

Supplemental Online Content

Lima JP, Chowdhury SR, Tangamornsuksan W, et al. Adverse events following short-course systemic corticosteroids among children and adolescents: a systematic review and meta-analysis. *JAMA Netw. Open.* 2025;8(10):e2534953. doi:10.1001/jamanetworkopen.2025.34953

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This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods. Search Strategy

Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions 1946 to February, 2025

#	Query
1	exp Glucocorticoids/
2	(steroid* or corticosteroid* or glucocorticoid* or prednisolone* or dexamethasone* or hydrocortisone* or methylprednisolone*).mp.
3	1 or 2
4	exp Child/
5	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).mp.
6	4 or 5
7	exp "Drug-Related Side Effects and Adverse Reactions"/
8	(ae or to or po or co).fs.
9	(safe or safety).ti,ab.
10	side effect\$.ti,ab.
11	((adverse or undesirable or harms\$ or serious or toxic) adj3 (effect\$ or reaction\$ or event\$ or outcome\$)).ti,ab.
12	exp Product Surveillance, Postmarketing/
13	adverse drug reaction reporting systems/
14	exp Poisoning/
15	exp Substance-Related Disorders/
16	Abnormalities, Drug-Induced/

17	Drug Monitoring/
18	(toxicity or complication\$ or noxious or tolerability).ti,ab.
19	or/7-18
20	(ae or de or co or ci).fs.
21	safe*.ti,ab.
22	(safe* or adverse or side effect* or complication* or tolerated or tolerance or harm or toxicity).ti,ab.
23	risk.ti.
24	tolerability.ti,ab.
25	to.fs.
26	Toxicology/
27	drug induced.ti,ab.
28	negative effects.ti,ab.
29	or/20-28
30	19 or 29
31	randomized controlled trial.pt.
32	controlled clinical trial.pt.
33	randomi?ed.ab.
34	placebo.ab.
35	drug therapy.fs.
36	randomly.ab.

37	trial.ab.
38	groups.ab.
39	or/31-38
40	exp animals/ not humans.sh.
41	39 not 40
42	3 and 6 and 30 and 41
43	3 and 6 and 41
44	(steroid* or corticosteroid* or glucocorticoid* or prednisolone* or dexamethasone* or hydrocortisone* or methylprednisolone*).ti.
45	44 or 1
46	6 and 30 and 41 and 44

Embase 1974 to February, 2025

#	Query
1	exp Glucocorticoids/
2	(steroid* or corticosteroid* or glucocorticoid* or prednisolone* or dexamethasone* or hydrocortisone* or methylprednisolone*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]
3	1 or 2
4	(steroid* or corticosteroid* or glucocorticoid* or prednisolone* or dexamethasone* or hydrocortisone* or methylprednisolone*).m_titl.
5	exp Child/

6	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]
7	5 or 6
8	exp "Drug-Related Side Effects and Adverse Reactions"/
9	(ae or to or po or co).fx.
10	(safe or safety).ti,ab.
11	side effect\$.ti,ab.
12	((adverse or undesirable or harms\$ or serious or toxic) adj3 (effect\$ or reaction\$ or event\$ or outcome\$)).ti,ab.
13	exp Product Surveillance, Postmarketing/
14	adverse drug reaction reporting systems/
15	exp Poisoning/
16	exp Substance-Related Disorders/
17	Abnormalities, Drug-Induced/
18	Drug Monitoring/
19	(toxicity or complication\$ or noxious or tolerability).ti,ab.
20	safe*.ti,ab.
21	(safe* or adverse or side effect* or complication* or tolerated or tolerance or harm or toxicity).ti,ab.
22	risk.ti.
23	(ae or de or co or ci).fx.
24	tolerability.ti,ab.

25	to.fx.
26	Toxicology/
27	drug induced.ti,ab.
28	negative effects.ti,ab.
29	or/8-28
30	randomized controlled trial.pt.
31	controlled clinical trial.pt.
32	randomi?ed.ab.
33	placebo.ab.
34	drug therapy.fx.
35	randomly.ab.
36	trial.ab.
37	groups.ab.
38	or/30-37
39	exp human/
40	exp animals/
41	40 not 39
42	38 not 41
43	4 and 7 and 29 and 42
44	limit 43 to "remove medline records"

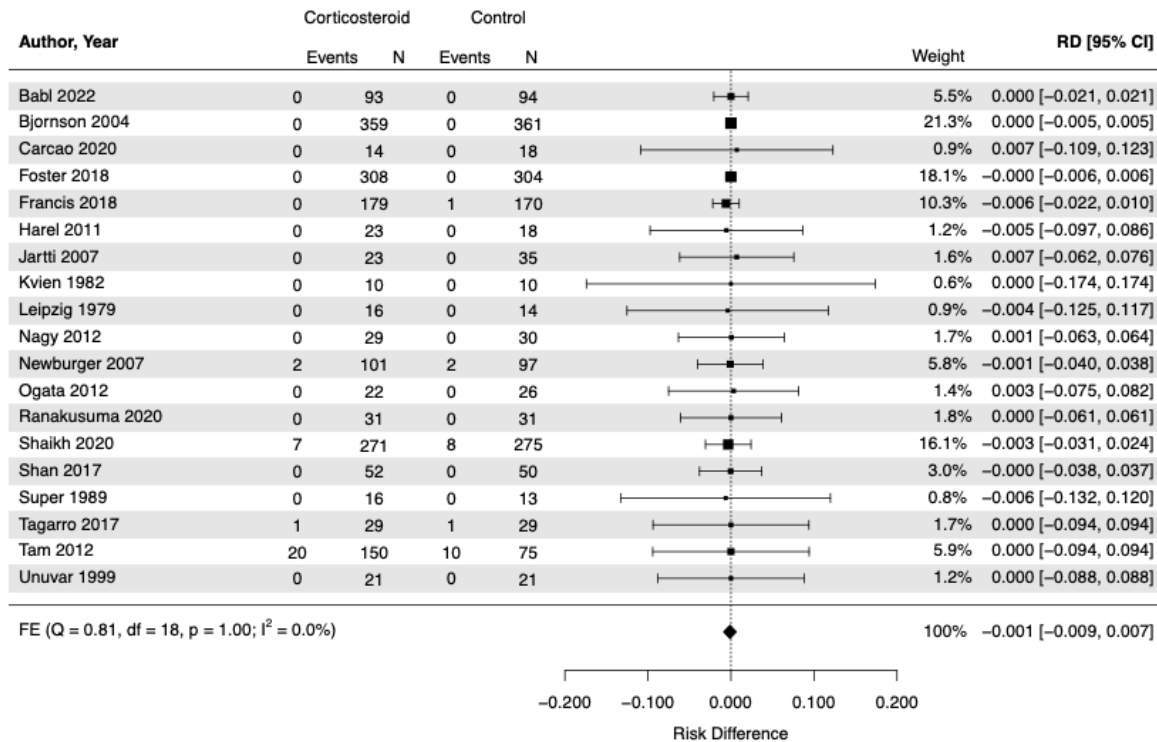
Cochrane Library CDSR – inception February, 2025

- #1 (steroid* or corticosteroid* or glucocorticoid* or prednisolone* or dexamethasone* or hydrocortisone* or methylprednisolone*):ti
- #2 MeSH descriptor: [Child] explode all trees
- #3 MeSH descriptor: [Adolescent] explode all trees
- #4 (child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p*ediatric*) (Word variations have been searched)
- #5 #2 or #3 or #4
- #6 ('Drug-Related Side Effects and Adverse Reactions') (Word variations have been searched)
- #7 (safe or safety):ti,ab
- #8 (side effect\$):ti,ab
- #9 (adverse or undesirable or harms\$ or serious or toxic) and (effect\$ or reaction\$ or event\$ or outcome\$):ti,ab
- #10 ('Product Surveillance' or Postmarketing):ti,ab
- #11 MeSH descriptor: [Poisoning] explode all trees
- #12 MeSH descriptor: [Drug-Related Side Effects and Adverse Reactions] explode all trees
- #13 MeSH descriptor: [Abnormalities, Drug-Induced] explode all trees
- #14 MeSH descriptor: [Adverse Drug Reaction Reporting Systems] explode all trees
- #15 MeSH descriptor: [Drug Monitoring] explode all trees
- #16 (toxicity or complication\$ or noxious or tolerability):ti,ab
- #17 safe*:ti,ab

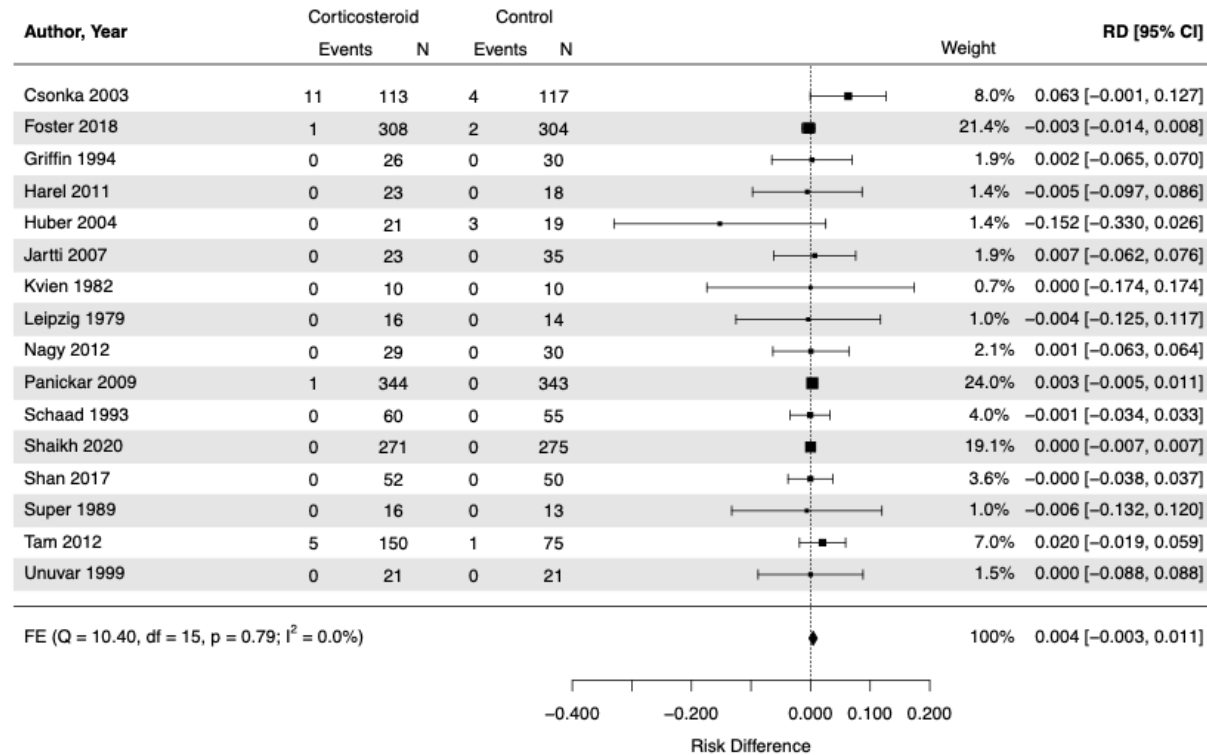
- #18 (safe* or adverse or side effect* or complication* or tolerated or tolerance or harm or toxicity):ti,ab
- #19 risk:ti,ab
- #20 tolerability:ti,ab
- #21 MeSH descriptor: [Toxicology] explode all trees
- #22 (drug induced):ti,ab
- #23 ('negative effect*'):ti,ab,kw (Word variations have been searched) 58806
- #24 (negative effects):ti,ab
- #25 70- #23
- #26 "randomized controlled trial":ti,ab
- #27 "controlled clinical trial":ti,ab
- #28 randomi?ed:ti,ab
- #29 placebo:ab
- #30 "drug therapy":tp
- #31 randomly:ab
- #32 trial:ab
- #33 groups:ab
- #34 76- #33
- #35 #1 AND #5 AND #25 AND #34

eFigure1. Forest Plots

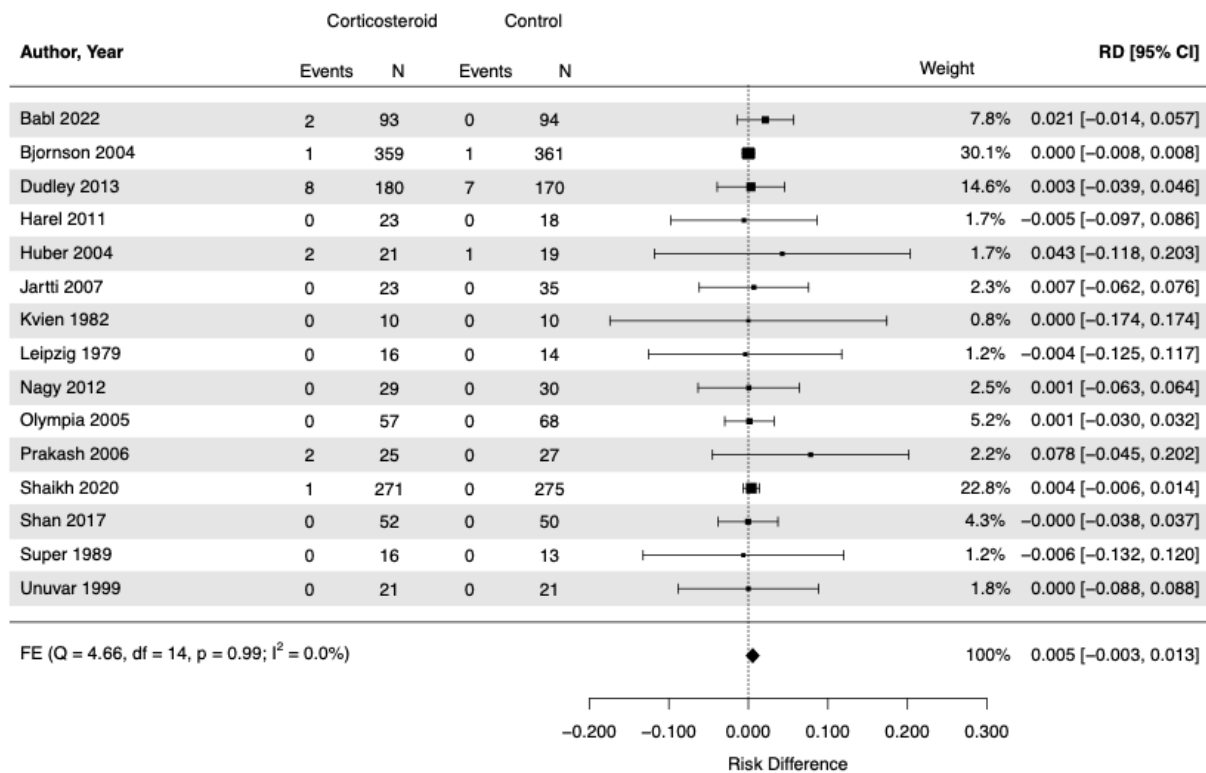
1.1 Forest plot – Serious Adverse Events



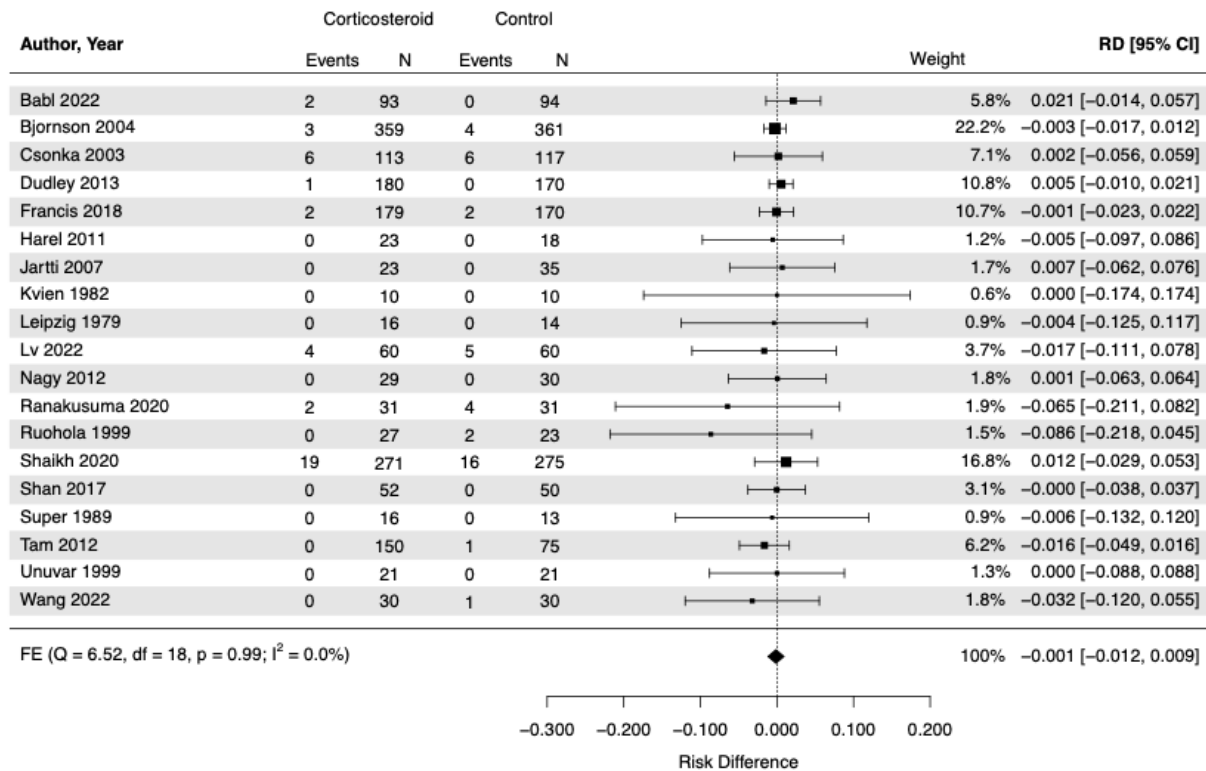
1.2 Forest plot – Adverse Events Leading to Discontinuation



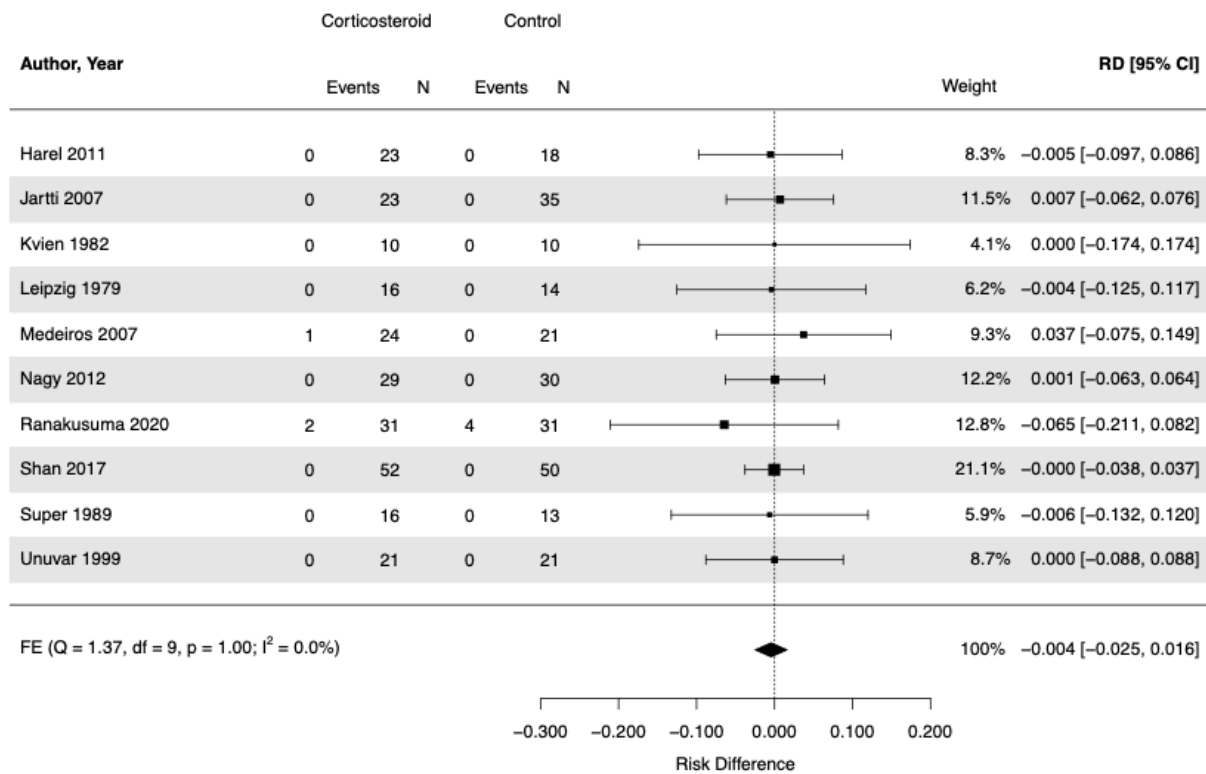
1.3 Forest plot – Abdominal Pain



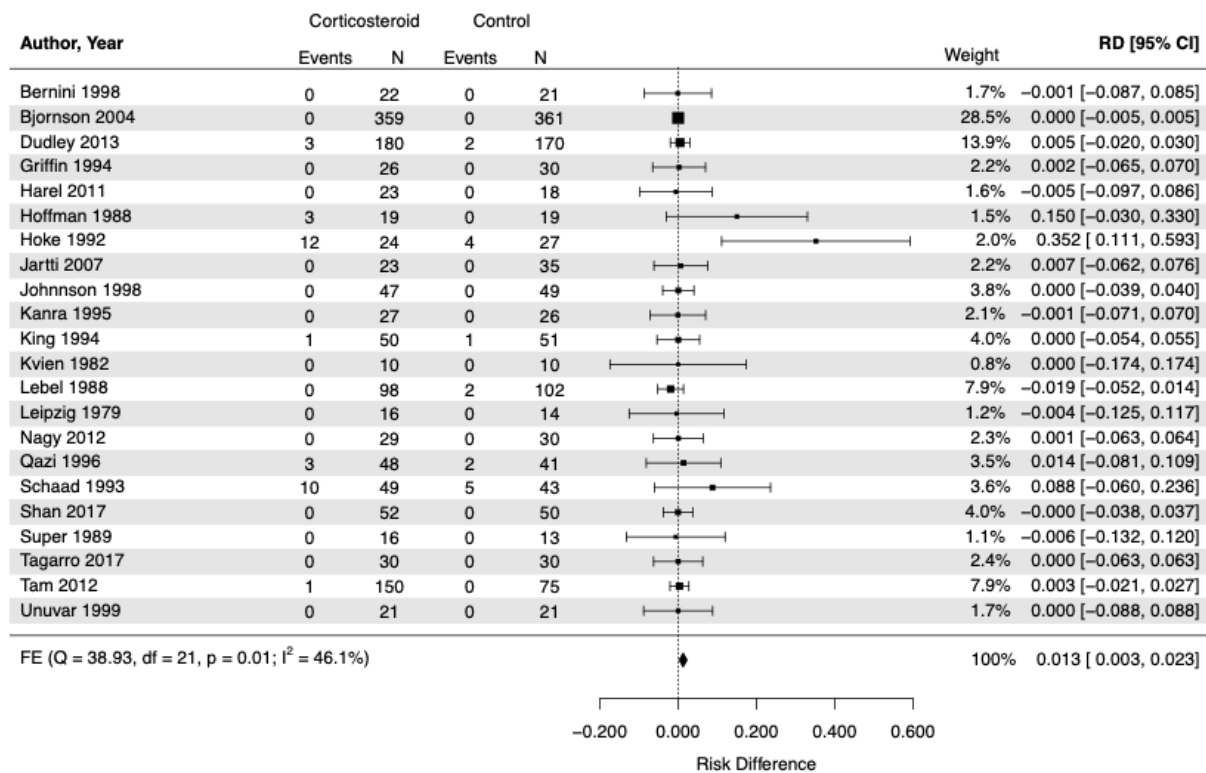
1.3 Forest plot – Diarrhea



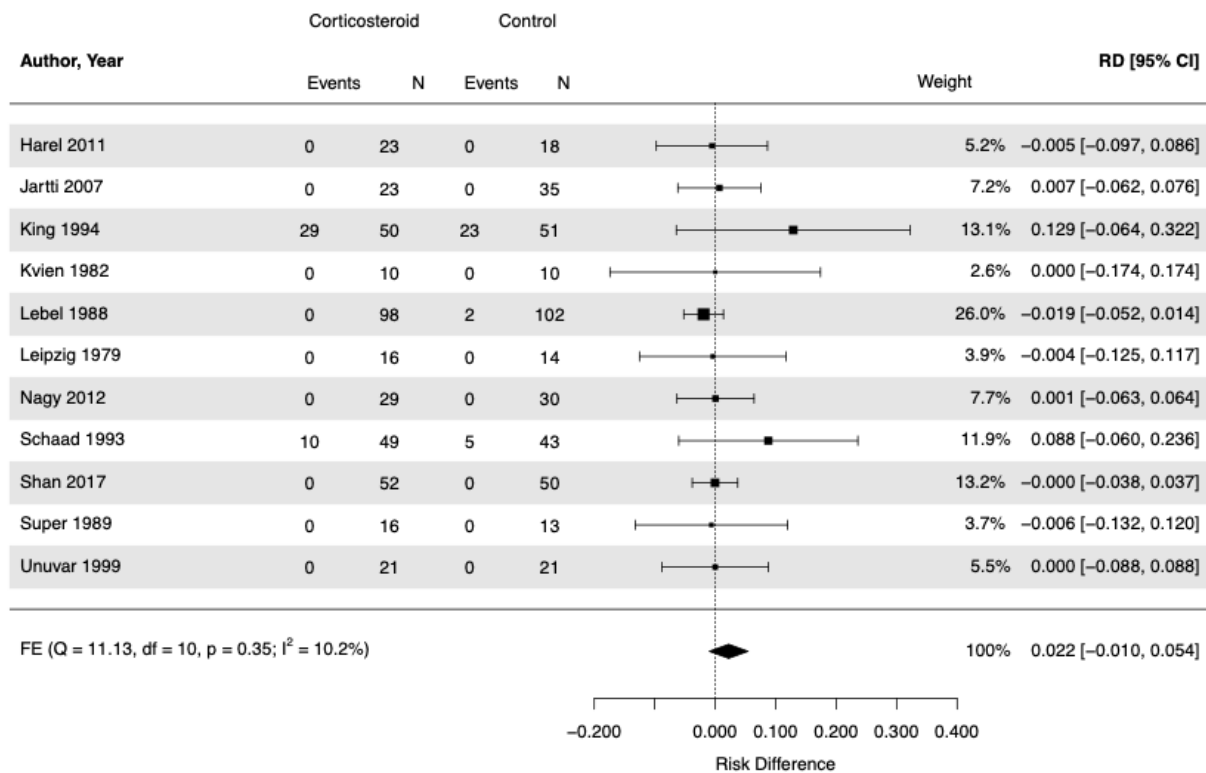
1.4 Forest plot – Gastritis



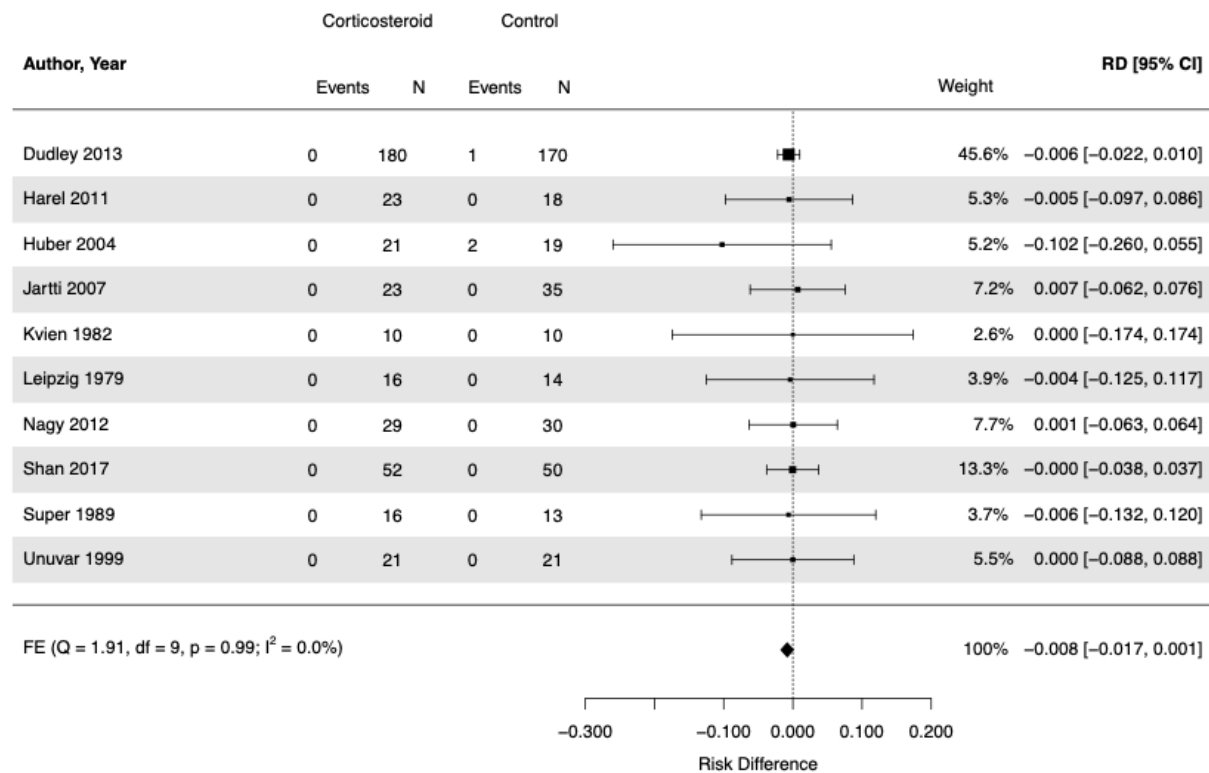
1.5 Forest plot – Gastrointestinal Bleeding



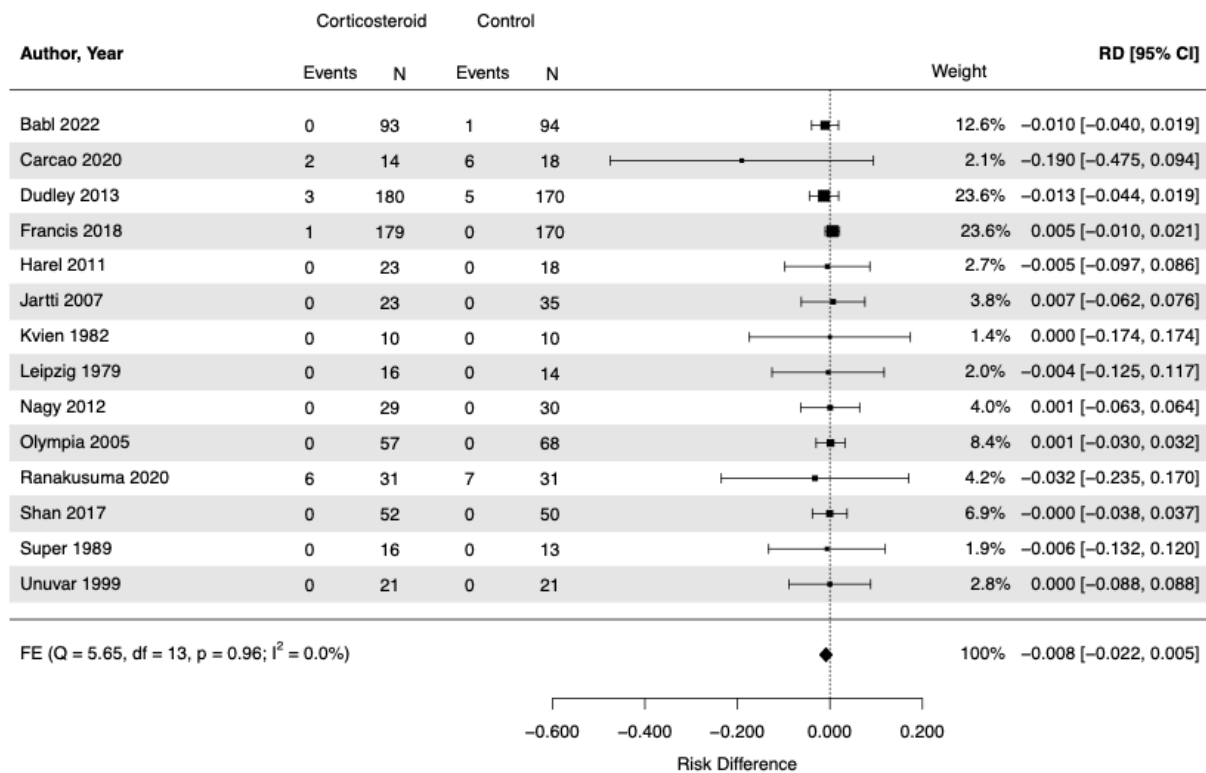
1.6 Forest plot – Hemocult Positive Stool



