**SUPPLEMENTAL MATERIAL 1**

Complete search strategy and databases used in the systematic review of the efficacy of antimicrobials in the treatment of calf diarrhea.

1. **Databases and Interfaces searched:**

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| --- | --- | --- | --- |
| **Database** | **Interface** | **Date coverage** | **Date searched** |
| Medline | PubMed | 1966 to present | 1 July 2019. Bridge 29 June 2020.  |
| CAB Abstracts | CAB Direct | 1972 to present | 1 July 2019. Bridge 29 June 2020. |
| Scopus | Scopus | 1970 to present | 2 July 2019. Bridge 29 June 2020. |
| Biosis | Web of Science | 1926 to present | 2 July 2019. Bridge 29 June 2020. |

1. **Full Search Strategy:**
	1. **Search Database:** Pubmed

|  |  |  |
| --- | --- | --- |
| **Search ID** | **Terms (copy and paste)** | **Results** |
| #1 (disease) | ("Diarrhea"[Mesh] OR "Gastroenteritis/veterinary"[Mesh] OR "Escherichia coli Infections/drug therapy"[Mesh] OR "Escherichia coli Infections/veterinary"[Mesh] OR "Salmonella"[Mesh] OR "Salmonella Infections, Animal/drug therapy"[Mesh] OR "Coronavirus, Bovine"[Mesh] OR "Rotavirus Infections/veterinary"[Mesh] OR "Cryptosporidiosis"[Mesh] OR "Malabsorption Syndromes/veterinary"[Mesh] OR “enterobacter”[Mesh] OR “scours”[tiab] OR “scouring”[tiab] OR “scour”[tiab] OR Cryptosporidiosis[tiab] OR Cryptosporidioses[tiab] OR Cryptosporidium[tiab] OR “Escherichia”[tiab] OR “diarrhea”[tiab] OR “Salmonella”[tiab] OR “starvation”[tiab] OR “perfringens”[tiab] OR “rotavirus”[tiab] OR “coronavirus”[tiab] OR “Enterobacter”[tiab] OR “clostridiales”[tiab] OR “clostridiaceae”[tiab] OR “clostridia”[tiab] OR “protozoal”[tiab] OR "protozoa infection"[tiab] OR "protozoa infections"[tiab] OR "protozoan infection"[tiab] OR "protozoan infections"[tiab] OR protozoiasis[tiab] OR "protozoon infection"[tiab] OR "protozoon infections"[tiab] OR “malabsorption”[tiab] ) | 507,737 |
| #2 (Patient) | “Calf”[tiab] OR “calves”[tiab] | 62,249 |
| #3 (treatment) | “oxytetracycline”[tiab] OR “terramycin”[tiab] OR “hydrotetracycline”[tiab] OR “oxyterracin”[tiab] OR “bisolvomycin”[tiab] OR “sulfachlorpyridazine”[tiab] OR “sulphachlorpyridazine”[tiab] OR “sulfanomides”[tiab] OR “pyridazines”[tiab] OR “antibiotics”[tiab] OR “antimicrobials”[tiab] OR “antiinfective”[tiab] OR “anti-infective”[tiab] “therapy”[tiab] OR “amoxicillin”[tiab] OR “ampicillin”[tiab] OR “penicillin”[tiab] OR “clavulanic”[tiab] OR “clavulanate”[tiab] OR “clavulin”[tiab] OR “amox-clav”[tiab] OR “clav”[tiab] OR “amoxiclav”[tiab] OR “chlortetracycline”[tiab] OR “aureomycin“[tiab] OR “aureomycine“[tiab] OR “biomycin“[tiab] OR “streptomycin”[tiab] OR “streptomycine“[tiab] OR “aminoglycoside”[tiab] OR “estreptomicina”[tiab] OR “strepto-hefa”[tiab] OR “sulphamethylphenasole“[tiab] OR “sulfadimidine“[tiab] OR “sulphadimidine“[tiab] OR “sulfamethazine“[tiab] OR “sulfachloropyridiazine”[tiab] OR “sulphamezathine”[tiab] OR “tetracycline“[tiab] OR “sustamycin”[tiab] OR “achromycin“[tiab] OR “tetrabid“[tiab] OR “cephamycin”[tiab] OR “cephalosporins”[tiab] OR “procaine”[tiab] OR “neomycin”[tiab] OR “fradiomycin”[tiab] OR “chloramphenicol”[tiab] OR “cloranfenicol”[tiab] OR “chloromycetin”[tiab] OR “florfenicol”[tiab] OR “florphenicol”[tiab] OR “trihydrate”[tiab] OR “aminobenzylpenicillin”[tiab] OR “ks-r1”[tiab] OR “sultamicillin”[tiab] OR “sulbactam”[tiab] OR “unasyn”[tiab] OR “ceftiofur”[tiab] OR “naxcel”[tiab] OR “trimethoprim”[tiab] OR “sulfadiazine”[tiab] OR “ditrim”[tiab] OR “tribrissen”[tiab] OR “prophylactic”[tiab] OR “sulphamethylphenasole”[tiab] OR “Gentamicin”[tiab] OR “gentavet”[tiab] OR “genticin”[tiab] OR “gentamycin”[tiab] OR “furazolidone”[tiab] OR “nifurazolidone”[tiab] OR “apramycin”[tiab] OR “fluoroquinolone”[tiab] OR “enrofloxacin”[tiab] OR “baytril”[tiab] OR “endrofloxacin”[tiab] OR “marbofloxacin”[tiab] OR “zeniquin”[tiab] OR “danofloxacin”[tiab] OR “advocin”[tiab] OR "Administration, Oral"[Mesh] OR “Neomycin"[Mesh] OR "Oxytetracycline"[Mesh] OR "Sulfachlorpyridazine"[Mesh] OR "Amoxicillin"[Mesh] OR "Amoxicillin-Potassium Clavulanate Combination"[Mesh] OR "Chlortetracycline"[Mesh] OR "Streptomycin/veterinary"[Mesh] OR "Sulfamethazine"[Mesh] OR "Tetracycline"[Mesh] OR "Penicillin V"[Mesh] OR "Procaine"[Mesh] OR "Cephamycins"[Mesh] OR "L 640876" [Supplementary Concept] OR "Chloramphenicol"[Mesh] OR "florfenicol" [Supplementary Concept] OR "sultamicillin" [Supplementary Concept] OR "ceftiofur" [Supplementary Concept] OR "sulfadiazine, trimethoprim drug combination" [Supplementary Concept] OR "Gentamicins"[Mesh] OR "Sulfonamides"[Mesh] OR "Furazolidone"[Mesh] OR "apramycin" [Supplementary Concept] OR "Enrofloxacin"[Mesh] OR "marbofloxacin" [Supplementary Concept] OR "danofloxacin" [Supplementary Concept] OR "Anti-Infective Agents/veterinary"[Mesh] OR "Electrolytes/therapeutic use"[Mesh] | 638,448 |
| #4 | #1 AND #2 AND #3 Filter: English | 578 |

