124
#17	#12 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	1807
#16	('clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti) NOT 'conference abstract':it	2483988
#15	('meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR ((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp) NOT ('conference abstract'/it OR 'conference review'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it)	526763

No.	Query	Results
#14	#4 AND #12	5
#13	#4 AND #11	0
#12	#9 OR #11	2338
#11	#8 AND #10	1092
#10	#6 AND #7	58072
#9	#5 AND #7	1345
#8	'preoperative period'/exp OR preoperat* OR 'intestine surgery'/exp OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 surger*):ti,ab,kw)	830551
#7	'antibiotic agent'/exp OR 'antibiotic prophylaxis'/exp OR 'antibiotic*':ti,ab,kw OR 'selective decontamination of the digestive tract'/exp OR ((decontamination NEAR/3 (bowel OR digestive OR colon* OR intestin* OR colorectal)):ti,ab,kw)	1719555
#6	'oral drug administration'/exp OR ((oral NEAR/2 administration):ti,ab,kw)	459280
#5	'mechanical bowel preparation'/exp OR 'intestine preparation'/de OR ('digestive system'/exp AND 'decontamination'/exp) OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 preparation):ti,ab,kw) OR (('preoperative period'/exp OR preoperat*) AND ('laxative'/exp OR laxat*) AND ('intestine surgery'/exp OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 surger*):ti,ab,kw)))	10301
#4	#1 OR #2 OR #3	5
#3	clinical AND trial AND selective AND decontamination AND of AND the AND digestive AND tract AND in AND elective AND colorectal AND cancer AND surgery AND abis AND 2019	2
#2	mechanical AND oral AND antibiotic AND versus AND no AND bowel AND preparation AND for AND elective AND colectomy AND koskenvuo	1
#1	'meta analysis' AND of AND oral AND antibiotics AND mcsorley AND 2018	2

10-08-2021

No.	Query	Results
#22	#4 AND #21 = key articles	4
#21	#18 OR #19 OR #20	633
#20	#19 NOT #18 = RCT	509
#19	#16 AND #17	585
#18	#15 AND #17 = SR	124
#17	#12 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	1806
#16	('clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp	2483988

No.	Query	Results
	OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti) NOT 'conference abstract':it	
#15	('meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR ((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp) NOT ('conference abstract'/it OR 'conference review'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it)	526763
#14	#4 AND #12	5
#13	#4 AND #11	0
#12	#9 OR #11	2338
#11	#8 AND #10	1092
#10	#6 AND #7	58072
#9	#5 AND #7	1345
#8	'preoperative period'/exp OR preoperat*:ti,ab,kw OR 'intestine surgery'/exp OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 surger*):ti,ab,kw)	829812
#7	'antibiotic agent'/exp OR 'antibiotic prophylaxis'/exp OR 'antibiotic*':ti,ab,kw OR 'selective decontamination of the digestive tract'/exp OR ((decontamination NEAR/3 (bowel OR digestive OR colon* OR intestin* OR colorectal)):ti,ab,kw)	1719555
#6	'oral drug administration'/exp OR ((oral NEAR/2 administration):ti,ab,kw)	459280
#5	'mechanical bowel preparation'/exp OR 'intestine preparation'/de OR ('digestive system'/exp AND 'decontamination'/exp) OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 preparation):ti,ab,kw) OR (('preoperative period'/exp OR preoperat*:ti,ab,kw) AND ('laxative'/exp OR laxat*:ti,ab,kw) AND ('intestine surgery'/exp OR (((bowel OR colon* OR intestin* OR digestive OR colorectal) NEAR/1 surger*):ti,ab,kw)))	10300
#4	#1 OR #2 OR #3	4
#3	clinical AND trial AND selective AND decontamination AND of AND the AND digestive AND tract AND i n AND elective AND colorectal AND cancer AND surgery AND abis AND 2019	1
#2	mechanical AND oral AND antibiotic AND versus AND no AND bowel AND preparation AND for AND e lective AND colectomy AND koskenvuo	1

No.	Query	Results
#1	'meta analysis' AND of AND oral AND antibiotics AND mcsorley AND 2018	2

Ovid/Medline

10-08-2021

#	Searches	Results
21	from 19 keep 1-1071 = RCT	1071
20	from 17 keep 1-196 = SR	196
19	18 not 17	1071
18	16 not 12	1199
17	15 not 11	196
16	9 and 14	1554
15	8 and 14	282
14	13 not ((exp animals/ or exp models, animal/) not humans/) not (letter/ or comment/ or editorial/)	4028
13	1 or 6	4597
12	9 and 10	355
11	8 and 10	86
10	7 not ((exp animals/ or exp models, animal/) not humans/) not (letter/ or comment/ or editorial/)	856
9	(exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/)	2055834
8	(meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or	466230

	synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.) not (comment/ or editorial/ or letter/ or ((exp animals/ or exp models, animal/) not humans/))	
7	5 or 6	990
6	2 and 3 and 4	268
5	1 and 3	806
4	exp preoperative period/ or preoperat*.ti,ab,kf. or exp colorectal surgery/ or ((bowel or colon* or intestin* or digestive or colorectal) adj1 surger*).ti,ab,kf.	315905
3	exp anti-bacterial agents/ or exp antibiotic prophylaxis/ or antibiotic*.ti,ab,kf. or (decontamination adj3 (bowel or digestive or colon* or intestin* or colorectal)).ti,ab,kf.	897685
2	exp administration, oral/ or (oral adj2 administration).ti,ab,kf.	191333
1	(exp digestive system/ and exp decontamination/) or ((bowel or colon* or intestin* or digestive or colorectal) adj1 preparation).ti,ab,kf. or ((exp perioperative period/ or preoperat*.ti,ab,kf.) and (exp laxatives/ or laxat*.ti,ab,kf.) and (exp colorectal surgery/ or ((bowel or colon* or intestin* or digestive or colorectal) adj1 surger*).ti,ab,kf.))	4413

10-08-2021

#	Searches	Results
13	12 not 11 **= RCT**	291
12	9 and 10	355
11	8 and 10 **= SR**	86
10	7 not ((exp animals/ or exp models, animal/) not humans/) not (letter/ or comment/ or editorial/)	856
9	(exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/)	2052324
8	(meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data	464715

	synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.) not (comment/ or editorial/ or letter/ or ((exp animals/ or exp models, animal/) not humans/))	
7	5 or 6	990
6	2 and 3 and 4	267
5	1 and 3	806
4	exp preoperative period/ or preoperat*.ti,ab,kf. or exp colorectal surgery/ or ((bowel or colon* or intestin* or digestive or colorectal) adj1 surger*).ti,ab,kf.	315324
3	exp anti-bacterial agents/ or exp antibiotic prophylaxis/ or antibiotic*.ti,ab,kf. or (decontamination adj3 (bowel or digestive or colon* or intestin* or colorectal)).ti,ab,kf.	896696
2	exp administration, oral/ or (oral adj2 administration).ti,ab,kf.	191137
1	(exp digestive system/ and exp decontamination/) or ((bowel or colon* or intestin* or digestive or colorectal) adj1 preparation).ti,ab,kf. or ((exp perioperative period/ or preoperat*.ti,ab,kf.) and (exp laxatives/ or laxat*.ti,ab,kf.) and (exp colorectal surgery/ or ((bowel or colon* or intestin* or digestive or colorectal) adj1 surger*).ti,ab,kf.))	4404

