

Supplementary Methods

Search Strategy for PICO Questions 1, 2, and 7

Initial search date: July 23, 2018

Databases searched: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE Daily and Ovid MEDLINE 1946-Present, Embase Classic+Embase 1947 to 2018 July 20: Wiley Cochrane Ovid MEDLINE, Embase

#	Searches	Results
1	exp *Anti-Bacterial Agents/ use ppez	416,789
2	exp Anti-Bacterial Agents/ae [Adverse Effects]	241,469
3	exp *antibiotic agent/ use emczd	533,685
4	exp antibiotic agent/ae [Adverse Drug Reaction]	86,043
5	(anti-bacteria* or antibacteria* or anti-biotic* or antibiotic*).ti.	262,253
6	*gastroenteritis/ use ppez or *dysentery/ use ppez or *enteritis/ use ppez or *enterocolitis/ use ppez or *gastritis/ use ppez	33,109
7	*enterocolitis/ use emczd or *dysentery/ use emczd or *enteritis/ use emczd or exp acute gastroenteritis/ use emczd or exp viral gastroenteritis/ use emczd or *gastritis/ use emczd	50,443
8	((acute or infectious) adj2 gastroenteritis).ti,ab.	10,996
9	exp *DIARRHEA/	74,022
10	exp antibiotic associated diarrhea/ use emczd	553
11	(Diarrhoea or diarrhea).ti.	50,932
12	exp *Clostridium difficile/ use ppez	6553
13	exp *Clostridium difficile infection/ use emczd	5976
14	(C difficile or C diff or Clostridium difficile).ti,ab.	31,883
15	or/1-14	1,376,768
16	exp *Synbiotics/ use ppez	284
17	exp *synbiotic agent/ use emczd	620
18	exp *PROBIOTICS/ use ppez	10,392
19	exp *probiotic agent/ use emczd	15,101
20	(probiotic* or synbiotic*).ti,ab.	42,845
21	(beneficial adj2 (microb* or bacter*)).ti,ab.	3663
22	or/16-21	49,206
23	15 and 22	6347
24	animals/ not (humans/ and animals/)	5,798,837
25	23 not 24	5902
26	limit 25 to english language	5243
27	limit 26 to dd=20070101-20180630 [Limit not valid in Ovid MEDLINE,Ovid MEDLINE Daily Update,Ovid MEDLINE In-Process,Ovid MEDLINE Publisher; records were retained]	3914
28	limit 26 to ed=20070101-20180630 [Limit not valid in Embase; records were retained]	4718
29	27 or 28	5243
30	limit 29 to (case reports or comment or editorial or letter or note) [Limit not valid in Ovid MEDLINE,Ovid MEDLINE Daily Update,Ovid MEDLINE In-Process,Ovid MEDLINE Publisher,Embase; records were retained]	416
31	Case Report/	42,46,270
32	29 not (30 or 31)	4761
33	remove duplicates from 32	3510

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ID	Search	Hits
#1	MeSH descriptor: [Anti-Bacterial Agents] explode all trees	12105
#2	(anti-bacteria* or antibacteria* or anti-biotic* or antibiotic*).ti	7706
#3	MeSH descriptor: [Gastroenteritis] this term only	484
#4	MeSH descriptor: [Dysentery] explode all trees	237
#5	MeSH descriptor: [Enteritis] explode all trees	224

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ID	Search	Hits
#6	MeSH descriptor: [Enterocolitis] explode all trees	398
#7	MeSH descriptor: [Gastritis] explode all trees	659
#8	((acute or infectious) near/2 gastroenteritis):ti,ab	306
#9	MeSH descriptor: [Diarrhea] explode all trees	3285
#10	(Diarrhoea or diarrhea):ti	2717
#11	MeSH descriptor: [Clostridium difficile] explode all trees	222
#12	(C difficile or C diff or Clostridium difficile):ti,ab	1013
#13	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12	23268
#14	MeSH descriptor: [Synbiotics] explode all trees	107
#15	MeSH descriptor: [Probiotics] explode all trees	1833
#16	(probiotic* or synbiotic*):ti,ab	4030
#17	(beneficial near/2 (microb* or bacter*)):ti,ab	113
#18	#14 or #15 or #16 or #17	4401
#19	#13 and #18 Publication Year from 2007 to 2018	618

MeSH, medical subject headings.