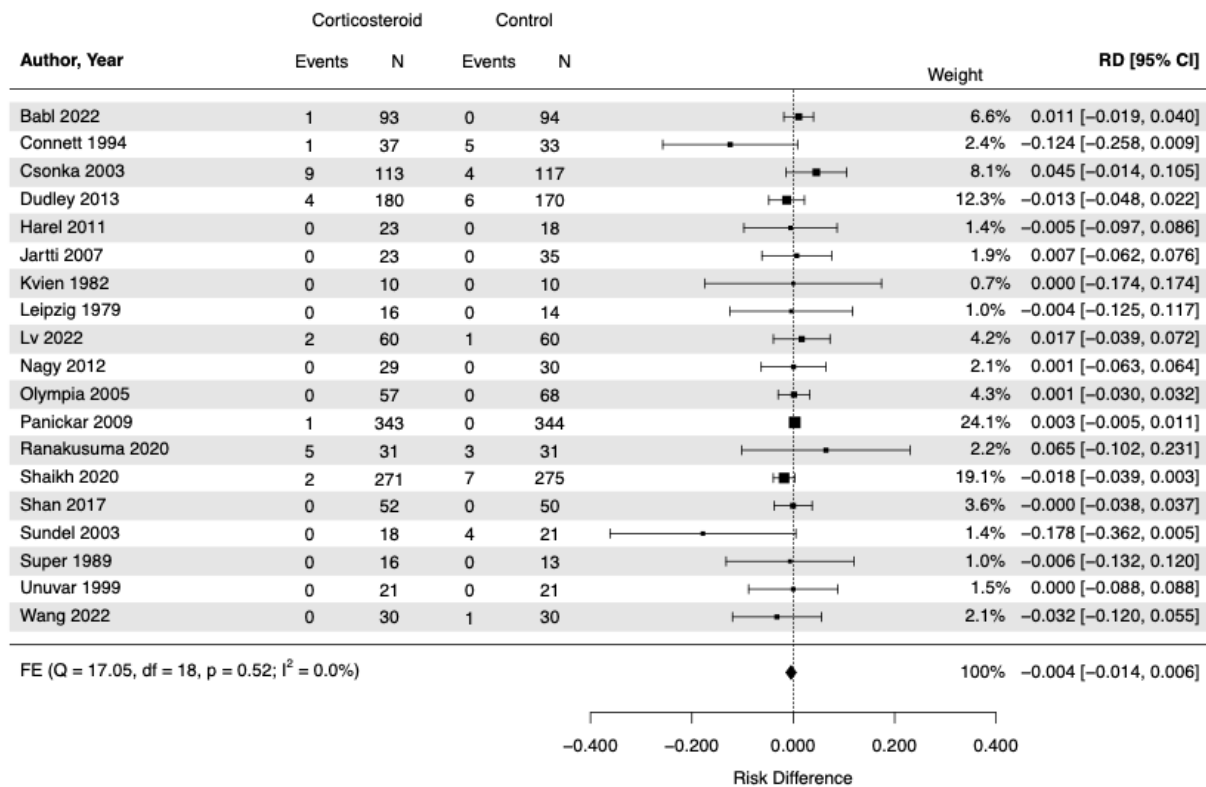
1.7 Forest plot – Intussusception



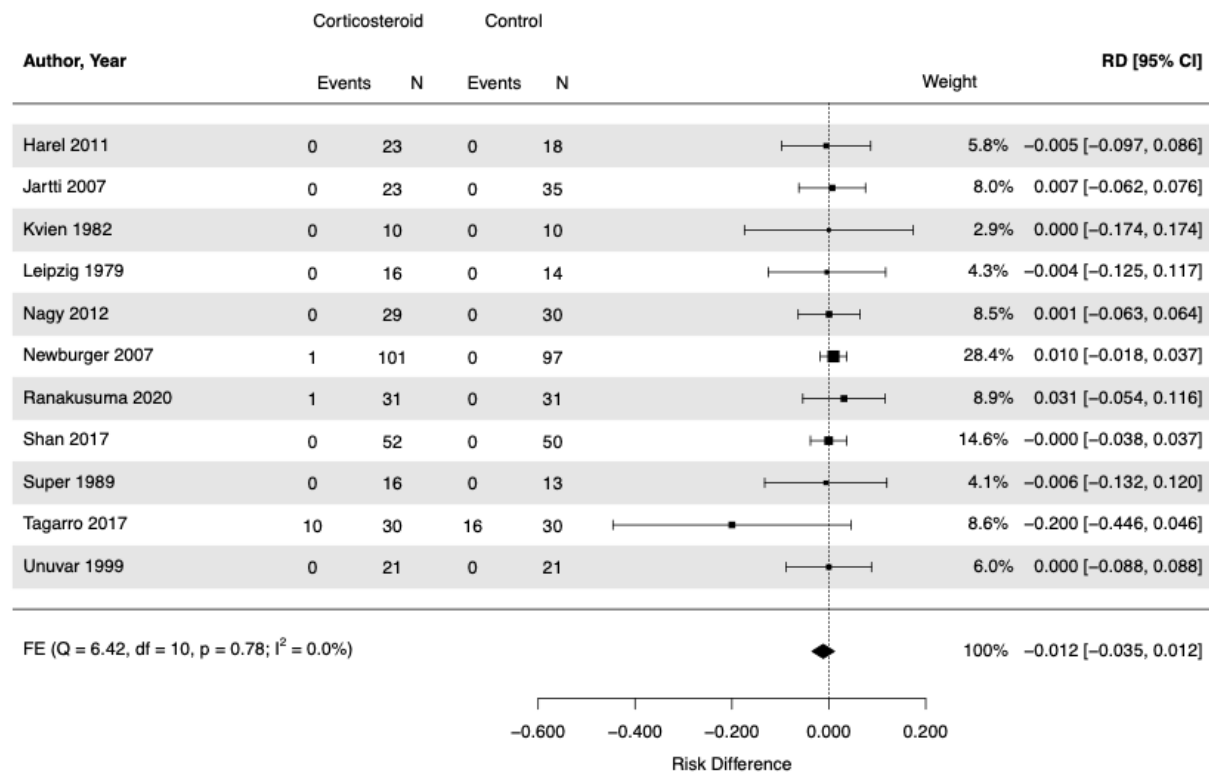
1.8 Forest plot – Nausea



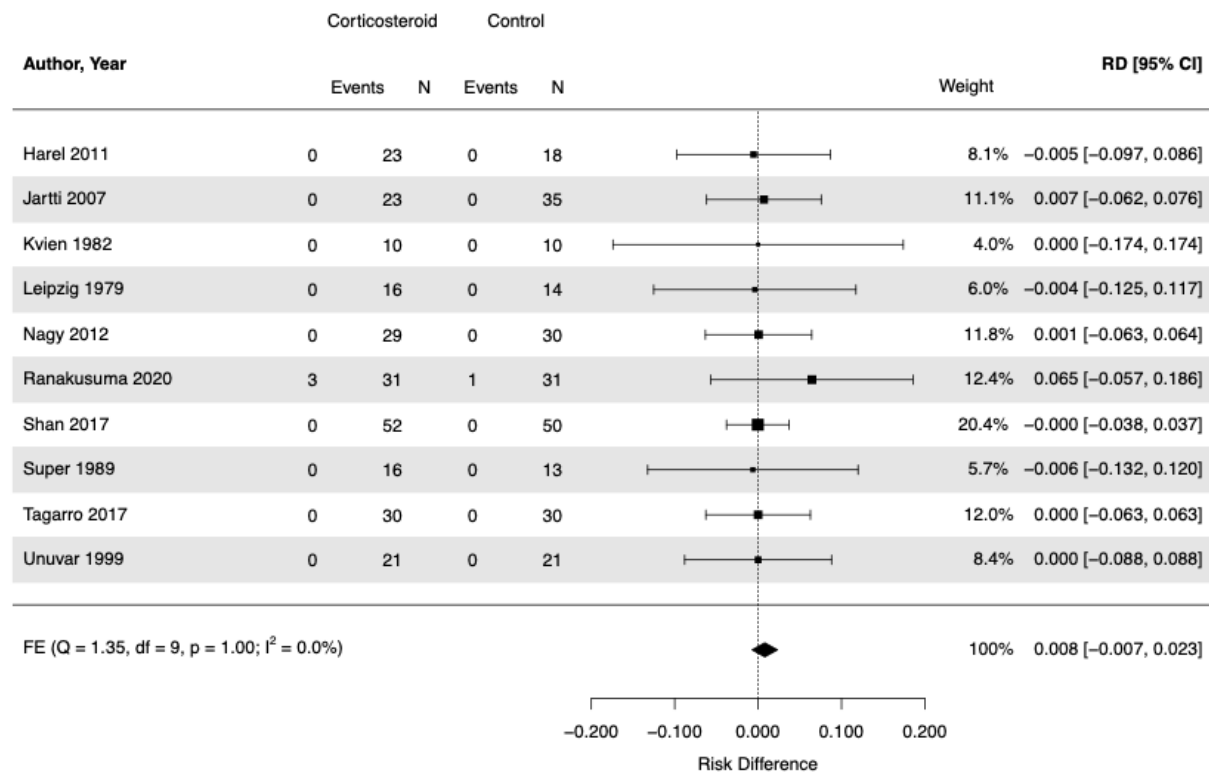
1.9 Forest plot – Vomiting



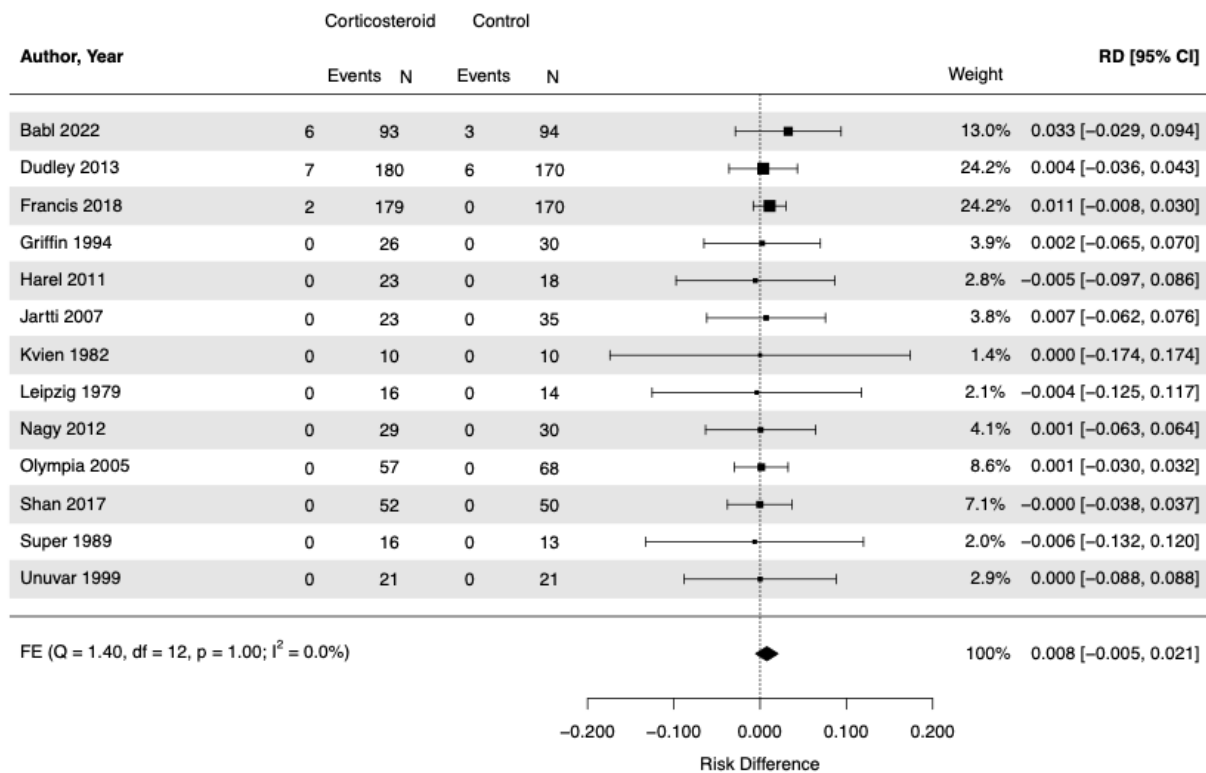
1.10 Forest plot – Anemia



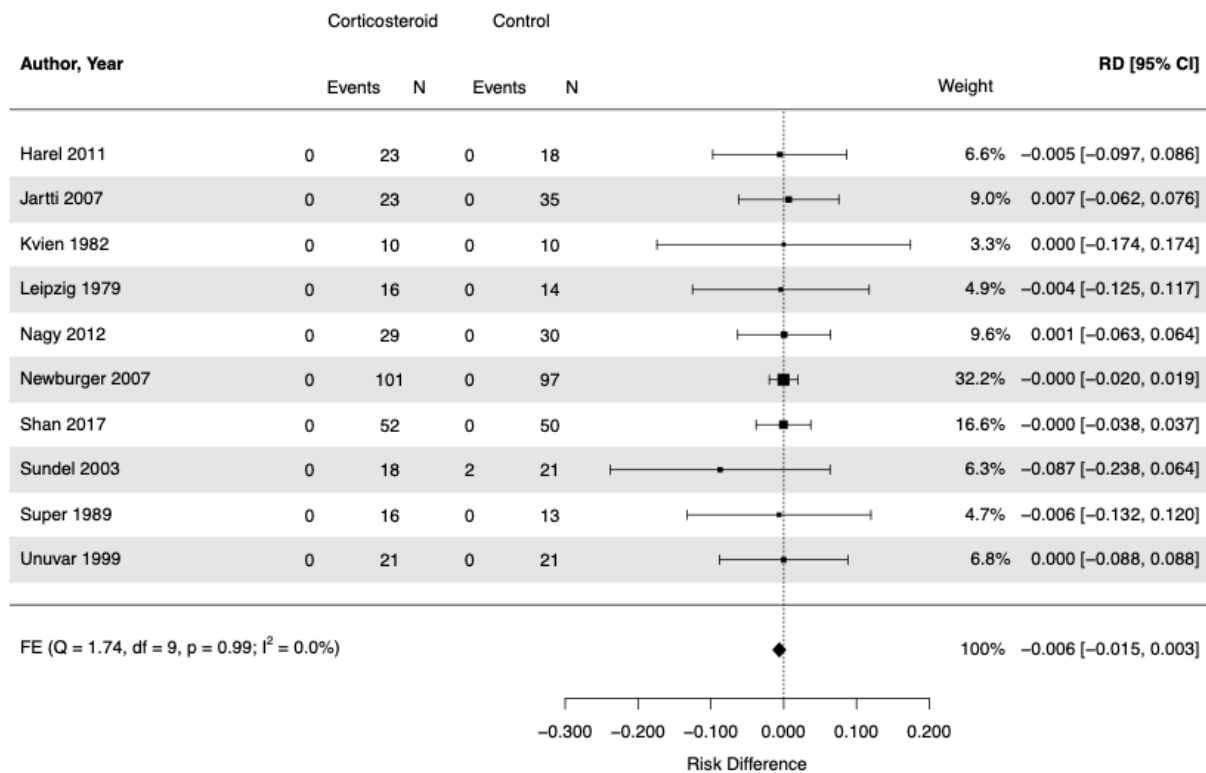
1.11 Forest plot – Candidiasis



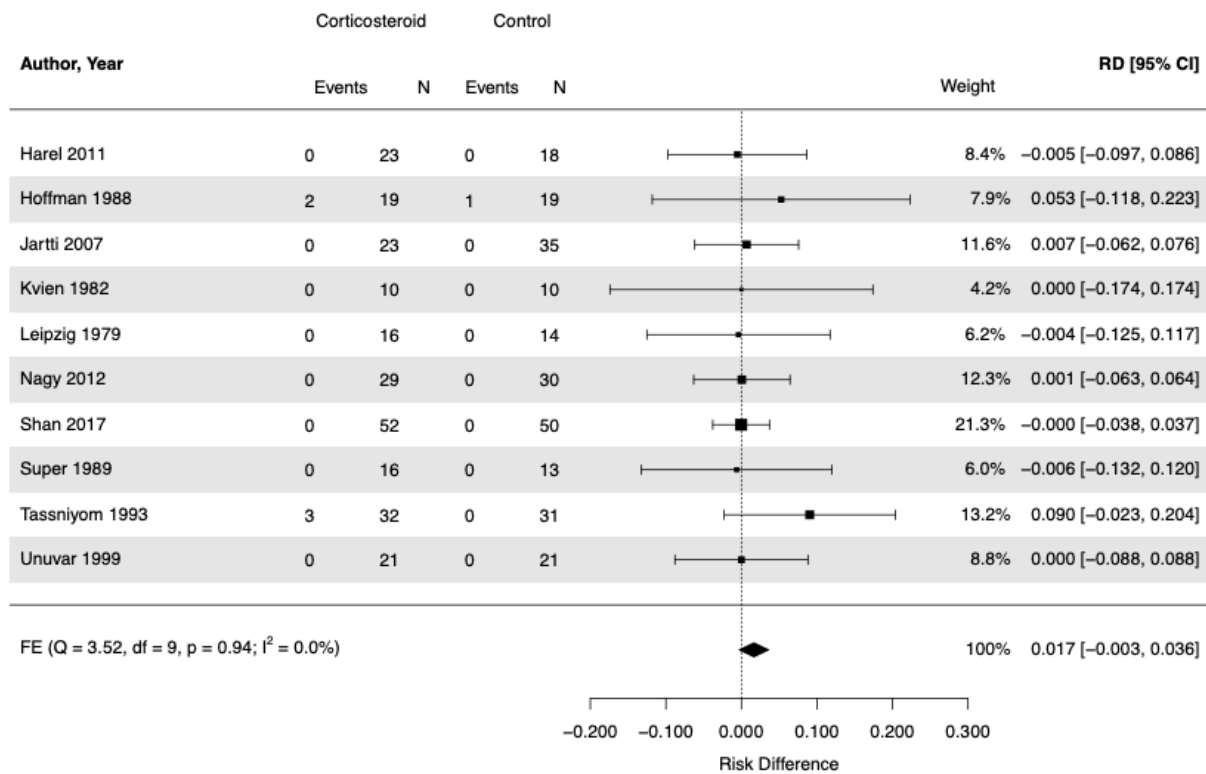
1.12 Forest plot – Change in behaviour



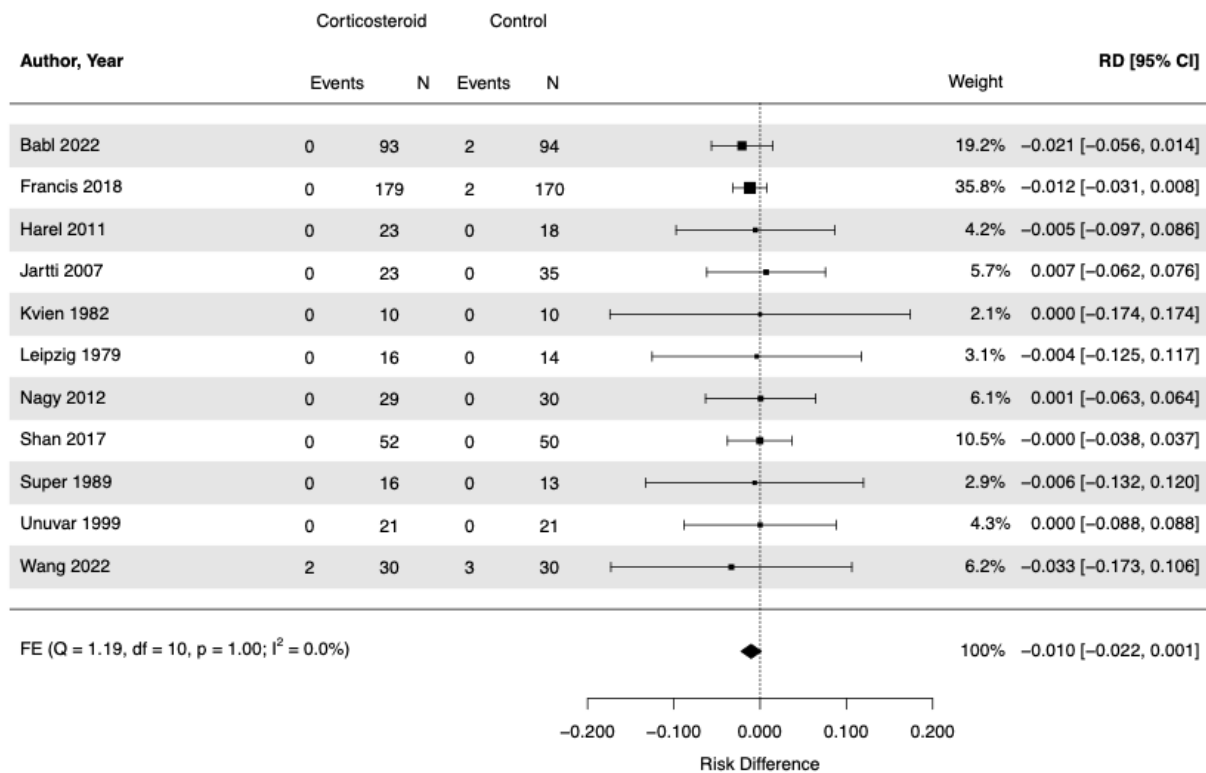
1.13 Forest plot – Congestive Heart Failure