Appendix 2. Full text decisions

	Author, Year	Reason for exclusion
1.	Apte 2020	Study protocol
2.	Vadwana 2020	No RCT
3.	Mulder 2018	Study protocol
4.	Vignaud 2018	Study protocol
5.	Hu 2018	Language outside scope
6.	Kobayashi 2015	Language outside scope
7.	Beerdawood 2014	Emergency surgeries included
8.	Collin 2014	Irrelevant outcome or comparison
9.	Saha 2014	Emergency surgeries included
10.	Dijksman 2012	Irrelevant outcome or comparison
11.	Kolovrat 2012	No RCT
12.	Scabini 2012	Retracted
13.	Van't Sant 2012	Subanalysis of Contant 2007
14.	Khan 2011	Not retrievable
15.	Roig 2011	No RCT
16.	Van't Sant 2011	Subanalysis of Contant 2007
17	Scabini 2010	Retracted
18.	Van't Sant 2010	Subanalysis of Contant 2007
19.	Gravante 2009	Comment or letter
20.	Roos 2009	No RCT
21.	Alcantara Moral 2009	Language outside scope
22.	Takesue 2009	Poster presentation
23.	Leiro 2008	Language outside scope
24.	Itani 2007	Irrelevant outcome or comparison
25.	Pena-Soria 2007	Interim analysis Pena-Soria 2008
26.	Platell 2007	Comment or letter
27.	Reddy 2007	No preoperative iv SAP
28.	Verma 2007	Not retrievable
29.	Bucher 2006	Irrelevant outcome or comparison
30.	Bucher 2006	Erratum
31.	Fa-Si-Oen 2005	Irrelevant outcome or comparison
32.	Gray 2005	No RCT
33.	Van Geldere 2002	No RCT
34.	Young Tabusso 2002	Language outside scope
35.	Fillmann 2001	Not retrievable
36.	Kale 1998	Irrelevant outcome or comparison
37.	Torres Panuncia 1998	Not retrievable
38.	Yabata 1997	No preoperative iv SAP
39.	Fillman 1995	Language outside scope
40.	Santos Jr 1994	Children included
41.	Tan 1993	Not retrievable
42.	Brownson 1992	Abstract only
43.	Tsimoyiannis 1991	Irrelevant outcome or comparison
44.	Gardini 1990	Language outside of scope
45.	Nohr 1990	Not retrievable
46.	Vacher 1990	Language outside of scope
47.	Cann 1988	Irrelevant outcome or comparison
48.	Gruttadauria 1987	Not retrievable
49.	Peruzzo 1987	Not retrievable
50.	Gottrup 1985	No preoperative iv SAP
51.	Sgarlato 1984	Irrelevant outcome or comparison

52.	Hinchey 1983	Irrelevant outcome or comparison
53.	May 1983	No RCT
54.	Gerritsen 1982	No preoperative iv SAP
55.	Keighley 1982	Irrelevant outcome or comparison
56.	Lazorthes 1982	No preoperative iv SAP
57.	Burdon 1981	Not retrievable
58.	Goldring 1981	Not retrievable
59.	Lewis 1981	No preoperative iv SAP
60.	Barber 1979	Not retrievable
61.	Condon 1979	No preoperative iv SAP
62.	Molin 1979	Not retrievable
63.	Montariol 1979	Language outside scope
64.	Wapnick 1979	No preoperative iv SAP
65.	Brogden 1978	No RCT
66.	Gillespie 1978	No preoperative iv SAP
67.	Hojer 1978	No preoperative iv SAP
68.	Matheson 1978	No preoperative iv SAP
69.	Vargish 1978	No preoperative iv SAP
70.	Clarke 1977	No preoperative iv SAP
71.	Mendes da Costa 1977	Not retrievable
72.	Nichols 1977	Irrelevant outcome or comparison
73.	Semb 1977	Abstract only
74.	Schneiders 1977	No preoperative iv SAP
75.	Wetterfors 1976	No preoperative iv SAP
76.	Goldring 1975	No preoperative iv SAP
77.	Nichols 1973	No preoperative iv SAP
78.	Barker 1971	No preoperative iv SAP
79.	Hulbert 1967	No preoperative iv SAP

*SAP = surgical antimicrobial prophylaxis

Appendix 3. Study Characteristics

MBP vs MBP-OA: 23 RCTs								
Study	**SSI*/ N total**	**N – T1**	**N - T2**	**Type of surgery**	**Open / laparoscopic**	**MBP regimen**	**OA regimen**	**Preoperative IV SAP and intraoperateive redosing**
Papp 2021 [1]	52 / 529	276	253	Colorectal surgery with anastomosis (excl loop CC)	Mixed	40ml castor oil + 20ml paraffin day before surgery + enema day before and morning of surgery	Metronidazole 500mg + neomycin sulphate 1g day before surgery (13h, 15h, 19h)	Ceftriaxone 2g + metronidazole 500mg, Redose > 4hrs and/or blood loss > 1500ml
Rybakov 2020 [2]	17 / 116	57	59	(L)AR, APR, intersphincteric resection	Mixed	PEG day before surgery (16h)	Erythromycin 500mg + metronidazole 500mg day before surgery (17h, 20h, 23h)	Ceftriaxone 1000mg
Schardey 2020 [3]	15 / 80	40	40	(L)AR	Mixed	PEG + electrolytes 3-6L day before surgery	Polymyxin B 100 mg + tobramycin 80 mg + vancomycin 125 mg, day before surgery till day 7, 4 times daily	Decided by surgeon
Abis 2019 [4]	65 / 455	227	228	LAR, LH, RH, TH, SR, other	Mixed	Unknown kind ** Only patients undergoing left-sided colonic, sigmoid and LAR*	Amphotericin B 500 mg + 5 colistin sulphate 100 mg + tobramycin 80 mg, 3 days before till minimum of 3 days after surgery, 4 times daily	Cefazolin 1g + metronidazole 500 mg, Redose > 4hrs
Uchino 2019 [5]	63 / 325	162	163	Intestinal resection *(Small bowel resections included*	Open	Sodium picosulphate hydrate 20ml 0.75%	Kanamycin 500mg + metronidazole 500mg day before surgery (14h, 15, 21h)	Flomoxef Redose every 3 hrs
Anjum 2017 [6]	34 / 184	93	91	LAR, LH, RH	Mixed	Sodium phosphate 133ml twice day before surgery	Metronidazole 400 mg + levofloxacin 200 mg day before surgery (15h, 19h, 23h)	Cephalosporin (2nd gen) + metronidazole, Redose every 3 hrs
Hata 2016 [7]	58 / 579	290	289	AR, APR, colectomy	laparoscopic	Sodium picosulphate 75mg + magnesium citrate 34 g + water 180ml, day before surgery	Metronidazole 750mg + kanamycin 1g 13hrs and 9hrs before surgery	Cefmetazole 1g, Redose every 3 hrs
Ikeda 2016 [8]	51 / 511	256	255	AR, APR, colonic surgery	laparoscopic	Magnesium citrate + sodium picosulphate day before surgery (8h + 11h)	Metronidazole 750mg + kanamycin 1g day before surgery (15h, 21h)	Cefmetazole, Redose >3hrs
Sadahiro 2014 [9]	38 / 194	99	95	Resection of colorectal tumor	Mixed	Sodium picosulphate 10ml 2 days before surgery + PEG 2.000ml day before surgery (morning)	Kanamycin 500mg + metronidazole 500mg day before surgery (13h, 14h, 23h)	Flomoxef 1g, Redsose >3hrs
Oshima 2013 [10]	28 / 195	98	97	Proctocolectomy	Open	Magnesium citrate solution 1.8L day before surgery (11h)	Kanamycin 500mg + metronidazole 500mg day before surgery (14h, 15h, 21h)	Flomoxef 1g, Redose >3hrs
Roos 2011 [11]	60 / 289	146	143	LH, RH, TH, (L)AR, ICR, SR, PC, CC, hepatopan-creatobiliary surgery, esophageal /gastric resection, other	Mixed	PEG + electrolytes or sodium picosulphate	Polymixin B sulphate 100mg + tobramycin 80mg + amphotericin B 500mg	Cefuroxime 1.5g + metronidazole 500mg
Horie 2007 [12]	26 / 91	45	46	Resection of colorectal tumor	Open	PEG 2L 16hrs before surgery	Kanamycin 1500mg daily start 3 days before surgery	Cefotiam hydrochloride

