

## **Appendix 1 - Search strategy for databases.**

**Database: Medline** (Date of search: 20/11/2017)

### **Population**

#1, "colonoscopy", 36332

#2, "colonoscopies", 36673

#3, "bowel preparation", 8116

#4, "bowel prep\*", 2858

#5, "bowel cleansing", 1173

#6, "bowel clean\*", 755

#7, "colon preparation", 3577

#8, "colon prep\*", 260

#9, "colon cleansing", 801

#10, "colon clean\*", 343

#11, (colonoscopy OR colonoscopies OR bowel preparation OR bowel prep\* OR bowel cleansing OR bowel clean\* OR colon preparation OR colon prep\* OR colon cleansing OR colon clean\*), 44328

### **Intervention**

#12, "picosulphate", 88

#13, "picosulfate", 265

#14, "sodium picosulphate", 83

#15, "sodium picosulfate", 257

#16, (sodium picosulfate OR sodium picosulphate OR picosulfate OR picosulphate), 294

### **Comparison**

#17, "polyethylene", 89838  
#18, "polyethylene glycol", 73065  
#19, "polyethylene glicol", 6  
#20, "polyethylene glycols", 61615  
#21, "polyethylene glicols", 0  
#22, (polyethylene OR polyethylene glycol OR polyethylene glycols OR polyethylene glicol OR polyethylene glicols), 103517

### **Searches**

#23, P (#11) AND I (#16), 199  
#24, P (#11) AND C (#22), 1191  
#25, I (#16) AND C (#22), 112  
#26, P (#11) AND I (#16) AND C (#22), 95  
**#27, PIC (#26) AND random\*, 57**

**Database: EMBASE (Date of search: 20/11/17)**

### **Population**

#1, "colonoscopy", 68437

#2, "colonoscopies", 6730

#3, "bowel preparation", 5432

#4, "bowel prep\*", 5432

#5, "bowel cleansing", 1214

#6, "bowel clean\*", 1398

#7, "colon preparation", 407

#8, "colon prep\*", 545

#9, "colon cleansing", 553

#10, "colon clean\*", 672

#11, (colonoscopy OR colonoscopies OR "bowel preparation" OR "bowel prep\*" OR "bowel cleansing" OR "bowel clean\*" OR "colon preparation" OR "colon prep\*" OR "colon cleansing" OR "colon clean\*"), 71777

### **Intervention**

#12, "picosulphate", 151

#13, "picosulfate", 998

#14, "sodium picosulphate", 133

#15, "sodium picosulfate", 258

#16, ("sodium picosulfate" OR "sodium picosulphate" OR picosulfate OR picosulphate), 1035

### **Comparison**

#17, "polyethylene", 62899

#18, "polyethylene glycol", 27120

#19, "polyethylene glycol", 11  
#20, "polyethylene glycols", 975  
#21, "polyethylene glicols", 0  
#22, (polyethylene OR "polyethylene glycol" OR "polyethylene glycols"  
OR "polyethylene glicol" OR "polyethylene glicols"), 62899

### Searches

#23, P (#11) AND I (#16), 525  
#24, P (#11) AND C (#22), 1521  
#25, I (#16) AND C (#22), 241  
#26, P (#11) AND I (#16) AND C (#22), 201  
**#27, PIC (#26) AND random\*, 128**

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**Database: Scopus (Date of search: 20/11/17)**

**Population**

#1, "colonoscopy", 79024

#2, "colonoscopies", 6872

#3, "bowel preparation", 7822

#4, "bowel prep\*", 7895

#5, "bowel cleansing", 2365

#6, "bowel clean\*", 2471

#7, "colon preparation", 1018

#8, "colon prep\*", 1045

#9, "colon cleansing", 1369

#10, "colon clean\*", 1484

#11, (colonoscopy OR colonoscopies OR "bowel preparation" OR "bowel prep\*" OR "bowel cleansing" OR "bowel clean\*" OR "colon preparation" OR "colon prep\*" OR "colon cleansing" OR "colon clean\*"), 83977

**Intervention**

#12, "picosulphate", 397

#13, "picosulfate", 1092

#14, "sodium picosulphate", 375

#15, "sodium picosulfate", 469

#16, ("sodium picosulfate" OR "sodium picosulphate" OR picosulfate OR picosulphate), 1276

**Comparison**

#17, "polyethylene", 517475

#18, "polyethylene glycol", 184755

#19, "polyethylene glycol", 57  
#20, "polyethylene glycols", 184755  
#21, "polyethylene glicols", 2  
#22, (polyethylene OR "polyethylene glycol" OR "polyethylene glycols"  
OR "polyethylene glicol" OR "polyethylene glicols"), 517475

### Searches

#23, P (#11) AND I (#16), 655  
#24, P (#11) AND C (#22), 3136  
#25, I (#16) AND C (#22), 559  
#26, P (#11) AND I (#16) AND C (#22), 429  
**#27, PIC (#26) AND random\*, 384**

**Database: Central Cochrane** (Date of search: 20/11/17)

### **Population**

#1, "colonoscopy", 3842

#2, "colonoscopies", 510

#3, "bowel preparation", 1245

#4, "bowel prep\*", 1245

#5, "bowel cleansing", 386

#6, "bowel clean\*", 432

#7, "colon preparation", 75

#8, "colon prep\*", 88

#9, "colon cleansing", 204

#10, "colon clean\*", 244

#11, (colonoscopy OR colonoscopies OR "bowel preparation" OR "bowel prep\*" OR "bowel cleansing" OR "bowel clean\*" OR "colon preparation" OR "colon prep\*" OR "colon cleansing" OR "colon clean\*"), 4422

### **Intervention**

#12, "picosulphate", 67

#13, "picosulfate", 123

#14, "sodium picosulphate", 64

#15, "sodium picosulfate", 76

#16, ("sodium picosulfate" OR "sodium picosulphate" OR picosulfate OR picosulphate), 170

### **Comparison**

#17, "polyethylene", 4083

#18, "polyethylene glycol", 1234

#19, "polyethylene glycol", 0  
#20, "polyethylene glycols", 2363  
#21, "polyethylene glicols", 0  
#22, (polyethylene OR "polyethylene glycol" OR "polyethylene glycols"  
OR "polyethylene glicol" OR "polyethylene glicols"), 4083

### Searches

#23, P (#11) AND I (#16), 142  
#24, P (#11) AND C (#22), 681  
#25, I (#16) AND C (#22), 96  
#26, P (#11) AND I (#16) AND C (#22), 89  
**#27, PIC (#26) AND random\*, 85**



**Database: CINAHL** (Date of search: 20/6/16)

### **Population**

#1, "colonoscopy", 5286

#2, "colonoscopies", 443

#3, "bowel preparation", 729

#4, "bowel prep\*", 744

#5, "bowel cleansing", 100

#6, "bowel clean\*", 112

#7, "colon preparation", 19

#8, "colon prep\*", 27

#9, "colon cleansing", 49

#10, "colon clean\*", 60

#11, (colonoscopy OR colonoscopies OR "bowel preparation" OR "bowel prep\*" OR "bowel cleansing" OR "bowel clean\*" OR "colon preparation" OR "colon prep\*" OR "colon cleansing" OR "colon clean\*"), 5667

### **Intervention**

#12, "picosulphate", 12

#13, "picosulfate", 25

#14, "sodium picosulphate", 11

#15, "sodium picosulfate", 22

#16, ("sodium picosulfate" OR "sodium picosulphate" OR picosulfate OR picosulphate), 36

### **Comparison**

#17, "polyethylene", 2053

#18, "polyethylene glycol", 699

#19, "polyethylene glycol", 0  
#20, "polyethylene glycols", 654  
#21, "polyethylene glicols", 0  
#22, (polyethylene OR "polyethylene glycol" OR "polyethylene glycols"  
OR "polyethylene glicol" OR "polyethylene glicols"), 2438