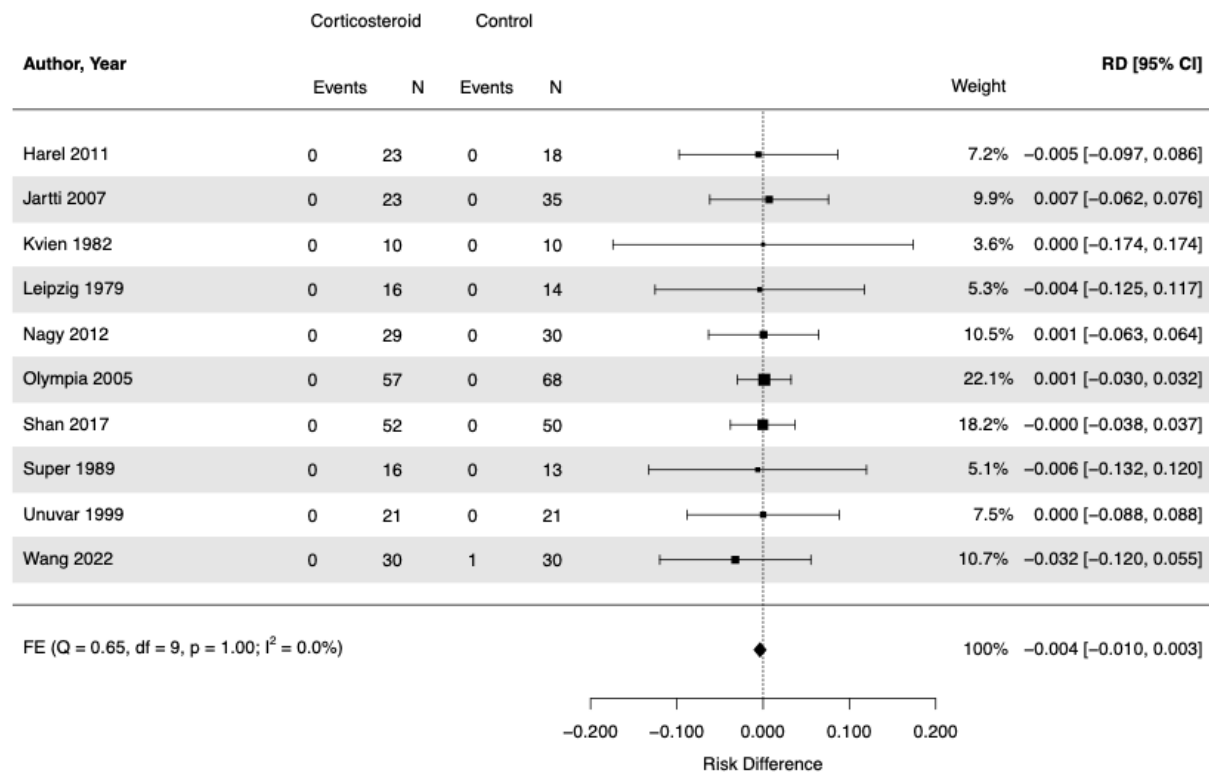
1.14 Forest plot – Convulsion/Seizure



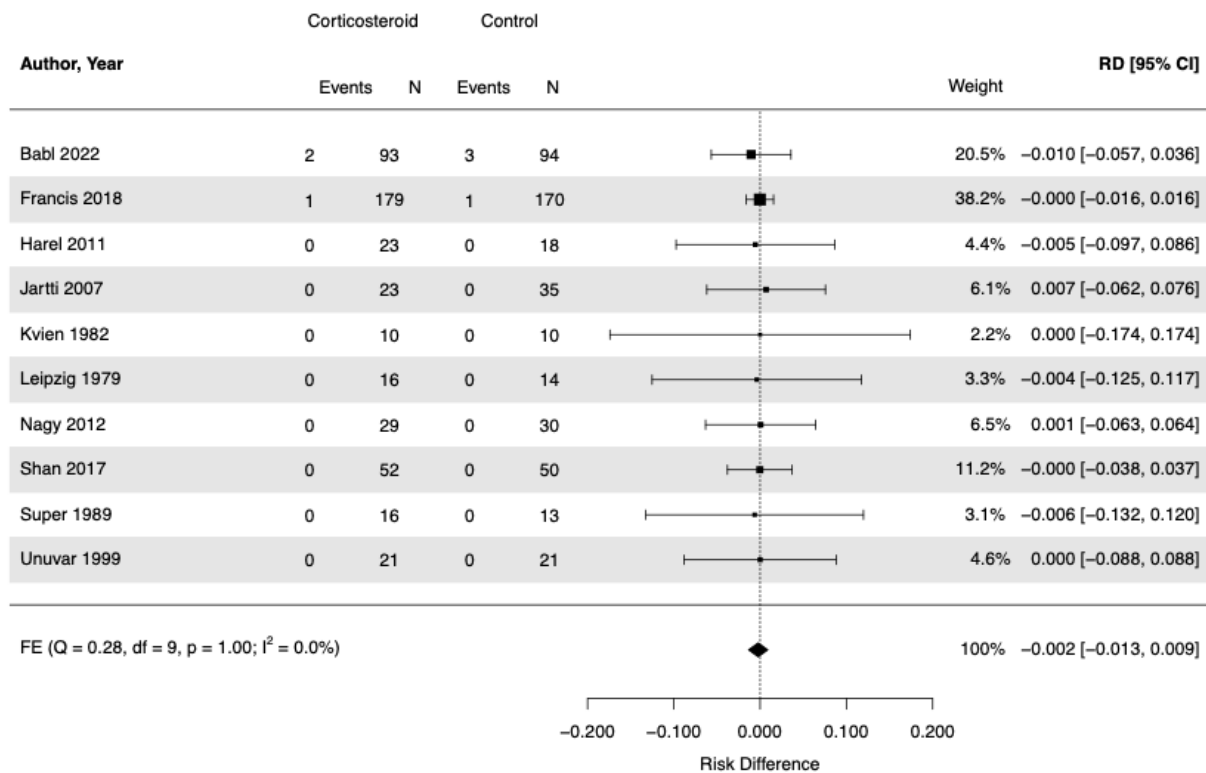
1.15 Forest plot – Decreased Appetite



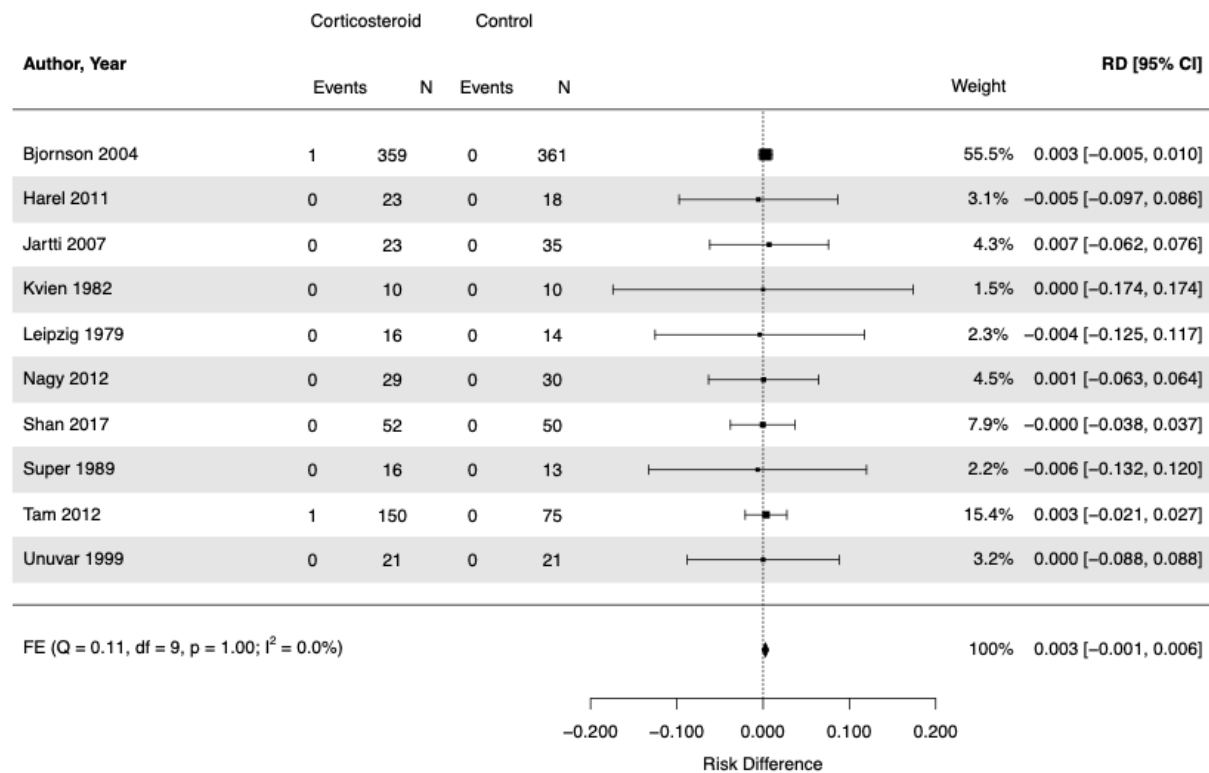
1.16 Forest plot – Dizziness



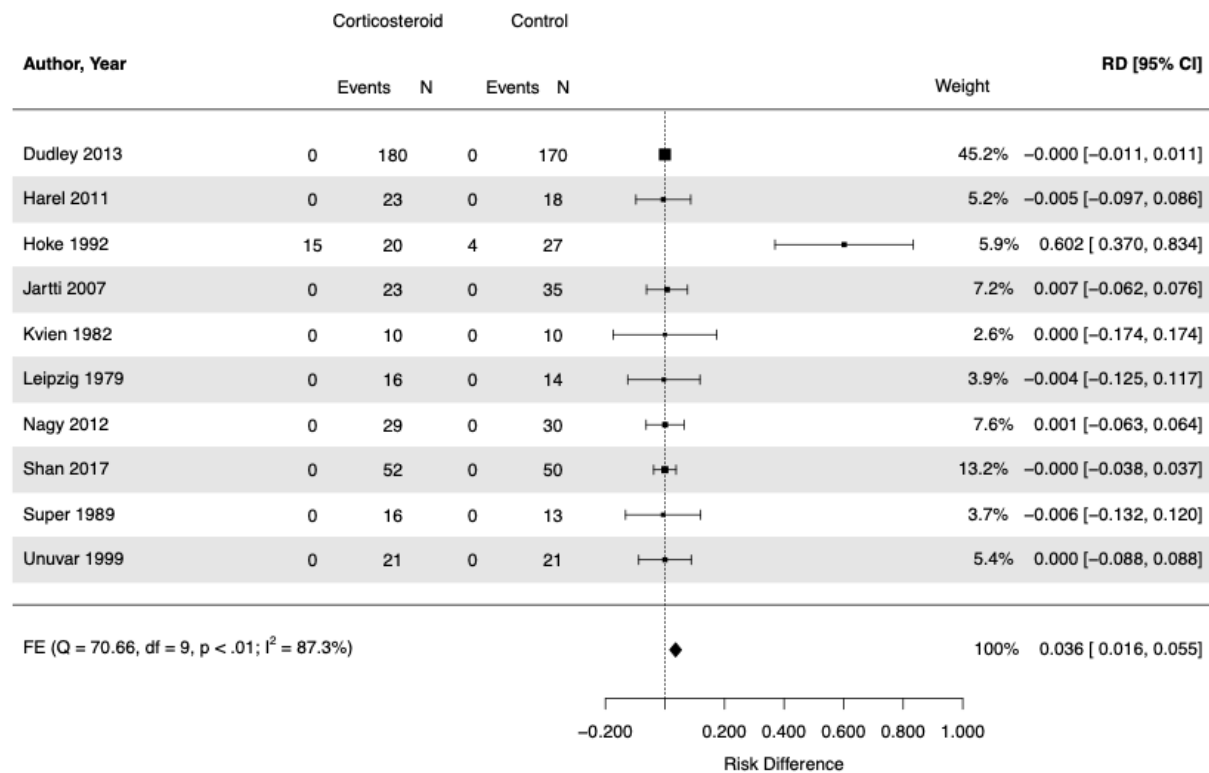
1.17 Forest plot – Fatigue



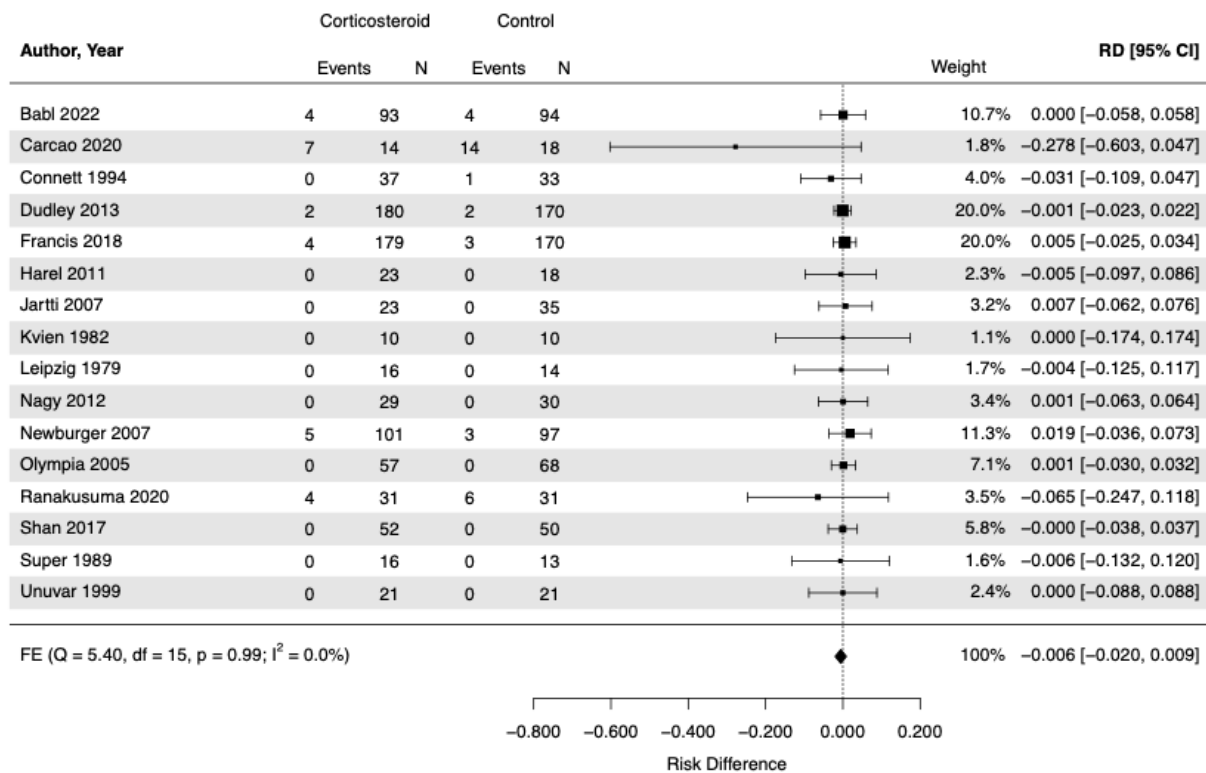
1.18 Forest plot – Febrile Convulsion



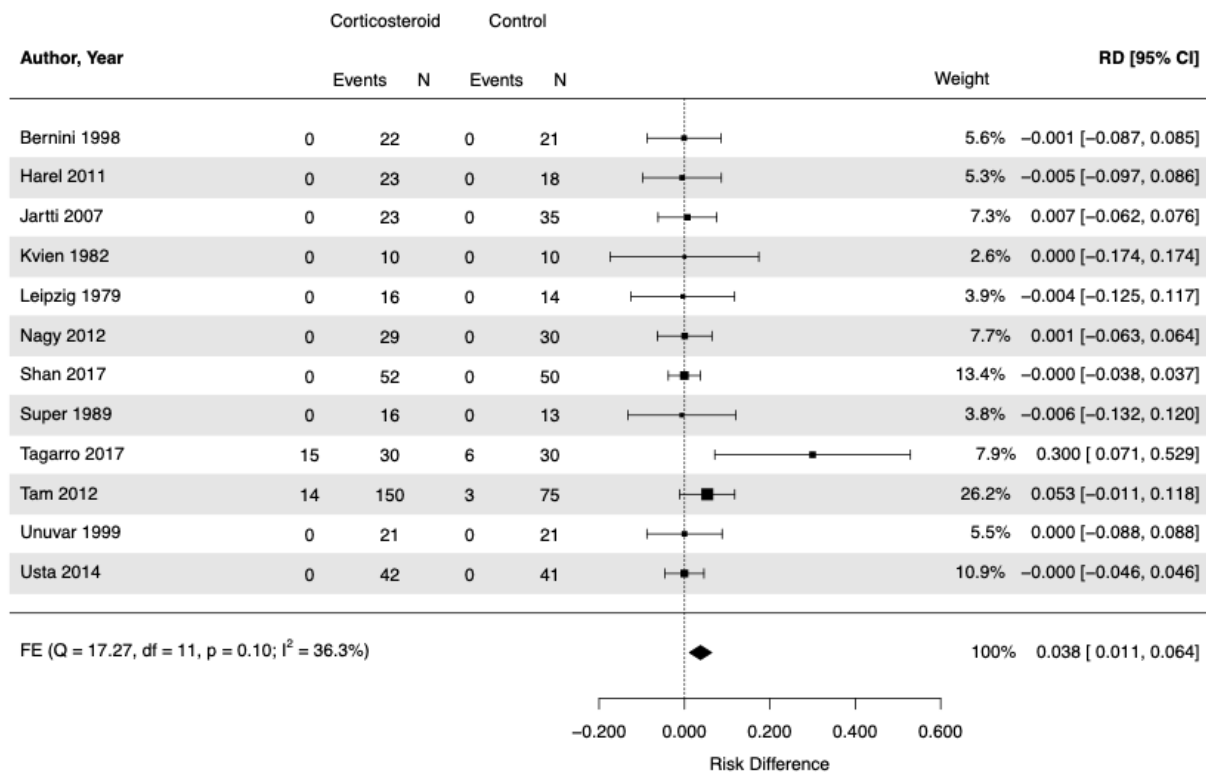
1.19 Forest plot – Glycosuria



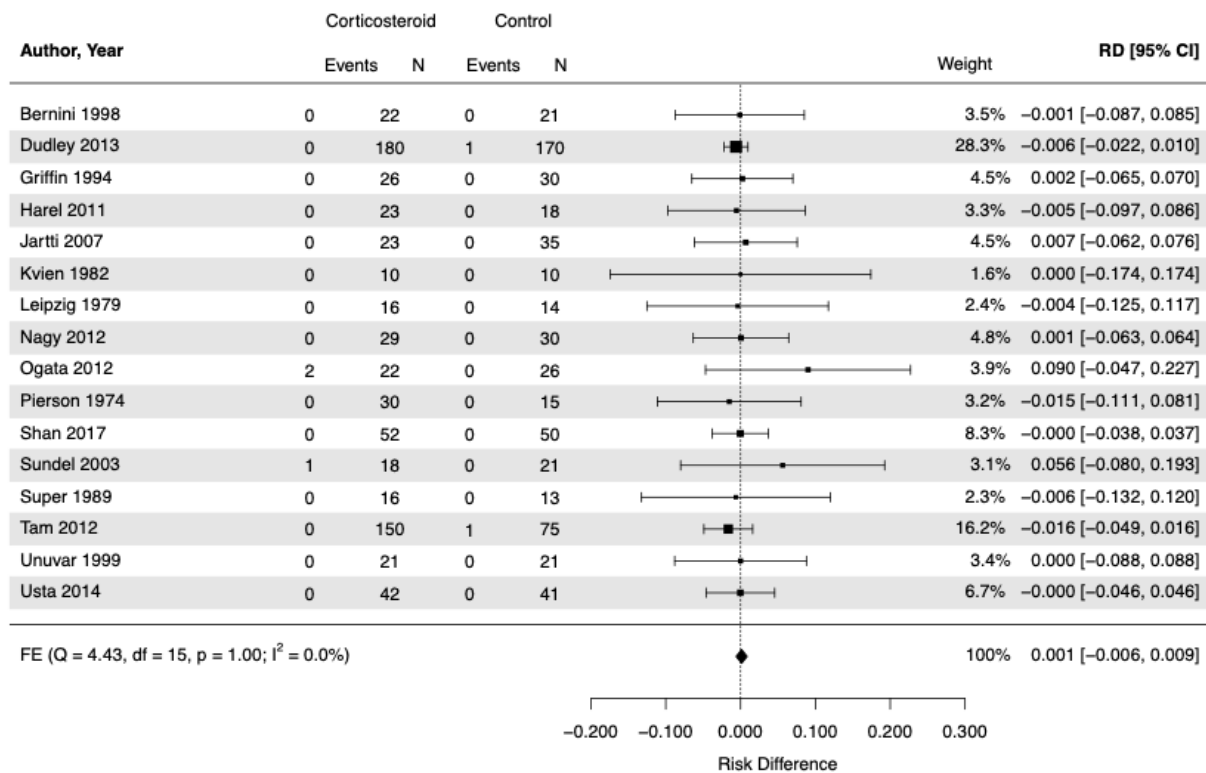
1.20 Forest plot – Headache



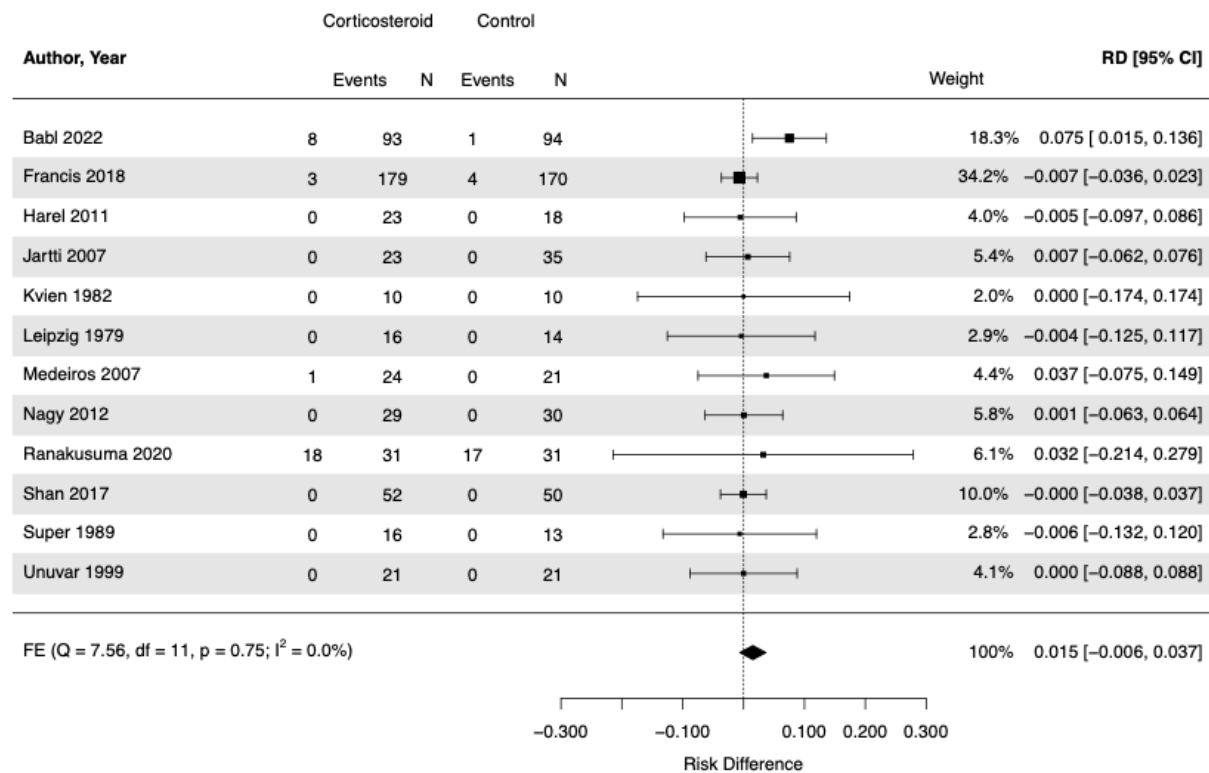
1.21 Forest plot – Hyperglycemia



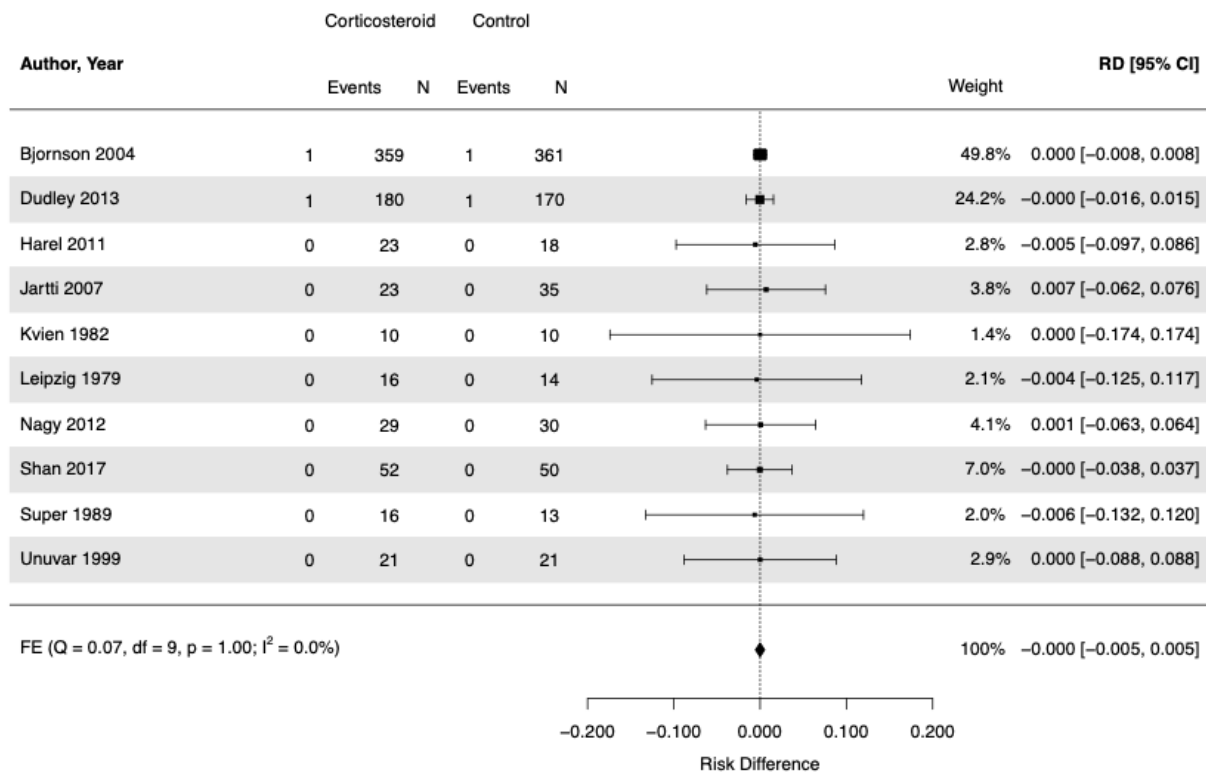
1.22 Forest plot – Hypertension



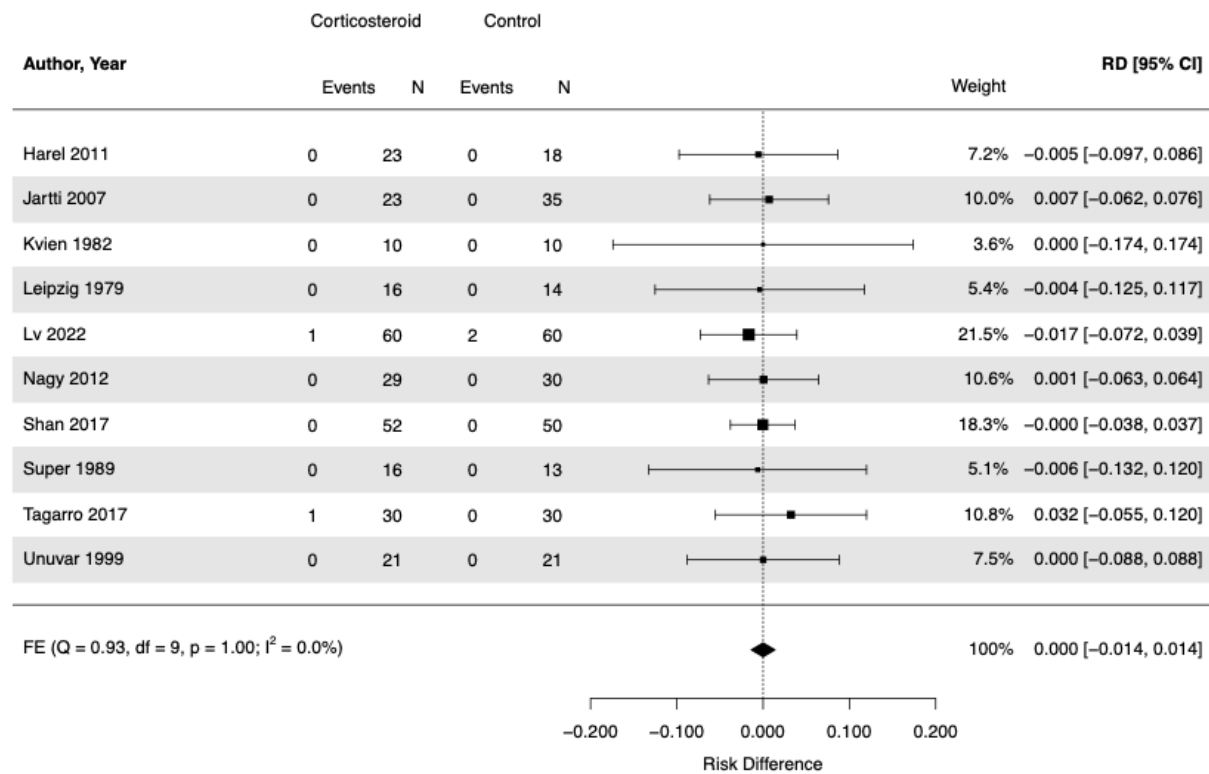
1.23 Forest plot – Increased Appetite



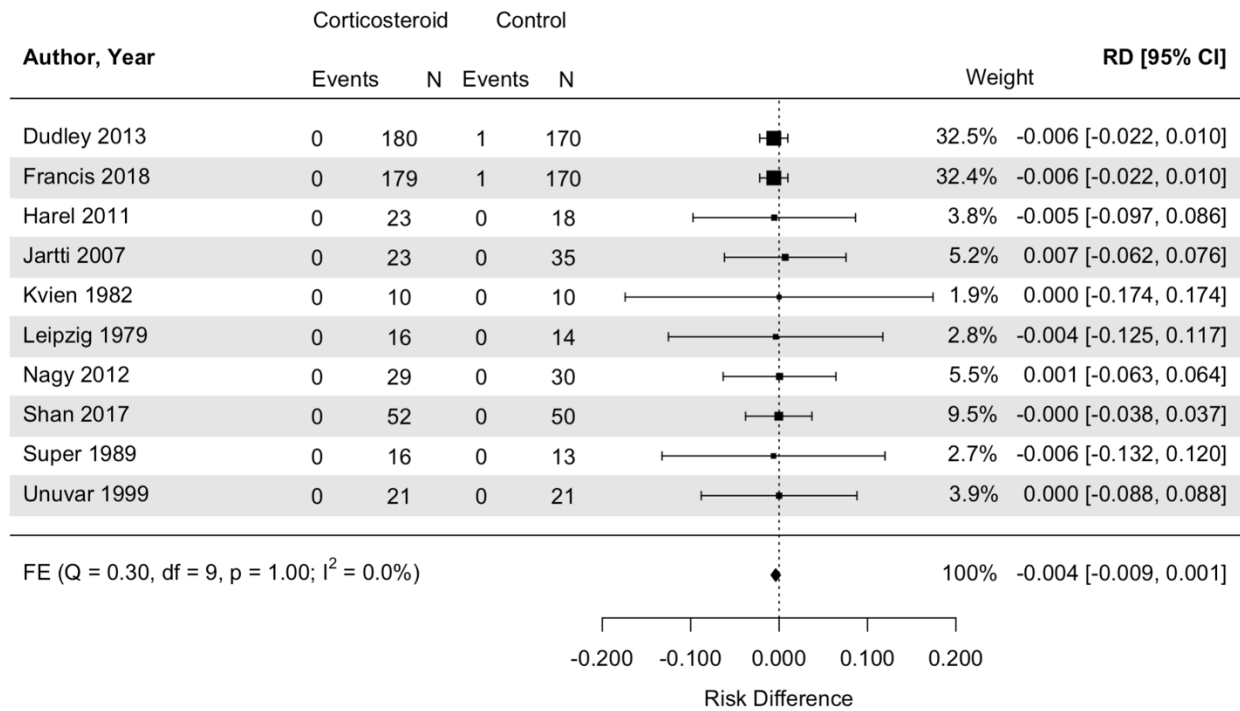
1.24 Forest plot – Irritability



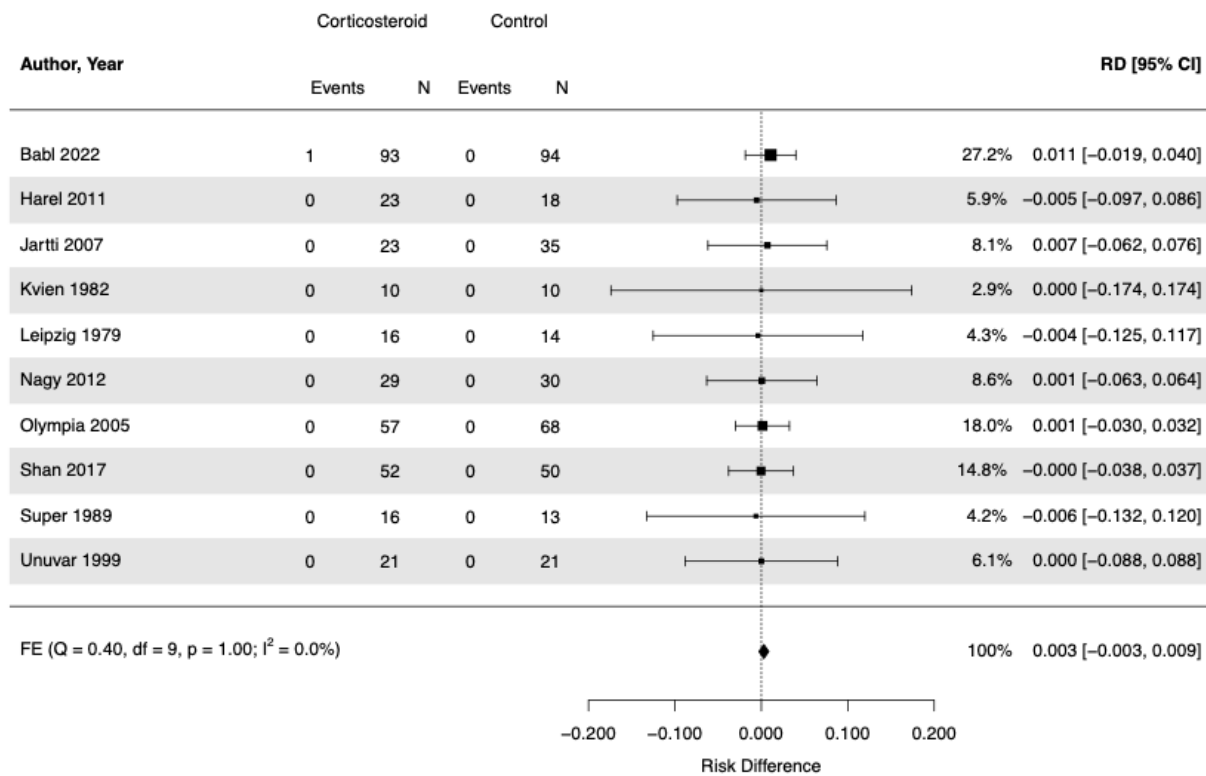
1.25 Forest plot – Local Site Pain



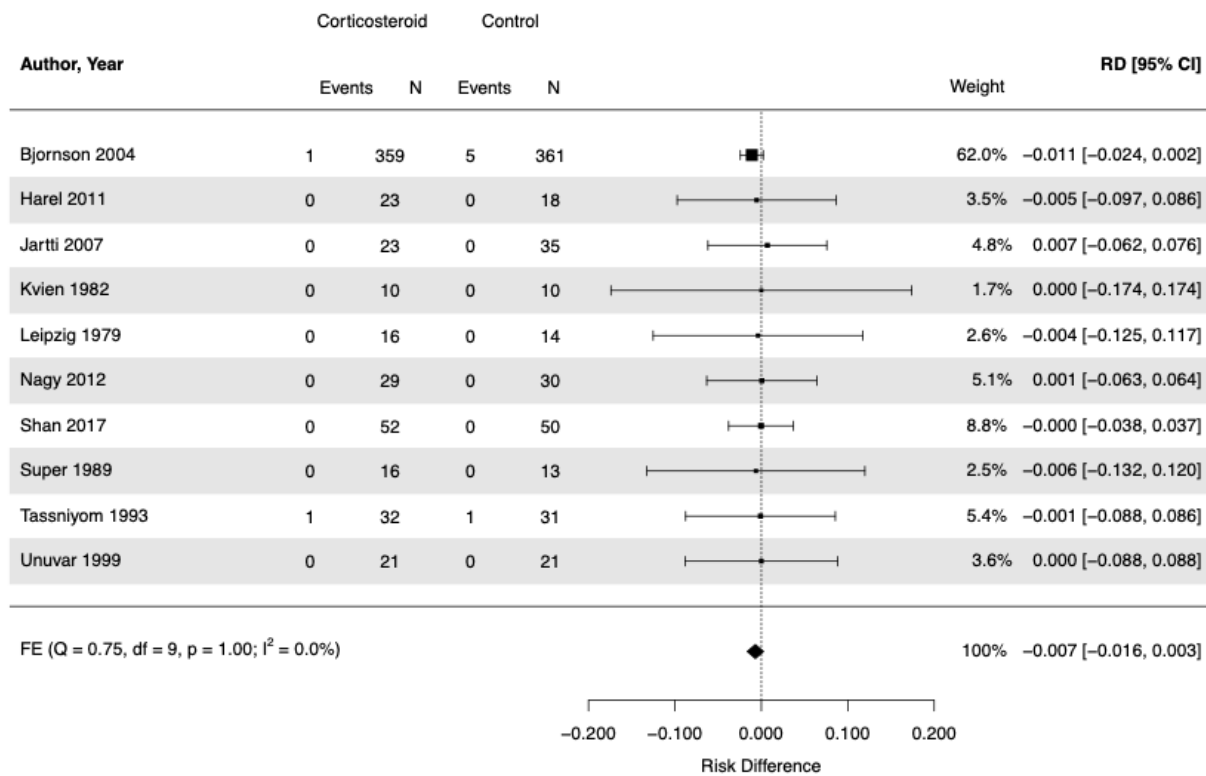
1.26 Forest plot – Musculoskeletal Pain



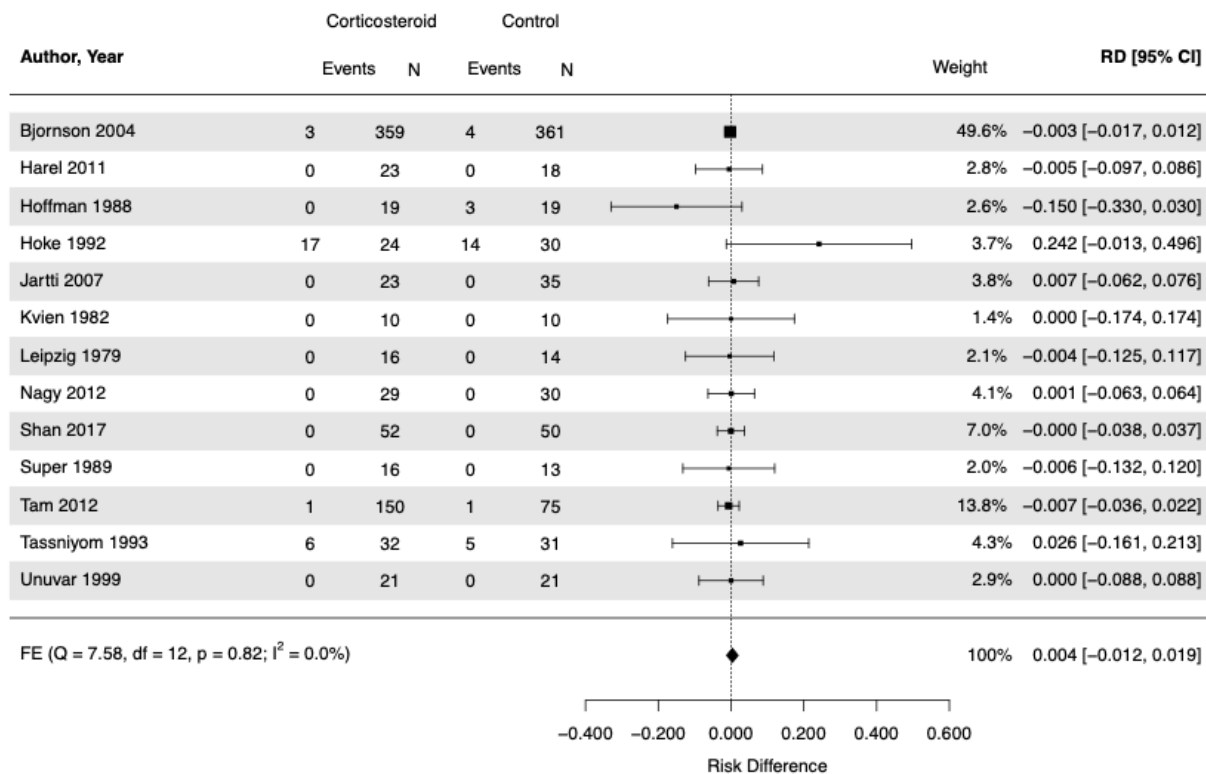
1.26 Forest plot – Myalgia



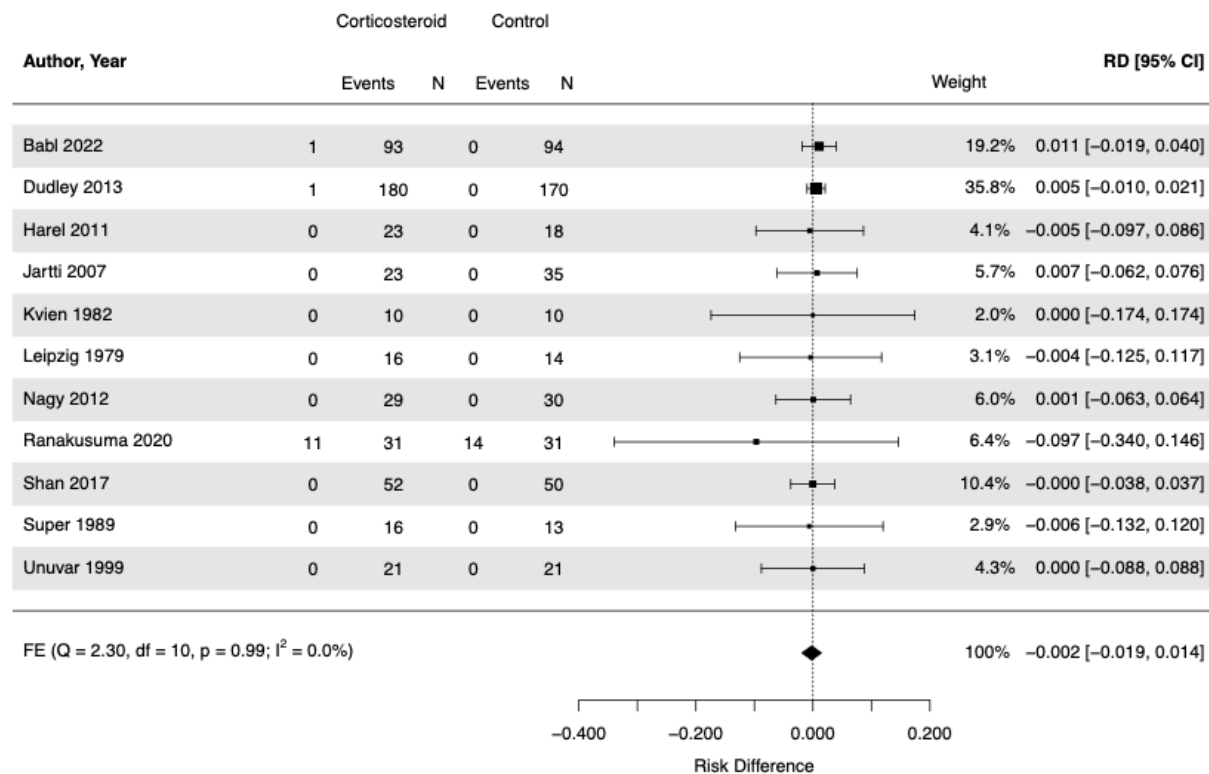
1.27 Forest plot – Otitis Media



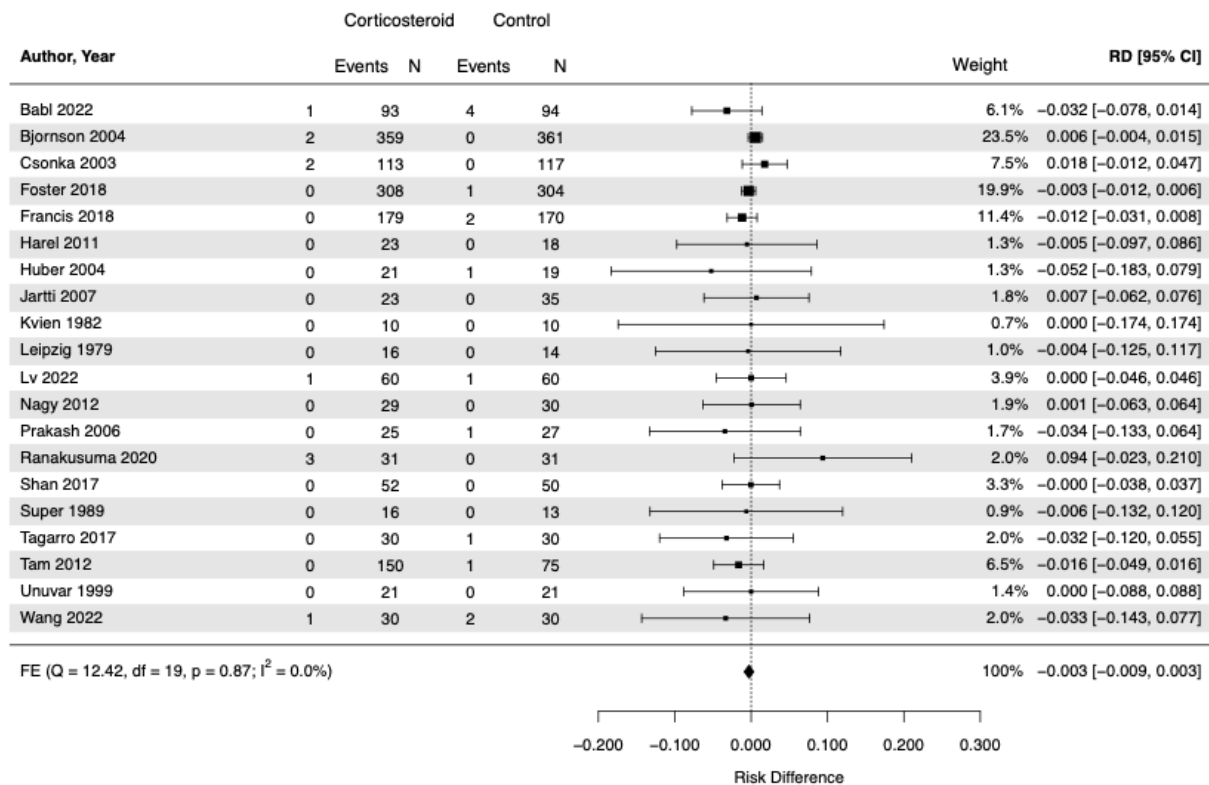