Kobayashi 2007 [13]	43 / 484	242	242	AR, APR, anoabdomino - rectal resection, Hartmann's procedure	N/A	PEG 2L day before surgery (10h)	Kanamycin 1g + erythromycin 400mg day before surgery (14h, 15h, 23 h)	Cefmetazole 1g after, Redose >3hrs
Espin Basany 2005 [14]	32 / 300	100	200	AR, APR, SR, segmental colon resection, TME-coloanal	Open	Sodium phosphate oral solution 45ml diluted in 90 ml of water day before surgery (11h, 17h)	Neomycin 1g + metronidazole 1g day before surgery (15h, 19h, 23h) OR Neomycin 1g + metronidazole 1g day before surgery (15h)	Cefoxitin 1g
Lewis 2002 [15]	27 / 208	104	106	AR, APR, LH, RH, TH	N/A	Sodium phosphate until clear rectal effluent. If required, additional saline enemas day before surgery (18h)	Neomycin 2g + metronidazole 2g day before surgery (19h, 23h)	Amikacin 1g + metronidazole 1g
Ishida 2001 [16]	45 / 143	71	72	AR, APR, PC, colectomy, total pelvic exenteration, other	N/A	PEG 2L day before surgery (15h-19h)	Kanamycin 500mg + erythromycin 400mg, start 2 days before surgery, 4 times daily	Cefotiam 1g
Takesue 2000 [17]	16 / 83	45	38	LAR, APR, LH, RH, TH, SR, ICR	N/A	PEG day before surgery (10h-14h)	Kanamycin 500mg + metronidazole 500mg day before surgery (14h, 15h, 23h)	Cefmetazole 1g
Taylor 1994 [18]	83 / 368	189	179	APR, colo(rectal) resection, Hartmann's resection, other	N/A	Sodium picosulphate 1 sachets, day before surgery twice daily	Ciprofloxacin 500mg, 2 doses day before surgery	Piperacillin 4g
Stellato 1990 [19]	10 / 102	51	51	(Colo)rectal resection	N/A	Magnesium citrate 1.745 g in 296ml (morning) + (bi)phosphate enema 118ml (evening) day before and day of surgery	Neomycin 1g + erythromycin 1g day before surgery (11h, 14h, 23h)	Cefoxitin 2g
Reynolds 1989 [20]	35 / 400	104	107	(Colo)rectal resection	N/A	Magnesium sulphate 4g (up to 8 times) start 3 days before surgery + sodium picosulphate twice on day before surgery	Metronidazole 500mg (3 times daily) + neomycin 1g start day before surgery, 4 times daily	Piperacillin 2g
Coppa 1988 [21]	35 / 310	141	169	(Colo)rectal resection	N/A	Sodium phosphate day 2 and 3 before surgery + saline enemas two days before surgery	Neomycin 8g/day, including loading dose + erythromycin 4g/day in doses for 24hrs before surgery	Cefoxitin 1-2g (weight adjusted)
Lau 1988 [22]	16 / 132	67	65	(L)AR, APR, LH, RH, TH, SR, subtotal colectomy, pelvic exenteration, palliative bypass	Open	Bisacodyl and magnesium sulphate + saline enemas	Neomycin 1g + erythromycin 1g day before surgery (13h, 14h, 23h)	Metronidazole 500mg + gentamicin 2mg/kg
Playforth 1988 [23]	36 / 119	58	61	(Colo)rectal resection	N/A	Mannitol 100g in 1L water day before operation	Neomycin 1g every six hrs + metronidazole 200mg every four hrs start 24hrs before surgery	Metronidazole 0.5g
MBP vs no preparation: 16 RCTs								
Mai-Phan 2019 [24]	21 / 122	62	60	Colectomy	Laparoscopic	Sodium phosphate 2 bottles or PEG 2L		Yes, unknown kind
Bhat 2016 [25]	28 / 202	98	104	(L)AR, APR, LH, RH, TH, SR	N/A	PEG 2 packs in 4L water 12–16hrs before surgery		Ceftriaxone 1g + metronidazole 500mg

Bhattacharjee 2015 [26]	27 / 71	38	33	LAR, APR, LH, RH, SR, PC	Open	PEG 1 pack in 2L water afternoon before surgery		Cefuroxime 1.5g + metronidazole 500 mg,
Sasaki 2012 [27]	6 / 79	38	41	LH, RH	Mixed	Sodium picosulphate hydrate 10mL start evening 2 days before surgery + 2L PEG morning before surgery		Flomoxef 1g, Redose >3hrs
Bertani 2011 [28]	42 / 229	114	115	LAR, LH, RH, TH,	Mixed	PEG 70mg in 1L, day before surgery four times (16h-20h) + glycerin enema 5% 2L day of surgery		Cefoxitin 2g (allergy: gentamicin 80mg + clindamycin 600mg or metronidazole 500mg)
Bretagnol 2010 [29]	34 / 178	89	89	Rectal cancer sphincter saving resection	Mixed	Senna solution 1-2 packs in water 24h before surgery + povidone-iodine enema 1L evening before and >2h before surgery		Ceftriaxone 1g + metronidazole 500mg, Redose >2hrs
Watanabe 2010 [30]	3 / 42	21	21	Colonic resection	Mixed	Magnesium citrate 1.8L, 16–19h before surgery + glycerin enema 120mL, day of surgery		Cefmetazole, Redose every 3hrs
Pena-Soria 2008 [31]	37 / 129	65	64	Colon or proximal rectal resection	Open	PEG 3L + conventional enemas		Gentamicin 80mg + metronidazole 500mg
Contant 2007 [32]	283 / 1354	670	684	Colorectal surgery with anastomosis	Open	PEG 2-4L + bisacodyl or sodium phosphate solution		Local guideline
Jung 2007 [33]	142 / 1343	686	657	Surgery of the colon with anastomosis	Open	PEG, sodium phosphate *Some patients only received enema*		Local guideline
Platell 2006 [34]	52 / 294	147	147	AR, RH, TH, PC, (sub)total colectomy	Open	PEG 3L day before surgery	*Sodium phosphate enema,* *2-4hrs before surgery*	Ticarcillin disodium / clavulanate potassium 3.1 g or gentamicin 2mg/kg + metronidazole 500mg
Bucher 2005 [35]	23 / 153	78	75	AR, LH, TH, closure of Hartmann's	Mixed	PEG 3L, 12-16hrs before surgery + saline enema 250ml before AR	*Saline enema 250 mL when AR*	Metronidazole + ceftriaxone
Fa-Si-Oen 2005 [36]	29 / 250	125	125	LH, RH, TH, SR, other	Open	PEG 4L		Cefazolin 2g + metronidazole 1.5g or gentamicin 240mg + metronidazole 1.5g
Ram 2005 [37]	38 / 329	164	165	(L)AR, APR, , LH, RH, TH, SR, subtotal colectomy	Open	Sodium phosphate day before surgery		Metronidazole 500mg + ceftriaxone 1g
Miettinen 2000 [38]	23 / 267	138	129	(L)AR, APR, LH, RH, CC, ileal pouch	Open	PEG until clear fluid day before surgery		Ceftriaxone 2g + metronidazole 1g
Burke 1994 [39]	14 / 169	82	87	AR, LH	N/A	Sodium picosulphate 10mg, day before surgery (morning, afternoon)		Ceftriaxone 1g + metronidazole 500mg
OA vs None: 5 RCTs								
Arezzo 2021 [40]	34/204	100	104	RH, ICR, TH, LH, AR, subtotal colectomy, Hartmann procedure, other	Mixed	** Some patients undergoing left sided colonic and anterior resections received MBP according to local guidelines*	Neomycin 25.000 UI (≈ 33mg) + bacitracin 2500 UI (≈ ,33mg) (24h, 16h + 8h before surgery)	Amoxicillin 2g + clavulanic acid 200mg (allergy: clindamycin 600mg + gentamycin 2mg/kg) Redosing if prolonged surgery

