

**LISTS OF
ESSENTIAL VETERINARY MEDICINES
AND VACCINES FOR ETHIOPIA**

**Federal Democratic Republic of Ethiopia
Ethiopian Agricultural Authority**

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Cover design: Tewodros Tesfaye (Dr.) – Brooke Ethiopia

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FOREWORD

Dear Respected,

It is my pleasure to congratulate All of You for the marvellous achievements made to develop this useful national document which puts together an updated list of “**Essential Veterinary Medicines**”. This is a great milestone and exciting news not only for the veterinary domain but also for the wider livestock sub-sector of our country.

The emergence of new animal diseases in part associated with environmental degradation and unprecedented climate change; the higher depreciation in the efficacy and potency of existing veterinary formulations; and new products entering the market, all strongly suggest the need for a national mandate to keep the list of essential veterinary drugs up-to-date in the best interest of veterinary services of a country.

For several decades, the veterinary domain in Ethiopia has been tackling a set of complex animal diseases with a very limited range of veterinary formulations at disposal. This, coupled with other institutional and technical deficits, handicapped veterinary professionals while striving to save the lives of sick livestock-the most valuable assets especially to rural communities.

Under the auspices of Ministry of Agriculture, the national consortium involving Brooke (Ethiopia), Ethiopian Veterinary Association (EVA) and Ethiopian Agricultural Authority (EAA) have pursued a commendable leadership and logistic support in developing this “Essential List of Veterinary Drugs”. Detailed technical mandates have been carried out by ad hoc groups of specialized veterinary experts, referred to as species specific working groups (SSWG), drawn from veterinary education establishments (VEE).

Having the complete list of Essential Veterinary drugs alone will not drive us towards achieving our ultimate goals. As well as having a robust regulatory framework, we should foster multi-sectoral collaboration while maximizing synergies and harmonizing all efforts. To this end, I would like to sincerely encourage Government institutions and pertinent partners to join hands to ensure the supply of these essential veterinary drugs at the right time, place and quantities while adhering to international standards. The Government will continue its support to create incentive arrangements to alleviate currency limitations and other hurdles facing the private actors along the EVM list supply chain.

Lastly, veterinary practitioners are required to meticulously administer veterinary medicines, in line with professional Ethics and code of conduct while acknowledging national guidelines, including standard operating procedures (SOP).

Together, We can Make Changes Happen!!



Fikru Regassa (DVM, MSc, PhD)

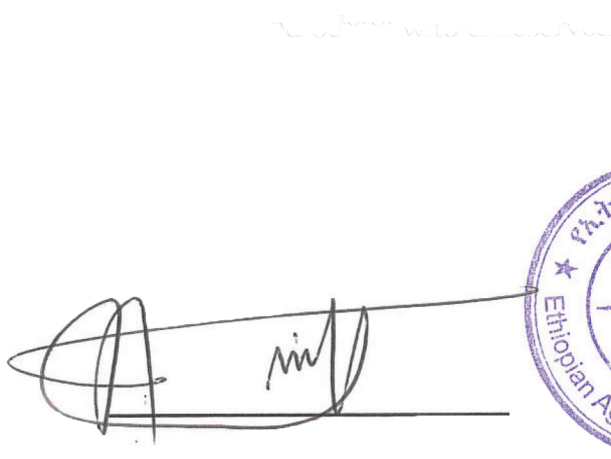
State Minister for Livestock and Fisheries Sector Development
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PREFACE

Ethiopia is the home of a large livestock population, with the highest population on the continent and in the top ten countries worldwide. However, it is true that our country cannot benefit from this huge resource due to various bottlenecks in the sector. Poor husbandry practice, higher disease burden, lower quality of animal products, and shortage of essential inputs such as veterinary drugs and feeds are among the major bottlenecks that are hampering us to penetrate the global market to get revenue from the sector. The Ethiopian Agricultural Authority is therefore established by the government of Ethiopia with the mandate to ensure the quality and safety of agricultural inputs and products, including veterinary medicines and vaccines. Veterinary drugs are fundamental for treatment, prevention and control of animal diseases. The provision of a successful animal health service requires sustainable and adequate availability of safe, effective and quality veterinary drugs. Unavailability of these products results in a weak animal health service, increased suffering of animals, and then finally loss of social and economic values from death of animals.