1.28 Forest plot – Pneumonia



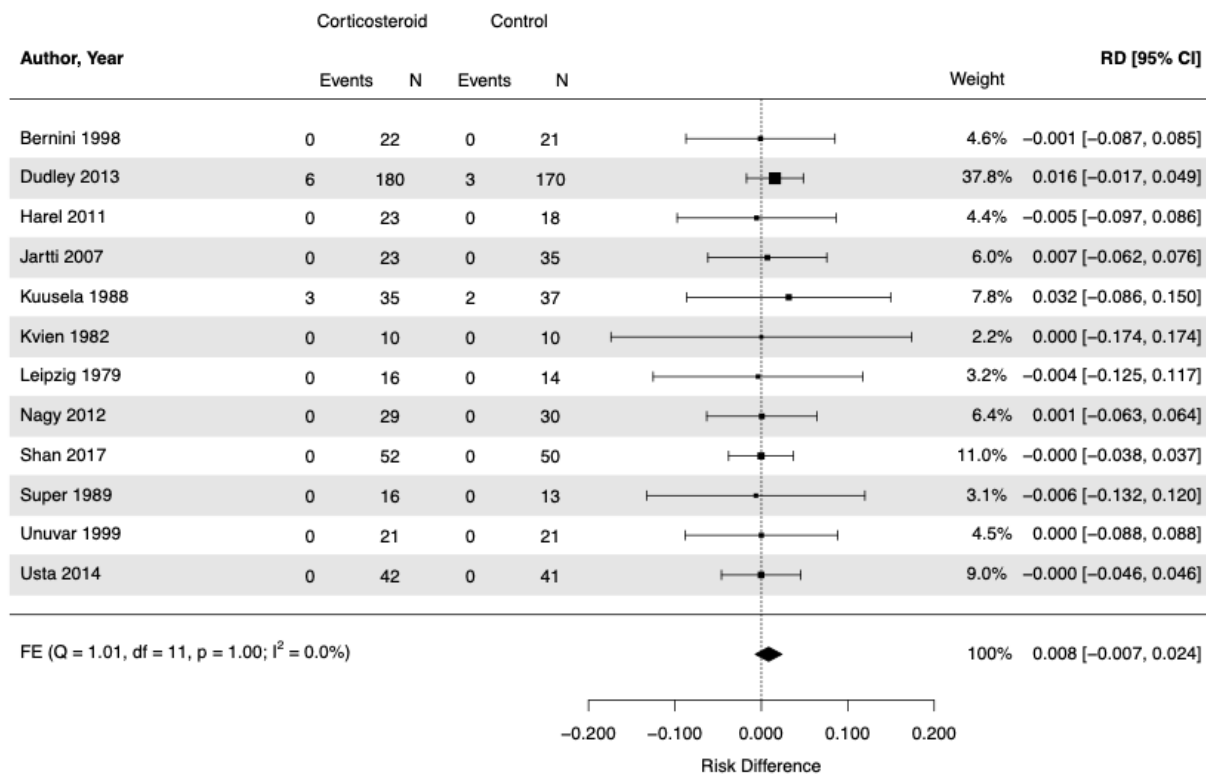
1.29 Forest plot – Polyuria



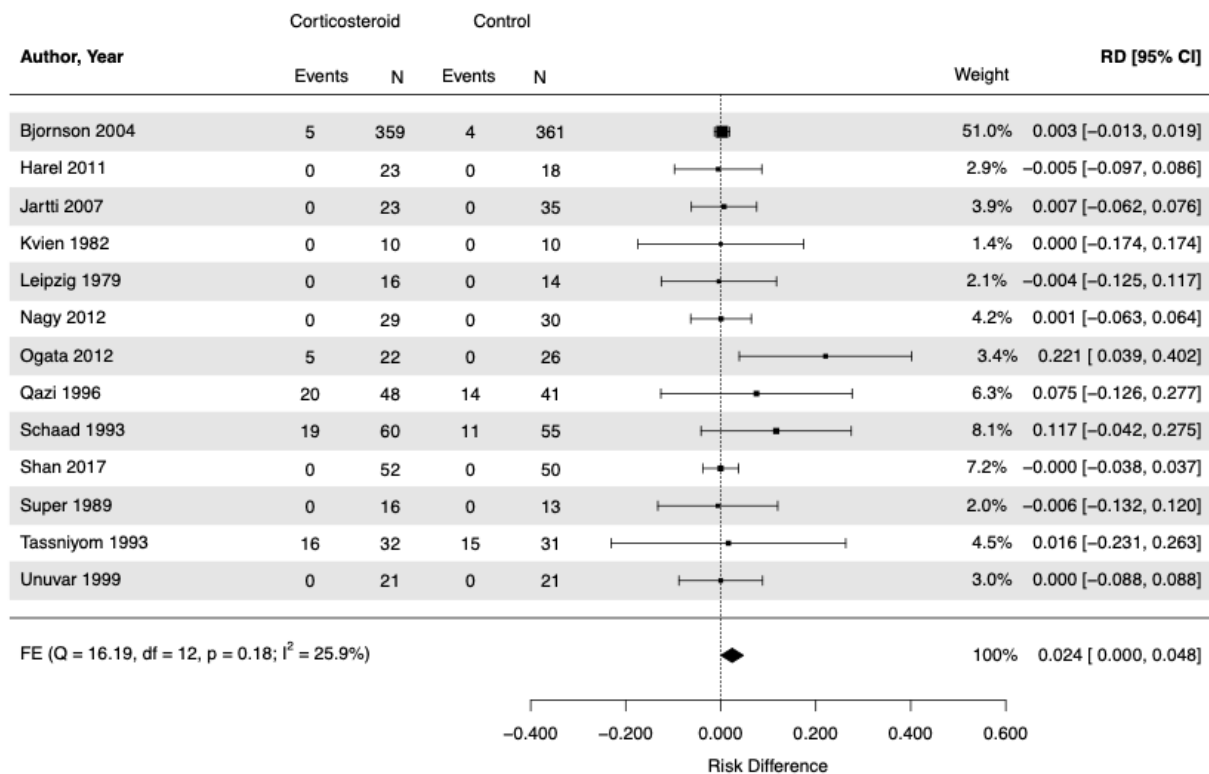
1.30 Forest plot – Rash or Urticaria



1.31 Forest plot – Secondary (Opportunistic) Infection

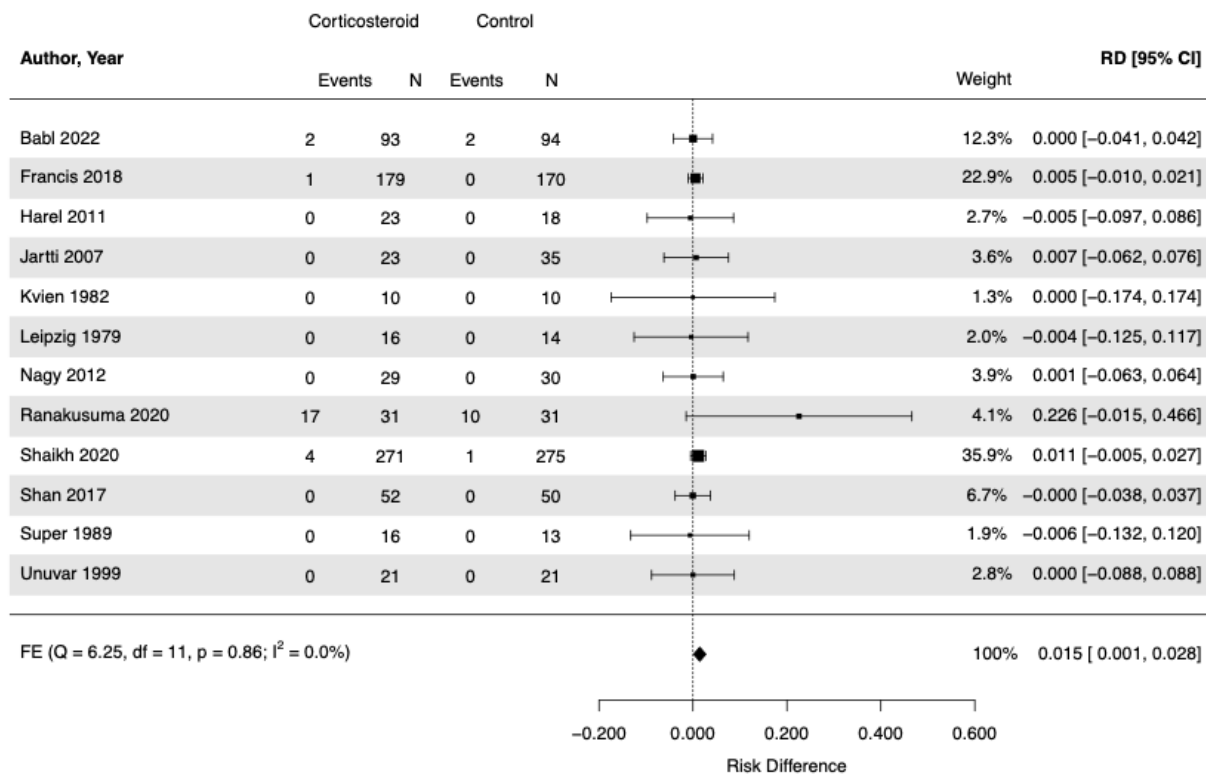


1.32 Forest plot – Secondary Fever

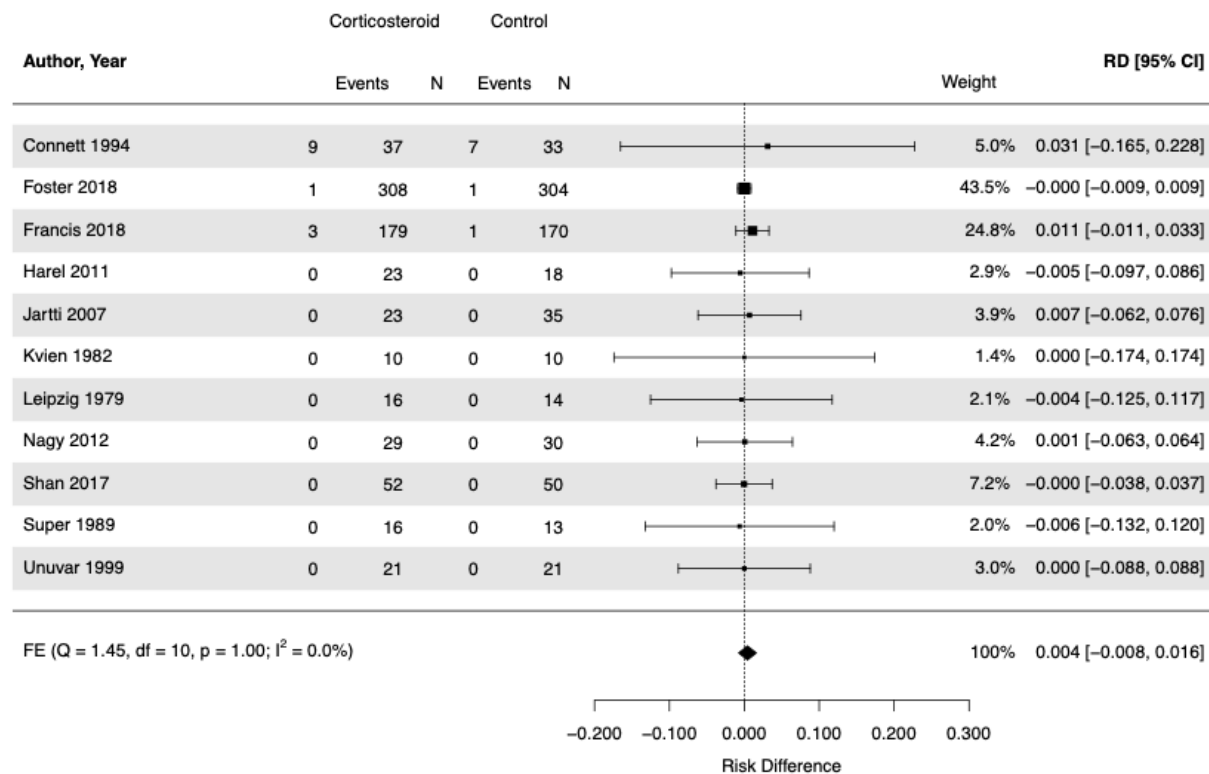


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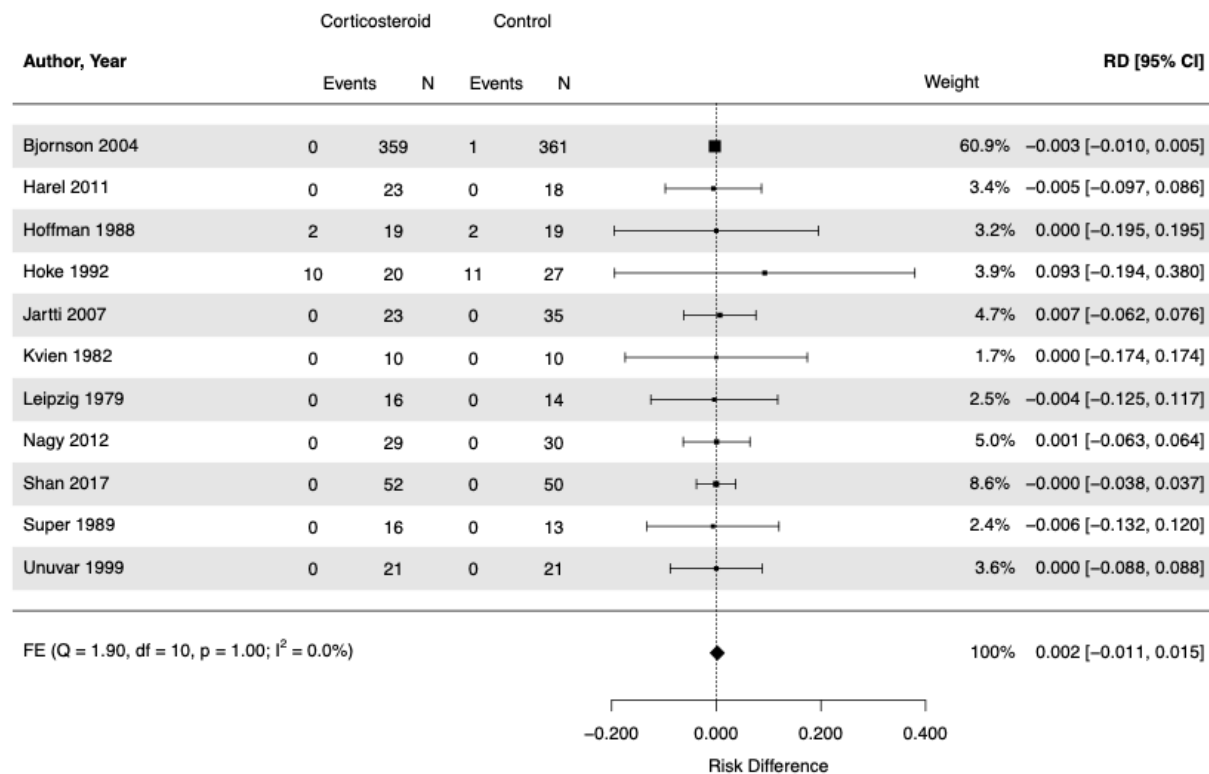
1.33 Forest plot – Sleep Problems



1.34 Forest plot – Tremor or Hyperactivity

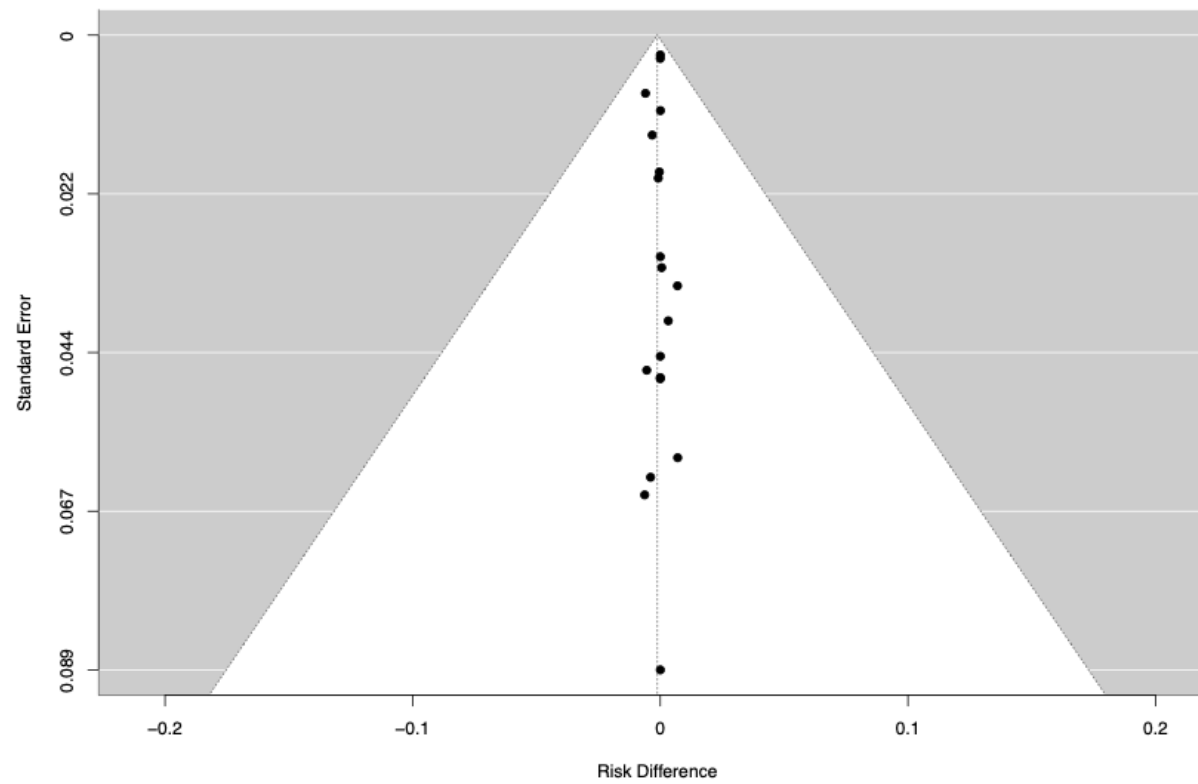


1.35 Forest plot – Urinary Tract Infection

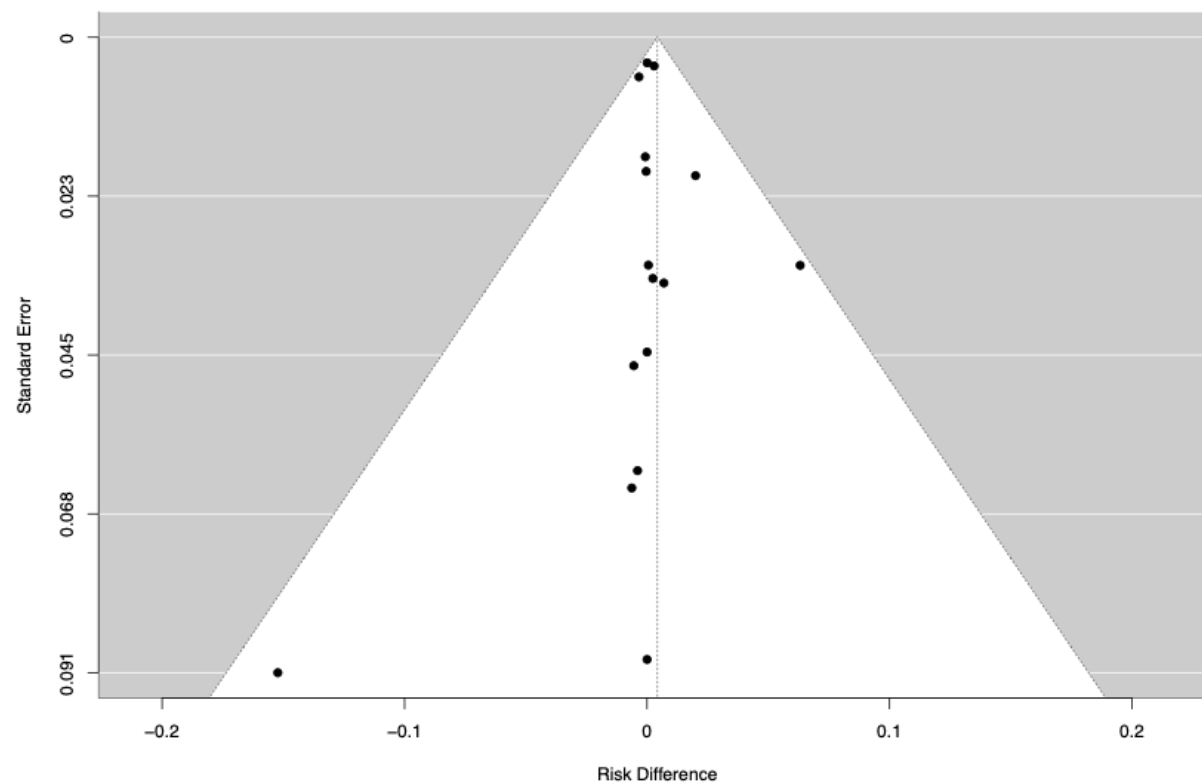


eFigure2: Funnel Plots

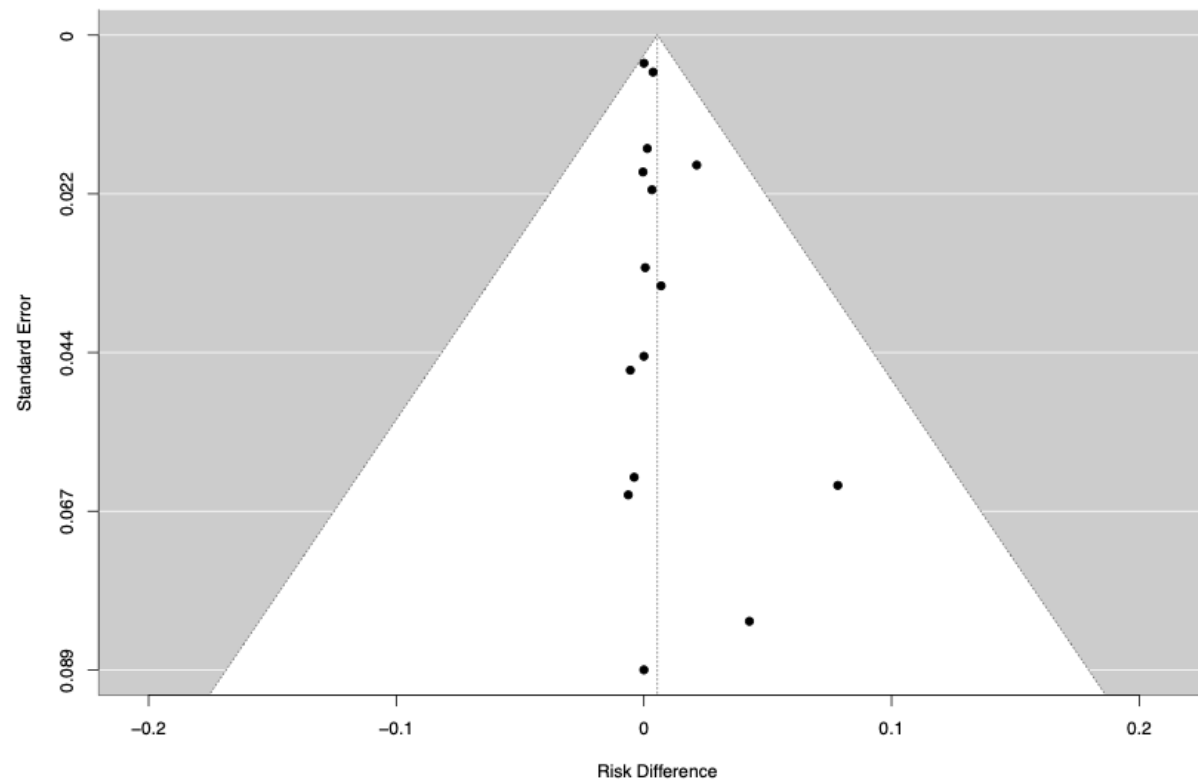
2.1 Funnel plot – Serious Adverse Events



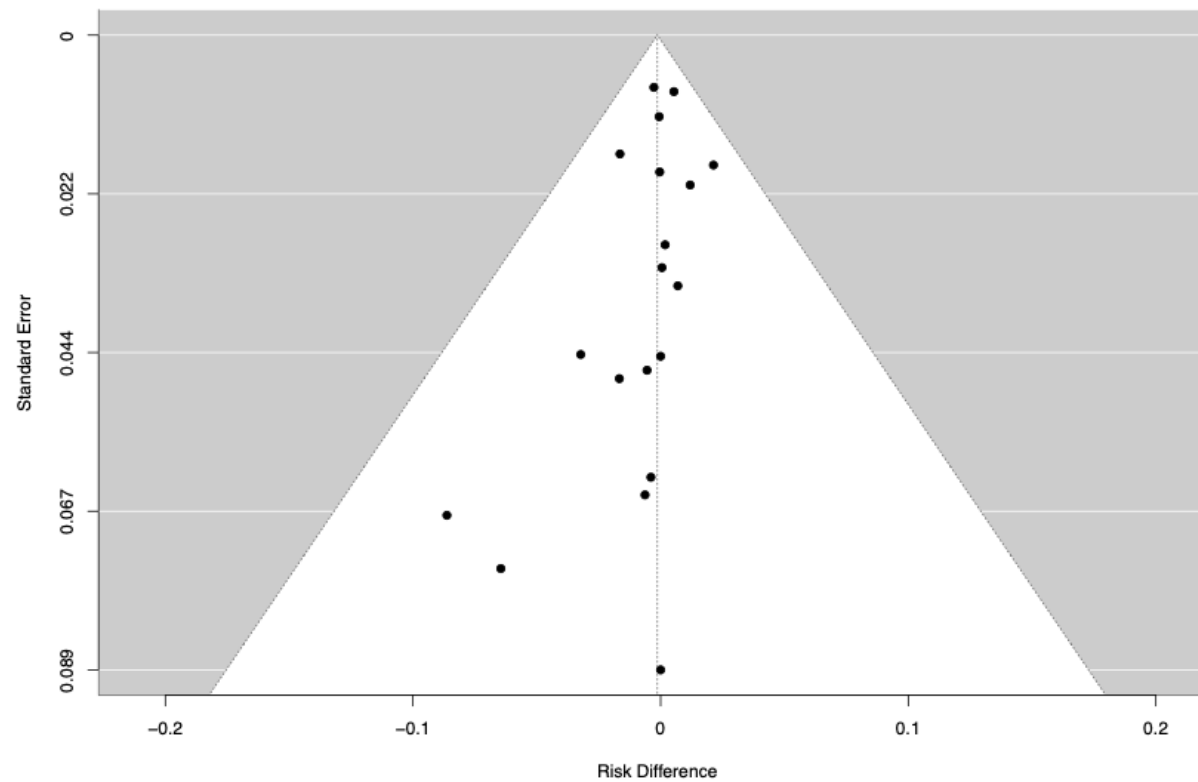
2.2 Funnel plot – Adverse Events Leading to Discontinuation



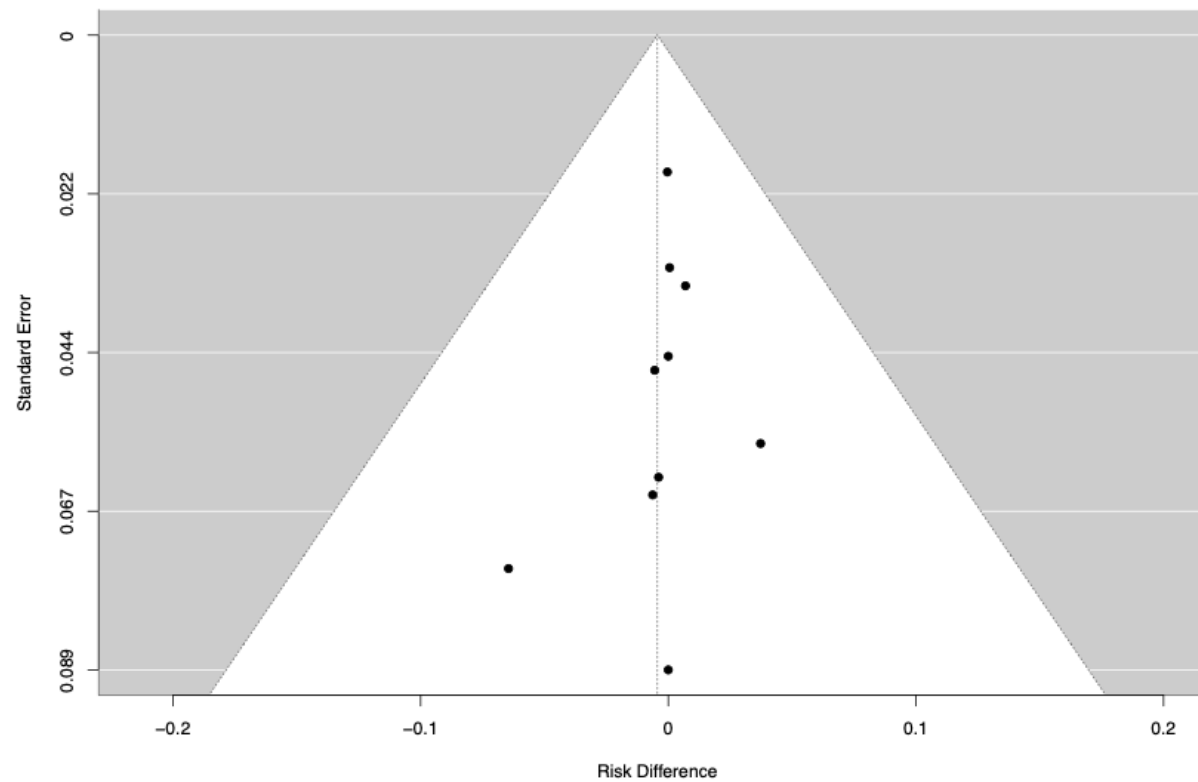
2.3 Funnel plot – Abdominal Pain



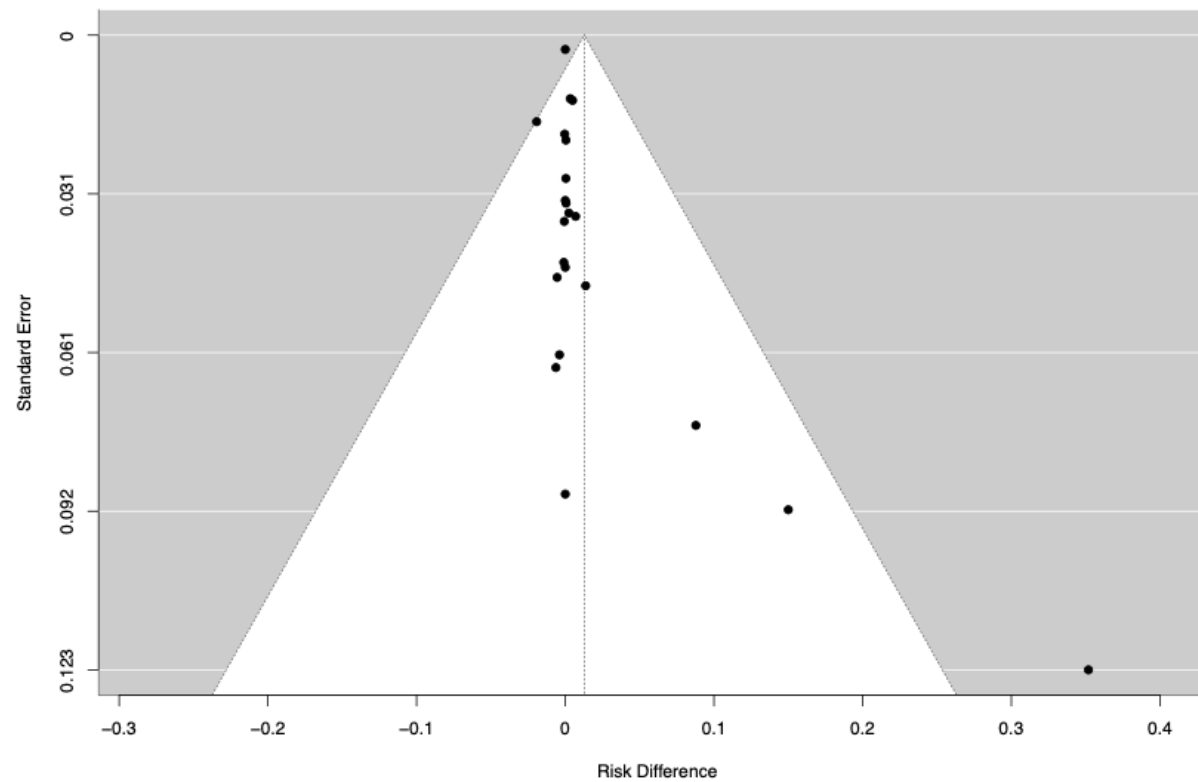
2.4 Funnel plot – Diarrhea



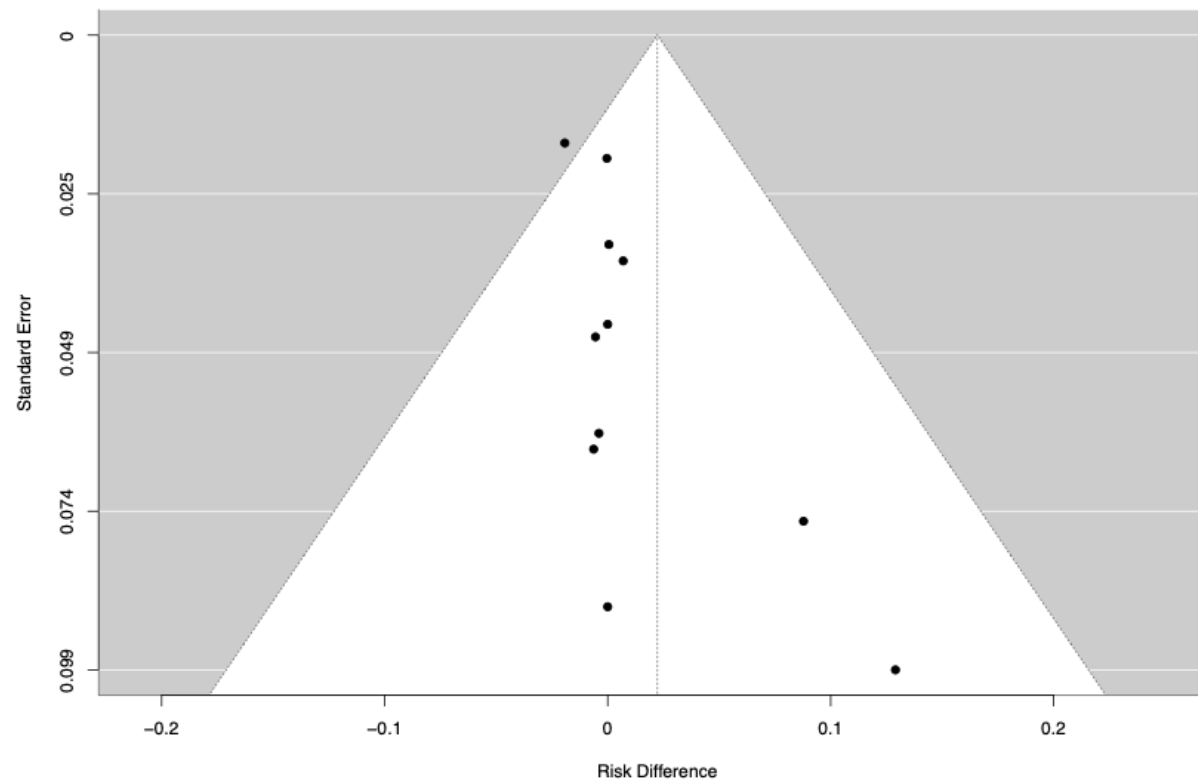
2.5 Funnel plot – Gastritis



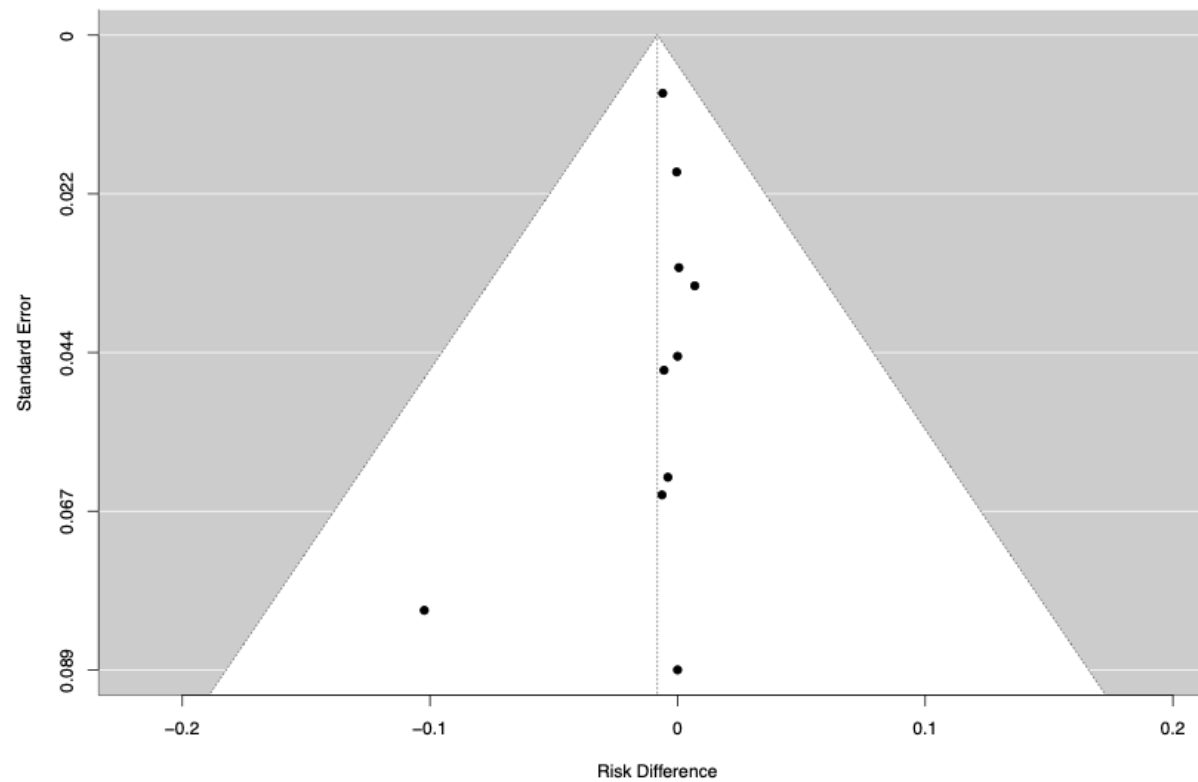
2.6 Funnel plot – Gastrointestinal Bleeding