### Searches

#23, P (#11) AND I (#16), 36  
#24, P (#11) AND C (#22), 150  
#25, I (#16) AND C (#22), 18  
#26, P (#11) AND I (#16) AND C (#22), 16  
**#27, PIC (#26) AND random\*, 8**

**Database: LILACS** (Date of search: 27/11/17)

### **Population**

#1, "colonoscopy", 907

#2, "colonoscopies", 669

#3, "bowel preparation", 0

#4, "bowel prep", 0

#5, "bowel cleansing", 0

#6, "bowel clean", 0

#7, "colon preparation", 0

#8, "colon prep", 0

#9, "colon cleansing", 0

#10, "colon clean\*", 0

#11, (colonoscopy OR colonoscopies OR "bowel preparation" OR "bowel prep" OR "bowel cleansing" OR "bowel clean\*" OR "colon preparation" OR "colon prep" OR "colon cleansing" OR "colon clean"), 914

### **Intervention**

#12, "picosulphate", 5

#13, "picosulfate", 3

#14, "sodium picosulphate", 0

#15, "sodium picosulfate", 0

#16, ("sodium picosulfate" OR "sodium picosulphate" OR picosulfate OR picosulphate), 7

### **Comparison**

#17, "polyethylene", 628

#18, "polyethylene glycol", 179

#19, "polyethylene glycol", 0  
#20, "polyethylene glycols", 179  
#21, "polyethylene glicols", 0  
#22, (polyethylene OR "polyethylene glycol" OR "polyethylene glycols"  
OR "polyethylene glicol" OR "polyethylene glicols"), 628

### Searches

#23, P (#11) AND I (#16), 5  
#24, P (#11) AND C (#22), 14  
#25, I (#16) AND C (#22), 0  
#26, P (#11) AND I (#16) AND C (#22), 0  
**#27, PIC (#26) AND random\*, 0**

## Appendix 2

**Table 1.** Reasons for inclusion or exclusion of the full-text articles evaluated.

#	Name	Inclusion	Reason
1	Ono H, 1994	No	Mixed products
2	Saunders BP, 1995	No	Mixed products
3	Regev A, 1998	Yes	
4	Worthington J, 2008	No	Missing dietary restrictions
5	Turner D, 2009	No	Non-adults included
6	Chilton AP, 2010	No	Mixed products
7	Kao D, 2011	Yes	
8	Lawrance IC, 2011	Yes	Age checked in Clinical trials database
9	Hosoe N, 2012	No	Mixed products
10	Kojecky V, 2012	No	Missing age and status
11	Katz PO, 2013	Yes	
12			Cohort from another study (Lawrence et al, 2011)
	Lawrance IC, 2013	No	
13	Manes G, 2013	Yes	
14	Rex DK, 2013	Yes	
15	Voiosu T, 2013	No	Missing patients' status
16	Di Nardo G, 2014	No	Non-adults included
17	Kang MS, 2014	Yes	
18	Kim ES, 2014	Yes	
19	Kim YS, 2014	Yes	
20	Kojecky V, 2014	No	Missing age
21	Leitao K, 2014	Yes	
22	Song KH, 2014	No	Mixed products
23	Gweon TG, 2015	No	Missing dietary restrictions
24	Jeon SR, 2015	Yes	

25	Kim HG, 2015	Yes	
26	Klare P, 2015	No	Inpatients included
27	Manes G, 2015	No	Subjects with ulcerative colitis
28	Munoz-Navas M, 2015	No	Missing patients' status
29	Munsterman ID, 2015	Yes	
30	Pohl J, 2015	Yes	
31	Sahebally S, 2015	No	Allowed normal diet
32	Yoo UK, 2015	Yes	
33	Choi HS, 2016	No	Missing patients' status
34	Heetun Z, 2016	No	Missing patients' status
35	Kim MJ, 2016	No	Mixed products
36	Ruiz-Zavala AM, 2016	No	Missing patients' status
37	Vejsovic V, 2016	No	Non-adults included
38	Kojecky V, 2017	Yes	
39	Voiosu T, 2017	No	Allowed light lunch on day prior

Appendix 3 Table of raw data and results of individual studies.

#	STUDY	RESULTS		SPMC		PEG		ANALYSYS				
		VARIABLE	OUTCOME	EVENTS	ITT	EVENTS	ITT	INT RISK	CON RISK	RED / INC	INF IC	SUP IC
1	Regev A et al, 1998 (day-before vs day-before)	Bowel cleaning success	Adequate (4-point Excellent or good)	26	39	13	29	66,67%	44,83%	21,84%	-1,54%	45,22%
		Tolerability	Complete bowel preparation fully	39	39	25	29	100,00%	86,21%	13,79%	1,24%	26,34%
		Adverse events	At least one symptom	10	39	12	29	25,64%	41,38%	-15,74%	-38,30%	6,82%
2	Lawrence IC	Bowel	Adequate	143	171	231	284	83,63%	81,34%	2,29%	-4,87%	9,45%

	<b>et al, 2011</b>	cleaning success	(OBPS <7)									
		Tolerability	Complete bowel preparation protocol	171	171	255	284	100,00%	89,79%	10,21%	6,69%%	13,73%%
<b>3</b>	<b>Kao D et al, 2011</b>	Bowel cleaning success	Adequate (OBPS <7)	165	194	344	420	85,05%	81,90%	3,15%	-3,08%	9,37%
	<b>Katz PO et al, 2012 (day-before vs day-before4)</b>	Bowel cleaning success	Adequate (AS excellent or good)	244	300	239	303	81,33%	78,88%	2,46%	-3,91%	8,82%
<b>4</b>		Tolerability	Complete bowel preparation fully	293	300	286	303	99,66%	95,33%	4,33%	1,85%	6,80%
		Adverse	Any related	33	296	29	302	11,15%	9,60%	1,55%	-15,91%	30,67%



	events	TEAEs										
5	Manes G et al, 2013	Bowel cleaning success	Adequate (BBPS $\geq$ 2)	106	145	111	148	73,10%	75,00%	-1,90%	-11,93%	8,14%
		Tolerability	Complete bowel preparation protocol	117	145	113	148	80,69%	76,35%	4,34%	-5,05%	13,73%
		Adverse events	Overall discomfort	14	140	59	145	10,00%	40,69%	-30,69%	-40,10%	-21,28%
		PDR	At least one polyp	37	140	44	145	26,43%	30,34%	-3,92%	-14,37%	6,54%
6	Rex DK et al, 2013 (split vs day-before)	Bowel cleaning success	Adequate (AS excellent and good / OBPS $\leq$ 2)	256 / 264	305	221 / 224	298	83,93%	74,16%	9,77%	3,32%	16,23%
		Tolerability	Consume	301	305	267	298	98,69%	89,60%	9,09%	5,40%	12,78%

		the entire preparation										
Adverse events		TEAEs	211	305	217	298	69,18%	72,82%	-3,64%	-10,87%	3,60%	
<b>Jeon SR et al, 2014 (split split)</b>	Bowel cleaning vs success	Adequate (BBPS $\geq$ 2)	171	215	174	215	79,53%	80,93%	-1,40%	-8,92%	6,13%	
	Tolerability	Complete agent with adjunctive liquid intake	168	215	193	215	78,14%	89,77%	-11,63%	-18,48%	-4,78%	
	Adverse events	At least one AE	98	192	94	194	51,04%	48,45%	2,59%	-7,38%	12,56%	
	PDR	At least one polyp ( $\geq$ 50y)	80	126	89	135	63,49%	65,93%	-2,43%	-14,03%	9,17%	
	ADR	At least one	55	126	58	135	43,65%	42,96%	0,69%	-11,34%	12,72%	