Espin Basany 2020 [41]	193 / 536	267	269	LH, RH, colectomy, segment resection, other	Mixed		Ciprofloxacin 750mg day before surgery (12h, midnight) + metronidazole 250mg day before surgery (12h, 18h, midnight)	Cefuroxime 5g + metronidazole 1g
Mulder 2020 [42]	11 / 78	39	39	LAR, LH, RH, SR, (sub) total colectomy, other	Mixed		Tobramycin 80mg + colistin sulphate 100mg start 3 days before surgery 4 times daily	According to national guideline
Hanel 1980 [43]	0 / 67	34	33	(Colo)rectal resection	N/A	*Daily enemas, start 4 days before surgery*	Metronidazole 200mg start four days before surgery 4 times daily + neomycin 1g start two day before surgery twice daily + d*aily enemas, start 4 days before surgery*	Clindamycin 7mg/kg + cefazolin sodium 1g
Viddal 1980 [44]	2 / 42	21	21	LAR, LH, RH, APR, PC, CC, jejunoileostomy, ileotransversostomy	Open	*Enemas for 3 days before surgery*	Tinidazole 2g start day before surgery and day 3-5 postoperatively + *enemas for 3 days before surgery*	Doxycycline 200mg
OA vs MBP-OA: 3 RCTs								
Suzuki 2020 [45]	15 / 251	126	125	Colectomy	Mixed	Sodium picosulphate 10mL, 2 days before surgery + PEG 2L, morning before surgery	Kanamycin sulfate 500mg + metronidazole 500mg day before surgery (13h, 14h, 23h)	Flomoxef 1g, Redose >3hrs
Zmora 2006 [46]	32 / 249	129	120	(L)AR, LH, SR, closure of Hartmann's	N/A	PEG 1 gallon day before surgery + sodium (bi)phosphate enema day of rectal surgery	Neomycin 1g + erythromycin 1g day before surgery, 3 doses + sodium (bi)phosphate enema day of rectal surgery	Metronidazole 500mg + gentamicin 240 mg + ampicillin 1g
Zmora 2003 [47]	36 / 380	193	187	AR, LH, RH, SR, APR closure of Hartmann's	N/A	PEG 1 gallon 12hrs-16hrs before surgery + sodium (bi)phosphate enema day of rectal surgery	Neomycin + erythromycin, 3 doses (unknown dose and timing) + sodium (bi)phosphate enema day of rectal surgery	Broad spectrum
MBP-OA vs None: 1 RCT								
Koskenvuo 2019 [48]	34 / 397	196	200	LH, RH, TH, AR, ICR, SR, subtotal colectomy, other	Mixed	PEG 2L + 1L clear fluid day before surgery	Neomycin 2g (19h) + metronidazole 2g (23h) day before surgery	Cefuroxime 1500 mg + metronidazole 500 mg, Redose >3hrs and/or blood loss >1,5L

APR: abdominoperineal resection, CC: colostoma closure, ICR: ileocecal resection, (L)AR: (low) anterior resection, LH: left hemicolectomy, N/A: not available PC: proctocolectomy, PEG: polyethylene glycol, RH: right hemicolectomy, SG: sigmoid resection, TH: transverse hemicolectomy, TME: total mesorectal excision. * Anastomotic leakage included in SSI

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Appendix 4. Sensitivity and Subgroup analyses

Studies published after the year 2000 (39 of 48 studies) showed comparable results with the primary analysis. For anastomotic leakage (AL) and mortality, we also found comparable results to the primary analysis.

When looking at RCTs performing laparoscopic or laparoscopic and open procedures (in contrast to only open procedures), we see a significant benefit of MBP-OA over all other bowel preparation options for both SSI and AL. The RRs for mortality are very imprecise.

The subgroup analysis with and without oral aminoglycosides show no large differences in relative risks. RR for AL without aminoglycosides comparing MBP-OA and only OA is significantly lower (RR 0.29, 95% CI 0.09 – 0.89). Mortality relative risks with the use of aminoglycosides are comparable with the primary analysis. There are no RCTs investigating only OA without aminoglycosides with mortality rates and are therefore not shown in the league table (Appendix 4.c).

<u>RCT's published after year 2000</u>

a. Total SSI (RR with 95% CI)

MBP-OA P-score 0.942			
0.84 (0.58 - 1.21)	**OA** P-score 0.718		
0.56 **(0.44 - 0.73)**	**0.67** **(0.48 – 0.95)**	**None** P-score 0.230	
0.54 **(0.44 - 0.65)**	**0.64** **(0.45 - 0.92)**	0.95 (0.78 - 1.16)	**MBP** P-score 0.110

b. Anastomotic leakage (RR with 95% CI)

MBP-OA P-score 0.966			
0.76 (0.50 - 1.15)	**OA** P-score 0.648		
0.62 **(0.46 - 0.85)**	0.82 (0.58 - 1.16)	**MBP** P-score 0.267	
0.59 **(0.41 - 0.85)**	**0.78** **(0.61 - 0.99)**	0.94 (0.73 - 1.22)	**None** P-score 0.119

c. Mortality (RR with 95% CI)

MBP P-score 0.709			
0.94 (0.45 – 1.95)	**MBP-OA** P-score 0.630		
0.92 (0.59 - 1.44)	0.99 (0.43 - 2.27)	**None** P-score 0.509	
0.77 (0.22 - 2.69)	0.82 (0.26 - 2.59)	0.83 (0.23 - 2.99)	**OA** P-score 0.151

Oral antibiotic regimen with or without aminoglycosides

a.
Total SSI (RR with 95% CI) **with** aminoglycosides

MBP-OA P- score 0.914			
0.87 (0.58 – 1.32)	**OA** P-score 0.729		
0.58 **(0.48 – 0.69)**	0.66 (0.43 – 1.01)	**None** P-score 0.239	
0.60 **(0.47 – 0.77)**	0.69 (0.45 – 1.06)	1.05 (0.86 – 1.27)	**MBP** P-score 0.118