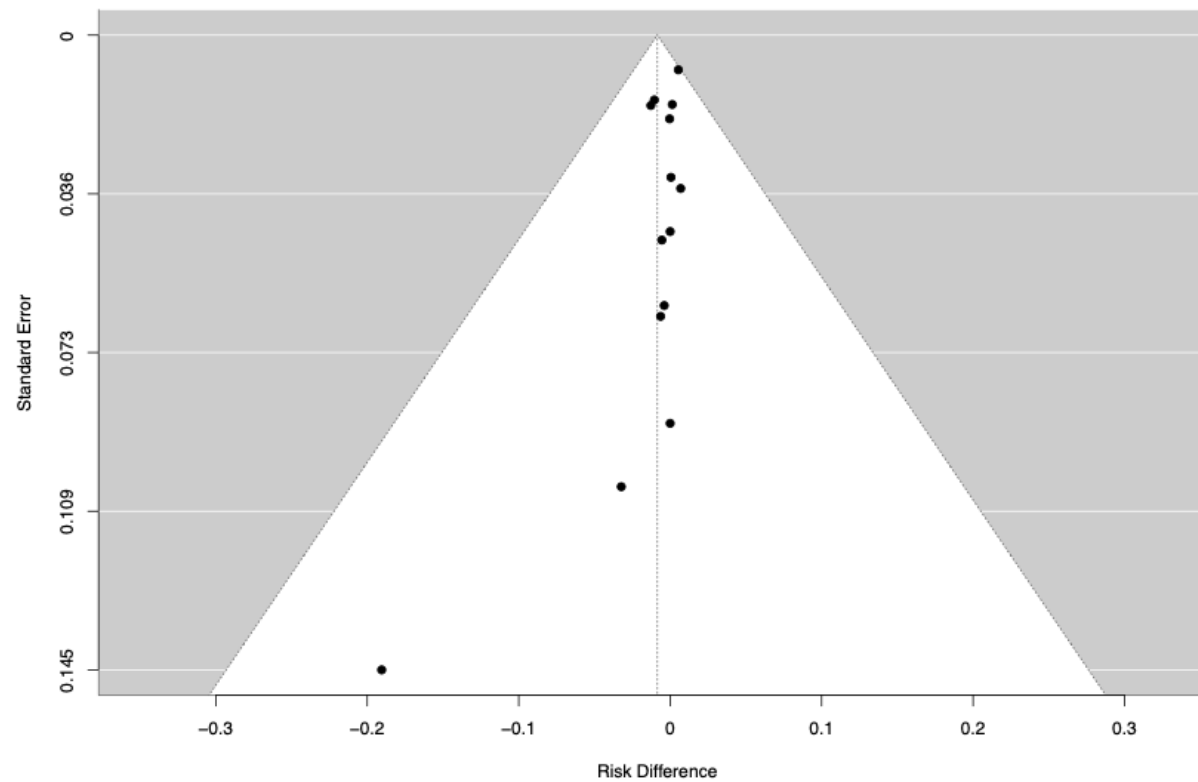
2.7 Funnel plot – Hemocult Positive Stool



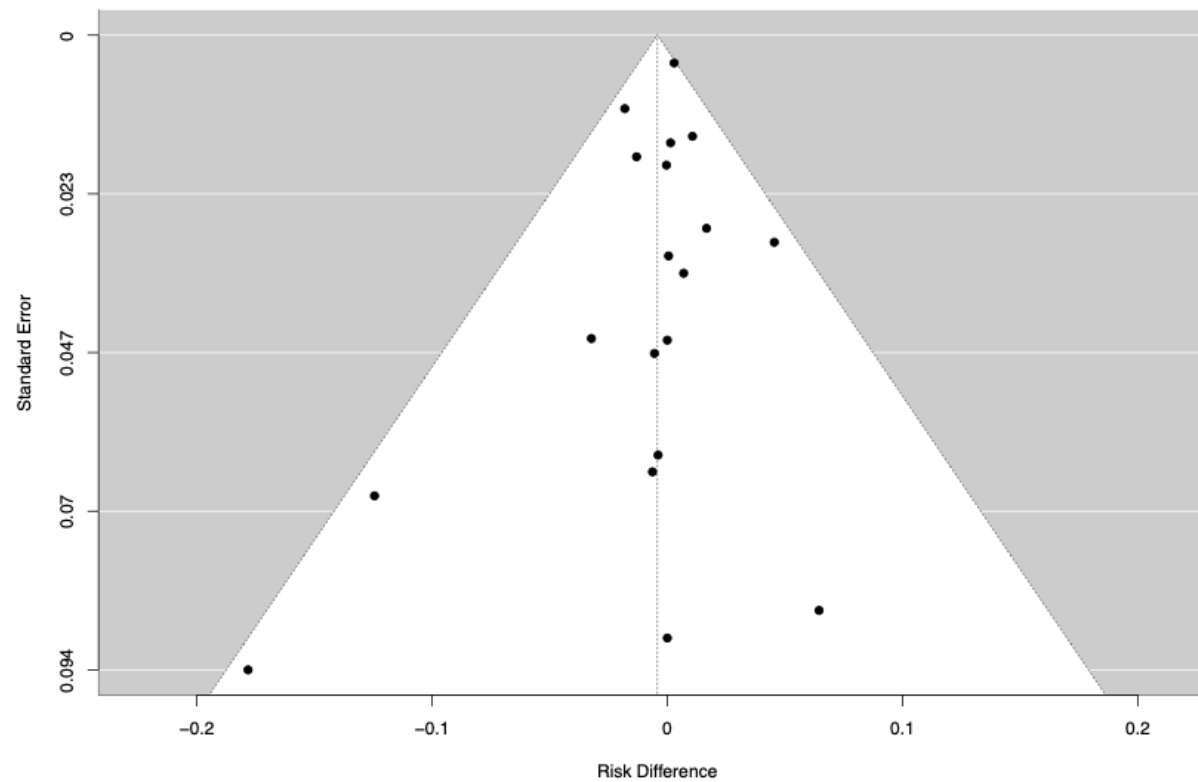
2.8 Funnel plot – Intussusception



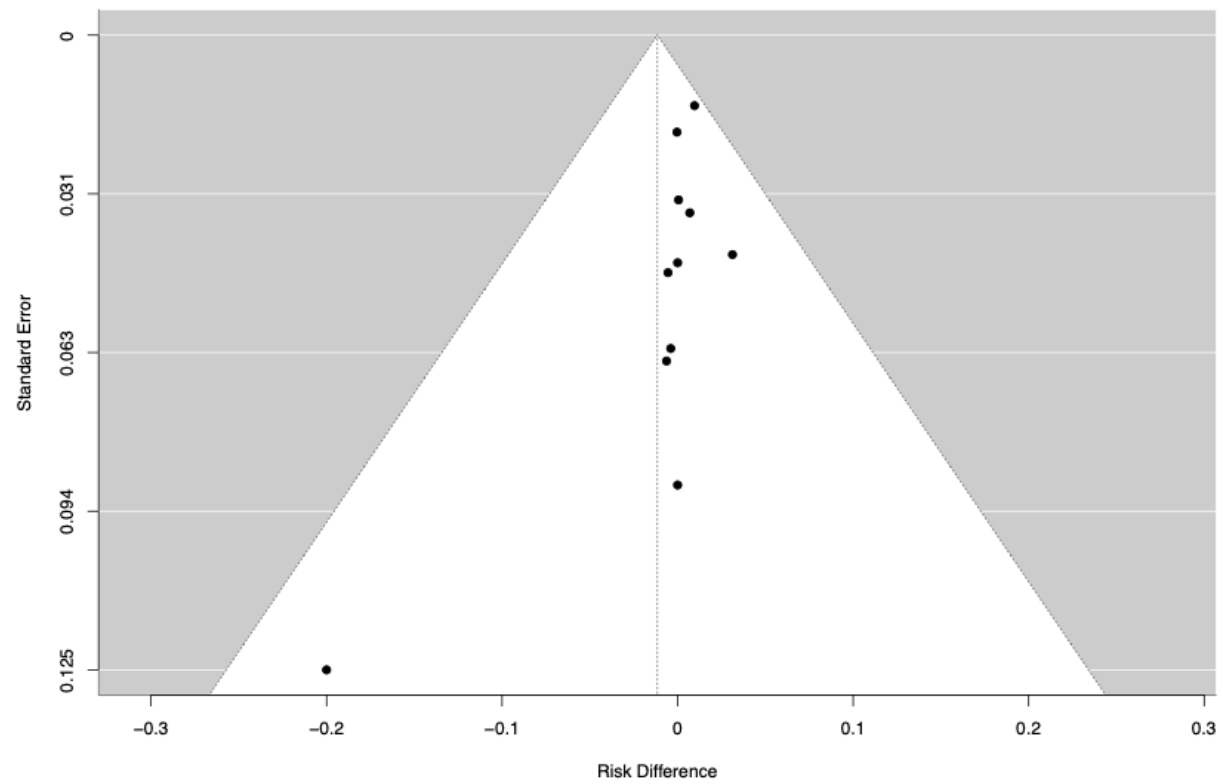
2.9 Funnel plot – Nausea



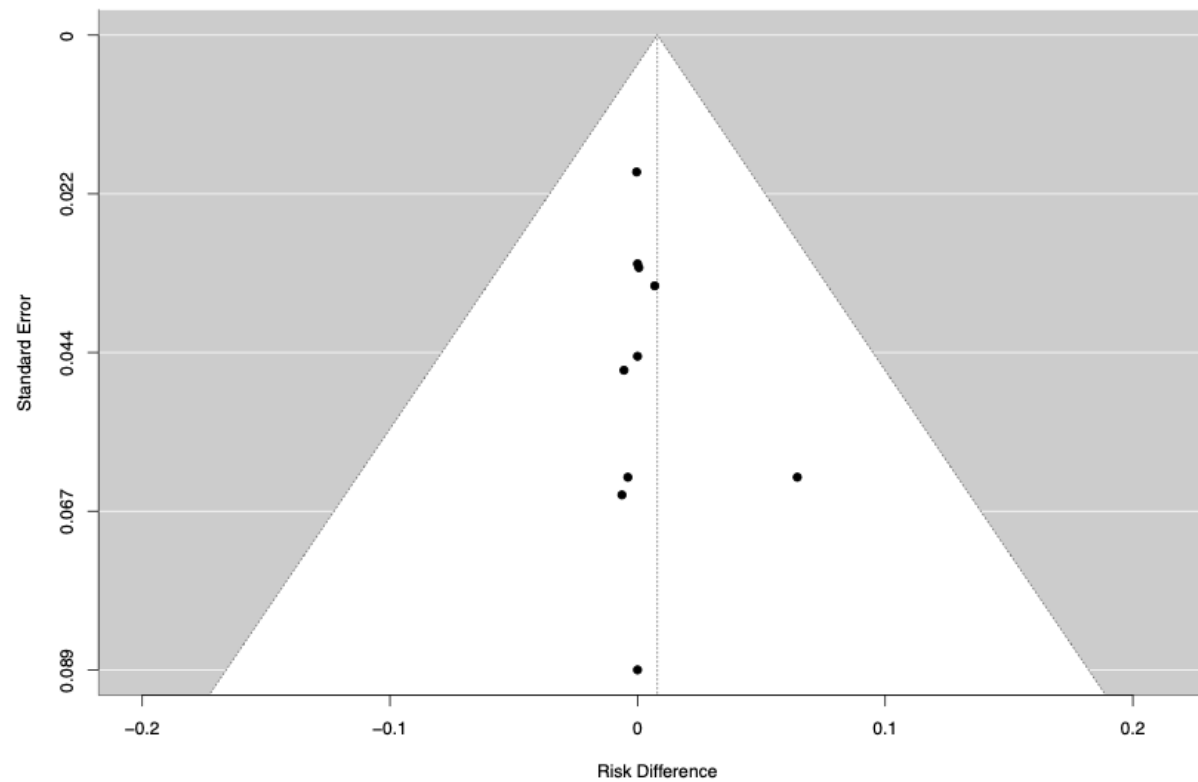
2.10 Funnel plot – Vomiting



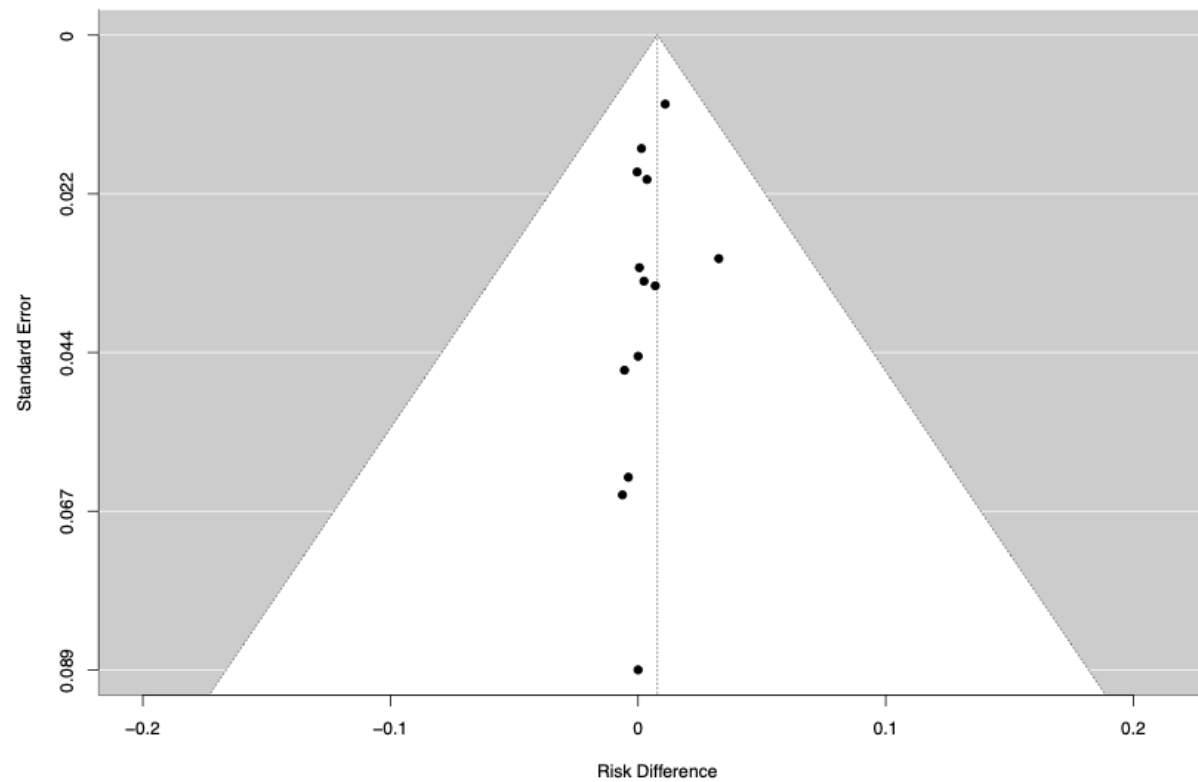
2.11 Funnel plot – Anemia



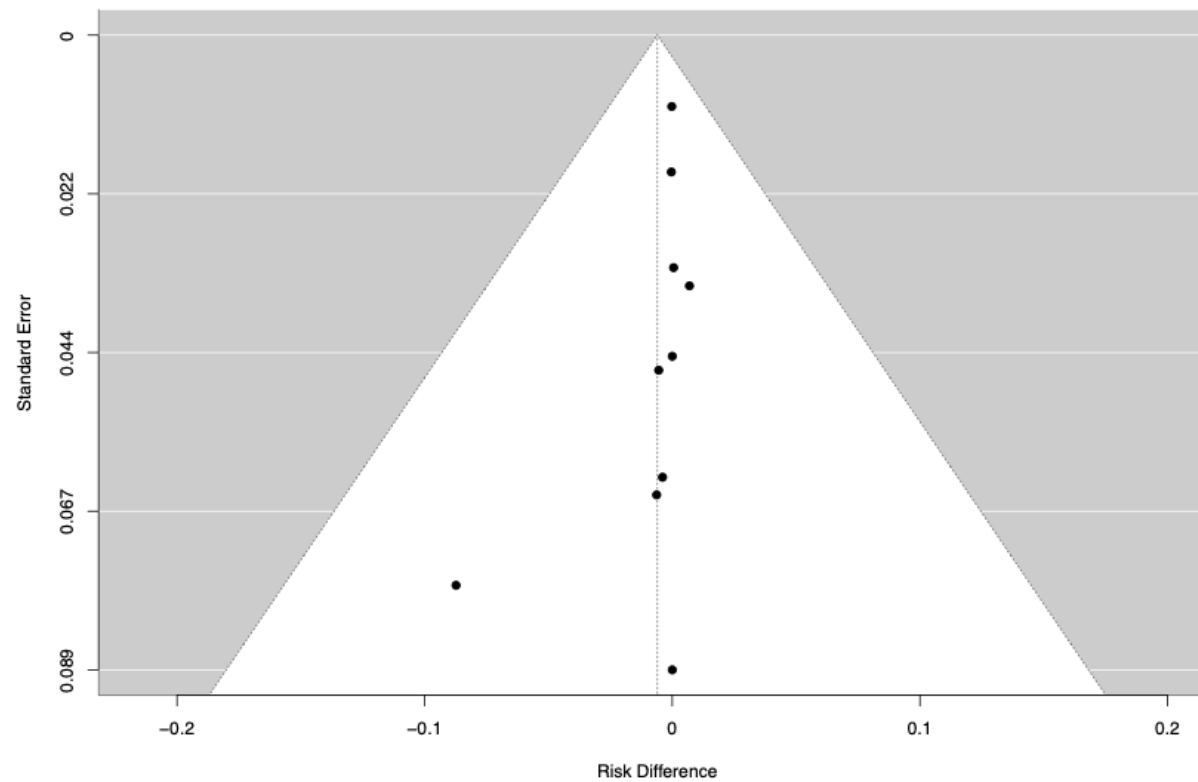
2.12 Funnel plot – Candidiasis



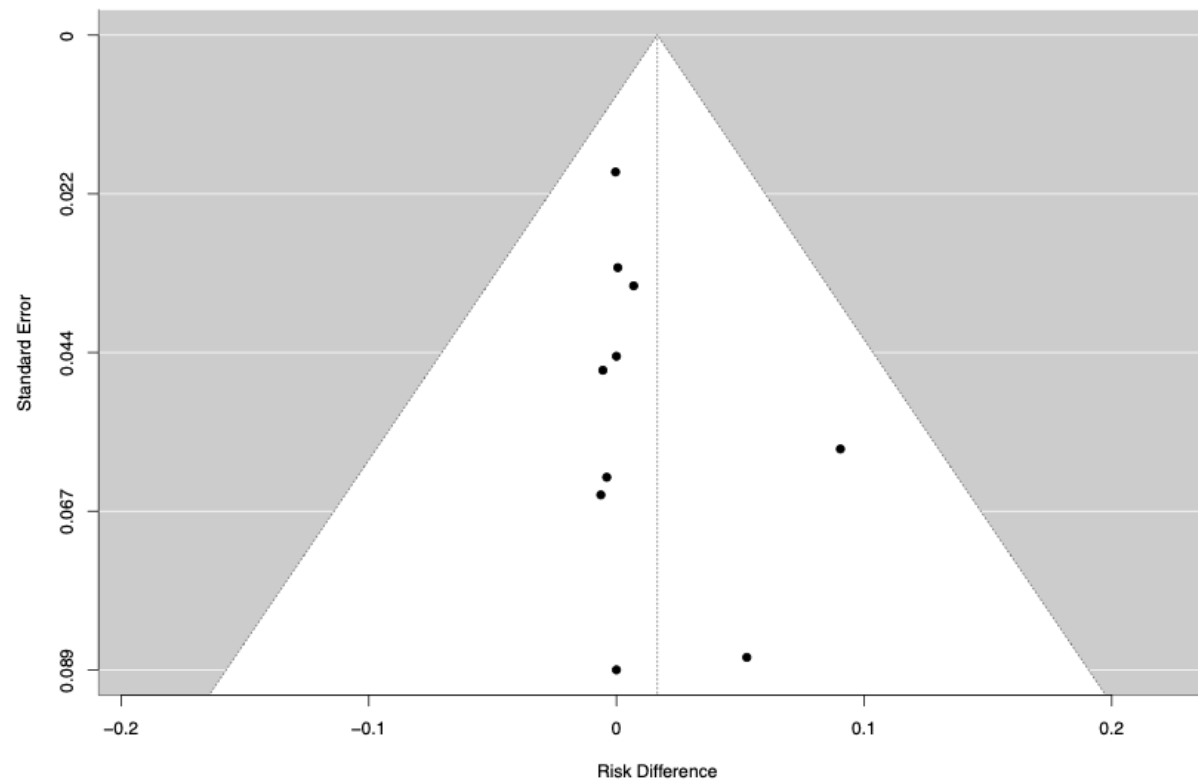
2.13 Funnel plot – Change in behaviour



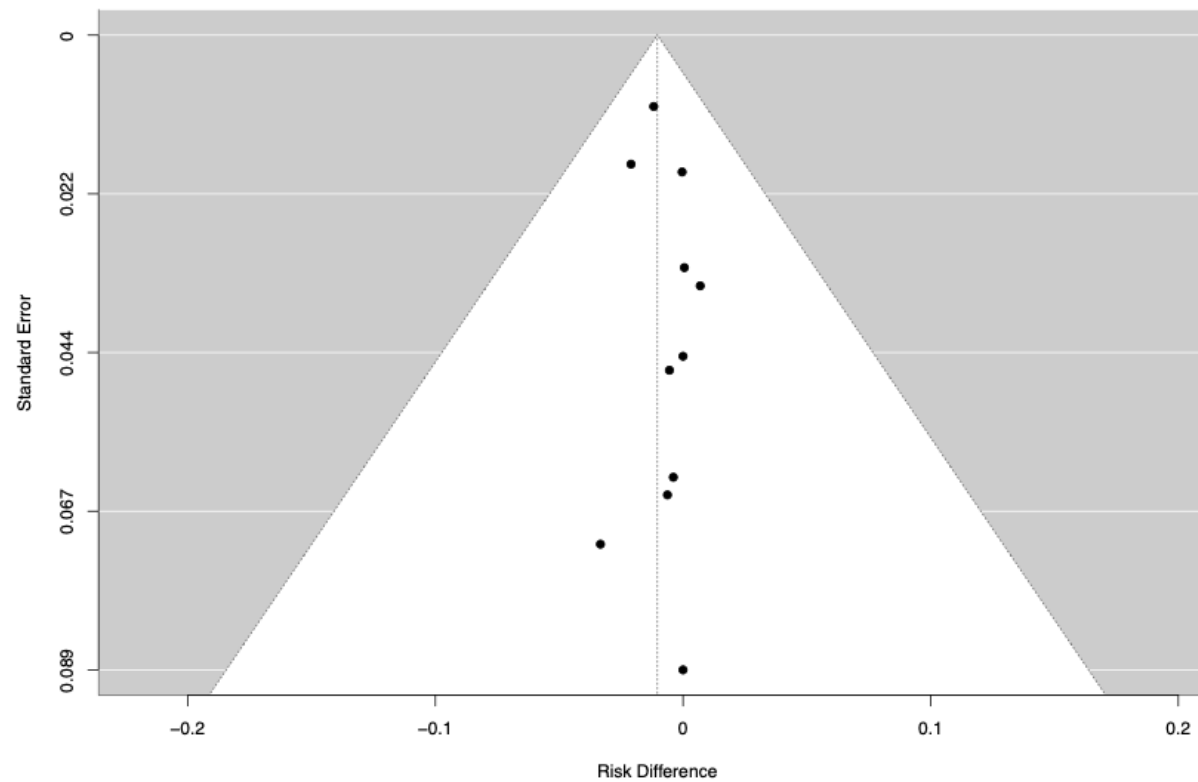
2.14 Funnel plot – Congestive Heart Failure