7

		adenoma (≥50y)										
8	Kang MS et al, 2014 (day-before vs split)	Bowel cleaning success	Adequate (OBPS <5)	59	98	71	99	60,20%	71,72%	-11,51%	-24,65%	1,63%
	Tolerability	Ingest > 90% of the bowel preparation solution	97	98	99	99	98,98%	100,00%	-1,02%	-3,01%	0,97%	
	Adverse events	Any side effect (except sleep disturbance)	20	98	34	99	20,41%	34,34%	-13,94%	-26,23%	-1,64%	
	PDR	At least one polyp	37	98	50	99	37,76%	50,51%	-12,75%	-26,50%	1,00%	
	ADR	At least one	30	98	34	99	30,61,00%	34,34%	-3,73%	-16,80%	9,34%	

		adenoma										
9A	<b>Kim ES et al, 2014A (split vs split)</b>	Bowel cleaning success	Adequate (AS excellent or good / OBPS ≤2)	86 / 87	100	42	50	86,00%	84,00%	2,00%	-10,23%	14,23%
		Tolerability	Complete bowel preparation protocol	98	100	47	50	98,00%	94,00%	4,00%	-3,13%	11,13%
		PDR	At least one polyp	45	100	23	50	45,00%	46,00%	-1,00%	-17,91%	15,91%
9B	<b>Kim ES et al, 2014B (split vs same-day)</b>	Bowel cleaning success	Adequate (AS excellent or good / OBPS ≤2)	86 / 87	100	41	50	86,00%	82,00%	4,00%	-8,64%	16,63%
		Tolerability	Complete	98	100	39	50	98,00%	78,00%	20,00%	8,20%	31,80%

		bowel preparation protocol										
	PDR	At least one polyp	45	100	23	50	45,00%	46,00%	-1,00%	-17,91%	15,91%	
<b>10</b>	<b>Kim YS et al, 2014 (day-before vs day-before)</b>	Bowel cleaning success	Adequate (AS excellent or good)	86	97	73	97	88,66%	75,26%	13,40%	2,75%	24,06%
		Tolerability	Complete bowel preparation protocol	94	97	80	97	96,91%	82,47%	14,43%	6,12%	22,75%
		Adverse events	At least one GI symptom	8	94	44	90	8,51%	48,89%	-40,38%	-52,15%	-28,61%
		PDR	At least one polyp	38	94	48	90	40,43%	53,33%	-12,91%	-27,21%	1,40%
		ADR	At least one	25	94	34	90	26,60%	37,78%	-11,18%	-24,60%	2,24%

		adenoma										
11	Leitao K et al, 2014 (split split) vs	Tolerability	Complete bowel preparation protocol	169	179	155	189	94,41%	82,01%	12,40%	5,98%	18,83%
		Adverse events	Any discomfort	106	179	130	189	59,22%	68,78%	-9,57%	-19,34%	0,21%
		PDR	At least one polyp	60	179	44	189	33,52%	23,38%	10,24%	1,07%	19,41%
12	Kim HG et al, 2015 (split split) vs	Bowel cleaning success	Adequate (BBPS $\geq$ 2)	159	193	149	194	82,38%	76,80%	5,58%	-2,43%	13,59%
		Tolerability	Complete bowel preparation protocol	153	193	166	194	79,27%	85,57%	-6,29%	-13,85%	1,27%
		Adverse events	Prevalence of AE	118	181	143	184	65,19%	77,72%	-12,52%	-21,71%	-3,34%

13	<b>Munsterman ID et al, 2015 (split vs split)</b>	Bowel cleaning success	Adequate (BBPS ≥6)	76	85	74	88	89,41%	84,09%	5,32%	-4,74%	15,38%
	<b>Pohl J et al, 2015 (day-before vs split)<sup>18</sup></b>	Bowel cleaning success	Adequate (Harefield A or B)	111	197	197	201	56,35%	98,01%	-41,66%	-48,85%	-34,48%
14		Adverse events	TEAEs	34	197	66	201	17,26%	32,84%	-15,58%	-23,94%	-7,21%
		PDR	At least one polyp	85	193	103	200	44,04%	51,50%	-7,46%	-17,31%	2,39%
		ADR	At least one adenoma	49	193	66	200	25,39%	33,00%	-7,61%	-16,56%	1,34%
15	<b>Yoo IK et al, 2015 (split vs split)</b>	Bowel cleaning success	Adequate (AS excellent or good / BBPS ≥6)	73 / 80	100	66 / 82	100	73,00%	66,00%	7,00%	-5,72%	19,72%

		ADR	At least one adenoma	42	100	47	100	42,00%	47,00%	-5,00%	-18,76%	8,76%
<b>16A</b>	<b>Kojecky V et al 2017A</b>	Bowel cleaning (day before)	Adequate (AS 1 or 2)	66	102	P: 65 P-A: 57	102	64,71%	59,80%	4,90%	-6,55%	16,36%
<b>16B</b>	<b>Kojecky V et al 2017A</b>	Bowel cleaning (split)	Adequate (AS 1 or 2)	71	102	P: 79 P-A: 82	102	69,61%	78,92%	-9,31%	-19,85%	1,22%

### Notes

INT: Intervention; CON: Control; ITT: Intention-to-treat; PP: Per-protocol; INF: Inferior; SUP: Superior

9A: Corresponds to SPMC and PEG split regimens.

9B: Corresponds to SPMC and PEG same day regimens.

16A: Corresponds to SPMC and PEG day before regimens.

16B: Corresponds to SPMC and PEG split regimens.