As per the regulation no. 509/2022, the Authority is mandated to prepare and review the list of veterinary drugs for the country and to categorize them based on their type. Cognizant to this power and duty, our Authority collaborated with the Brooke Ethiopia and Ethiopian Veterinary Association in developing this Essential Veterinary Medicines List. The three organizations started working together to develop this list following the recommendation from a consultative workshop on “Access to Essential Veterinary Medicines” organized by Brooke Ethiopia in January 2021. This document is realized after long development process, including creating a coalition from different relevant institutions, selecting species specific working groups, and review and validation workshops. This Essential Veterinary Medicines List contains the list of medicines and vaccines that are primarily essential for the animal healthcare. From this list, the veterinary drugs manufacturers and importers can get the opportunity to prioritize products to manufacture and import products essential to the market. The Authority will also use it to prioritize essential products that need fast-track registration procedure based on consultations with and recommendations from the suppliers and users. Generally, the list is believed to improve the access to essential veterinary drugs in the country.

Finally, I would like to express my gratitude to the Brooke Ethiopia, Ethiopian Veterinary Association, the National Coalition Working Group, Species Specific Working Teams, Reviewers and others who unreservedly contributed in developing this document.



Ambassador Diriba Kuma
Director General, Ethiopian Agricultural Authority

GRATITUDE FROM BROOKE ETHIOPIA

On behalf of the Brooke, it gives me great pleasure to acknowledge all stakeholders for the unreserved contribution and support in the development of this list of essential veterinary medicines and vaccines (EVMVs) for Ethiopia.

The lack of access to EVMs has been hindrance to the provision of quality and welfare friendly animal health service in Ethiopia. Brooke's grass root level experience since 2006 working with the public veterinary service and evidenced through its animal health mentoring framework, has indicated the need to work on this paramount and urgent bottle neck constraining the livestock sector. Thus, in collaboration with Ethiopian Agricultural Authority (EAA) and Ethiopian Veterinary Association (EVA), Brooke Ethiopia has organized a stakeholder consultation back in 2021 to have a holistic understanding of the challenges affecting the access to EVMs and the possible opportunities to consider for future developments. This national document that we have witnessed today is among the five deliverables set forth after the consultation. For this, I am so grateful for all who gave their very best.

Looking ahead, we have a farsighted journey to achieve good quality and welfare friendly veterinary service in Ethiopia, partly through an improved access and proper use of EVMs. It is agreeable that this would be a complex and daunting task, but achievable given there is strong collaboration and commitment among stakeholders. The current achievement with the development of list of EVMs will be a stepping stone for the upcoming endeavours. Currently, working to strengthen the animal health system in some parts of the country, Brooke Ethiopia is more than ever committed and ready to provide the necessary assistance and support in taking the initiative forward. Our mission is to see the list of EVMs contributing further to the development of the animal health service.

Finally, I would like to congratulate the National Coalition Working Group for overseeing the development, the Species Specific Working Group members for their dedication and professional contribution in shouldering and delivering this high level assignment and for all the reviewers whose valuable suggestions brought this document closer to completion. Brooke unreservedly expresses its warm gratitude to the Ministry of Agriculture and Ethiopian Agricultural Authority for accepting and endorsing this living document. Finally, my sincere acknowledgement goes to Brooke UK for the financial support and more specifically to Dr. Shereene, Dr. Alemayehu, Dr. Izzy and Dr. Tewodros for their thoughts, professional guidance and vision in this development.

Let's join hands as we march to our exiting journey!



Yohannes Kassim
Country Director, Brooke Ethiopia



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The Ministry of Agriculture and Ethiopian Agricultural Authority greatly acknowledges all partners and institutions who unreservedly provided the required technical and advisory role from initiation to the completion of this nationally important list of Essential Veterinary Medicines.

Our authority would like to extend its special gratitude to Brooke Ethiopia and Brooke UK and their leadership for initiating and supporting this important development and also for the commitment to further support in improving access to EVMs in Ethiopia. We would also like to acknowledge the Ethiopian Veterinary Association, leaders and experts of the EAA and Ministry of Agriculture, for the collaborative endeavour in realizing the development of species specific list of EVMs.