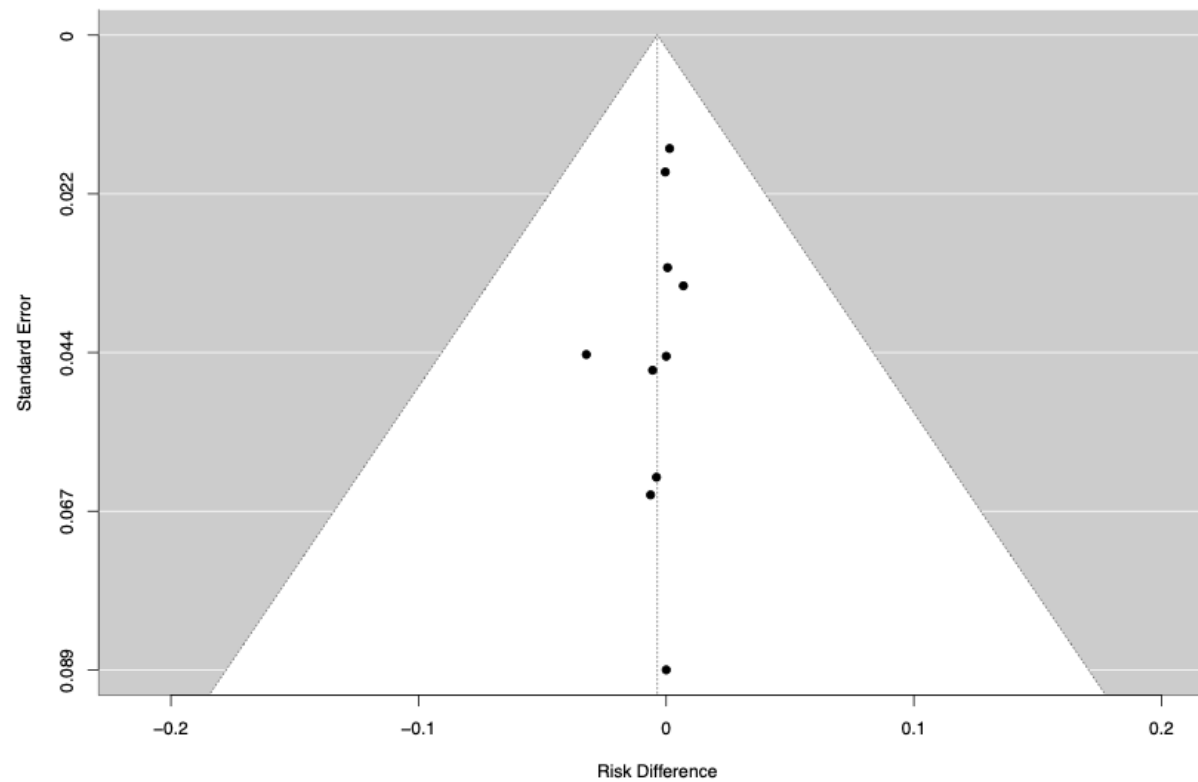
2.15 Funnel plot – Convulsion/Seizure



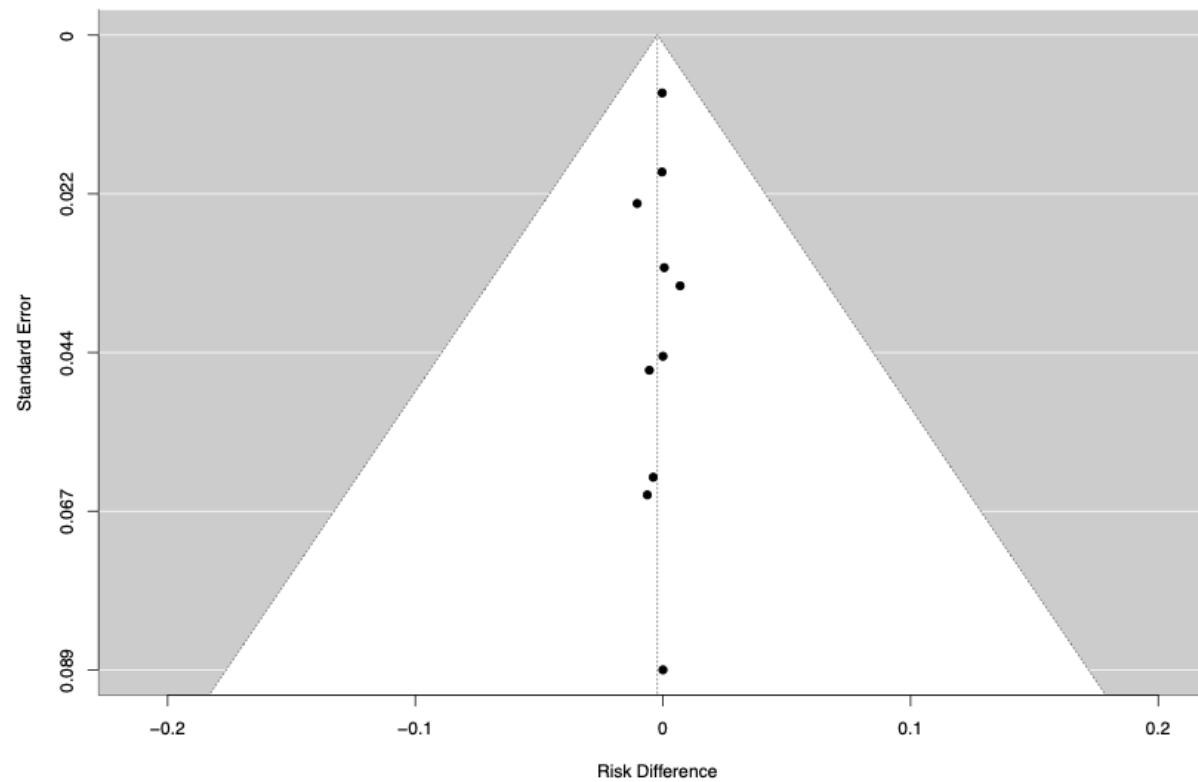
2.16 Funnel plot – Decreased Appetite



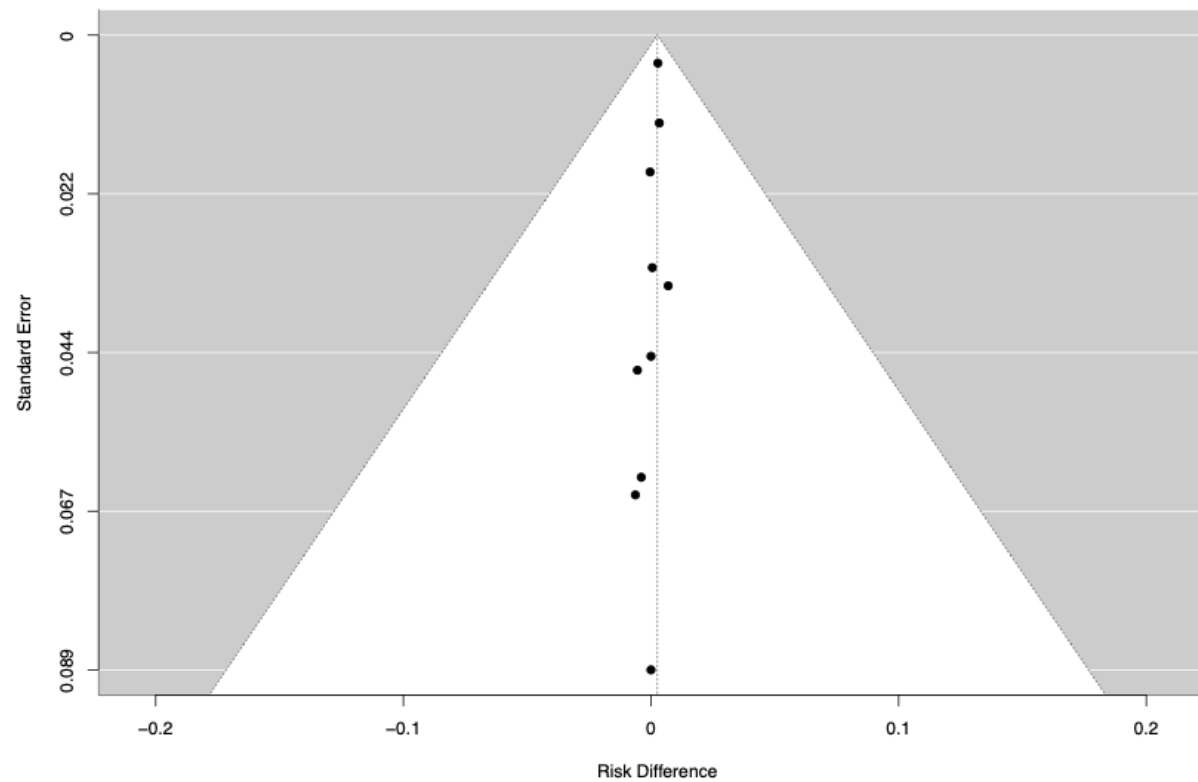
2.17 Funnel plot – Dizziness



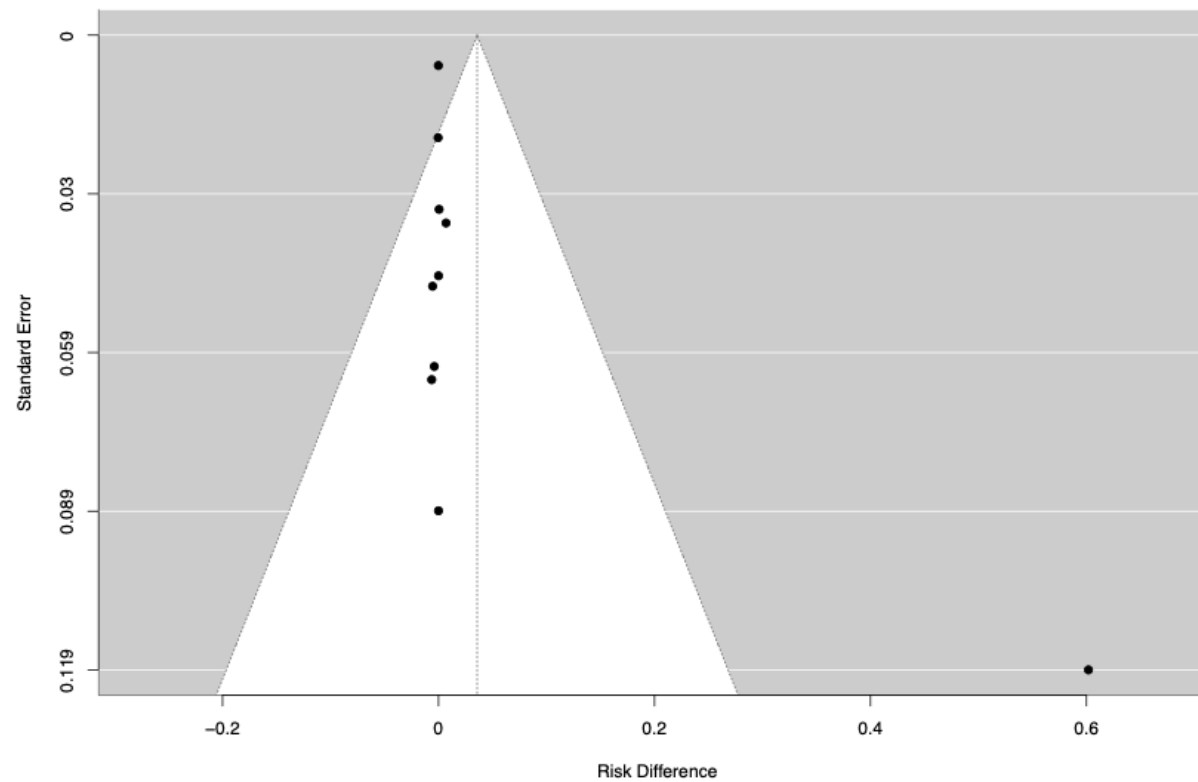
2.18 Funnel plot – Fatigue



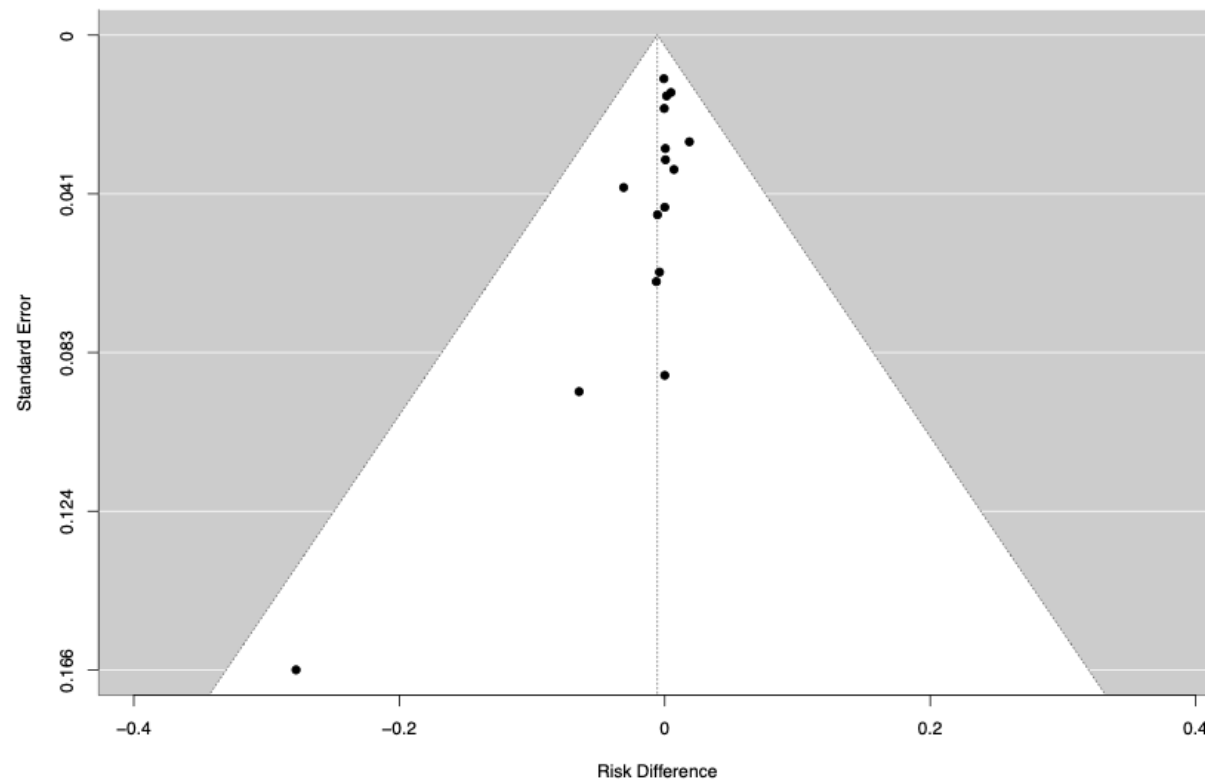
2.19 Funnel plot – Febrile Convulsion



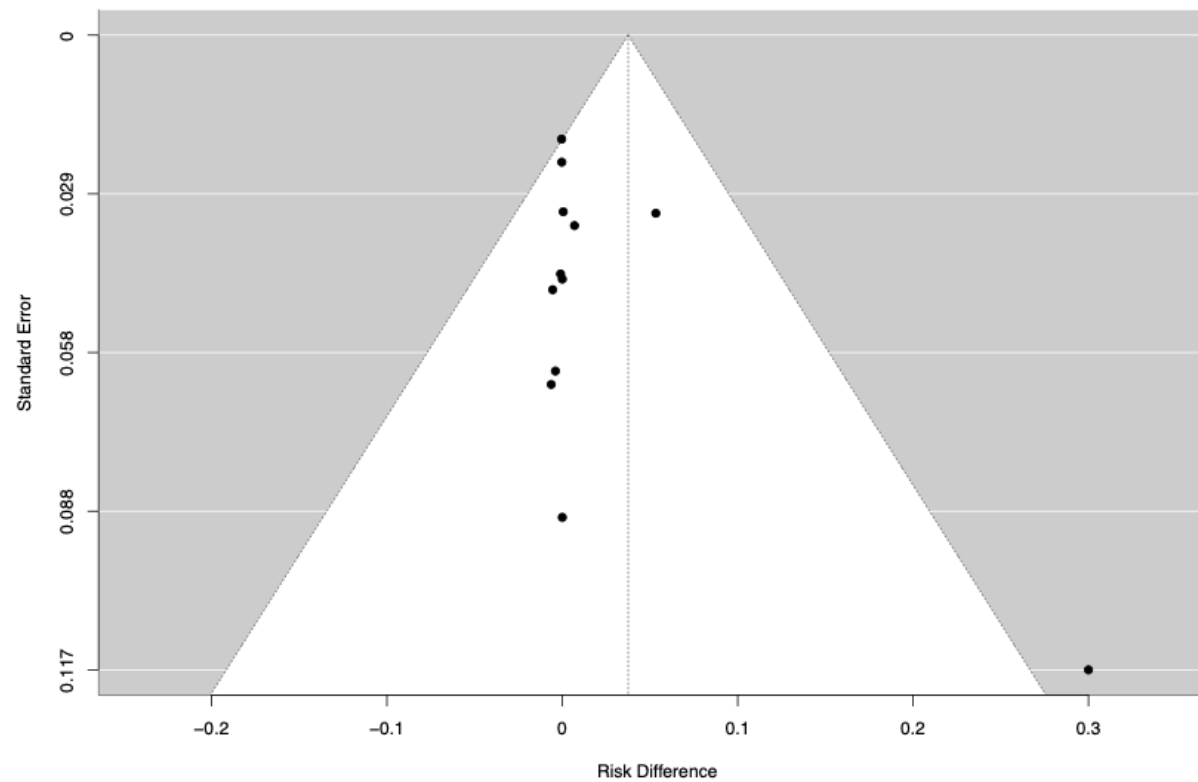
2.20 Funnel plot – Glycosuria



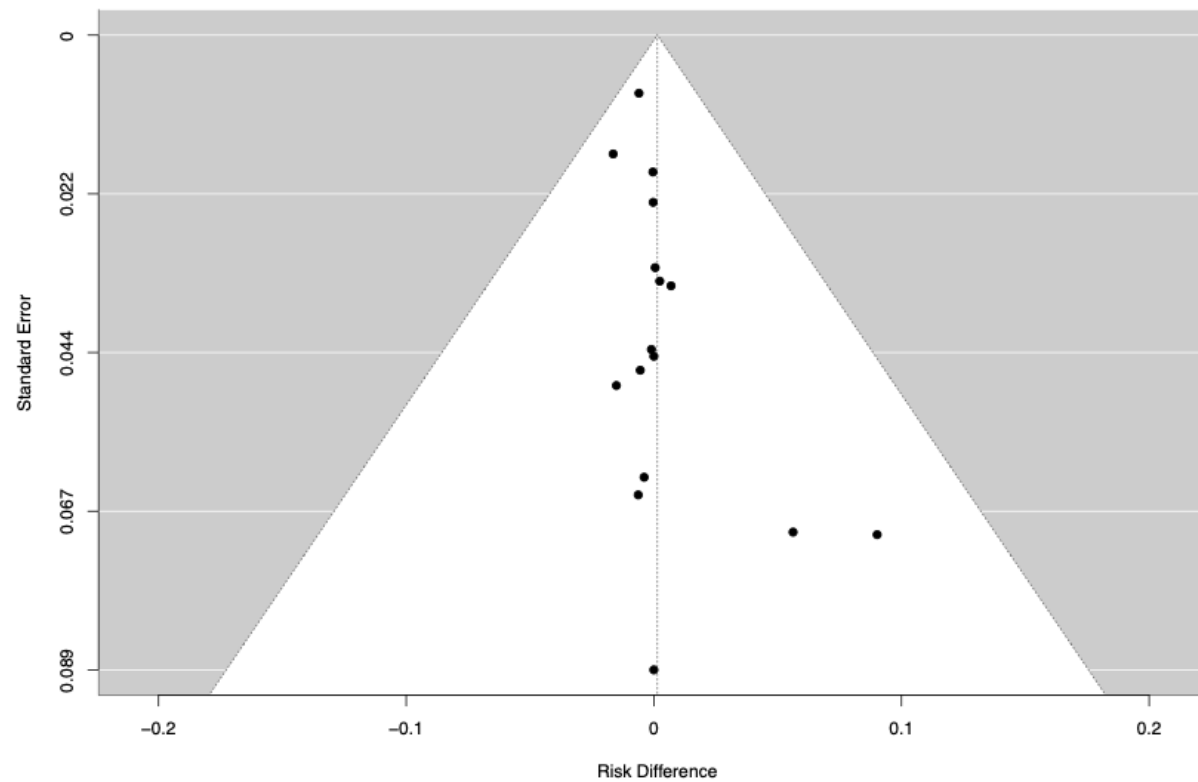
2.21 Funnel plot – Headache



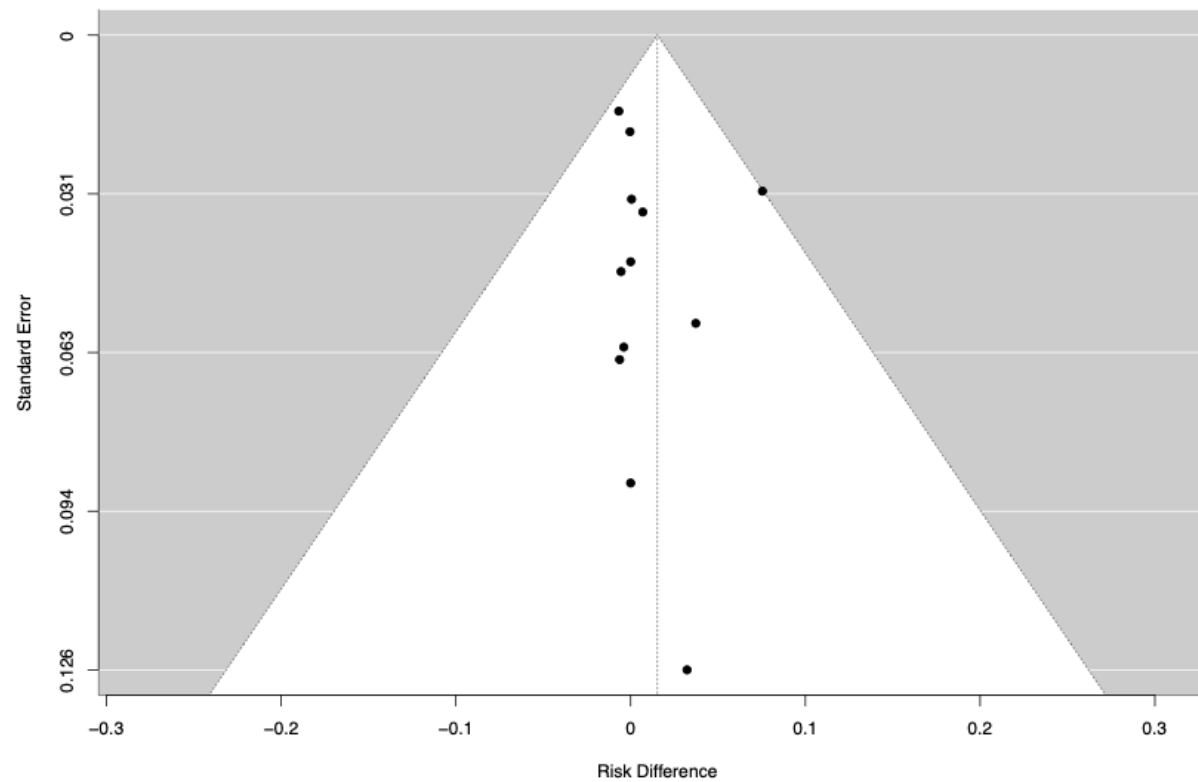
2.22 Funnel plot – Hyperglycemia



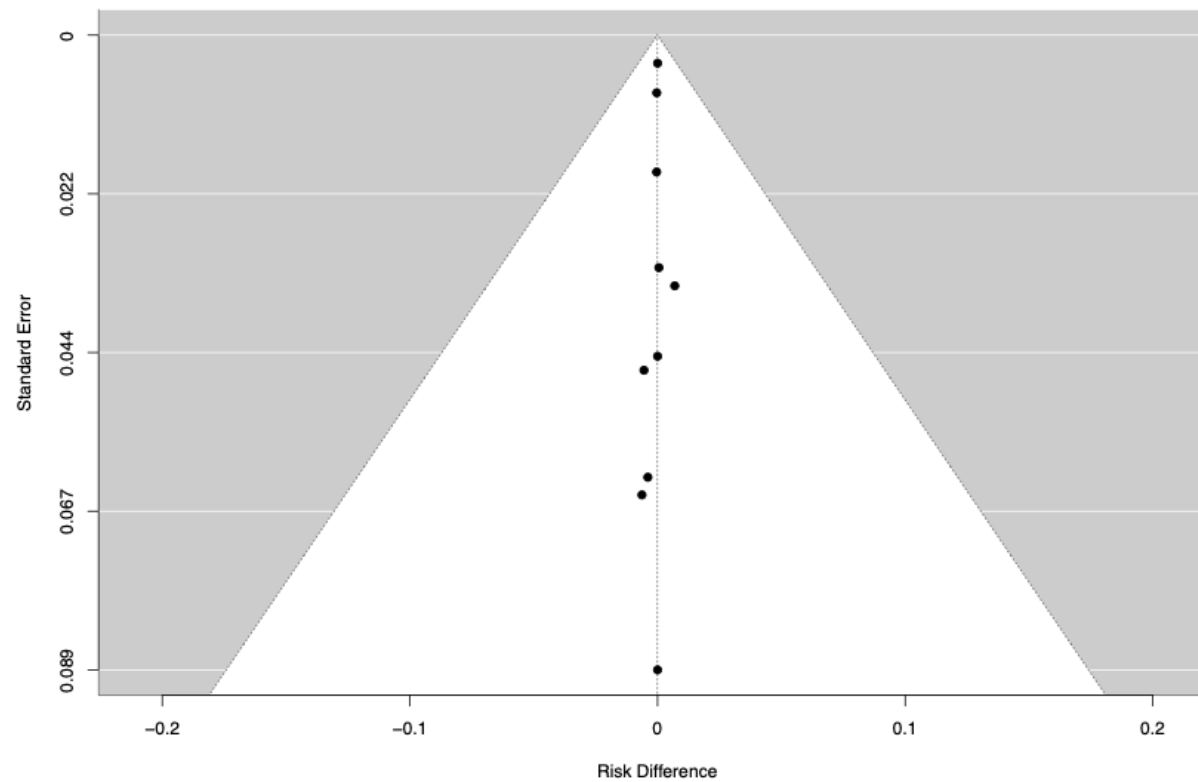
2.23 Funnel plot – Hypertension



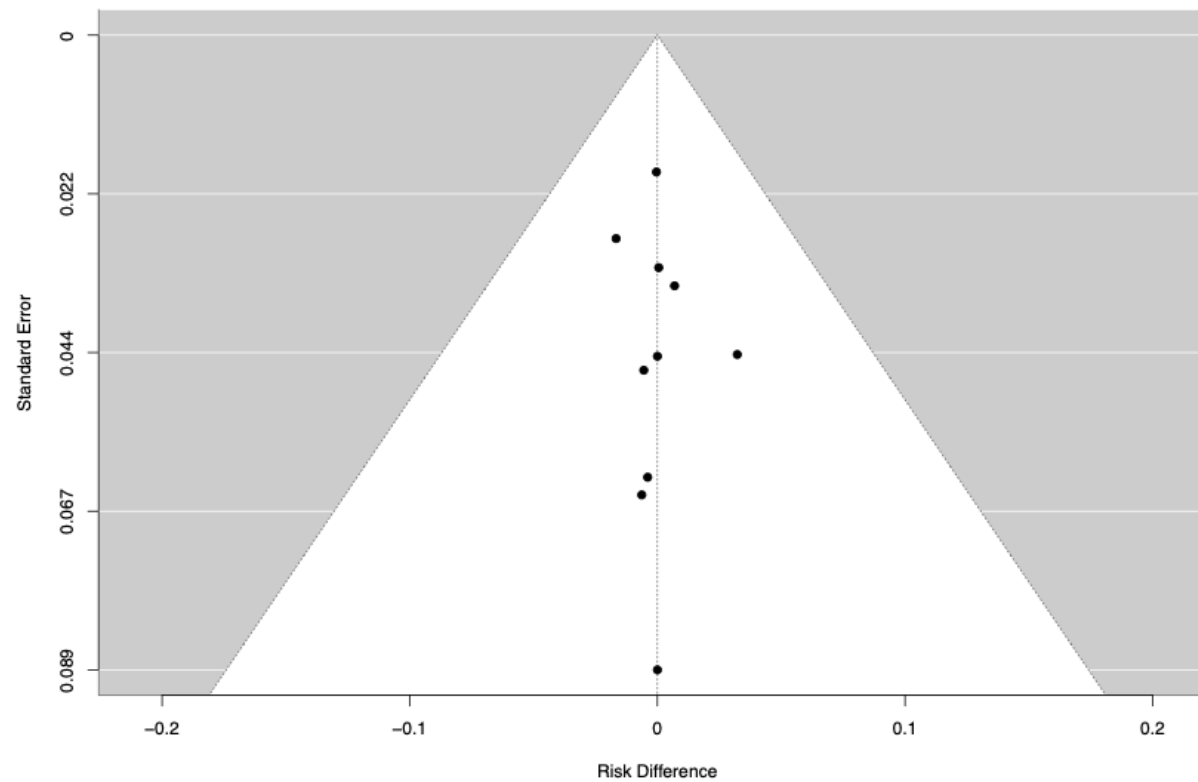
2.24 Funnel plot – Increased Appetite

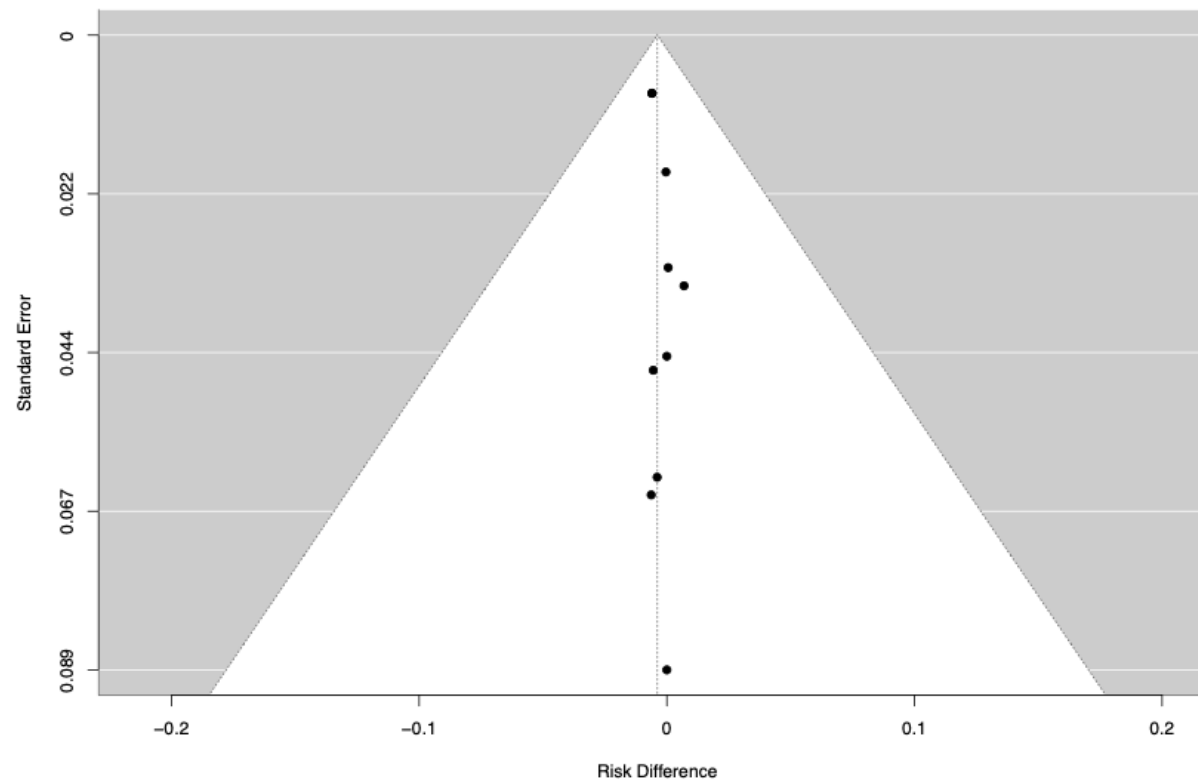


2.25 Funnel plot – Irritability

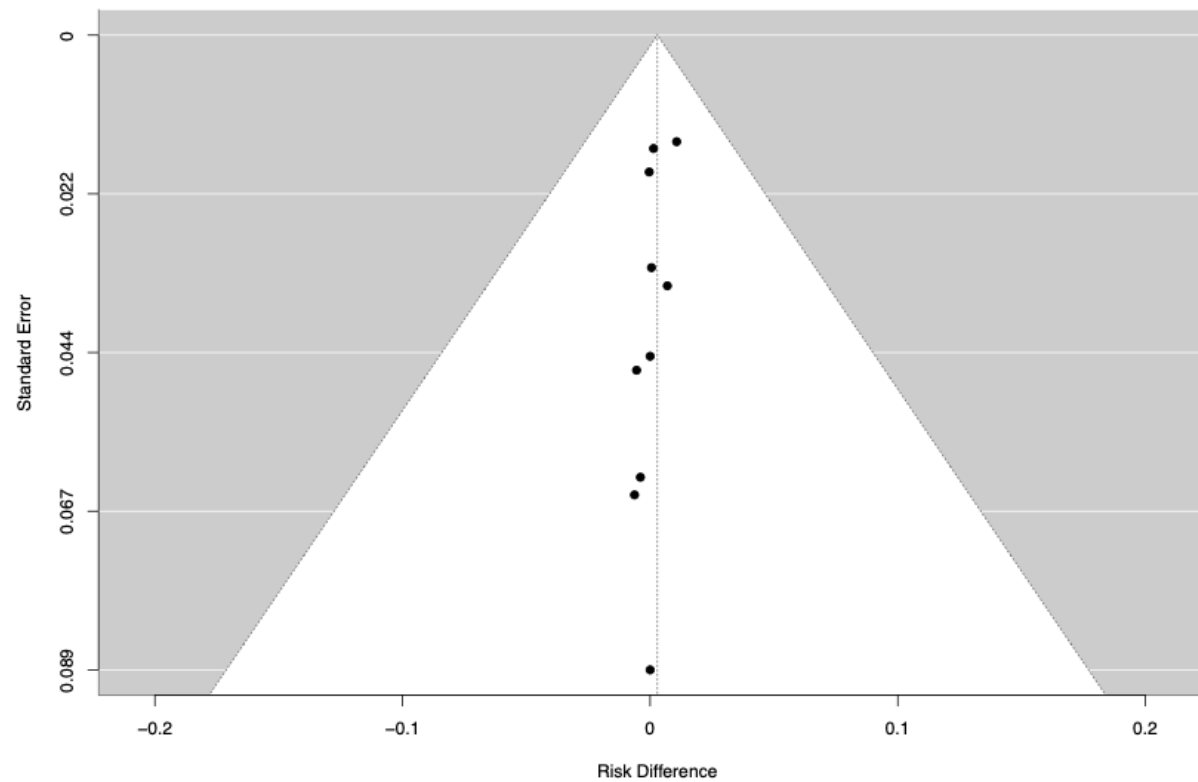


2.26 Funnel plot – Local Site Pain

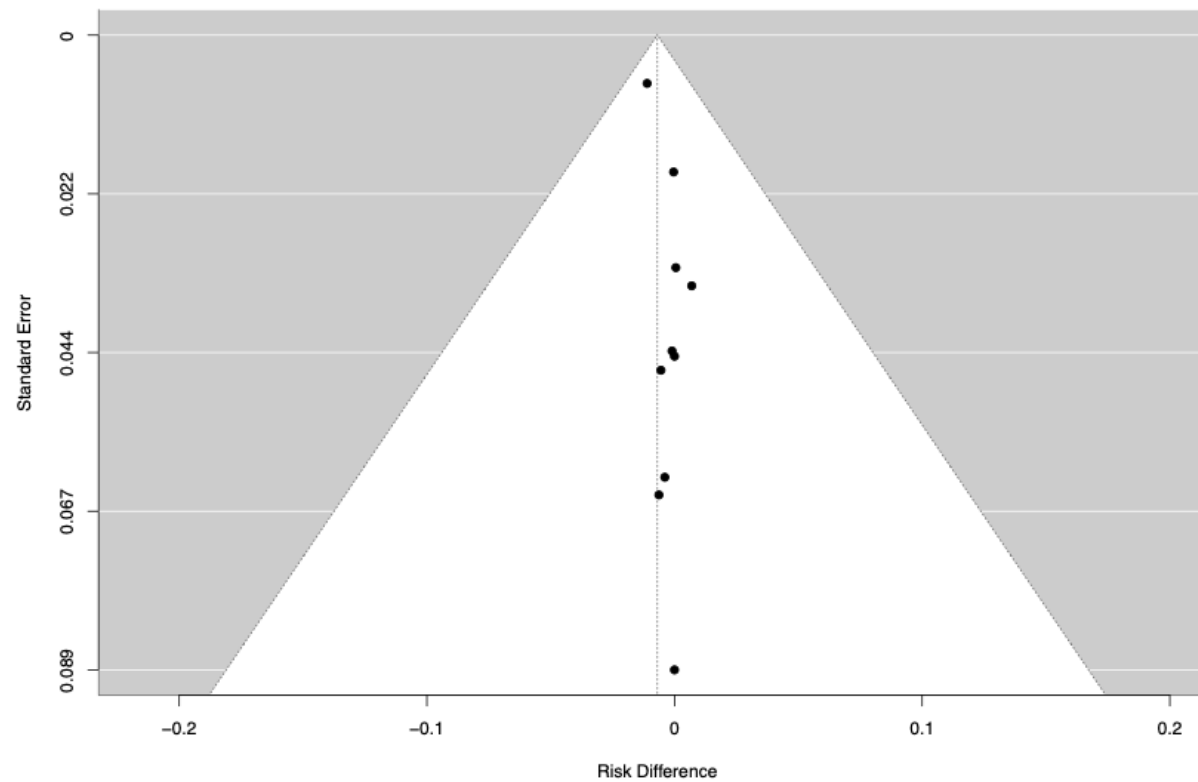




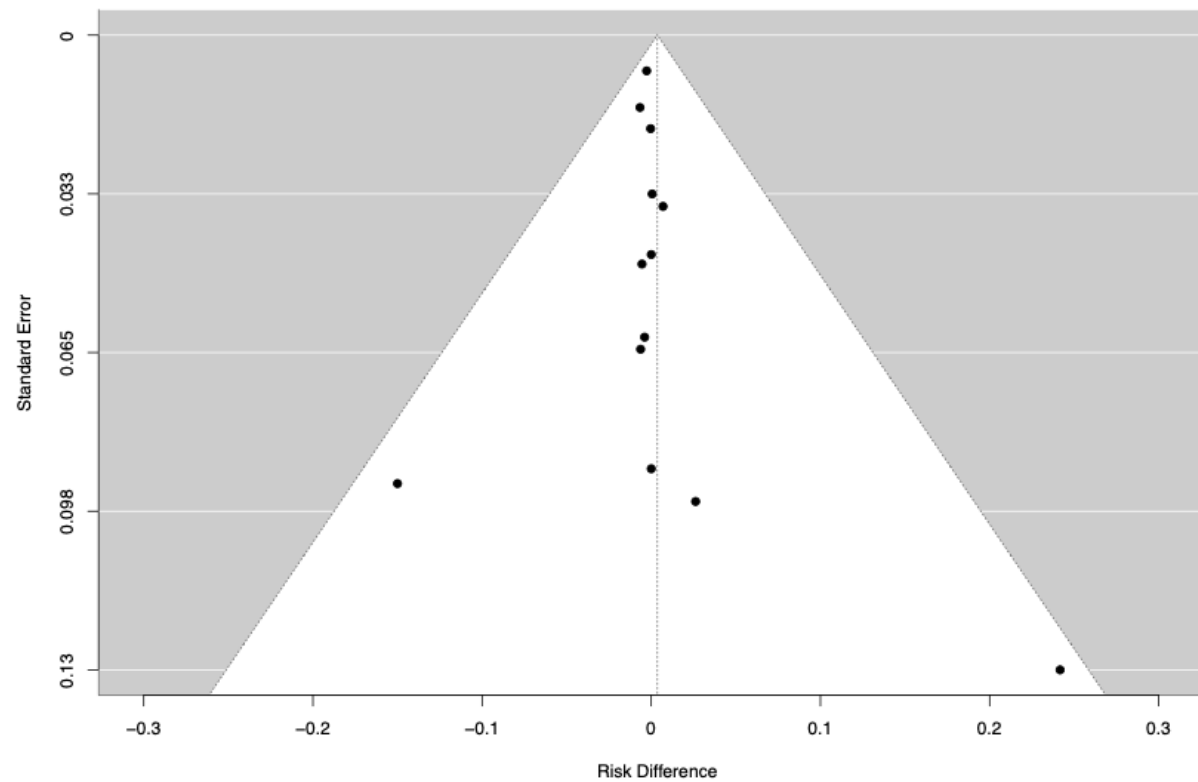
2.28 Funnel plot – Myalgia



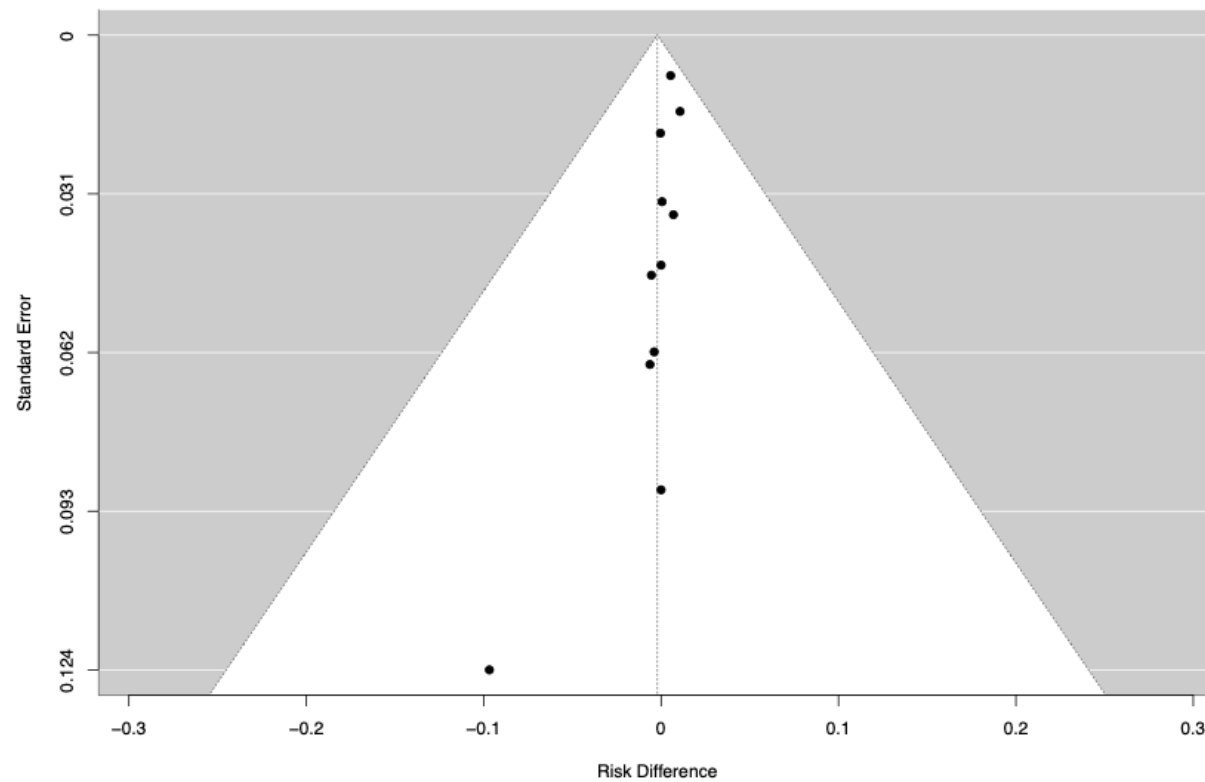
2.29 Funnel plot – Otitis Media



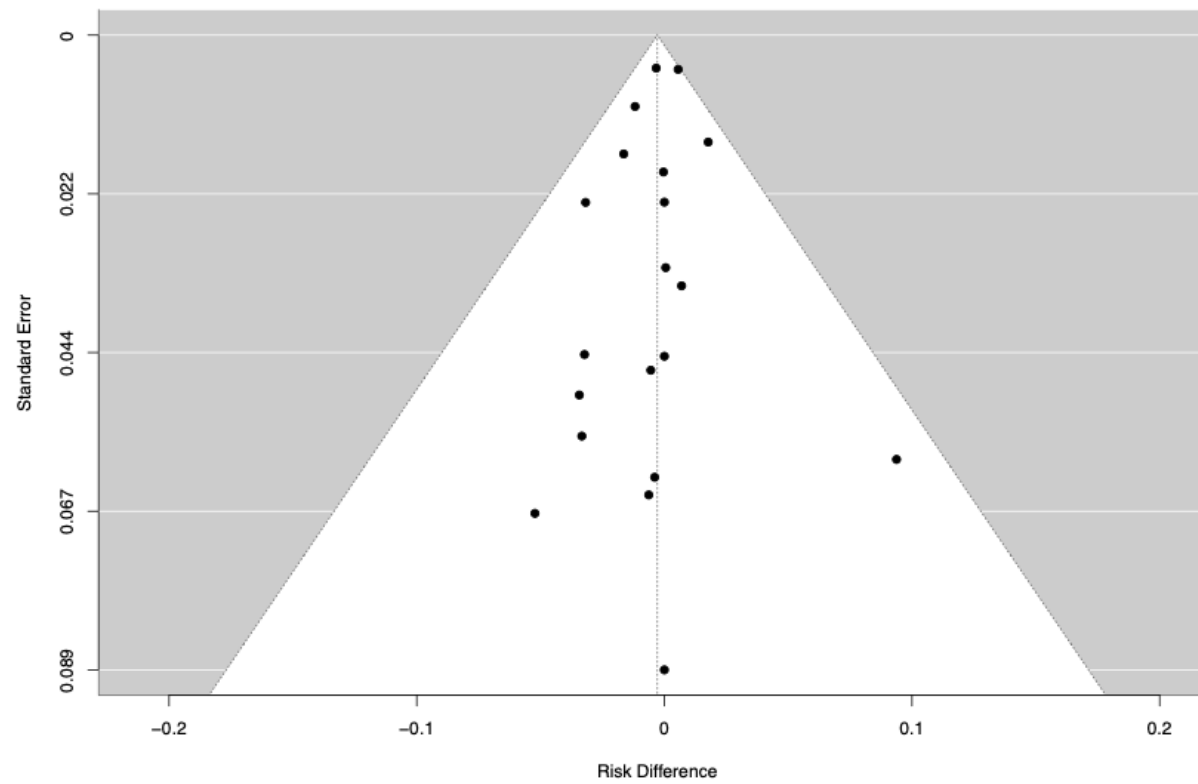
2.30 Funnel plot – Pneumonia



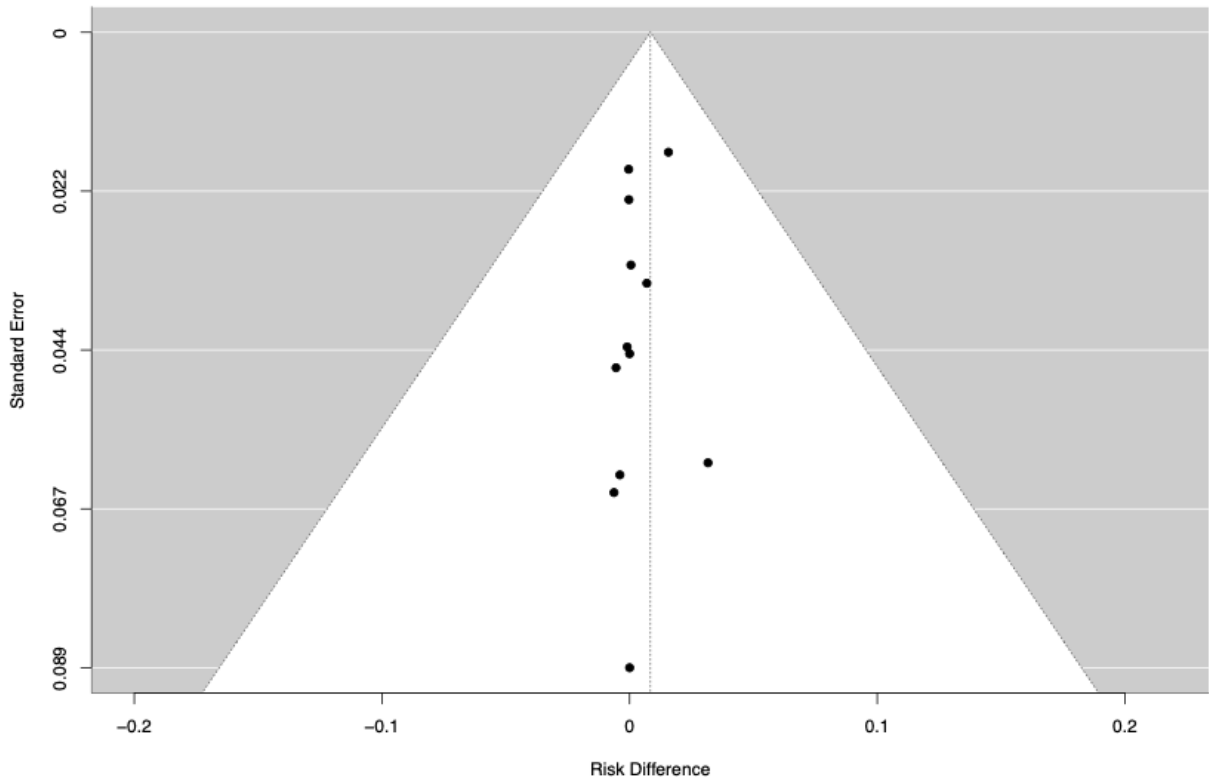
2.31 Funnel plot – Polyuria



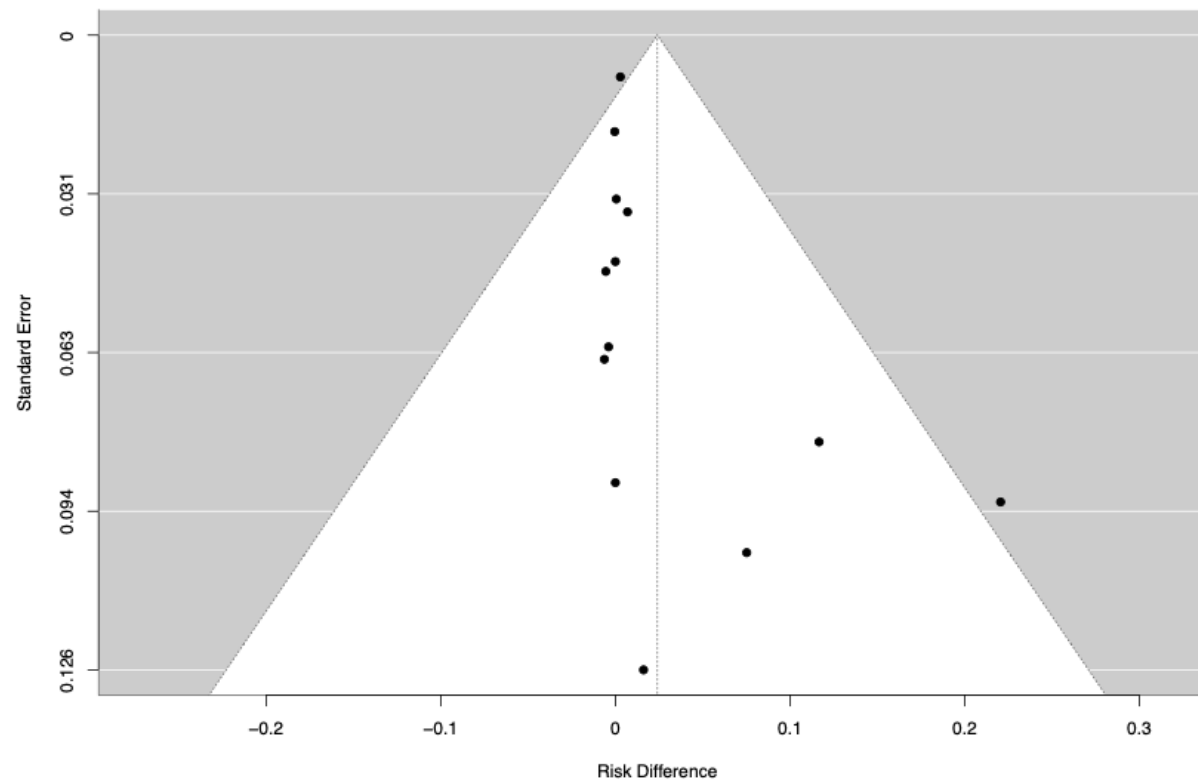
2.32 Funnel plot – Rash or Urticaria



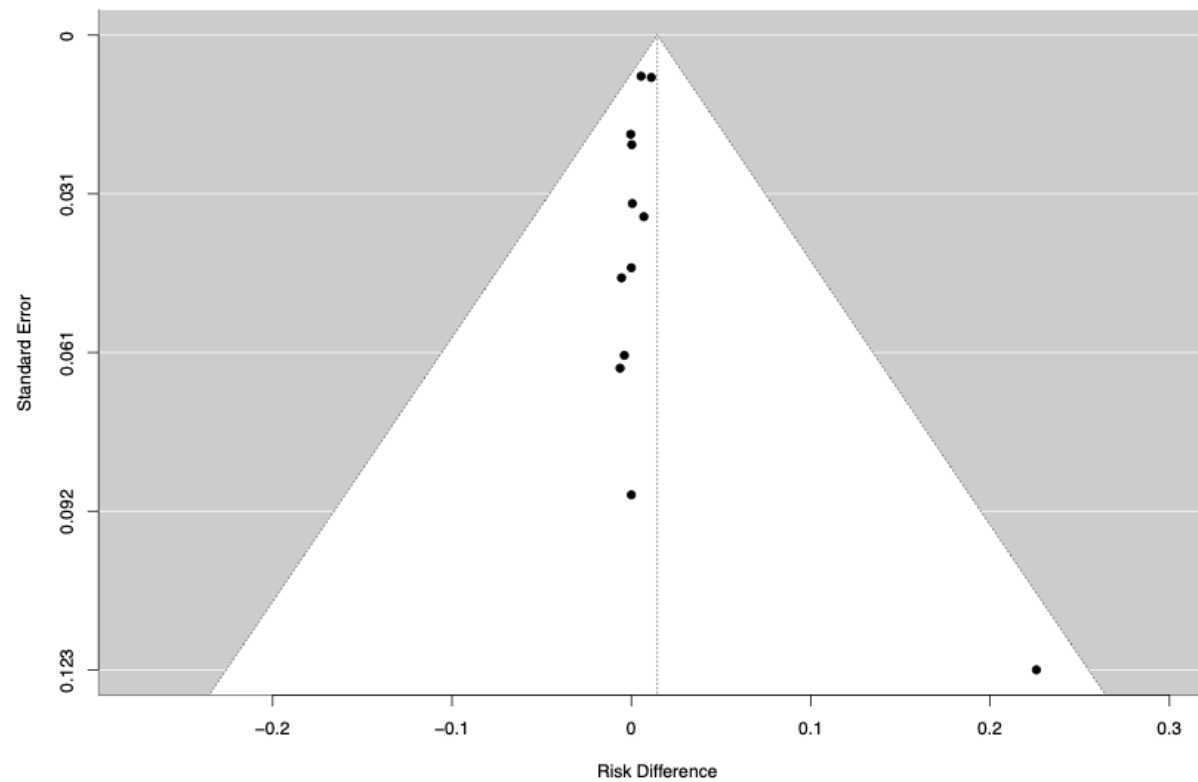
2.33 Funnel plot – Secondary (Opportunistic) Infection



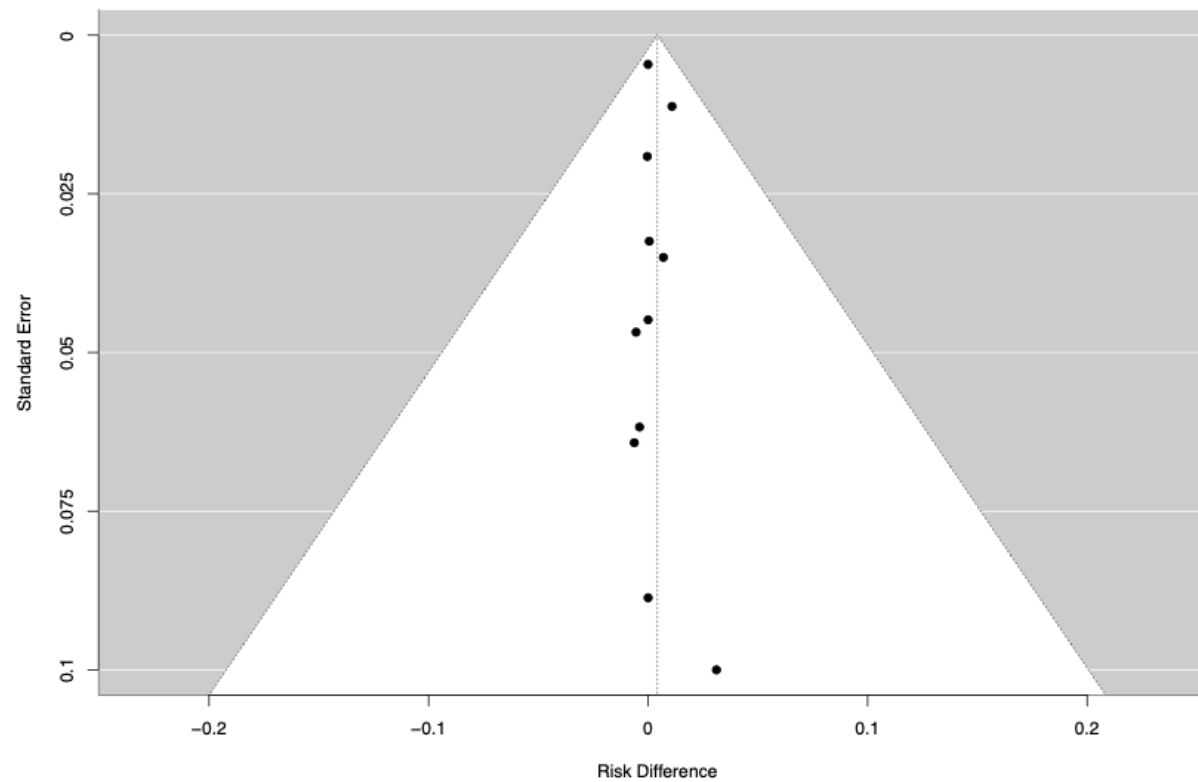
2.34 Funnel plot – Secondary Fever



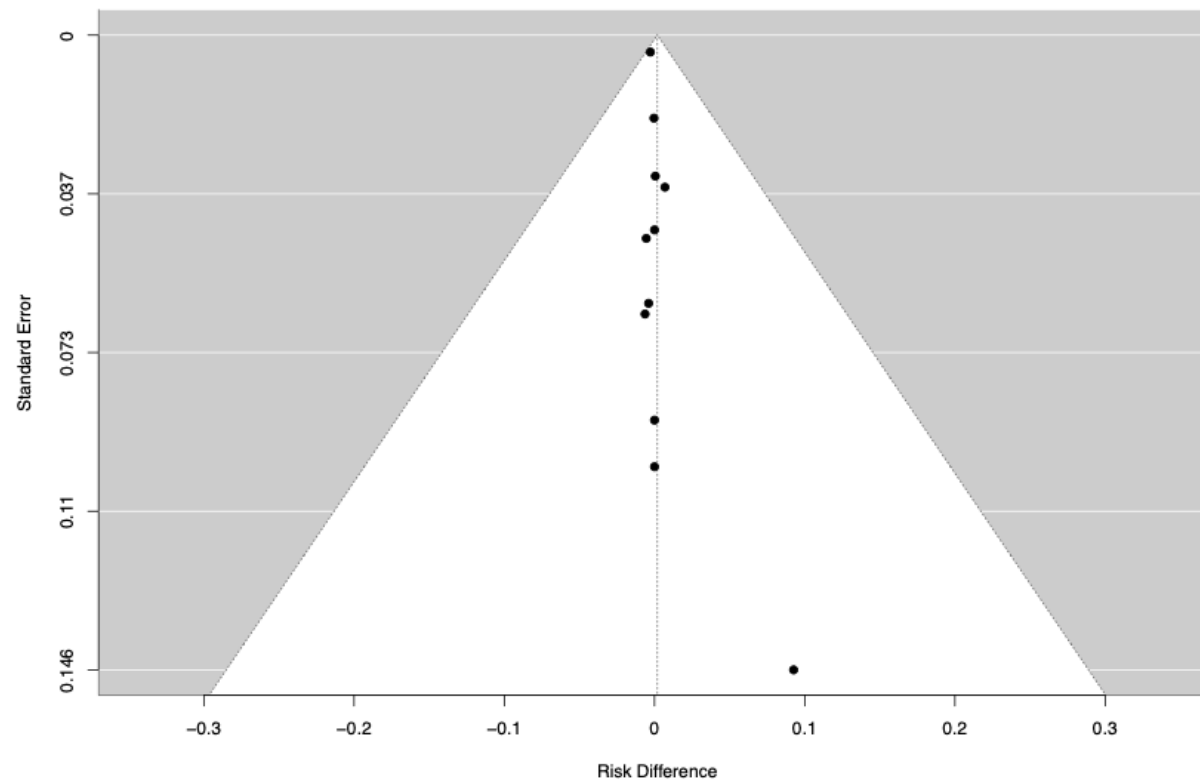
2.35 Funnel plot – Sleep Problems



2.36 Funnel plot – Tremor or Hyperactivity



2.37 Funnel plot – Urinary Tract Infection



eTable1. Non-poolable adverse events

Author, Year	Adverse Events	Corticosteroids (events/n)	Placebo or usual care (events/n)
Babl 2022	Change in vision	1/93	0/94
	Hair loss	0/93	2/18
Bernini 1998	Osteonecrosis	0/22	1/97
	Psychosis	0/22	6/31
Bjornson 2004	Bleeding from ear	0/359	1/361
	Bronchitis	3/359	1/361
	Dehydration	1/359	0/361
	Eye discharge	1/359	0/361
	Nasal discharge	1/359	3/170
	Respiratory syncytial virus (RSV) infection	1/259	0/94
	Sinusitis	0/359	1/170
	Sore throat	1/359	0/361
	Streptococcal throat infection	1/359	13/31
	Uncomplicated varicella	0/359	6/31

Carcao 2020	Allergic reaction	0/14	2/18
Csonka 2003	Restlessness	3/113	0/41
Dudley 2013	Bruising/skin problems	5/180	3/170
	Jaundice	1/180	1/170
	Malaise	1/180	0/170
	Nose Bleed	2/180	1/170
	Stevens Johnson syndrome	1/180	8/275
Francis 2018	Constipation	1/179	1/170
	Ear Pain	1/179	1/170
	Finger infection	0/179	1/170
	Flushed cheeks	1/179	0/55
	Frustration	0/179	1/19
	Parotitis	0/179	0/15
Hoffman 1988	Bacteremia	1/19	2/19
	Hypoglycemia	0/19	0/26
	Pulmonary edema	1/19	0/21
Newburger 2007	Anaphylaxis	0/101	1/97
	Hypotension	5/101	5/170

	Shock	1/101	0/15
Ogata 2012	Bradycardia	2/22	0/26
	Hypothermia	6/22	0/170
Olympia 2005	Swollen legs	0/57	0/21
Pierson 1974	Hypokalemia	0/30	1/170
	Muscular weakness	0/30	0/15
	Psychological reactions	0/30	0/21
Ranakusuma 2020	Anxiety	4/31	6/31
	Drowsiness	23/31	13/31
	Dry mouth	7/31	6/31
	Weight gain	13/31	2/117
Schaad 1993	Haemopoietic Abnormalities	0/60	3/21
	Hepatic dysfunction	0/60	0/97
	Renal Abnormalities	0/60	1/361
Shaikh 2020	Fussiness	25/271	2/361
Sundel 2003	Idiopathic thrombocytopenic purpura	1/18	0/170
	Rigors	1/18	4/31
Tagarro 2017	Transfusion	1/30	1/361

Tam 2012	Upper respiratory infection	4/150	0/68
Tassniyom 1993	Abscess at cut-down area	1/32	1/31
	Gingivitis	1/32	1/361
	Stiff joint	2/32	1/75
Usta 2014	Electrolyte Disturbances	0/42	0/41

eTable2. Instrument to assess the Credibility of Effect Modification Analyses (ICEMAN) Version 1.1- Outcome: Gastrointestinal Bleeding

Consider the following important instructions informed by common misapplications of ICEMAN in studies using the instrument

Complete a separate credibility assessment per each effect modifier (e.g., age, comorbidity, drug dose, etc.), outcome (e.g., mortality, stroke, duration of hospital stay), time-point (e.g., 3 months, 6 months), and effect measure (e.g. relative risk, risk difference).

Do not apply ICEMAN if the interaction p-value is 0.1 or larger, i.e., provides very little statistical support for the existence of an effect modification (ICEMAN is designed to address the possible claim of an effect modification rather than the claim of no effect modification).

Response options on the left indicate definitely or probably reduced credibility, response options on the right probably or definitely increased credibility

Completely unclear should be interpreted as probably reduced credibility.

To ensure transparency, provide a supporting comment under each question that provides a rationale for the rating.

To ensure transparency, provide a copy of the completed ICEMAN instrument in the supplement of your article.

CREDIBILITY ASSESSMENT

Essential preliminary considerations to define the possible effect modification of interest

State a single candidate effect modifier (e.g., age or comorbidity): **Route (Intravenous or Intramuscular vs Oral)**