P: Polyethylene glycol

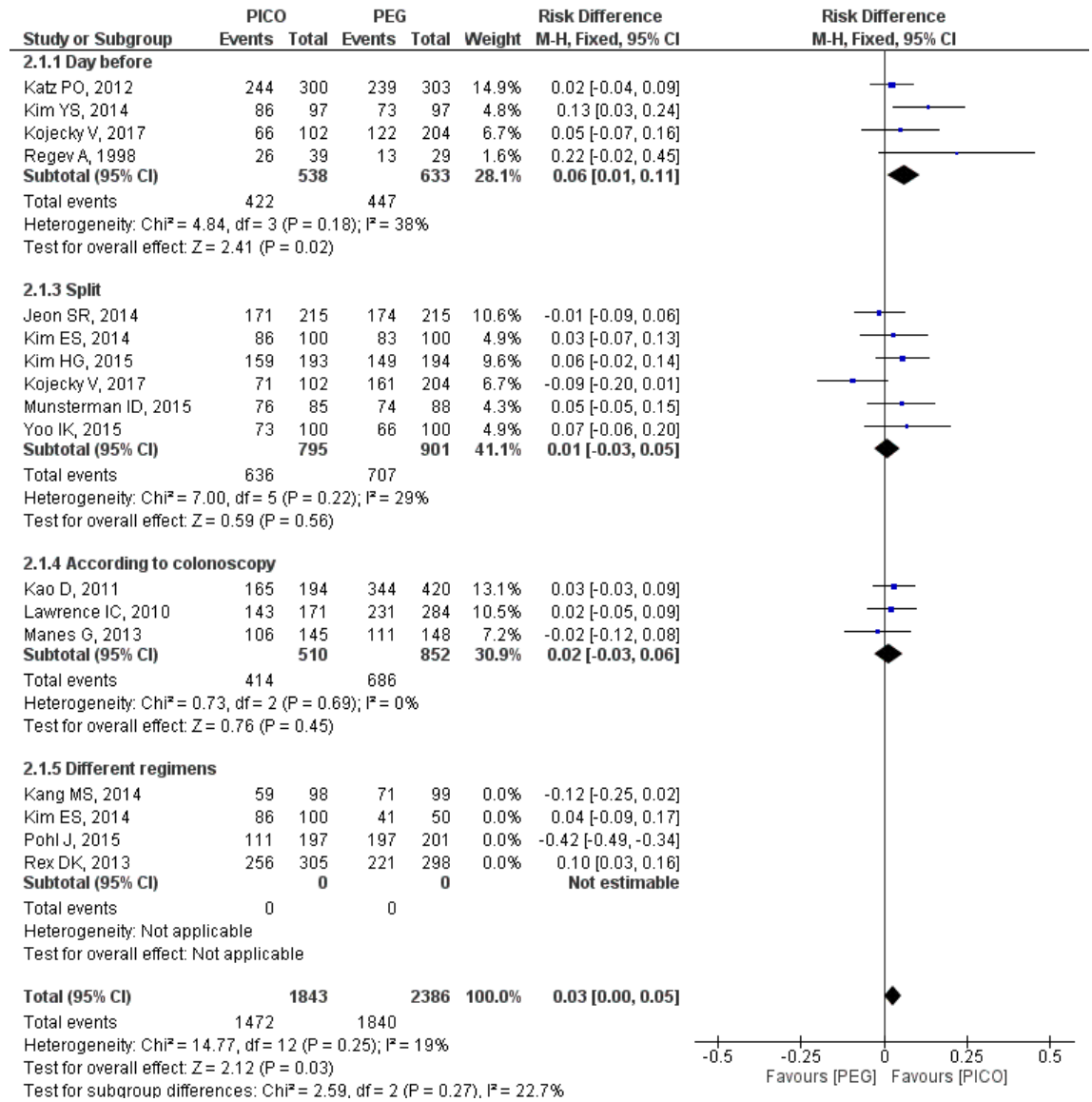
P-A: Polyethylene glycol/ascorbic acid



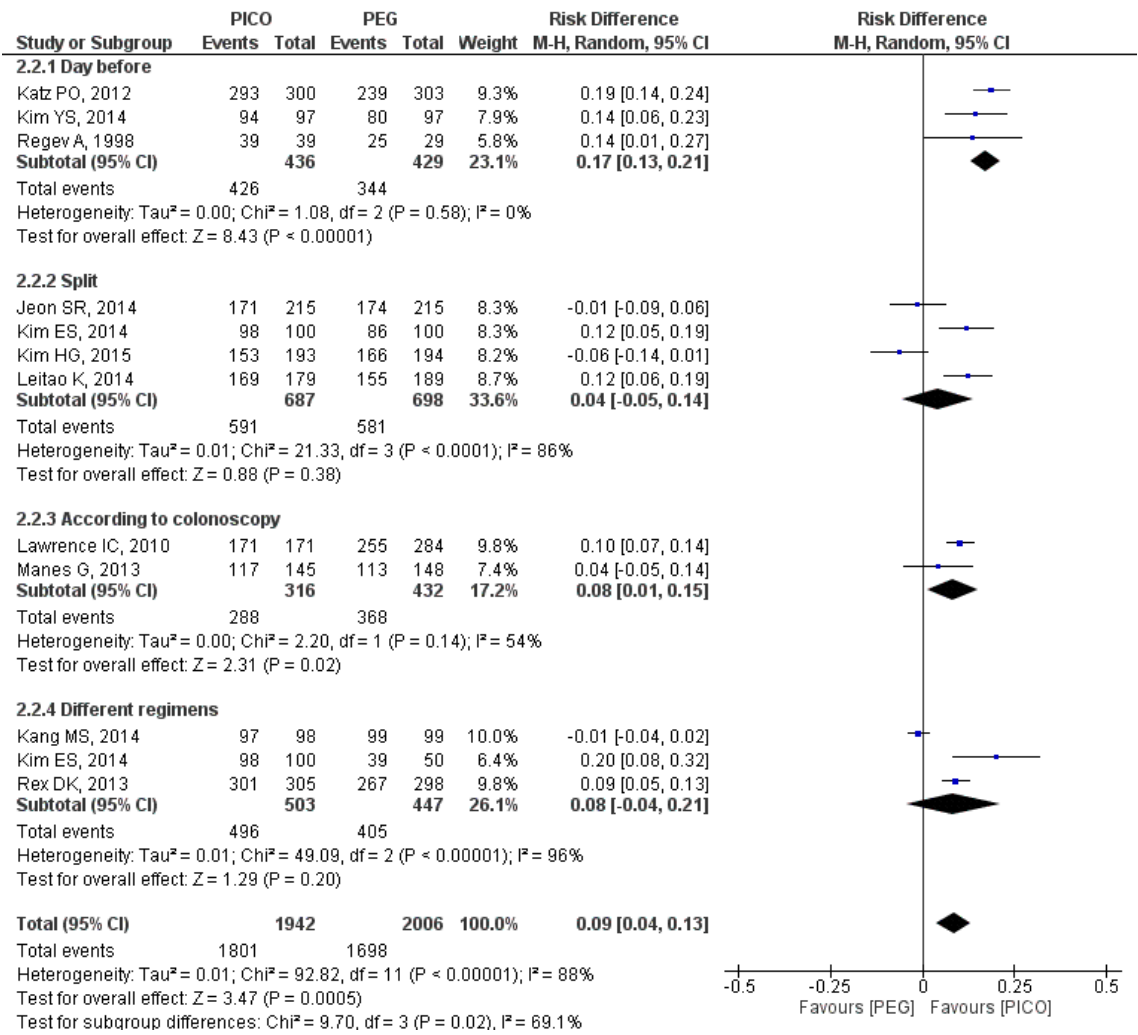
PDR: polyp detection rate

ADR: adenoma detection rate

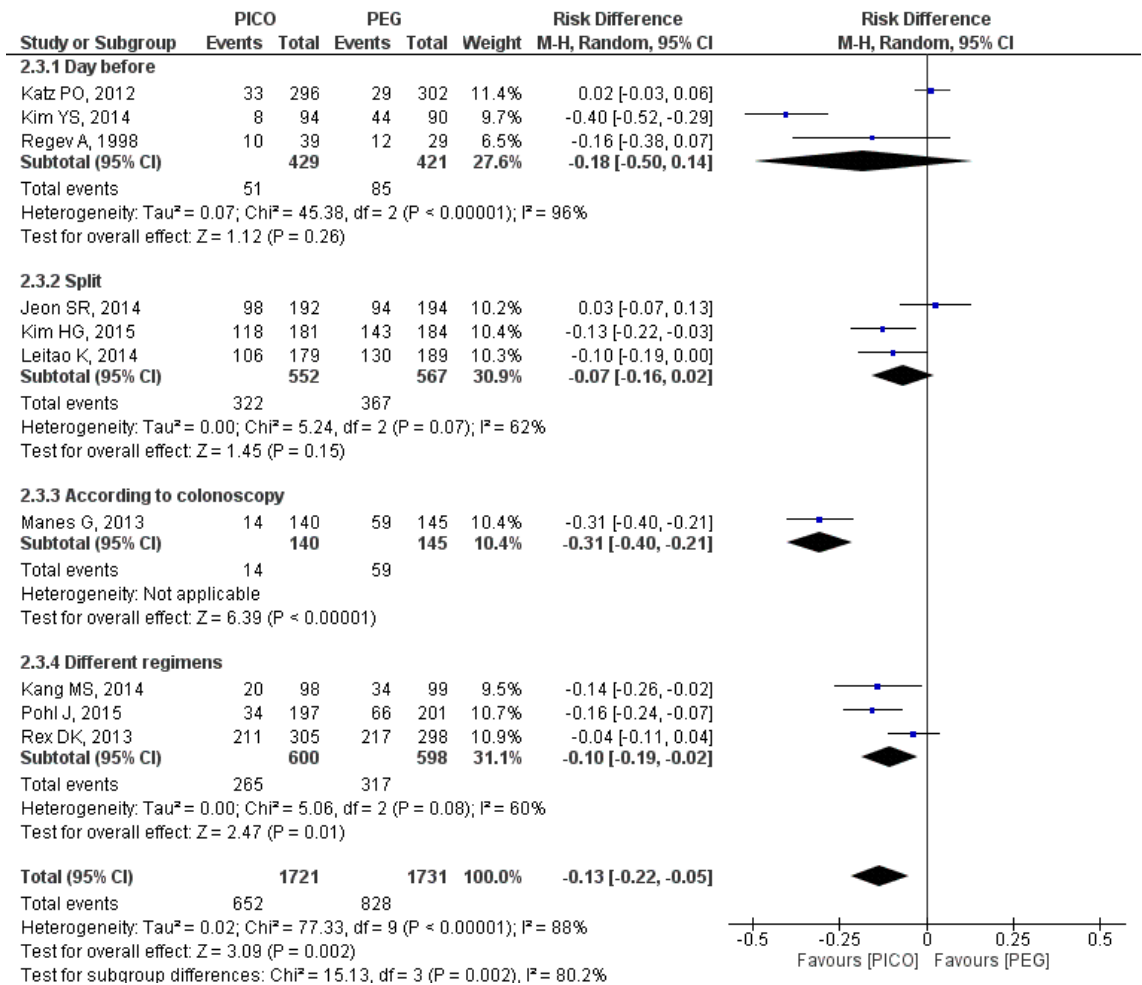
### Appendix 3. Figures of additional analysis.