Total SSI (RR with 95% CI) **without** aminoglycosides

MBP-OA P- score 0.984			
0.57 (0.29 – 1.10)	**OA** P-score 0.645		
0.39 **(0.24 – 0.64)**	0.70 (0.44 – 1.09)	**None** P-score 0.239	
0.38 **(0.24 – 0.59)**	0.67 (0.41 – 1.09)	0.96 (0.79 – 1.16)	**MBP** P-score 0.132

b.
Anastomotic leakage (RR with 95% CI) **with** aminoglycosides

MBP-OA P-score 0.879			
0.88 (0.46 – 1.69)	**OA** P-score 0.679		
0.67 **(0.49 – 0.91)**	0.75 (0.39 – 1.44)	**MBP** P-score 0.324	
0.60 **(0.42 – 0.88)**	0.68 (0.36 – 1.29)	0.91 (0.70 - 1.18)	**None** P-score 0.118

Anastomotic leakage (RR with 95% CI) **without** aminoglycosides

MBP-OA P-score 0.990			
0.29 **(0.09 – 0.89)**	**OA** P-score 0.512		
0.27 **(0.09 - 0.80)**	0.96 (0.65 - 1.41)	**MBP** P-score 0.443	
0.23 **(0.08 - 0.68)**	**0.80** **(0.61 – 1.04)**	0.83 (0.63 - 1.09)	**None** P-score 0.049

c.

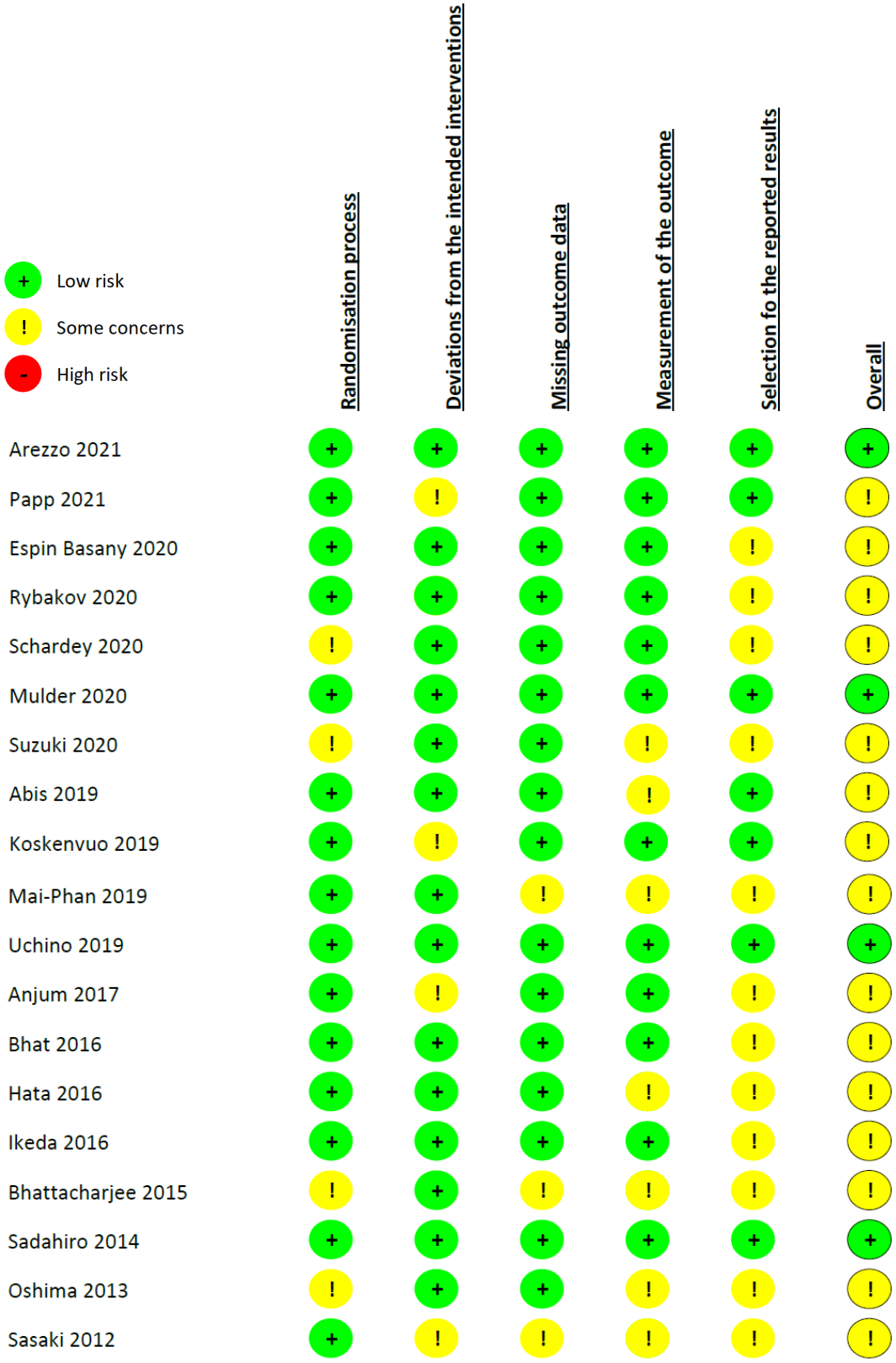
Mortality (RR with 95% CI) **with** aminoglycosides

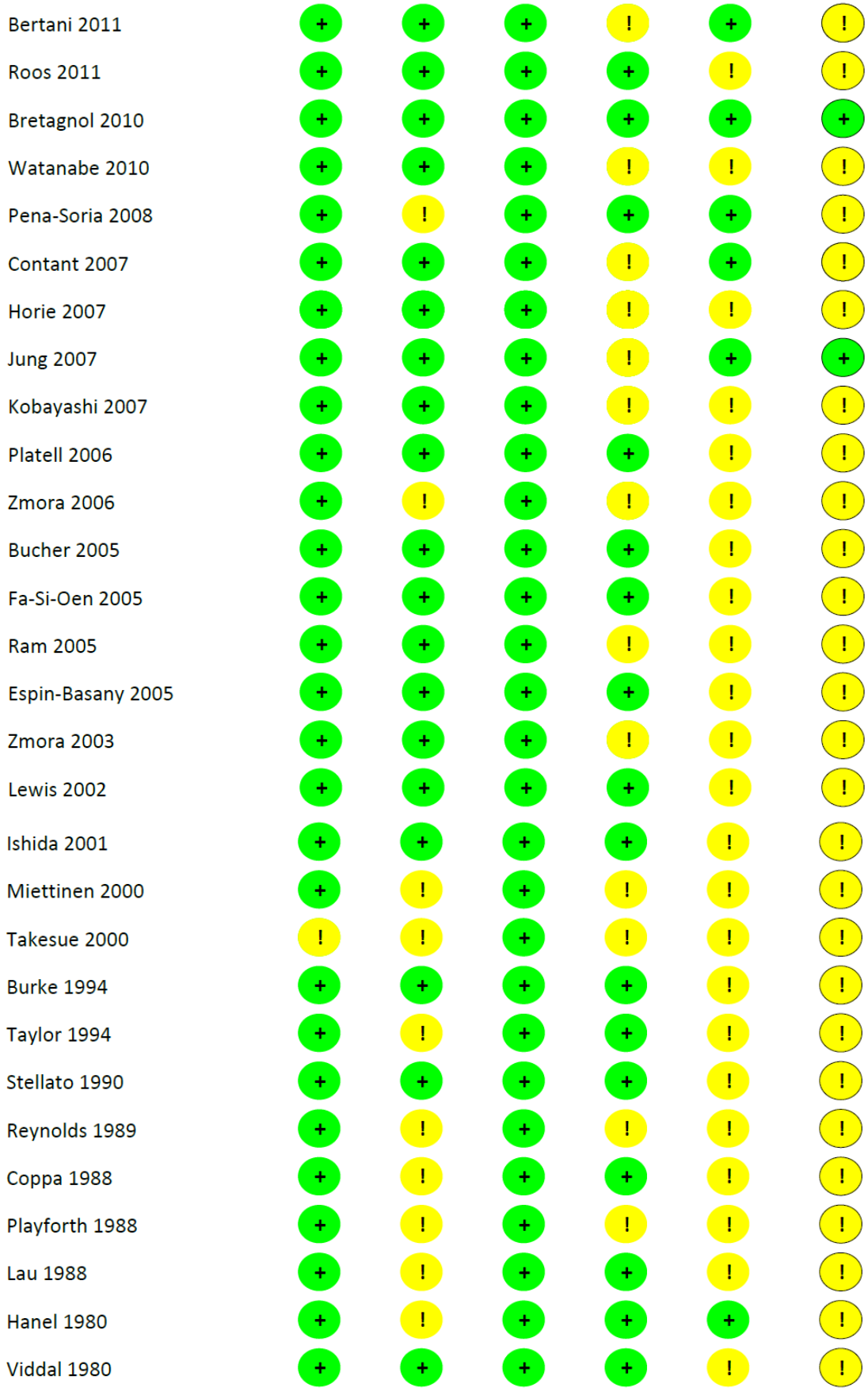
MBP P-score 0.549			
0.95 (0.52 – 1.47)	**MBP-OA** P-score 0.423		
0.89 (0.24 – 1.39)	0.94 (0.44 – 1.98)	**None** P-score 0.358	
1.23 (0.29 – 5.27)	1.29 (0.34 – 4.85)	1.38 (0.30 – 6.32)	**OA** P-score 0.640