Was the effect modifier measured before or at randomization? [**X**] yes, continue [] no, stop here and refer to manual for further instructions

State a single outcome and time-point (e.g., mortality at 1 year follow-up): **Gastrointestinal Bleeding, latest follow-up**

State a single effect measure (e.g., relative risk or risk difference): **Risk Diffence**

1: Is the analysis of effect modification based on comparison within rather than between trials?

☒ Completely between	☐ Mostly between or unclear	☐ Mostly within	☐ Completely within
Subgroup analysis or meta-regression comparing overall effects of each individual trial. This is typical for aggregate data meta-analysis.	Subgroup analysis or meta-regression with most information coming from overall effects, but some trials providing within-trial subgroup information	Most trials providing within-trial subgroup information; or individual participant data analysis that combines within and between trial information	All trials providing within-trial subgroup information or individual participant data; and the analysis separates within from between trial information, e.g., meta-analysis of interactions

Comment: **NA**

2: For within-trial comparisons, is the effect modification similar from trial to trial? ☒ Not applicable: no or one within-RCT comparison

☐ Definitely not similar	☐ Probably not similar or unclear	☐ Mostly similar	☐ Definitely similar
Effect modification reported for two or more trials and clearly different directions	Effect modification not reported for individual trials or too imprecise to tell	Effect modification reported for two or more trials, mostly similar in direction, but considerable differences in magnitude	Effect modification reported for two or more trials, similar in direction, only some differences in magnitude

Comment: **NA**

3: For between-trial comparisons, is the number of trials large? ☐ Not applicable: no between RCT comparison

☐ Very small	☐ Rather small or unclear	☒ Rather large	☐ Large
1 or 2 or in smallest subgroup; 5 or less in continuous meta-regression	3-4 in smallest subgroup; 6-10 in continuous meta-regression	5-9 in smallest subgroup; 11 to 15 in continuous meta-regression	10 or more in smallest subgroup; more than 15 in continuous meta-regression

Comment: **NA**

4: Was the direction of effect modification correctly hypothesized a priori?

☐ Definitely no	☐ Probably no or unclear	☐ Probably yes	☒ Definitely yes
Clearly post-hoc or results inconsistent with hypothesized direction or biologically very implausible	Vague hypothesis or hypothesized direction unclear	No prior protocol available but unequivocal statement of a priori hypothesis with correct direction of effect modification	Prior protocol available and includes correct specification of direction of effect modification, e.g., based on a biologic rationale

Comment: **NA**

5: Does a test for interaction suggest that chance is an unlikely explanation of the apparent effect modification? (consider irrespective of number of effect modifiers)

☐ Chance a very likely explanation	☐ Chance a likely explanation or unclear	☒ Chance may not explain	☐ Chance an unlikely explanation
Interaction or meta-regression p-value >0.05	Interaction or meta-regression p-value ≤0.05 and >0.01, or no test of interaction reported and not computable	Interaction or meta-regression p-value ≤0.01 and >0.005	Interaction or meta-regression p-value ≤0.005

Comment: NA

6: Did the authors test only a small number of effect modifiers or consider the number in their statistical analysis?

☐ Definitely no	☐ Probably no or unclear	☐ Probably yes	☒ Definitely yes
Explicitly exploratory analysis or large number of effect modifiers tested (e.g., greater than 10) and multiplicity not considered in analysis	No mention of number or 4-10 effect modifiers tested and number not considered in analysis	No protocol available but unequivocal statement of 3 or fewer effect modifiers tested	Protocol available and 3 or fewer effect modifiers tested or number considered in analysis

Comment:

7: Did the authors use a random effects model?

☒ Definitely no	☐ Probably no or unclear	☐ Probably yes	☐ Definitely yes
Fixed (or common) effect or fixed effects model explicitly stated	Probably fixed effect(s) model	Probably random (or mixed) effects	Random (or mixed) effects explicitly stated

Comment:

8: If the effect modifier is a continuous variable, were arbitrary cut points avoided? ☒ not applicable: not continuous

☐ Definitely no	☐ Probably no or unclear	☐ Probably yes	☐ Definitely yes
Analysis based on exploratory cut point(s), e.g., picking cut point associated with highest interaction p-value	Analysis based on cut point(s) of unclear origin	Analysis based on pre-specified cut point(s), e.g., suggested by prior RCT	Analysis based on the full continuum, e.g., assuming a linear or logarithmic relationship

Comment: NA

9 Optional: Are there any additional considerations that may increase or decrease credibility? (manual section 3.9) [X] not applicable

[] Yes, probably decrease

[] Yes, probably increase

Comment: **NA**

10: How would you rate the overall credibility of the proposed effect modification?