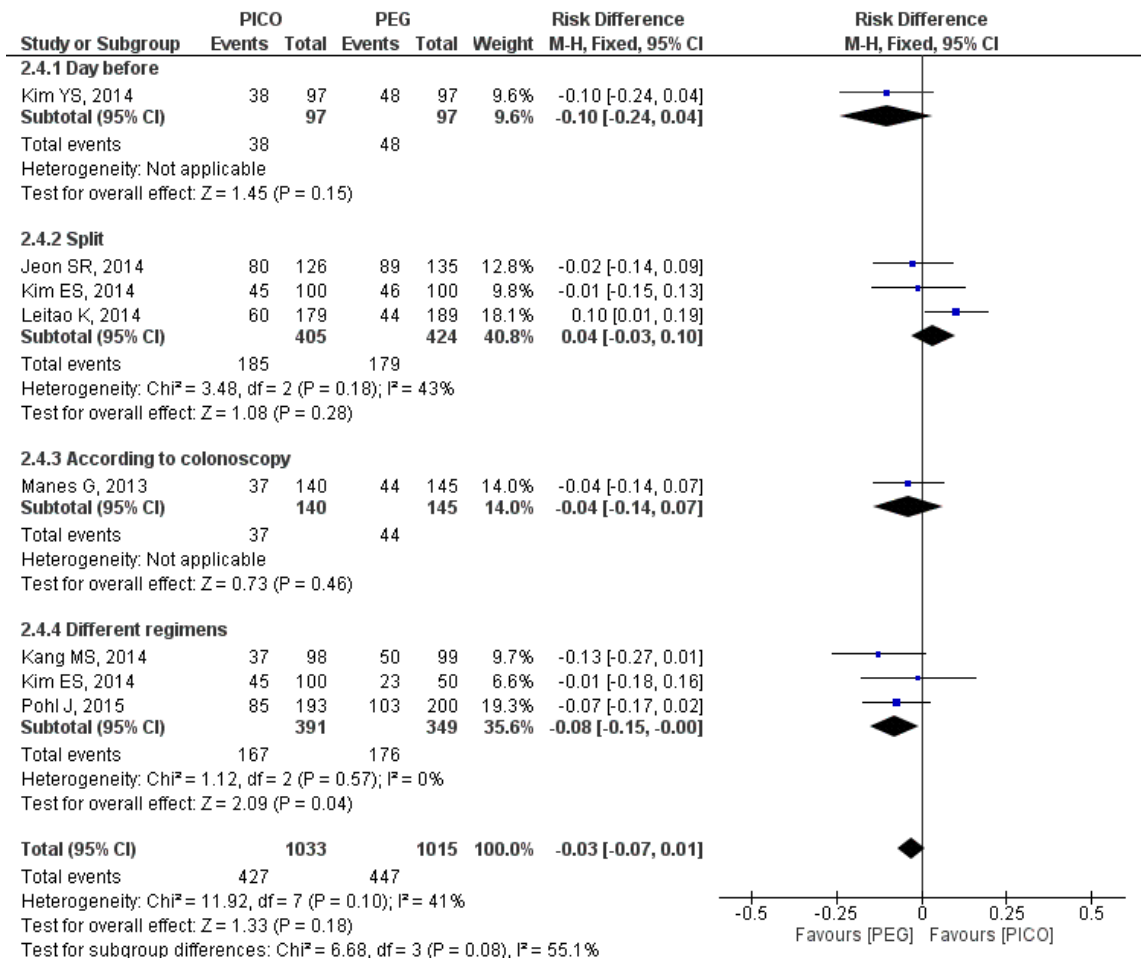
**Figure 1.** Metanalysis forest plot of bowel cleaning success by subgroups of regimen.



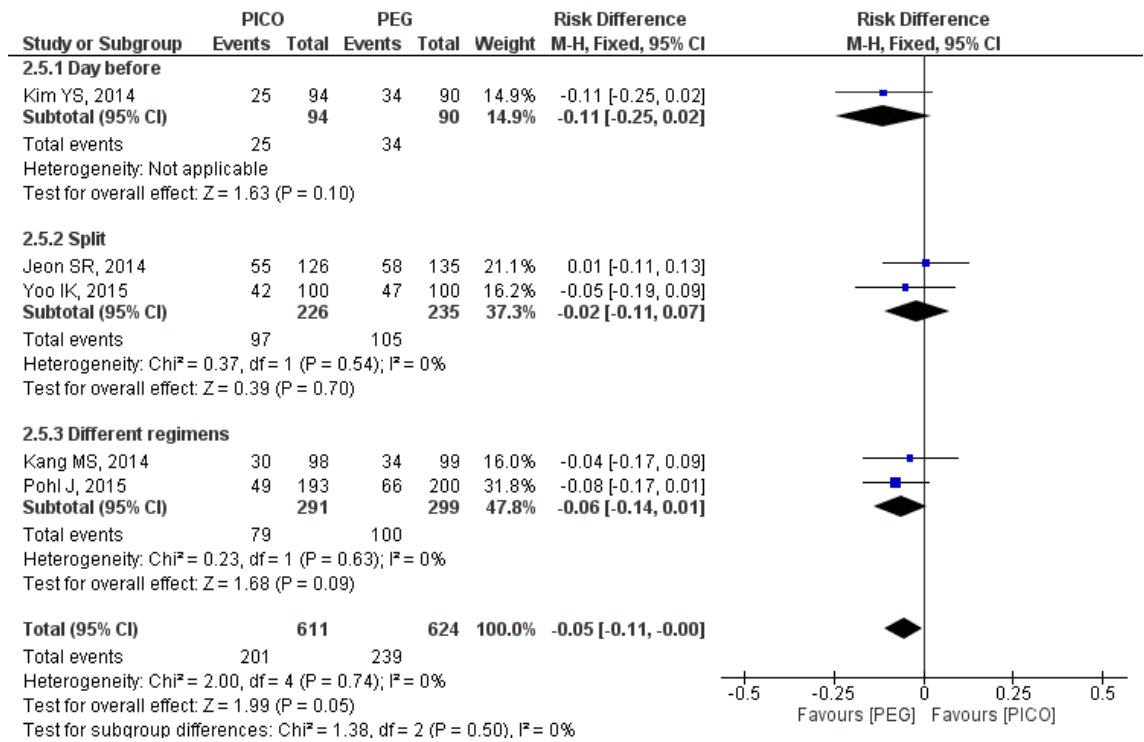
**Figure 2.** Metanalysis forest plot of tolerability by subgroups of regimen.