The Authority also warmly acknowledges members of the species specific working groups and their respective hosting institutions for their professional commitment and their support in this national development and for all reviewers who have spared their valuable time in meticulously reviewing and adding their invaluable suggestions in making this national workable list more complete.

Last but not least, the authority recognizes the continued effort of the National Coalition Working Group members in this development and for planned endeavours in the future.

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ABBREVIATIONS AND UNITS

BW	Body Weight
CRD	chronic respiratory disease
CRI	constant rate of infusion
EAA	Ethiopian Agricultural Authority
EVMs	Essential Veterinary Medicines
EVA	Ethiopian Veterinary Association
FDA	Food and Drug Administration
FHV	Feline Herpes Virus
FIV	Feline Immunodeficiency Virus
IB	Infectious bronchitis disease
IBD	Infectious bursal disease
IBV	Infectious Bronchitis Virus
ILT	Infectious Laryngotracheitis virus
ILRI	Internal Livestock Research Institute
MD	Marek's Disease
mg	Milligram
ml	Millilitre
MoA	Ministry of Agriculture
MOA	Ministry of Agriculture
NCWG	National Coalition Working Group
ND	Newcastle Disease
OIE	World Organization for Animal Health
OTC	Over the counter
PO	Peros, (Through Oral)
SPP	Species
SSWG	Species Specific Working Group
VDFACA	Veterinary Drug & Animal Feed Administration & Control Authority
WHO	World Health Organization
WHP	withholding period

1

INTRODUCTION

The development and growth of many poor countries depend mainly on the performance of their agricultural policies and economies. This relates directly to the coverage and quality of their veterinary services. Improved animal health services could hugely increase livestock productivity and the earnings of their owners. The quality of national veterinary services depends on a range of factors, which include fundamental principles of ethical, organizational and technical nature. Veterinary services need to operate on scientifically based principles and be technically competent, independent, and immune from political pressure (OIE, 2010).

Animal health and welfare are of paramount importance for countries like Ethiopia, where livestock has great economic and cultural significance. In Ethiopia, the focus of strategic plans like GTP I, II and III, animal health strategy and the livestock master plan, even the recent 10-years strategic plans with respect to the livestock sector target improving coverage, quality, and regulatory aspects of animal health services. As part of the strategies to improve animal health service, in the past veterinary drug importation has been liberalized, and the investment law fully accepts the establishment of private veterinary practices, pharmacies and drug shops. In line with this, the government has established the Ethiopian Agricultural Authority (The then veterinary drug and feed administration and control authority – VDFACA) to control and administer the quality, safety and efficacy of veterinary drugs, biologicals and animal feeds.

Regardless of efforts made, there are still major gaps in realizing services of the desired quality and coverage to improve the health and welfare of livestock. More specifically, despite Ethiopia's century-old modern veterinary medicine, the lack of access to Essential Veterinary Medicines¹ has a significant consequence on all animal species in having access to better, timelier and more standardized treatment. Due to shortage of veterinary medicines in terms of variety, quality and quantity, animal health care professionals are restricted to treat animals with just one or a combination of few known drugs (Example: Oxytetracycline, PenStrep, Albendazole and Ivermectin). This overreliance on similar drugs ultimately leads to the ever-threatening resistance to antimicrobials. When looking at the overall impact, the low-quality of animal health services has resulted in less economic benefit derived from the livestock sector, leaving the sector's potential untapped.

¹veterinary medicines and vaccines that satisfy the primary health care and welfare needs of animals

1.1 INITIATIVE TO IMPROVE ACCESS TO EVMS IN ETHIOPIA

In 2021, Brooke Ethiopia in collaboration with Ministry of Agriculture, Ethiopian Agricultural Authority and Ethiopian Veterinary Association launched an initiative aiming to improve access to EVMs. The collaborative endeavour began with a stakeholder consultation to have a real understanding to the challenges of accessing veterinary medicines from government, private and development partners' perspectives. The consultation indicated that:

- Access to EVMs has not changed despite the dynamic animal disease occurrence and welfare needs of animals, and remains problematic for the livestock population in Ethiopia. The barriers to access for EVMs in Ethiopia are complex and occur at multiple levels of the health system. Moreover, existing frameworks for access to EVMs need major change as they do not address the barriers, suggesting a wider health system perspective view.
- Only 6 percent from the registered 200 veterinary drugs are being imported with many other essential drugs lacking a registering agent in Ethiopia – a good example being pain killers. Moreover, the long and unattractive application process for veterinary drugs registration had further negative implication.
- The insufficient budget allocation for public animal health services and the poor efficiency of the procurement procedure and tendering of similar products by the government further limited the access to range of essential medicines.
- The private veterinary drug importers are mainly constrained by access to hard currency. Moreover, most of the importers and wholesalers are highly concentrated in Addis Ababa (About 80%), with no specialization for each livestock species.
- There is less interest from the private sector to register and import minor-use minor-species products, with no other government organization to fulfil these less imported drugs.
- Generally, there exists a loose link between animal disease surveillance at regional and national diagnostic laboratories with field veterinarians and requirements for EVMs and vaccines.
- Animal health and welfare is severely compromised by the unavailability of EMs including NSAIDs. Field experiences indicate that surgical procedures including caesareans and open castration are being undertaken with no pain relief or anaesthesia and a large occurrence of infectious/inflammatory diseases where NSAIDs would be a staple treatment. In line with this, lack of access to pain relief resulted in an over reliance on antimicrobials and anthelmintic, directly contributing to AMR and an immense threat to One Health.
- There is low interest in the local manufacturing of drugs, due to lack of awareness about the potential of the market size and opportunities, and few incentives from the government.
- EAA and regional agricultural offices have limitations with their capability compared to the recent significant growth in the Veterinary Medicine Market. There is generally higher regulation of the formal market than the informal (illegal market), and less attention given to use than handling.

- Less compliance to standard veterinary treatment guidelines has been a problem in the veterinary service. Moreover, there is no independent animal health service regulation body or council established in Ethiopia.

To address the aforementioned challenges and to improve better access to EVMs, a National Coalition Working Group (NCWG) has been established comprising ten members representing the Ministry of Agriculture and subsequent regional bureaus from Amhara, Oromia and SNNPRs, development partners (Brooke Ethiopia, and The Donkey Sanctuary), associations (Ethiopian Veterinary Association, Abyssinia Veterinary Drug Importers, Wholesalers and Distributors association) and academia (Addis Ababa University, College of Veterinary Medicine). The terms of reference for the NCWG has been developed and later endorsed by the State Minister, Ministry of Agriculture.

A wide ranging action plan was crafted and agreed up on having a general goal of improving the health and welfare of animals through better access and use of EVMs. Key intervention areas identified were: development of national lists of species specific EVMs, demand creation for EVMs in 3 potential regions and veterinary education establishments, improving access to EVMs through public-private partnership, advocacy for better policies and strategies to support animal health and improve access to inputs, and building diagnostic capability of veterinary clinics.

1.2 DEVELOPMENT OF NATIONAL LIST OF EVMS

Species specific working groups comprising experienced professionals from seven veterinary colleges/schools were assembled and have been working on national lists of EVMs, through close guidance and support by the NCWG. Development of species specific lists of EVMs followed key principles including, disease prevalence and profile in Ethiopia, known drug resistance, accessibility in the market and the products affordability, safety and efficacy, species of animals, relevance to primary health care, public health (reservations for human use), indications and ease of administration. International guidelines by OIE, CODEX, the national veterinary drug list, veterinary treatment guidelines and other international recommendations were also used when creating the lists.

According to WHO, the list comprised of core and complementary medicines in each category. The core list presents a list of minimum medicine needs for a basic healthcare system, listing the most efficacious, safe and cost-effective medicines for priority conditions. Priority conditions are selected based on current and estimated future public/animal health relevance, and potential for safe and cost-effective treatment. Whereas, the complementary list presents essential medicines for priority diseases, for which specialized diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training are needed. In case of doubt, medicines may also be listed as complementary based on consistently higher cost or less attractive cost-effectiveness in a variety of settings and wide availability in the profession.

The lists of EVMs have passed through multiple and rigorous process by pool of experts and in 2023, it has been validated in the presence of H.E Ambassador Diriba Kuma Director General, Ethiopian Agricultural Authority, distinguished professionals and other pertinent stakeholders. The completed list of EVMs will help to enable progress with the remaining tasks in the action plan to improve access to essential medicines. This is a pilot development, other species of animals (both domestic and wild animals) could also be considered in the future and the current list could possibly be a base for future developments.