* 1. **Search Database:** CAB Direct

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| --- | --- | --- |
| **Search ID** | **Terms (copy and paste)** | **Results** |
| #1 (disease) | Ti:( diarrh\* OR scour\* OR escherich\* OR salmonell\* OR enterobact\* OR clostrid\* OR Escherichia OR Salmonella OR Coronavirus OR Rotavirus OR Cryptosporidiosis OR Malabsorption OR scours OR scouring OR diarrh\* OR starvation OR perfringens OR gastroenteritis OR coronavirus OR Enterobacter OR clostridiales OR clostridiaceae OR clostridia OR protozoal) or od:("Escherichia%20coli" OR "Clostridium" OR "Salmonella" or "Clostridium%20perfringens” OR “Enterobacteriaceae” OR “Enterobacteriales” OR “prokaryotes” OR “calf diarrhoea rotavirus” OR “betacoronavirus” OR “norovirus” OR “Eimeria” ) OR de: ("salmonellosis" OR “diarrhoea” OR "Escherichia%20infections" OR “cryptosporidiosis” OR “Intestinal%20diseases”) | 282,615 |
| #2 (Population) | Ti:(calf OR calves) OR de: (“calves” or “calf diseases”) | 66,381 |
| #3 (treatment) | Ti:(oxytetracycline OR tetracycline OR antibiotic\* OR antimicrobial\* OR antiinfective OR therapy OR sulfachlorpyridazine OR sulphachlorpyridazine OR sulfanomide\* OR strepto-hefa OR sulphamethylphenasole OR sulfadimidine OR sulphadimidine OR sulfamethazine OR sulfachloropyridiazine OR sulphamezathine OR clav\* OR gentamycin\* OR cephamycin OR cephalosporins OR fluoroquinolone OR enrofloxacin OR marbofloxacin OR amox\* OR Penicillin OR Ampicillin OR trimethoprim\* OR probiotic OR hydrotetracycline OR oxyterracin OR bisolvomycin OR pyridazines OR antibiotic\* OR antimicrobial\* OR antiinfective OR anti-infective OR amox\* OR ampicillin OR penicillin OR clavul\* OR chlortetracycline OR aureomycin\* OR biomycin OR streptomycin\* OR aminoglycoside\* OR estreptomicina OR OR sulphamethylphenasole OR sulfadimidine OR tetracycline OR sustamycin OR achromycin OR tetrabid OR procaine OR neomycin OR fradiomycin OR chloramphenicol OR cloranfenicol OR kloramfenikol OR chloromycetin OR kloramfenikol OR florfenicol OR florphenicol OR trihydrate OR aminobenzylpenicillin OR ks-r1 OR sultamicillin OR sulbactam OR unasyn OR ceftiofur OR naxcel OR U-24769 OR trimethoprim OR ditrim OR tribrissen OR prophylactic OR sulphamethylphenasole OR Gentam\* OR furazolidone OR nifurazolidone OR apramycin OR fluoroquinolone OR enrofloxacin OR baytril OR endrofloxacin OR marbofloxacin OR zeniquin OR danofloxacin OR advocin OR Neomycin OR L640876 OR ceftiofur OR Furazolidone OR “milk replacer” ) OR de:( “animal%20feeding" or "antibiotics" or "dihydrostreptomycin" OR “spectinomycin” OR “antibiotics” OR “oral administration” OR “prophylaxis” OR “streptomycin” OR “aminoglycoside” OR “amoxicillin” OR “ampicillin” OR “antiinfective%20agents” OR “beta-lactam%20antibiotics” OR “ceftiofur” OR “cephalosporins” OR “clavulanic acid” OR “penicillins” OR “tetracyclines” OR “chlortetracycline” OR "milk%20substitutes" OR "treatment" OR "substitutes" OR "electrolytes" OR "sulfadiazine" OR "trimethoprim" OR "Drug therapy" OR "Antibacterial%20agents" OR "fluoroquinolone%20antibiotics" OR "metronidazole" OR "drug%20combinations" OR "furazolidone" OR "Chloramphenicol" OR "Neomycin" OR "sulfadiazine" OR "Sulfonamides" OR "trimethoprim" OR "beta-lactam%20antibiotics" OR "aminoglycoside%20antibiotics" OR "Tetracyclines” OR “antibacterial%20agents” OR “therapeutic%20agents” OR “therapeutic%20diets”) | 622,664 |
| #4 | La: English | 8,146,590 |
| #5 | #1 AND #2 AND #3 Filter: English | 1,717 |