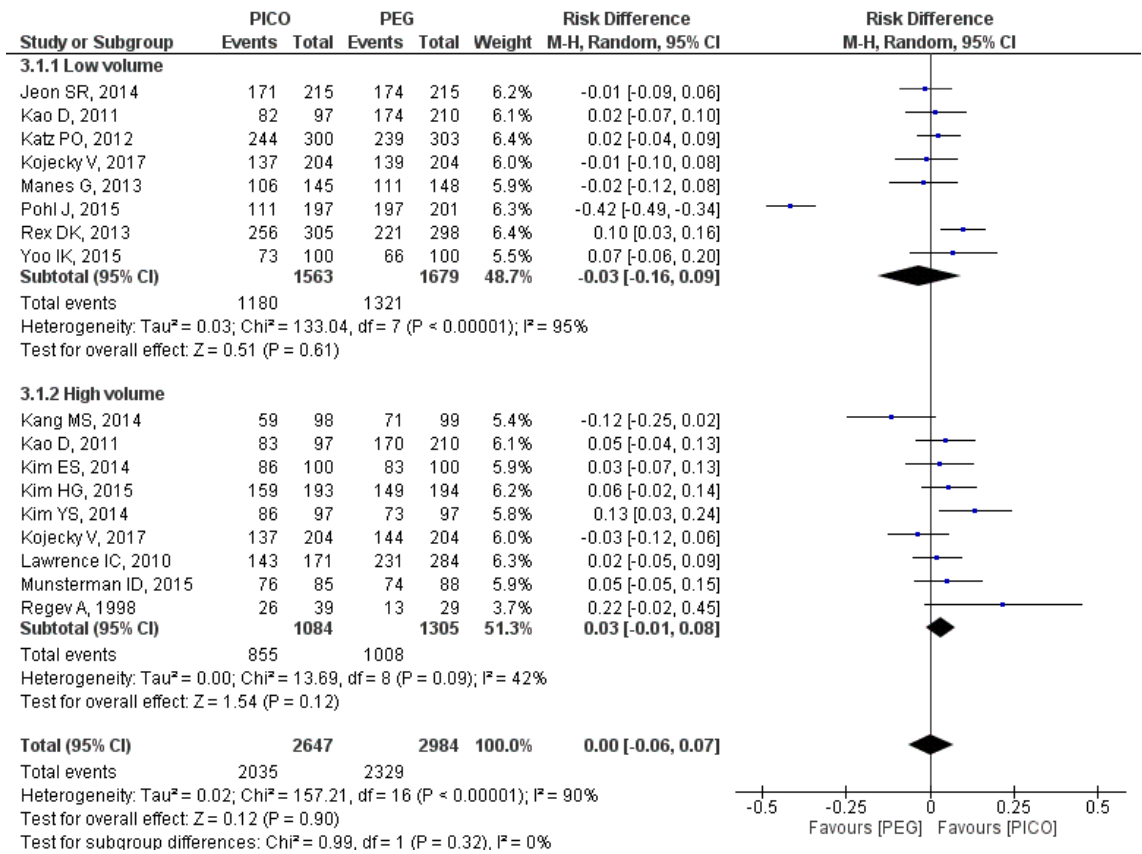
**Figure 3.** Metanalysis forest plot of adverse events prevalence by subgroups of regimen.



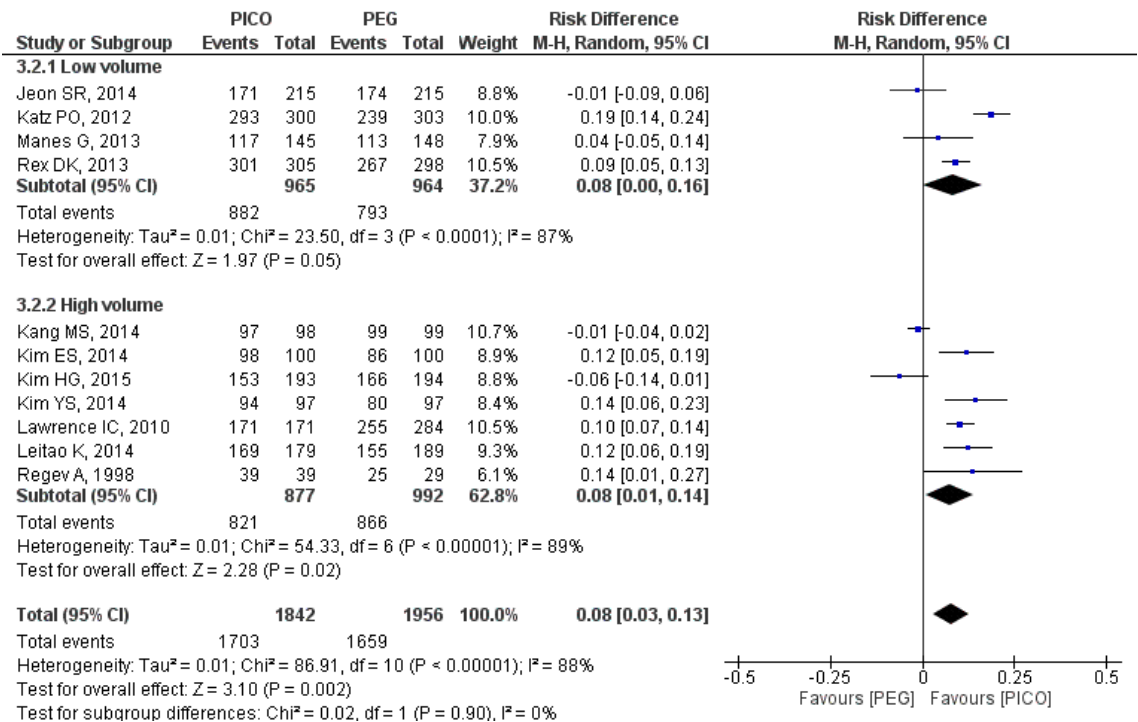
**Figure 4.** Metanalysis forest plot of polyp detection rate by subgroups of regimen.