Mortality (RR with 95% CI) **without** aminoglycosides

MBP P-score 0.501			
1.26 (0.45 – 3.57)	**MBP-OA** P-score 0.695		
0.90 (0.58 – 1.42)	0.72 (0.23 – 2.22)	**None** P-score 0.305	
			OA

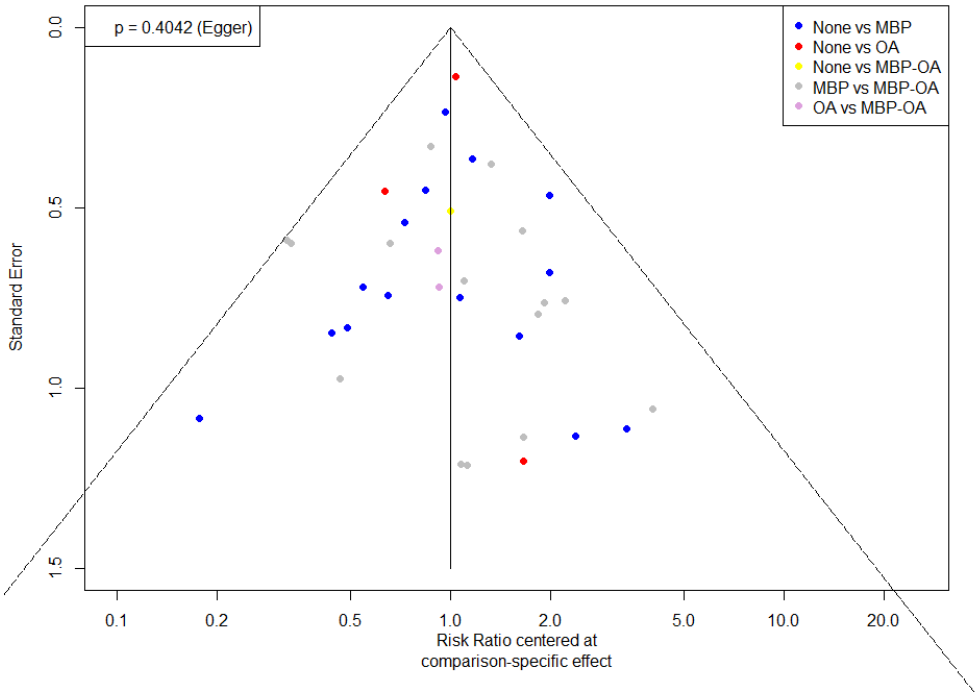
Appendix 5. Risk of bias assessment



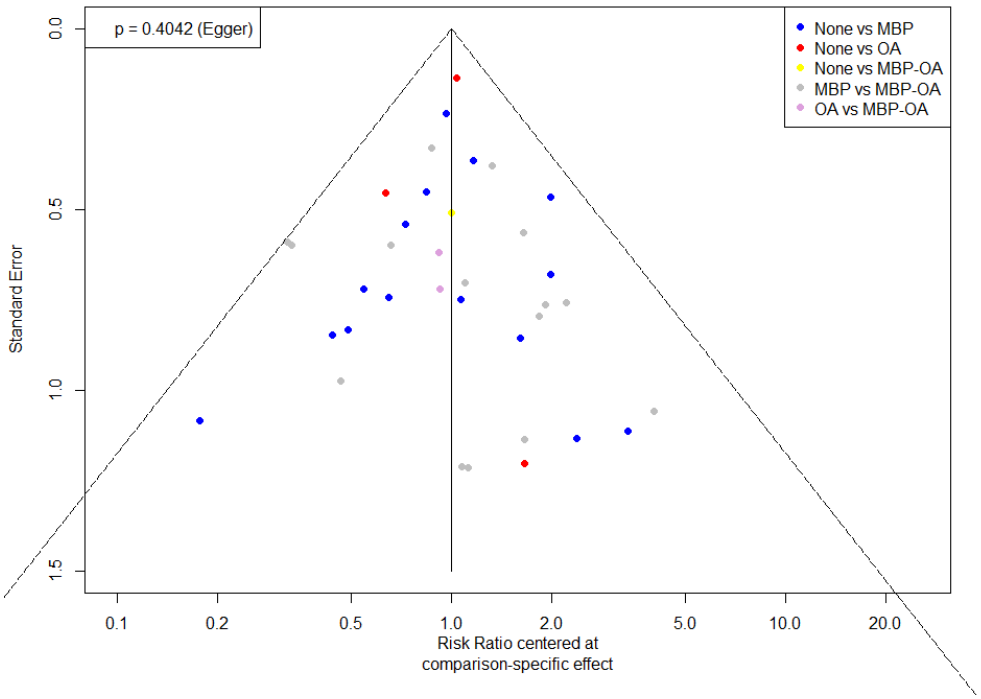

Bertani 2011 + + + ! + !
Roos 2011 + + + + ! !
Bretagnol 2010 + + + + + +
Watanabe 2010 + + + ! ! !
Pena-Soria 2008 + ! + + + !
Contant 2007 + + + ! + !
Horie 2007 + + + ! ! !
Jung 2007 + + + ! + +
Kobayashi 2007 + + + ! ! !
Platell 2006 + + + + ! !
Zmora 2006 + ! + ! ! !
Bucher 2005 + + + + ! !
Fa-Si-Oen 2005 + + + + ! !
Ram 2005 + + + ! ! !
Espin-Basany 2005 + + + + ! !
Zmora 2003 + + + ! ! !
Lewis 2002 + + + + ! !
Ishida 2001 + + + + ! !
Miettinen 2000 + ! + ! ! !
Takesue 2000 ! ! + ! ! !
Burke 1994 + + + + ! !
Taylor 1994 + ! + + ! !
Stellato 1990 + + + + ! !
Reynolds 1989 + ! + ! ! !
Coppa 1988 + ! + + ! !
Playforth 1988 + ! + ! ! !
Lau 1988 + ! + + ! !
Hanel 1980 + ! + + + !
Viddal 1980 + + + + ! !