* 1. **Search Database:** Scopus

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| **Search ID** | **Terms (copy and paste)** | **Results** |
| #1 | (TITL-ABS-KEY (diarrh\* OR scour\* OR gastroenteritis OR escherich\* OR salmonell\* OR enterobact\* OR clostrid\* OR Escherichia OR Salmonella OR Coronavirus OR Rotavirus OR Cryptosporidiosis OR Malabsorption OR starvation OR perfringens OR coronavirus OR Enterobacter OR clostridiales OR protozoal)) | 1,097,488 |
| #2  | (Title(Calf OR Calves)) | 30,691 |
| #3 | (TITL-ABS-KEY(oxytetracycline OR tetracycline OR antibiotic\* OR antimicrobial\* OR antiinfective OR therapy OR sulphamethylphenasole OR sulfadimidine OR sulphamethylphenasole OR sulfadimidine OR sulfanomide\* OR strepto-hefa OR sulphamethylphenasole OR sulfadimidine OR sulphadimidine OR sulfamethazine OR sulfachloropyridiazine OR sulphamezathine OR clav\* OR gentamycin\* OR cephamycin OR cephalosporin\* OR fluoroquinolone OR enrofloxacin OR marbofloxacin OR amox\* OR Penicillin\* OR Ampicillin\* OR trim\* OR therapy OR probiotic OR hydrotetracycline OR oxyterracin OR bisolvomycin OR pyridazines OR anti-infective OR chlortetracycline OR aureomycin\* OR biomycin OR streptomycin\* OR aminoglycoside\* OR estreptomicina OR sustamycin OR achromycin OR tetrabid OR procaine OR neomycin OR fradiomycin OR chloramphenicol OR cloranfenicol OR kloramfenikol OR chloromycetin OR kloramfenikol OR florfenicol OR florphenicol OR trihydrate OR aminobenzylpenicillin OR ks-r1 OR sultamicillin OR sulbactam OR unasyn OR ceftiofur OR naxcel OR U-24769 OR trimethoprim OR ditrim OR tribrissen OR prophylactic OR sulphamethylphenasole OR Gentam\* OR furazolidone OR nifurazolidone OR apramycin OR fluoroquinolone OR baytril OR endrofloxacin OR zeniquin OR danofloxacin OR advocin OR Neomycin OR L640876 OR ceftiofur OR Furazolidone OR {milk replacer} ) | 5,659,887 |
| #4 | La: English | 64,418,516 |
| #1 AND #2 AND #3 AND #4 |  | 992 |

* 1. **Search Database:** BIOSIS

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| **Search ID** | **Terms (copy and paste)** | **Results** |
| #1 | ((Ti=(diarrh\* OR scour\* OR escherich\* OR salmonell\* OR enterobact\* OR clostrid\* OR gastroenteritis OR Escherichia OR Salmonella OR Coronavirus OR Rotavirus OR Cryptosporidiosis OR Malabsorption OR starvation OR perfringens OR gastroenteritis OR coronavirus OR Enterobacter OR clostridiales OR protozoal) *AND* **LANGUAGE:** (English) | 251,111 |
| #2  | Ti=calves OR calf *AND* **LANGUAGE:** (English) | 33,207 |
| #3 | (Ti=(oxytetracycline OR tetracycline OR antibiotic\* OR antimicrobial\* OR antiinfective OR therapy OR sulpha\* OR sulfa\* OR clav\* OR gent\* OR cepha\* OR fluoroquinolone OR enrofloxacin OR marbofloxacin OR amox\* OR Pen\* OR Amp\* OR trim\* OR therapy OR probiotic OR hydrotetracycline OR oxyterracin OR bisolvomycin OR pyridazines OR anti-infective OR chlortetracycline OR aureo\* OR biomycin OR streptomycin\* OR aminoglycoside\* OR estreptomicina OR sustamycin OR achromycin OR tetrabid OR procaine OR neomycin OR fradiomycin OR chlor\* OR clor\* OR kloramfenikol OR florfenicol OR florphenicol OR trihydrate OR aminobenzylpenicillin OR ks-r1 OR sultamicillin OR sulbactam OR unasyn OR ceftiofur OR naxcel OR U-24769 OR trimethoprim OR ditrim OR tribrissen OR prophylactic OR sulphamethylphenasole OR Gentam\* OR furazolidone OR nifurazolidone OR apramycin OR fluoroquinolone OR baytril OR endrofloxacin OR zeniquin OR danofloxacin OR advocin OR Neomycin OR L640876 OR ceftiofur OR Furazolidone OR “milk replacer”) *AND* **LANGUAGE:** (English) | 1,225,576 |
| #4 | #1 AND #2 AND #3 | 221 |