Search Strategy for PICO Questions 3, 4, and 5

Initial search date: August 19, 2018

Databases searched: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE Daily and Ovid MEDLINE 1946-Present, Embase Classic+Embase 1947 to 2018 August 17; Wiley Cochrane Ovid MEDLINE, Embase

#	Searches	Results
1	exp Inflammatory Bowel Diseases/ use ppez	73,366
2	exp inflammatory bowel disease/ use emczd	129,234
3	exp POUCHITIS/ use ppez	757
4	exp ileitis/ use emczd	5783
5	(ileitis or pouchitis).ti,ab.	8498
6	inflammatory bowel.ti,ab.	103,035
7	crohn*.ti,ab.	110,375
8	((regional or terminal or granulomatous or ulcerative) adj2 (enteritis or colitis)).ti,ab.	91,883
9	or/1-8	259,374
10	exp *Synbiotics/ use ppez	287
11	exp *synbiotic agent/ use emczd	565
12	exp *PROBIOTICS/ use ppez	10,506
13	exp *probiotic agent/ use emczd	14,051
14	(probiotic* or synbiotic*).ti,ab.	41,330
15	(beneficial adj2 (microb* or bacter*)).ti,ab.	3525
16	or/10-15	47,481
17	9 and 16	4023
18	animals/ not (humans/ and animals/)	5,772,961
19	17 not 18	3778
20	limit 19 to english language	3449
21	limit 20 to dd=20050101-20180630 [Limit not valid in Ovid MEDLINE,Ovid MEDLINE Daily Update,Ovid MEDLINE In-Process,Ovid MEDLINE Publisher; records were retained]	2611
22	limit 20 to ed=20050101-20180630 [Limit not valid in Embase; records were retained]	3166
23	21 or 22	3449
24	limit 23 to (case reports or comment or editorial or letter or note) [Limit not valid in Ovid MEDLINE, Ovid MEDLINE Daily Update, Ovid MEDLINE In-Process, Ovid MEDLINE Publisher, Embase; records were retained]	199
25	Case Report/	4,169,545
26	23 not (24 or 25)	3215
27	remove duplicates from 26	2251

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ID	Search	Hits
#1	MeSH descriptor: [Inflammatory Bowel Diseases] explode all trees	2743
#2	MeSH descriptor: [Pouchitis] explode all trees	35
#3	(ileitis or pouchitis):ti,ab	128
#4	inflammatory bowel:ti,ab	2546
#5	crohn*:ti,ab	3156
#6	((regional or terminal or granulomatous or ulcerative) near/2 (enteritis or colitis)):ti,ab.	1277
#7	#1 or #2 or #3 or #4 or #5 or #6	7138
#8	MeSH descriptor: [Synbiotics] explode all trees	100
#9	MeSH descriptor: [Probiotics] explode all trees	1656
#10	(probiotic* or synbiotic*):ti,ab	3984
#11	(beneficial near/2 (microb* or bacter*)):ti,ab	131
#12	#8 or #9 or #10 or #11	4335
#13	#7 and #12 with Cochrane Library publication date between Jan 2005 and Jul 2018	209

MeSH, medical subject headings.

Search Strategy for PICO Question 6

Search date: February 15, 2019

Databases searched: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE Daily and Ovid MEDLINE 1946-Present, Embase Classic+Embase 1947 to 2019 February 14; Wiley Cochrane Ovid MEDLINE, Embase

#	Searches	Results
1	*colonic diseases, functional/ use ppez or exp irritable bowel syndrome/ use ppez	9312
2	exp irritable colon/ use emczd	24,528
3	((irritable or spastic or functional) adj3 (bowel or colon)).ti,ab.	35,206
4	ibs.ti,ab.	22,278
5	or/1-4	47,381
6	exp *Synbiotics/ use ppez	328
7	exp *synbiotic agent/ use emczd	692
8	exp *PROBIOTICS/ use ppez	11,120
9	exp *probiotic agent/ use emczd	16,180
10	(probiotic* or synbiotic*).ti,ab.	46,454
11	(beneficial adj2 (microb* or bacter*)).ti,ab.	4160
12	or/6-11	53,387
13	5 and 12	2403
14	animals/ not (humans/ and animals/)	5,856,175
15	13 not 14	2373
16	limit 15 to english language	2128
17	limit 16 to yr="1860 - 2018"	2099
18	limit 17 to (case reports or comment or editorial or letter or note) [Limit not valid in Ovid MEDLINE,Ovid MEDLINE Daily Update,Ovid MEDLINE In-Process,Ovid MEDLINE Publisher,Embase; records were retained]	132
19	Case Report/	4,351,195
20	17 not (18 or 19)	1953
21	remove duplicates from 20	1354

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ID	Search	Hits
#1	MeSH descriptor: [Colonic Diseases, Functional] this term only	297
#2	MeSH descriptor: [Irritable Bowel Syndrome] explode all trees	946
#3	((irritable or spastic or functional) near/3 (bowel or colon)):ti,ab	2575
#4	ibs:ti,ab	1715
#5	#1 or #2 or #3 or #4	2984
#6	MeSH descriptor: [Synbiotics] explode all trees	104
#7	MeSH descriptor: [Probiotics] explode all trees	1709
#8	(probiotic* or synbiotic*):ti,ab	3964
#9	(beneficial near/2 (microb* or bacter*)):ti,ab	123
#10	#6 or #7 or #8 or #9	4327
#11	#5 and #10	263

MeSH, medical subject headings.