Appendix 6. Funnel plots

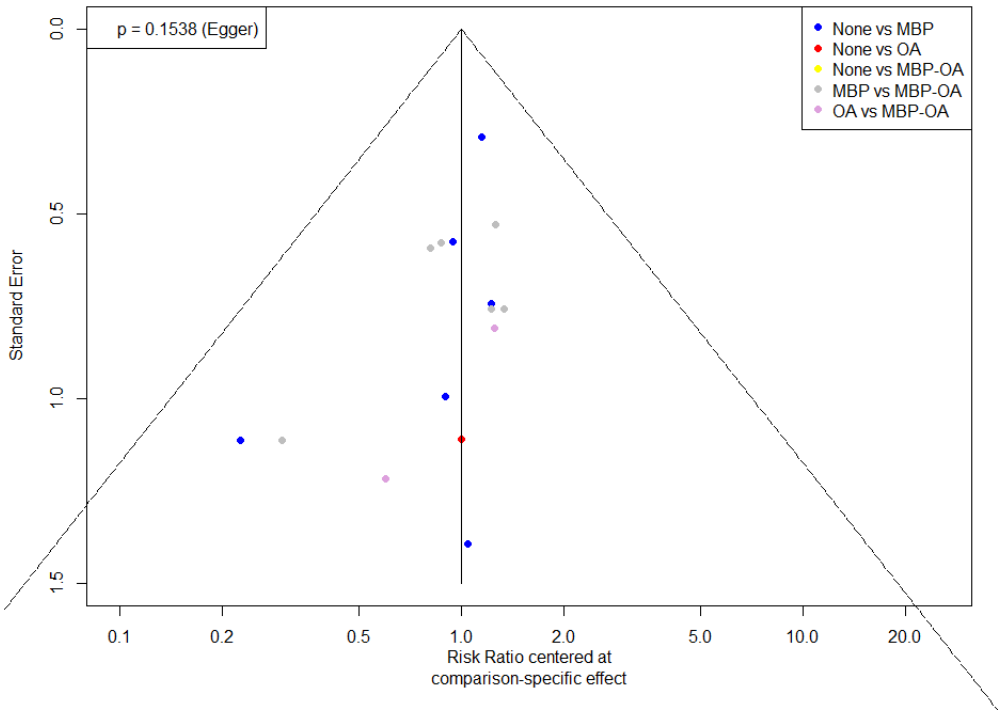
6.a. Total SSI



6.b. Anastomotic leakage



6.c. Mortality



Supplement 7 GRADE assessment

7.a. GRADE assessment with certainty levels for outcome measure: surgical site infections.

Comparison	Direct evidence		Indirect evidence		Network meta-analysis	
	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence
MBP-OA *v* OA	0.85 (0.51 - 1.41)	⊕◯◯◯ Very Low	0.84 (0.52 - 1.35)	⊕⊕◯◯ Low	0.84 (0.60 - 1.19)	⊕⊕◯◯ Low
MBP-OA *v* MBP	**0.55 (0.46 - 0.65)**	⊕⊕⊕◯ Moderate	**0.57 (0.33 - 0.99)**	⊕⊕◯◯ Low	**0.55 (0.47 - 0.65)**	⊕⊕⊕◯ Moderate
MBP-OA *v* None	0.63 (0.28 - 1.42)	⊕◯◯◯ Very Low	**0.57 (0.45 - 0.73)**	⊕⊕⊕◯ Moderate	**0.57 (0.45 - 0.72)**	⊕⊕⊕◯ Moderate
OA *v* MBP	-	-	**0.65 (0.46 – 0.92)**	⊕⊕◯◯ Low	**0.65 (0.46 – 0.92)**	⊕⊕◯◯ Low
OA *v* None	0.68 (0.46 – 1.02)	⊕⊕◯◯ Low	0.68 (0.38 – 1.20)	⊕◯◯◯ Low	**0.68 (0.49 – 0.95)**	⊕⊕◯◯ Low
MBP *v* None	1.04 (0.85 - 1.27)	⊕⊕◯◯ Low	1.09 (0.64 - 1.87)	⊕◯◯◯ Low	1.05 (0.87 - 1.26)	⊕⊕◯◯ Low

Direct evidence

MBP-OA v OA:	Very low	(risk of bias -1 and imprecision -2)
MBP-OA v MBP:	Moderate	(risk of bias -1)
MBP-OA v None:	Very low	(risk of bias -1 and imprecision -2)
OA v MBP:	Not applicable	
OA v None:	Low	(risk of bias -1 and imprecision -1)
MBP v None:	Low	(risk of bias -1 and imprecision -1)

Indirect evidence

MBP-OA v OA:	Very low	(risk of bias -1 and imprecision -2)
MBP-OA v MBP:	Low	(risk of bias -1 and imprecision -1)
MBP-OA v None:	Moderate	(risk of bias -1)
OA v MBP:	Low	(risk of bias -1 and imprecision -1)
OA v None:	Low	(risk of bias -1 and imprecision -1)
MBP v None:	Very Low	(risk of bias -1 and imprecision -2)

Network evidence

If only direct or indirect evidence is available for a given comparison, the network quality rating will be based on that estimate. When, for a particular comparison, both direct and indirect evidence are available, we used the highest of the two quality ratings as the quality rating for the NMA estimate.

Conclusions surgical site infections (SSI)

MBP-OA versus OA

Low GRADE	The evidence suggests that mechanical bowel preparation combined with oral antibiotics results in little to no difference in surgical site infections compared to only oral antibiotics in patients undergoing elective colorectal surgery.

MBP-OA versus MBP

Moderate GRADE	Mechanical bowel preparation combined with oral antibiotics likely reduces surgical site infections compared to only mechanical bowel preparation in patients undergoing elective colorectal surgery.

MBP-OA versus None

Moderate GRADE	Mechanical bowel preparation combined with oral antibiotics likely reduces surgical site infections compared with no preparation in patients undergoing elective colorectal surgery.

OA versus MBP

Low GRADE	The evidence suggests only oral antibiotics reduces surgical site infections compared to only mechanical bowel preparation in patients undergoing elective colorectal surgery.

OA versus None

Low GRADE	The evidence suggests only oral antibiotics reduces surgical site infections compared to no preparation in patients undergoing elective colorectal surgery.

MBP versus None

Low GRADE	The evidence suggests that only mechanical bowel preparation results in little to no difference in surgical site infections compared to no preparation in patients undergoing elective colorectal surgery.