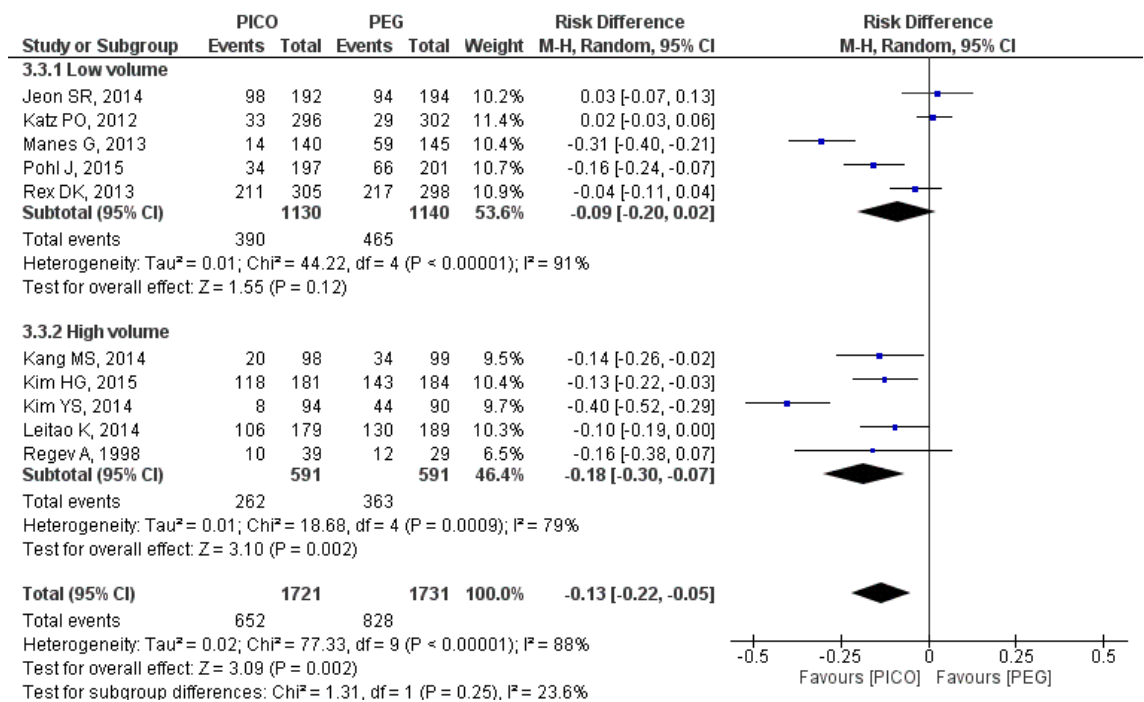
**Figure 5.** Metanalysis forest plot of adenoma detection rate by subgroups of regimen.