The overall rating should be driven by the items that decrease credibility. The following provides a sensible strategy:

All responses definitely or probably decrease credibility or unclear → very low

Two or more responses definitely decrease credibility → maximum usually low even if all other responses satisfy credibility criteria

One response definitely decreases credibility → maximum usually moderate even if all other responses satisfy credibility criteria

Two responses probably decrease credibility → maximum usually moderate even if all other responses satisfy credibility criteria

No response options definitely or probably decrease credibility → high very likely

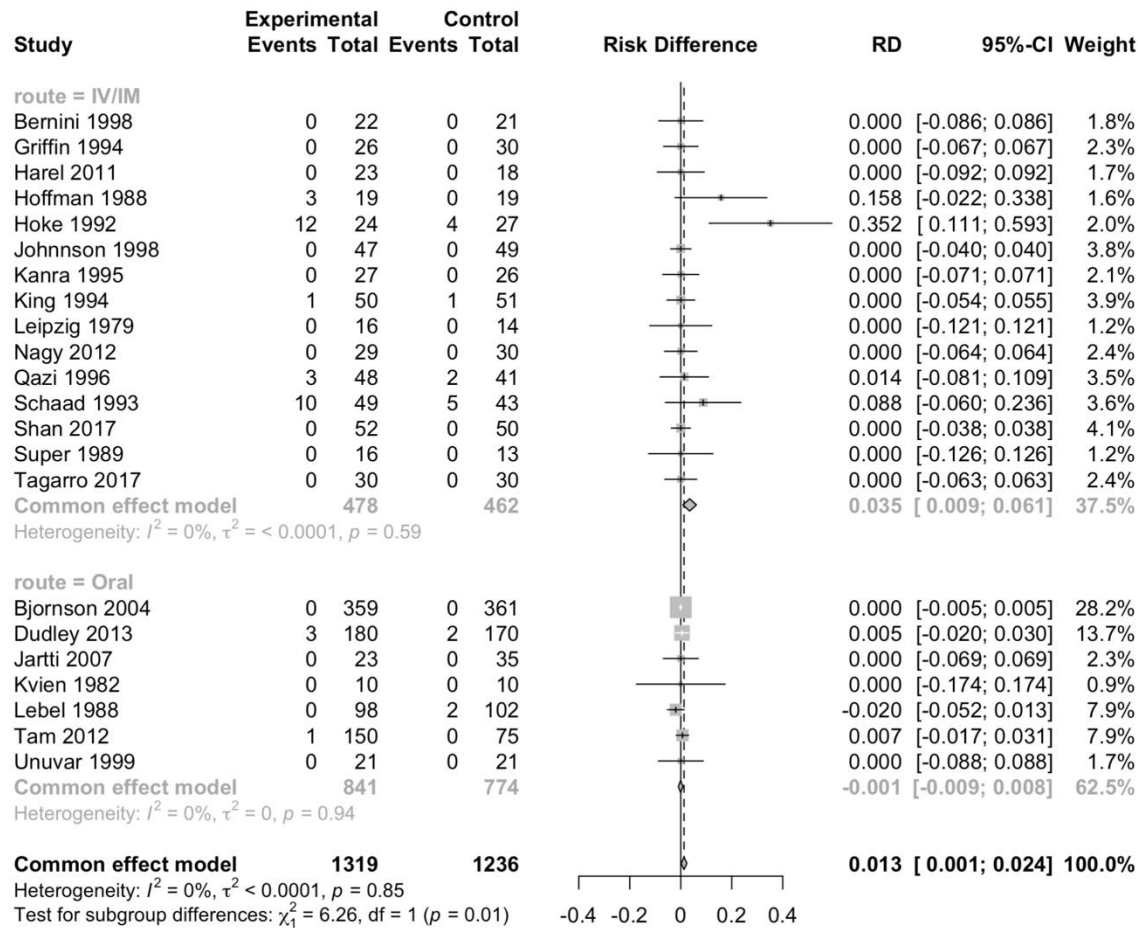
Place a mark on the continuous line (or type “x” in editable version)

Very low credibility	Low credibility	Moderate credibility	High credibility
Minimal to no support for effect modification; Use overall effect for each subgroup	Some but insufficient support for effect modification; Use overall effect for each subgroup but note remaining uncertainty	Likely effect modification; Use separate effects for each subgroup but note remaining uncertainty	Very likely effect modification; Use separate effects for each subgroup

Comment: **NA**

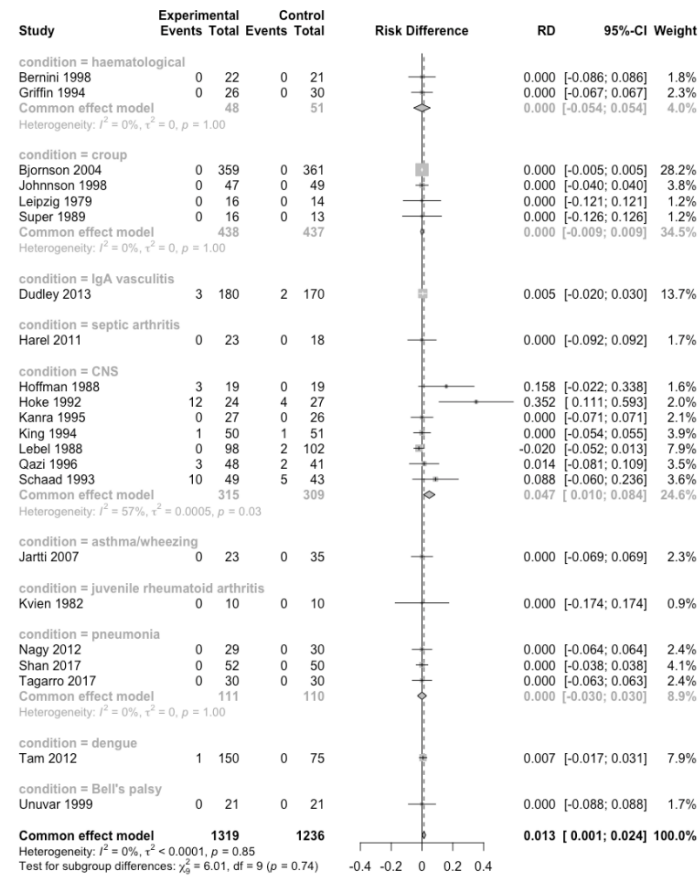
eFigure3. Subgroup Analyses

3.1 Gastrointestinal bleeding (Subgroup - route: intravenous/intramuscular vs oral)



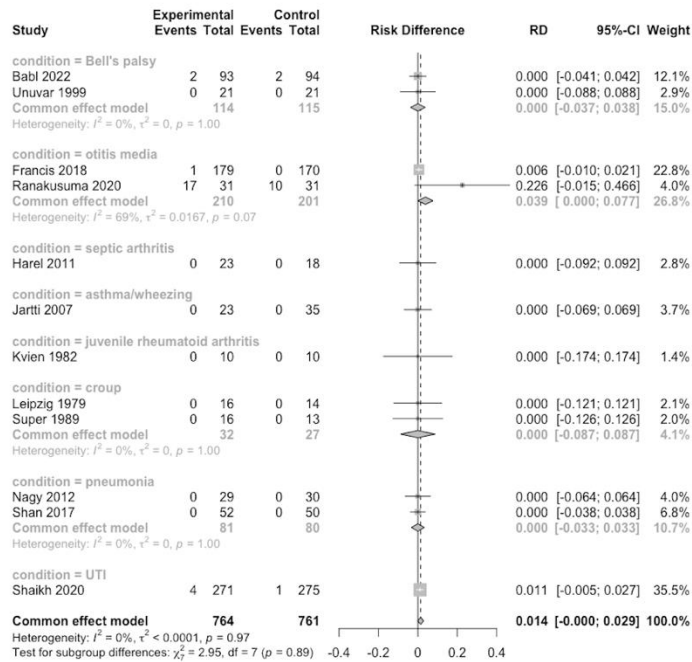
CI: confidence interval IV/IM: intravenous/intramuscular; RD: risk difference

3.2 Gastrointestinal bleeding (subgroup: condition)

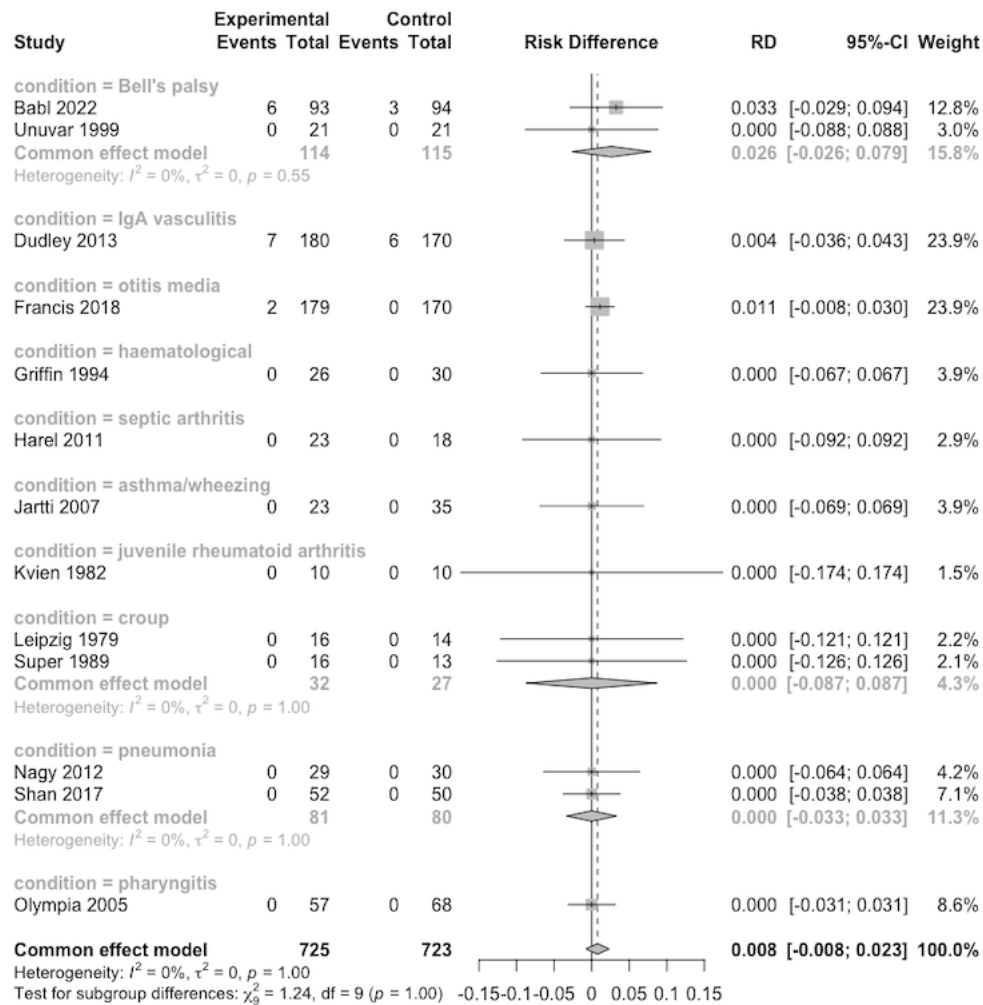


CNS= central nervous system; CI= confidence interval RD=risk difference

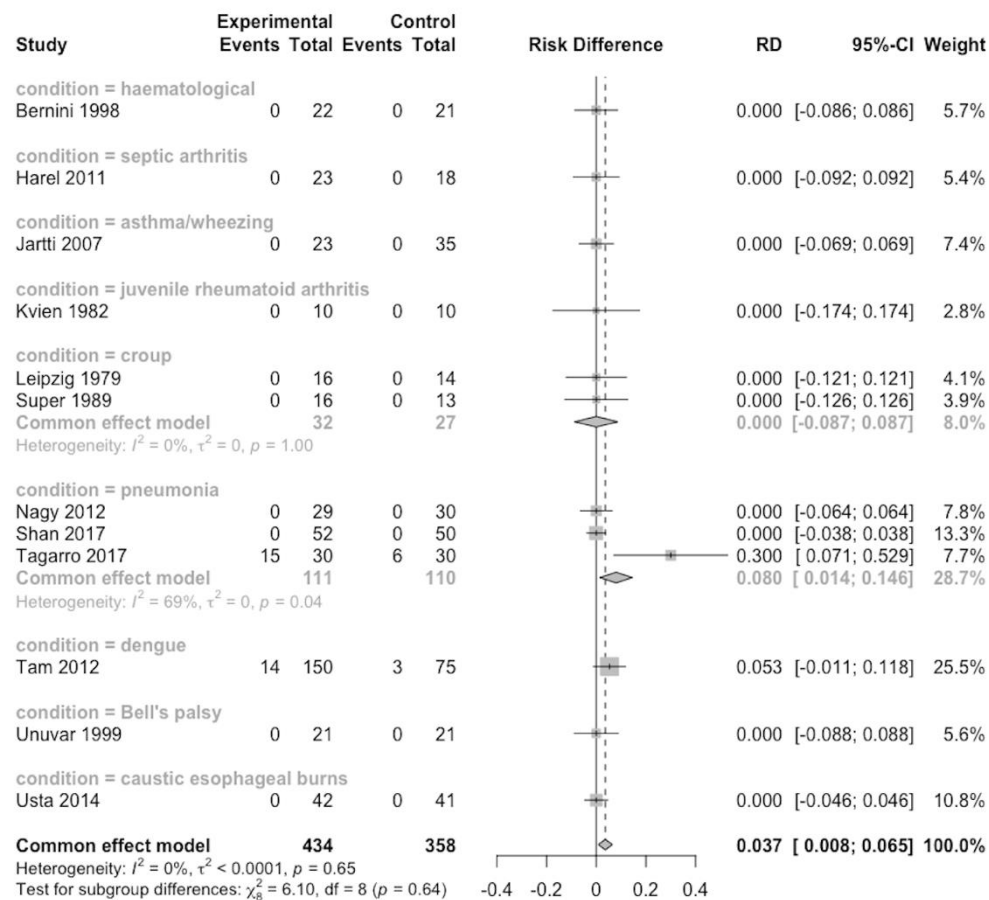
3.3 Sleep problems (subgroup: condition)



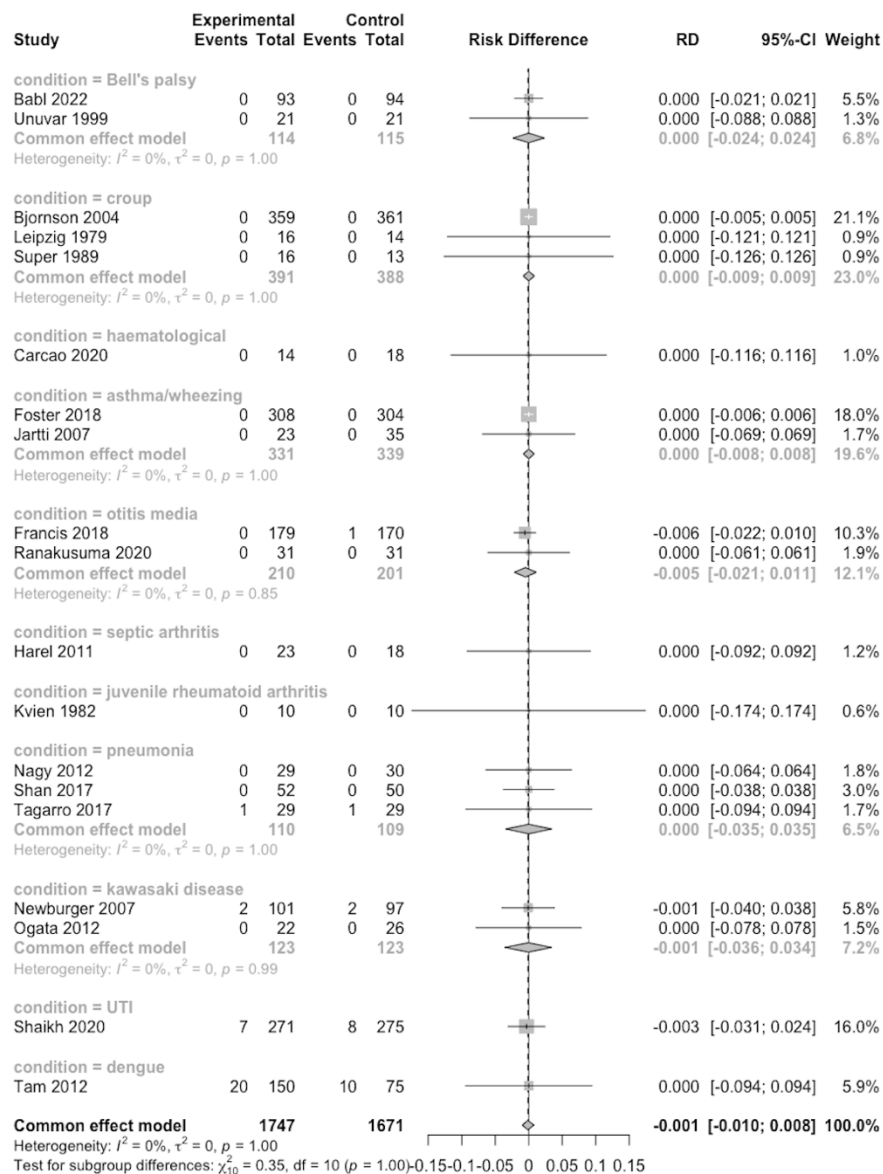
3.4 Change in behavior (subgroup: condition)



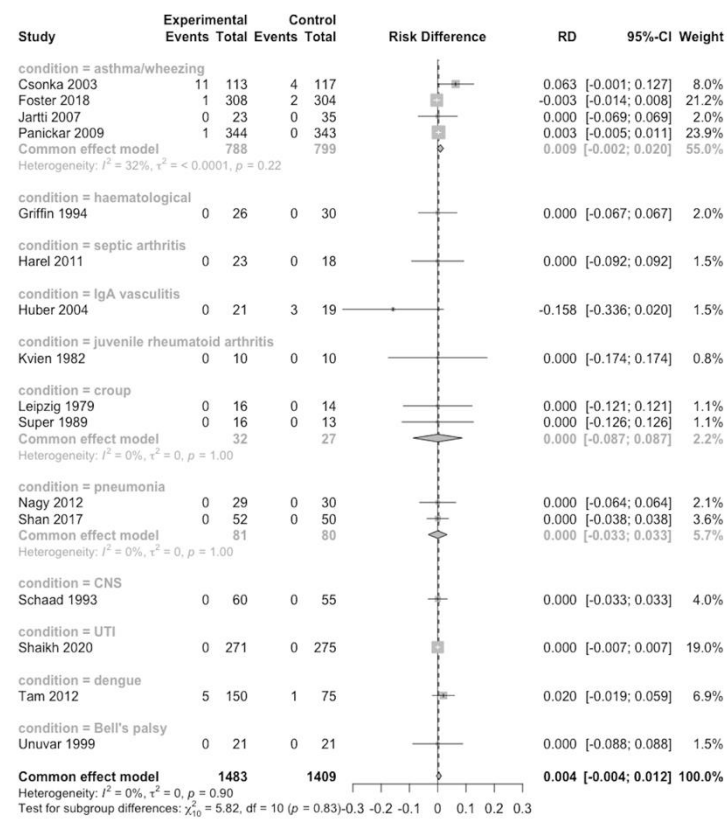
3.5 Hyperglycemia (subgroup: condition)



3.6 Serious Adverse Events (subgroup: condition)

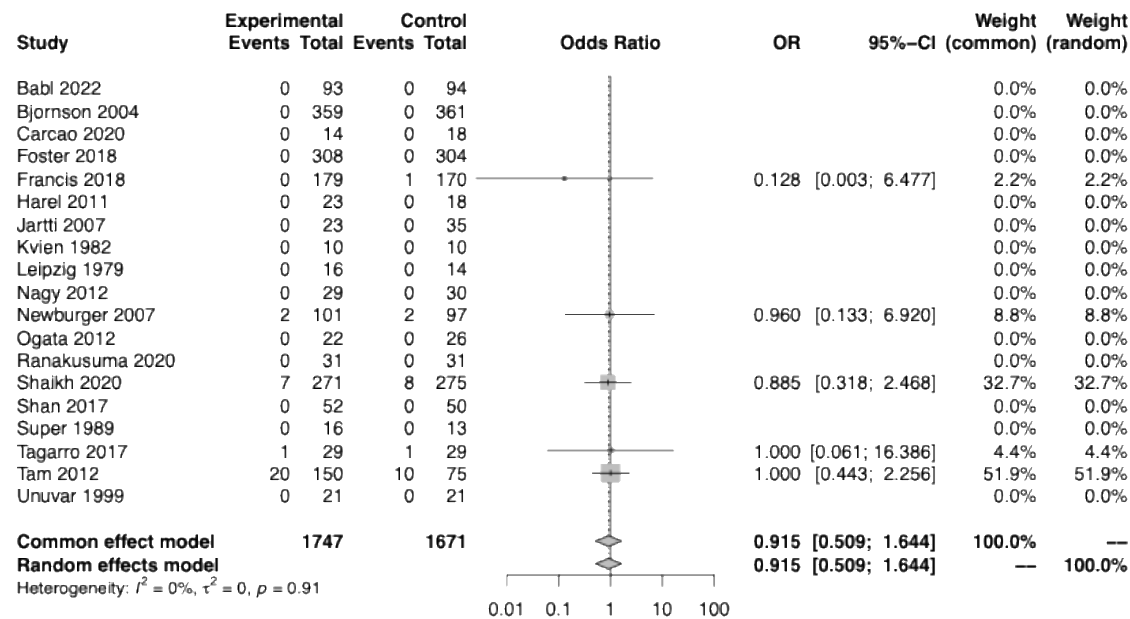


3.7 Adverse events leading to discontinuation (subgroup: condition)

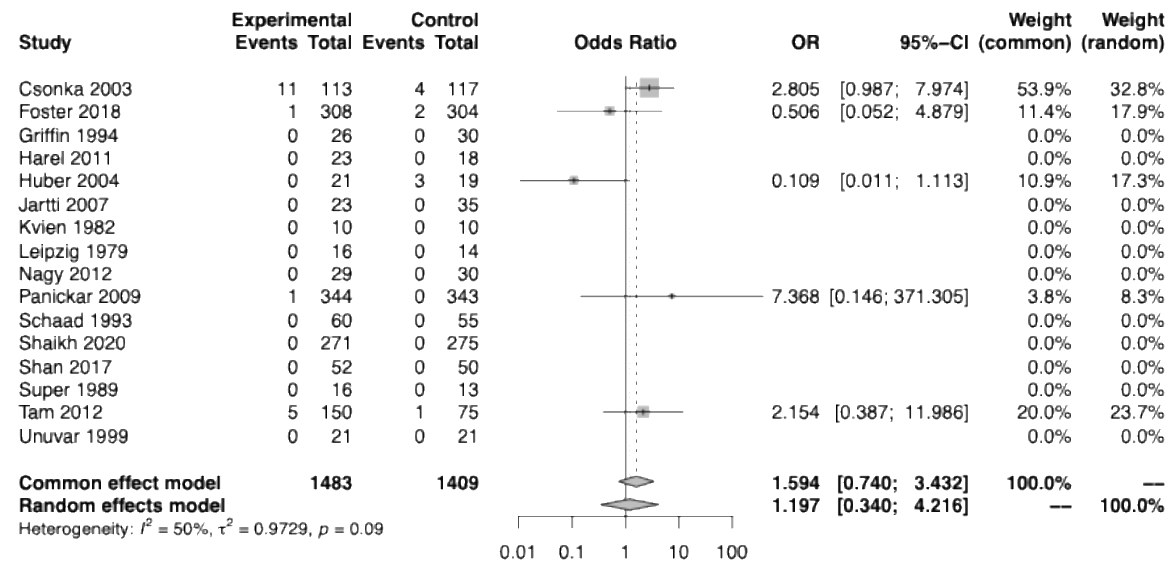


eFigure4. Sensitivity Analyses – Peto Odds Ratio

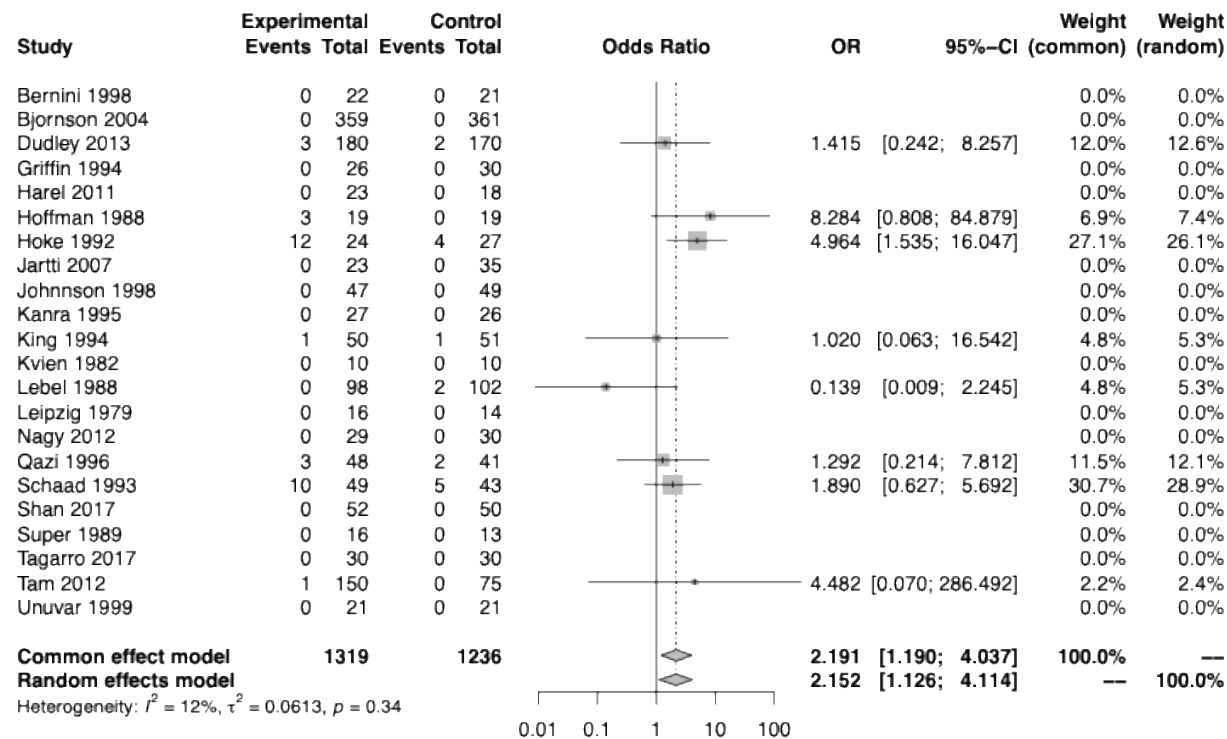
4.1 Serious Adverse Events (SAE)



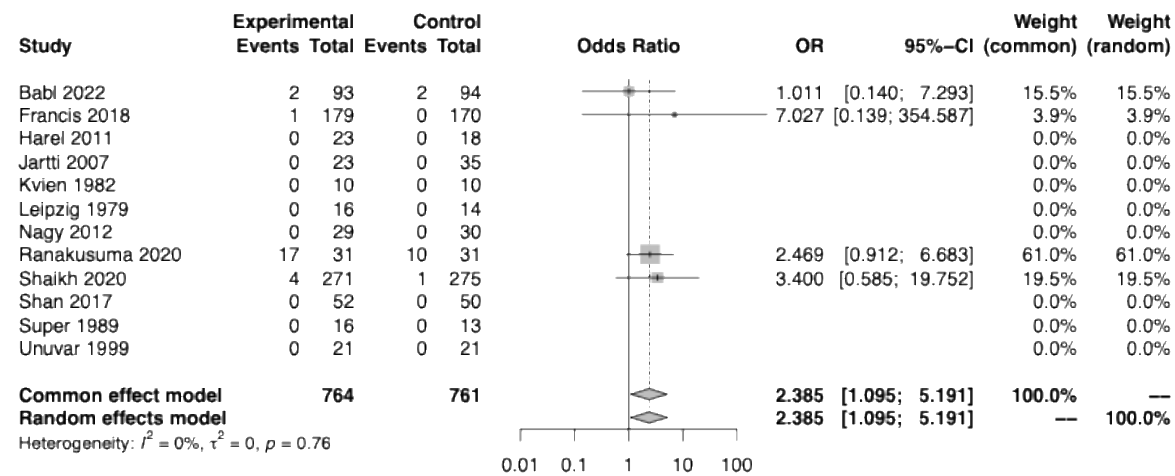
4.2 Adverse events leading to discontinuation



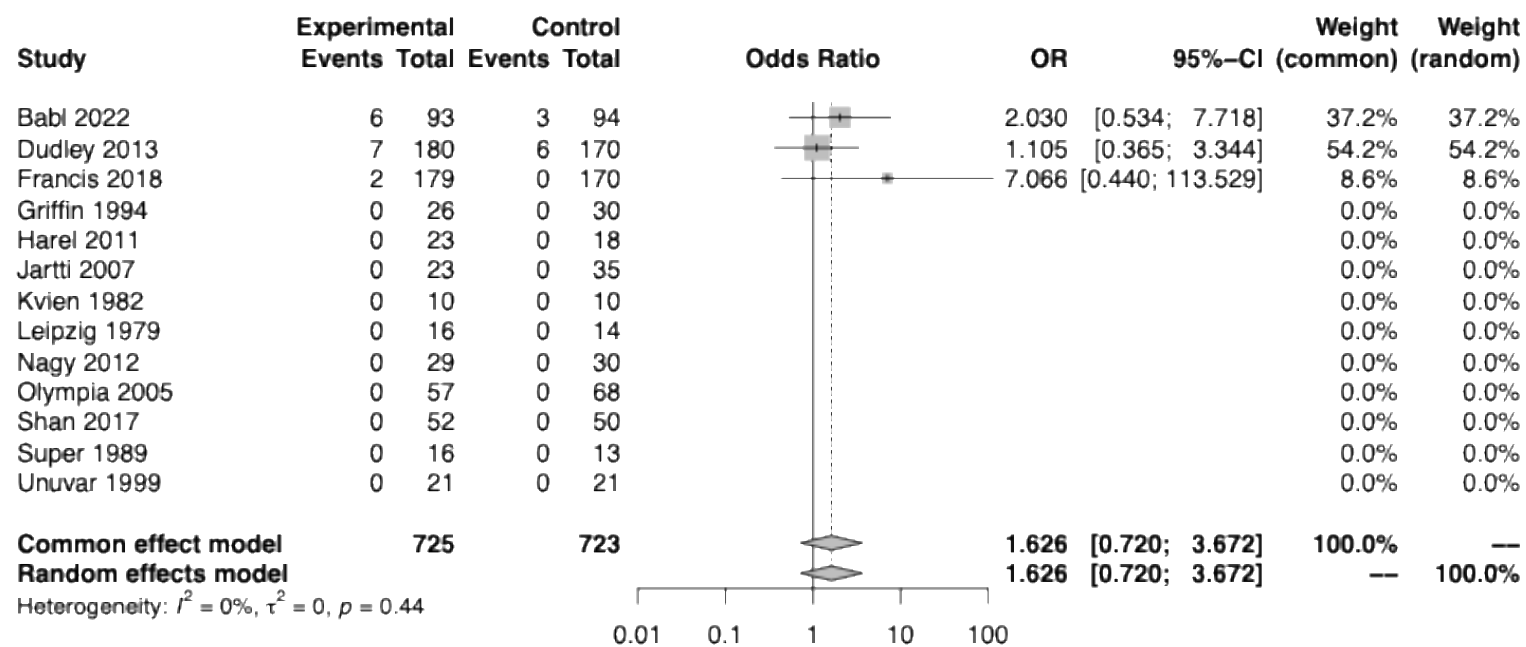
4.3 Gastrointestinal Bleeding



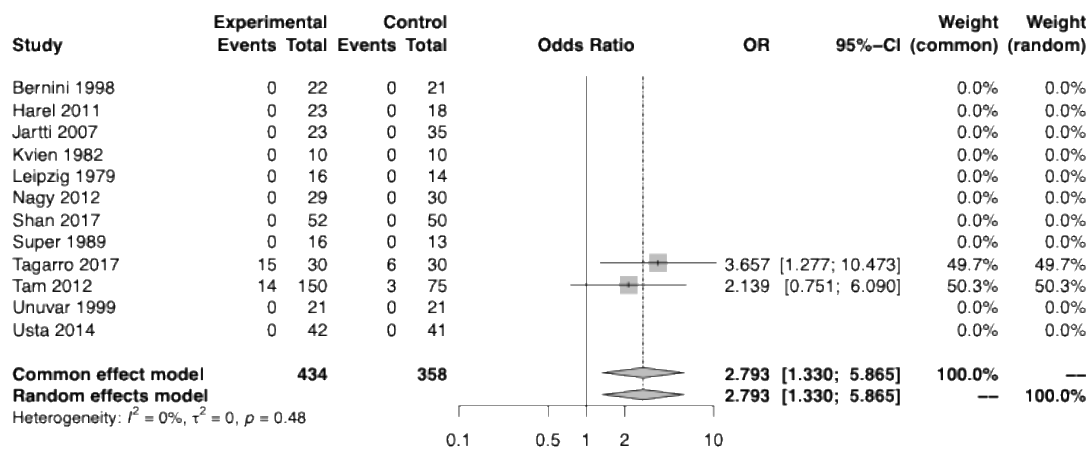
4.4 Sleep Problems



4.5 Change in Behaviour



4.6 Hyperglycemia



1 **eTable3. Previous Systematic Reviews**

Author, Year	Main findings	Limitations
Aljebab, 2016	Among the most frequent AEs with short-course oral corticosteroids in children were vomiting, behavioral changes and sleep disturbance were among the most frequent AEs. Increase in infection rates	Limited to oral interventions, Exclusion of studies at high risk of bias Fails to assess the certainty of evidence Included observational studies and did not perform meta-analyses Inclusion of observational studies No meta-analyses performed
Fernandes, 2019	Among young children (<6 years) with respiratory conditions using inhaled or systemic corticosteroids (<15 days), there was little to difference on the risk of secondary infections.	Fails to assess the certainty of evidence Limited number of clinical conditions Inclusion of observational studies
Chaudhuri, 2024	In children and adults with sepsis, acute respiratory distress syndrome and community-acquired pneumonia, corticosteroids are associated with hyperglycemia and hypernatremia with no effect on gastrointestinal bleeding or secondary infections.	Limited number of clinical conditions
Kulkarni, 2022	In adults using systemic corticosteroid therapy, is associated with increased risk of metabolic adverse events (e.g., hyperglycemia, hypertension, weight gain and hyperlipidaemia)	Limited number of adverse events studied Fails to assess the certainty of evidence
Efraij, 2018	The use of oral corticosteroids in adults with asthma is associated with complications such as diabetes, hypertension and bone and muscle complications.	Limited number of clinical conditions Fails to assess the certainty of evidence

2 **eTable4. Method used to capture adverse events in included studies**

Author, Year	Method
Babl 2022	Fourteen days after randomization, the parent/guardian/ participant received a phone call from the study team to assess AEs. One month after randomization, participants attended a visit at the study site where they had been recruited. If the participant was unable to attend the study site, this was completed through videoconferencing. A specialist clinician reviewed the participant for AEs.
Bernini 1998	NR
Carcao 2020	Follow-up AE questionnaires were completed by the parents/children in clinic or by telephone by local study coordinators.
Connett 1994	NR
Csonka 2003	Diary card recordings were made twice daily for 14 days. Children were examined by the study physician 14 to 21 days after the initial ED visit. Diary entries and patient files were reviewed, and patients who did not return for reassessment were contacted by telephone.
Dudley 2013	AEs assessed by clinician at the end of the 4-week visit.
Foster 2018	AEs were captured at follow-up via completion of a 7-day symptom diary and at a 10-day and 3-month phone call by masked research assistants. During follow-up phone calls, legal guardians were asked for the presence of vomiting or any other reasons for not completing the study drug.

Francis 2018	Legal guardians were provided with a symptom diary to complete at home during the first 5 weeks used to record AEs.
Griffin 1994	NR
Harel 2011	NR
Hoffman 1988	NR
Hoke 1992	NR
Huber 2004	Structured diary was completed by legal guardians to document AEs during 14 days.
Jartti 2007	NR
Johnnson 1998	NR
Kanra 1995	NR
King 1994	NR
Kuusela 1988	NR
Kvien 1982	NR
Lebel 1988	NR
Leipzig 1979	NR
Lv 2022	NR
Medeiros 2007	NR
Nagy 2012	NR

Newburger 2007	NR
Ogata 2012	AEs were documented in the daily medical record reviews by nurses.
Olympia 2005	The child or child's legal guardian was contacted by telephone daily by the research team from the time of discharge to the time of complete resolution of the sore throat.
Panickar 2009	NR
Pierson 1974	NR
Prakash 2006	NR
Qazi 1996	The presence of AEs, including death, and their possible relation to the administration of the study drugs was assessed daily. These events included secondary fever (defined as recurrence of temperatures higher than 37.8°C after 24 hours or more and evidence of blood testing at least three times per week) gastrointestinal bleeding assessed by occult.
Ranakusuma 2020	NR
Ruohola 1999	NR
Schaad 1993	NR
Shaikh 2020	Staff reviewed the child's medical record for any medical care visits since their last study contact for any AEs. If child was seen or had any new symptoms within 2 weeks of taking study product, the symptoms were reported as AEs. After 2 weeks of taking study product, if a child was seen for fever or urinary symptoms but not diagnosed with a urinary tract infection these symptoms were reported as an AE.

Shan 2017	NR
Sundel 2003	Safety of treatment was assessed by the occurrence of prospectively defined aAEs that were documented during daily medical record reviews by the study nurse.
Super 1989	NR
Tagarro 2017	NR
Tam 2012	NR
Tassniyom 1993	NR
Unuvar 1999	NR
Usta 2014	Patients in the study group were monitored for the AEs of the treatment including hyperglycemia, high blood pressure, electrolyte disturbances, and infections.
Wang 2022	NR

3 NR: Not reported

4