7.2. GRADE assessment with certainty levels: Anastomotic leakage

Comparison	Direct evidence		Indirect evidence		Network meta-analysis	
	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence
MBP-OA *v* OA	1.66 (0.67 - 4.11)	⨁◯◯◯ Very Low	**0.63 (0.39 - 0.99)**	⨁⨁◯◯ Low	0.76 (0.51 - 1.15)	⨁⨁◯◯ Low
MBP-OA *v* MBP *	**0.55 (0.40 – 0.76)**	⨁⨁⨁◯ Moderate	1.32 (0.63 - 2.78)	⨁◯◯◯ Very Low	**0.63 (0.47 - 0.84)**	⨁⨁⨁◯ Moderate
MBP-OA *v* None	0.89 (0.33 - 2.42)	⨁◯◯◯ Very Low	**0.56 (0.38 - 0.81)**	⨁⨁◯◯ Low	**0.59 (0.42 - 0.84)**	⨁⨁◯◯ Low
OA *v* MBP	-	-	0.83 (0.59 – 1.17)	⨁⨁◯◯ Low	0.83 (0.59 – 1.17)	⨁⨁◯◯ Low
OA *v* None	0.83 (0.64 – 1.07)	⨁⨁◯◯ Low	**0.31 (0.12 – 0.84)**	⨁⨁◯◯ Low	**0.78 (0.61 – 0.99)**	⨁⨁◯◯ Low
MBP *v* None *	0.85 (0.65 - 1.11)	⨁⨁◯◯ Low	2.02 (0.95 - 4.30)	⨁⨁◯◯ Low	0.94 (0.73 - 1.21)	⨁⨁◯◯ Low
* Direct and indirect evidence show significant inconsistency. Thus the focus will be on only the direct evidence, which has a greater confidence than the indirect evidence						

Direct evidence

MBP-OA v OA:	Very low	(risk of bias -1 and imprecision -2)
MBP-OA v MBP:	Moderate	(risk of bias -1)
MBP-OA v None:	Very low	(risk of bias -1 and imprecision -2)
OA v MBP:	Not applicable	
OA v None:	Low	(risk of bias -1 and imprecision -1)
MBP v None:	Low	(risk of bias -1 and imprecision -1)

Indirect evidence

MBP-OA v OA:	Low	(risk of bias -1 and imprecision -1)
MBP-OA v MBP:	Very Low	(risk of bias -1 and imprecision -2)
MBP-OA v None:	Low	(risk of bias -1 and imprecision -1)
OA v MBP:	Low	(risk of bias -1 and imprecision -1)
OA v None:	Low	(risk of bias -1 and imprecision -1)
MBP v None:	Low	(risk of bias -1 and imprecision -1)

Network evidence

If only direct or indirect evidence is available for a given comparison, the network quality rating will be based on that estimate. When, for a particular comparison, both direct and indirect evidence are available, we used the highest of the two quality ratings as the quality rating for the NMA estimate.

Conclusions anastomotic leakage

MBP-OA versus OA

Low GRADE	The evidence suggests that mechanical bowel preparation combined with oral antibiotics results in little to no difference of anastomotic leakage compared to only oral antibiotics in patients undergoing elective colorectal surgery.

MBP-OA versus MBP

Moderate GRADE	Mechanical bowel preparation combined with oral antibiotics likely reduces anastomotic leakage compared to only mechanical bowel preparation in patients undergoing elective colorectal surgery.

MBP-OA versus None

Low GRADE	The evidence suggests mechanical bowel preparation combined with oral antibiotics reduces anastomotic leakage compared to no preparation in patients undergoing elective colorectal surgery.

OA versus MBP

Low GRADE	The evidence suggests that only oral antibiotics results in little to no difference of anastomotic leakage compared to only mechanical bowel preparation in patients undergoing elective colorectal surgery.

OA versus None

Low GRADE	The evidence suggests that only oral antibiotics may result in a slight reduction of anastomotic leakage compared with no preparation in patients undergoing elective colorectal surgery.

MBP versus None

Low GRADE	The evidence suggests that mechanical bowel preparation results in little to no difference in anastomotic leakage compared to no preparation in patients undergoing elective colorectal surgery.

7.3. GRADE assessment with certainty levels: Mortality

Comparison	Direct evidence		Indirect evidence		Network meta-analysis	
	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence	Relative Risk (95%CI)	Quality of evidence
MBP-OA *v* OA	1.29 (0.34 - 4.85)	⨁◯◯◯ Very Low	0.21 (0.02 - 2.05)	⨁◯◯◯ Very Low	0.82 (0.26 - 2.57)	⨁◯◯◯ Very Low
MBP-OA *v* MBP	1.00 (0.59 - 1.69)	⨁◯◯◯ Very Low	0.32 (0.03 -3.57)	⨁◯◯◯ Very Low	0.95 (0.57 - 1.59)	⨁◯◯◯ Very Low
MBP-OA *v* None	0.05 (0.00 - 27.56)	⨁◯◯◯ Very Low	1.02 (0.52 - 1.98)	⨁◯◯◯ Very Low	0.99 (0.51 - 1.91)	⨁◯◯◯ Very Low
OA *v* MBP	-	-	1.28 (0.39 – 4.25)	⨁◯◯◯ Very Low	1.28 (0.39 – 4.25)	⨁◯◯◯ Very Low
OA *v* None	4.16 (0.47 – 36.58)	⨁◯◯◯ Very Low	0.67 (0.15 – 2.99)	⨁◯◯◯ Very Low	1.21 (0.35 – 4.12)	⨁◯◯◯ Very Low
MBP *v* None	0.90 (0.58 - 1.42)	⨁◯◯◯ Very Low	2.81 (0.28 - 31.53)	⨁◯◯◯ Very Low	0.94 (0.60 - 1.46)	⨁◯◯◯ Very Low

Direct evidence

MBP v MBP-OA:	Very Low	(risk of bias -1 and imprecision -2)
MBP v None:	Very Low	(risk of bias -1 and imprecision -2)
MBP v OA:	Not applicable	
MBP-OA v None:	Very low	(risk of bias -1 and imprecision -2)
MBP-OA v OA:	Very low	(risk of bias -1 and imprecision -2)
OA v None:	Very Low	(risk of bias -1 and imprecision -2)

Indirect evidence

MBP-OA v OA:	Very Low	(risk of bias -1 and imprecision -2)
MBP-OA v MBP:	Very Low	(risk of bias -1 and imprecision -2)
MBP-OA v None:	Very Low	(risk of bias -1 and imprecision -2)
OA v MBP:	Very Low	(risk of bias -1 and imprecision -2)
OA v None:	Very Low	(risk of bias -1 and imprecision -2)
MBP v None:	Very Low	(risk of bias -1 and imprecision -2)

Network evidence

If only direct or indirect evidence is available for a given comparison, the network quality rating will be based on that estimate. When, for a particular comparison, both direct and indirect evidence are available, we used the highest of the two quality ratings as the quality rating for the NMA estimate.

Conclusions mortality

MBP-OA versus OA

Very low GRADE	The evidence is very uncertain about the effect of mechanical bowel preparation combined with oral antibiotics on mortality compared with only oral antibiotics in patients undergoing elective colorectal surgery.

MBP-OA versus MBP

Very low GRADE	The evidence is very uncertain about the effect of mechanical bowel preparation combined with oral antibiotics on mortality compared to only mechanical bowel preparation in patients undergoing elective colorectal surgery.

MBP-OA versus None

Very Low GRADE	The evidence is very uncertain about the effect of mechanical bowel preparation combined with oral antibiotics on mortality compared to no bowel preparation in patients undergoing elective colorectal surgery.

OA versus MBP

Very low GRADE	The evidence is very uncertain about the effect of only oral antibiotics on mortality compared to mechanical bowel preparation in patients undergoing elective colorectal surgery.

OA versus None

Very low GRADE	The evidence is very uncertain about the effect of only oral antibiotics on mortality compared to no preparation in patients undergoing elective colorectal surgery.

MBP versus None

Very Low GRADE	The evidence is very uncertain about the effect of mechanical bowel preparation on mortality compared to no preparation among patients undergoing elective colorectal surgery.