**Figure 6.** Metanalysis forest plot of bowel cleaning success by subgroups of volume of PEG solution.

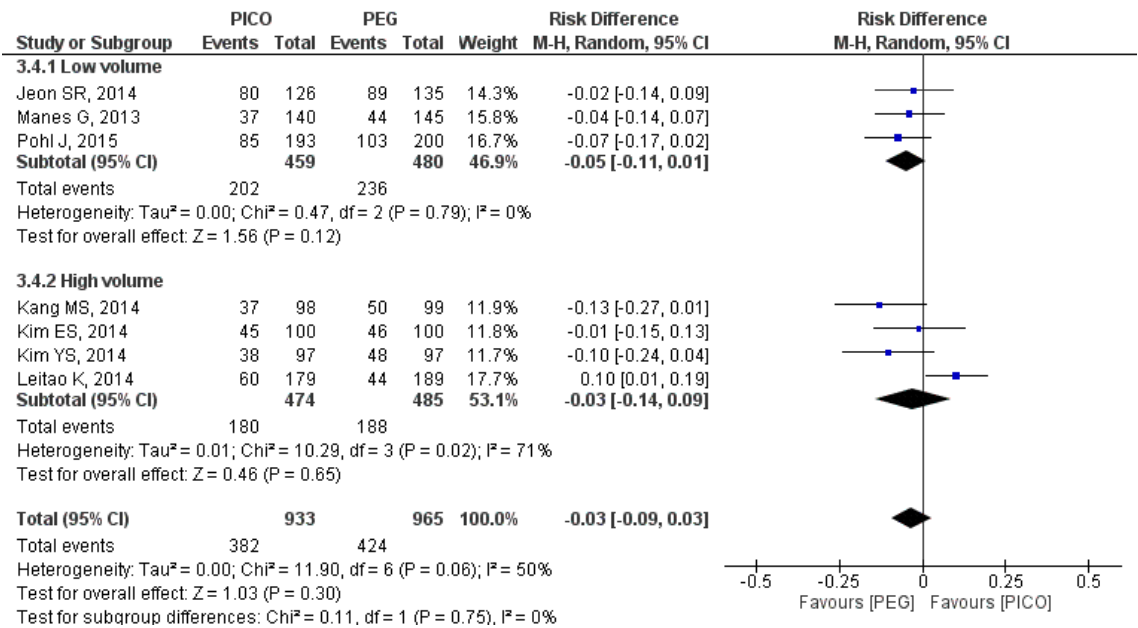


**Figure 7.** Metanalysis forest plot of tolerability by subgroups of volume of PEG solution.

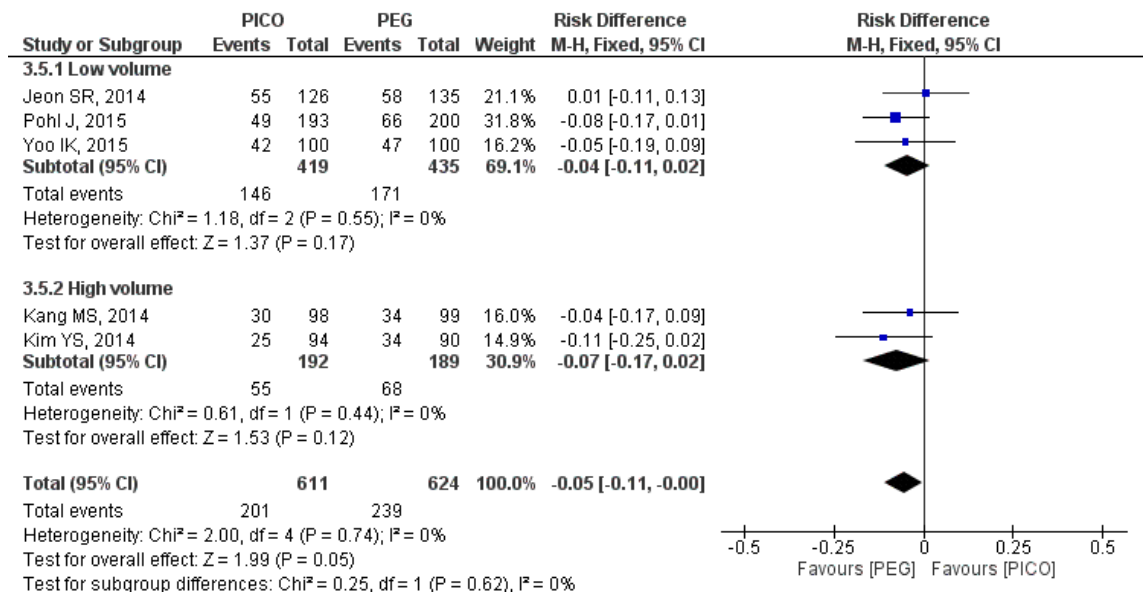


**Figure 8.** Metanalysis forest plot of adverse events prevalence by subgroups of volume of PEG solution.

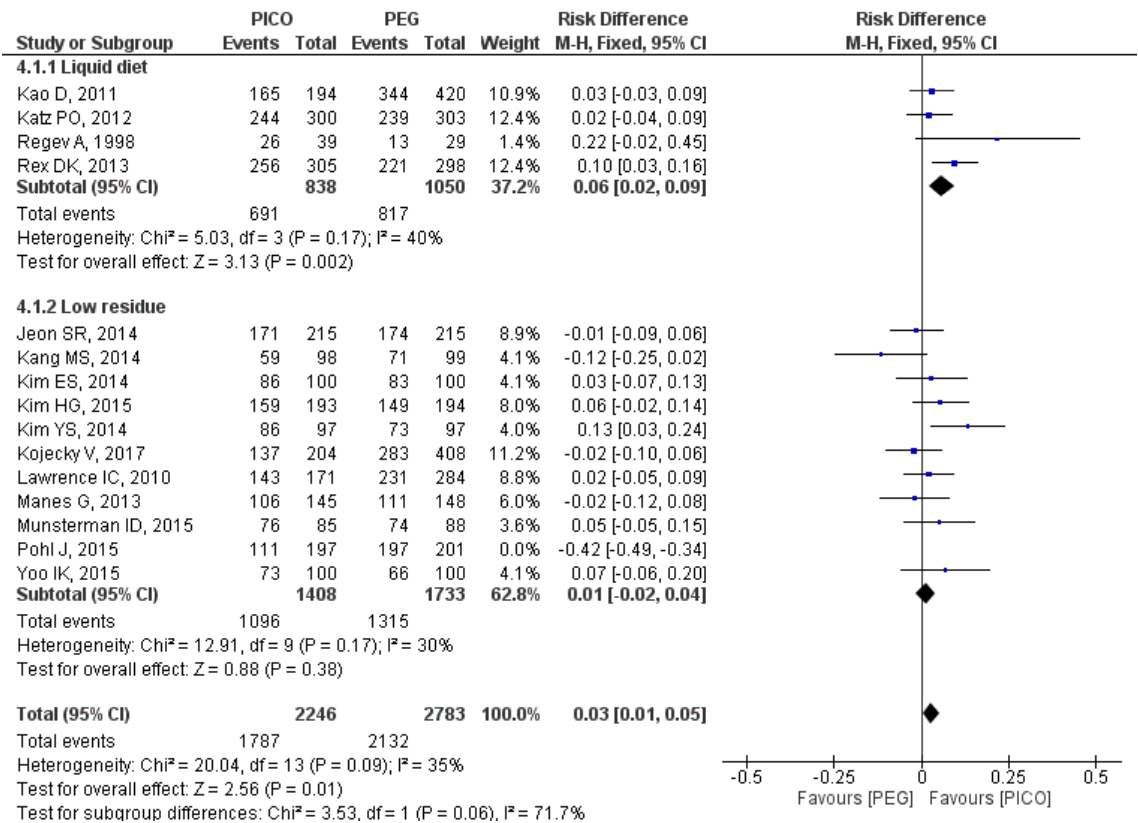




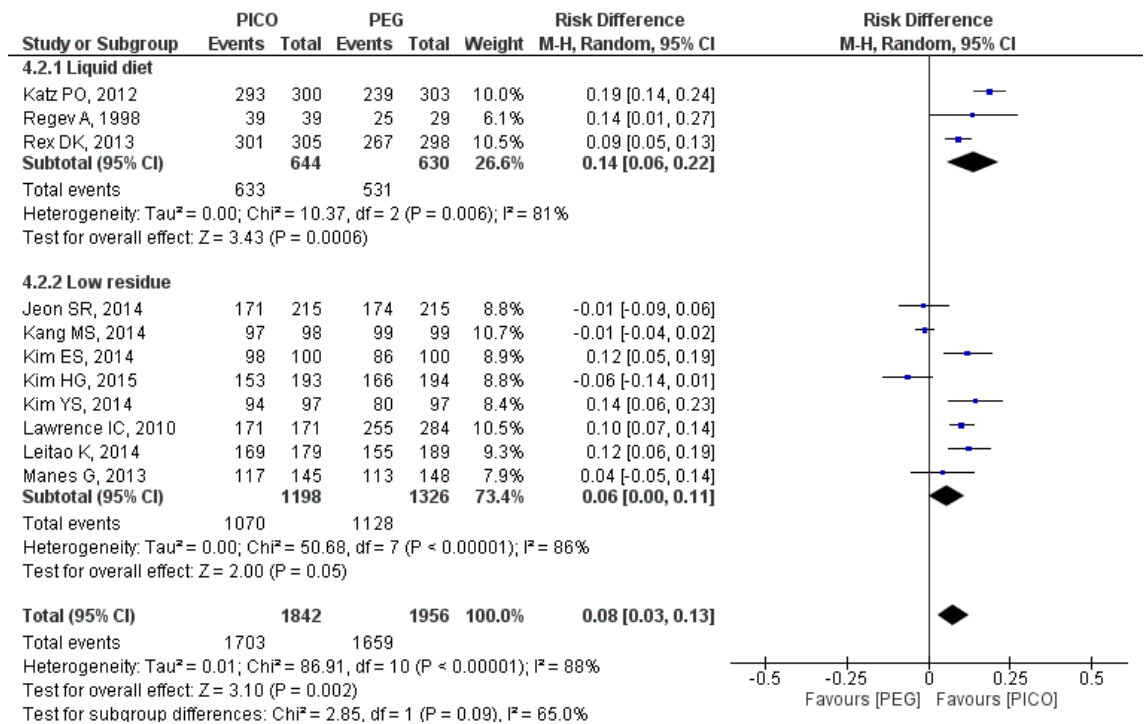
**Figure 9.** Metanalysis forest plot of polyp detection rate by subgroups of volume of PEG solution.



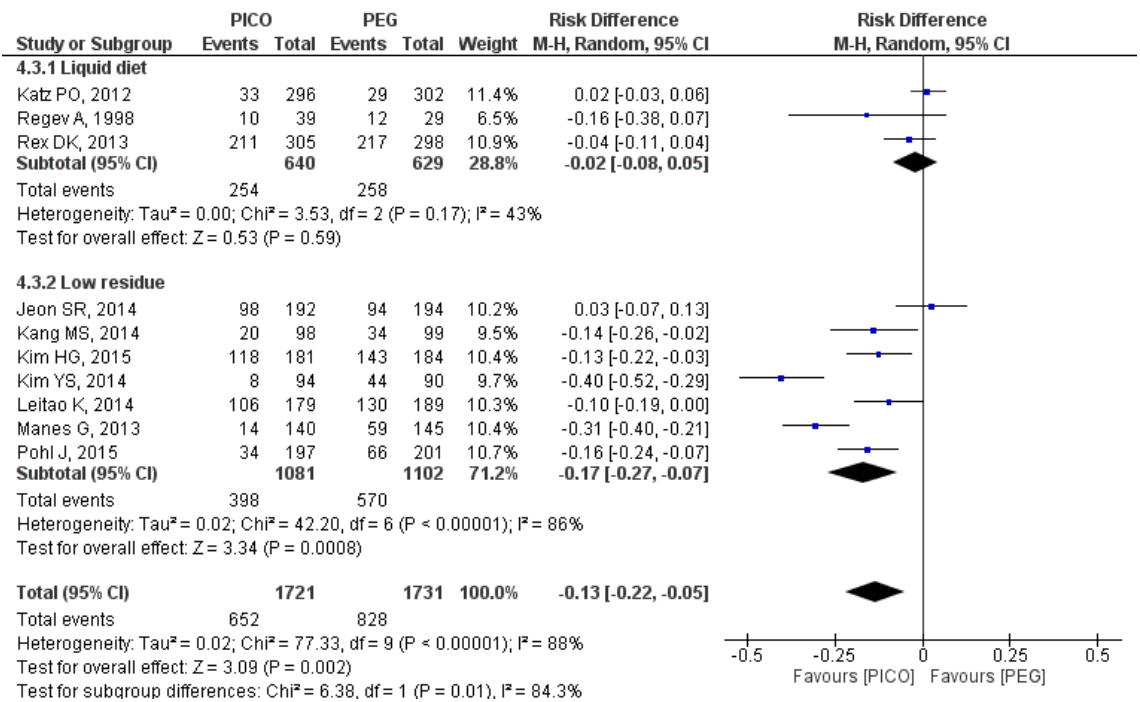
**Figure 10.** Metanalysis forest plot of adenoma detection rate by subgroups of volume of PEG solution.



**Figure 11.** Metanalysis forest plot of bowel cleaning success by dietary restrictions.



**Figure 12.** Metanalysis forest plot of tolerability by dietary restrictions.



**Figure 13.** Metanalysis forest plot of adverse events prevalence by dietary restrictions.