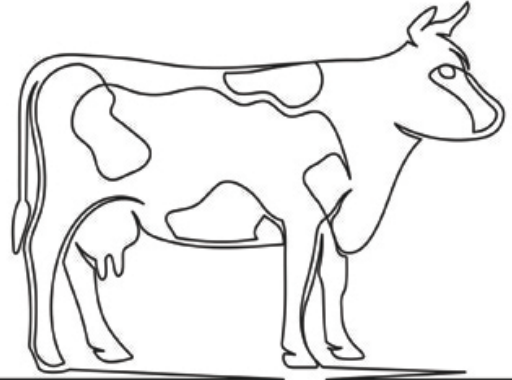
² Large and Small Ruminants, pets, equine, poultry and camel

2

ESSENTIAL VETERINARY MEDICINES (EVMs) LISTS

LARGE RUMINANTS

EVMs List



2.1. LARGE RUMINANTS LIST

1. ANTIBIOTICS (CORE LIST)				
1.1. Aminoglycosides				
SN	Medicines	Dosage Form	Strength	Indications
1	Dihydrostreptomycin	Injectable Solution	150 mg	Diseases caused by most gram positive and negative bacteria. They are importance in septicemias; digestive, respiratory and urinary infections
2	Gentamicin	Injectable Solution	50 mg/ml	01. Gram-negative: E. coli, Shigella, Salmonella, Proteus, Pseudomonas, Klebsiella and Pasteurella 02. Gram-positive: Staphylococcus, Streptococcus and Corynebacterium 03. Mycoplasma spp. Also indicated for <i>Pseudomonas aeruginosa</i> infections and dermatophilosis
		Intramammary Infusion	500 mg	Mastitis caused by Gram negative bacteria
		Drops	0.3%	Conjunctivitis, keratitis, kerato-conjunctivitis infection.

1.2. Lincosamides				
1	Pirlimycin	Intramammary Infusion	5 mg/ml	Gram-positive organisms such as Staphylococcus and Streptococcus Spp
1.3. Macrolides				
1	Erythromycin	Injectable Solution	50 mg/mL	Gram positive bacteria such as Staphylococcus and Streptococcus species. Effective in the treatment of mastitis caused by Staphylococcus aureus, Streptococcus agalactiae, Streptococcus dysgalactiae, and Streptococcus uberis. They also used for the treatment of respiratory infections of cattle such as CBPP, pasteurellosis, etc., and abscesses due to <i>Fusobacterium necrophorum</i>
		Intramammary Infusion	300 mg/syringe	
2	Spiramycin	Injectable Solution	600,000 IU/ml	Pneumonia, enteritis, colibacillosis, salmonellosis, arthritis, mastitis, metritis, vaginitis, wound, urogenital infections
3	Tilmicosin	Injectable Solution	50 mg/mL 300 mg/ml	Used for respiratory disease associated with Mannheimia haemolytica.
4	Tylosin	Injectable Solution	200 mg/ml 200 000 IU/ml	For the treatment of respiratory infections, metritis caused by Gram-positive microorganisms, mastitis caused by Streptococcus spp., Staphylococcus spp. and interdigital necrobacillosis, (Foot rot)

1.4. Penicillins				
1	Amoxicillin	Injectable Suspension	100 mg/ml 150 mg/ml, 200 mg/ml 500 mg/ml	Gastrointestinal, respiratory and urinary tract infections caused by <i>Campylobacter</i> , <i>Clostridium</i> , <i>Corynebacterium</i> , <i>E. coli</i> , <i>Erysipelothrix</i> , <i>Haemophilus</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Staphylococcus</i> and <i>Streptococcus</i> spp.
2	Benzathine cloxacillin	Intramammary Infusion	500 mg	Mastitis in dairy cows during the dry period. Effective for <i>Streptococcus agalactiae</i> and <i>Staphylococcus aureus</i>
3	Cloxacillin	Intramammary Infusion	200 mg/syringe 500 mg/syringe	Streptococcal, pneumococcal and staphylococcal infections
4	Procaine penicillin G	Injectable Suspension	250 mg/ml 300 mg/mL	Streptococci, staphylococci, <i>Actinomyces</i> spp., <i>Bacillus anthracis</i> , <i>Corynebacterium</i> spp., <i>Erysipelothrix rhusiopathiae</i> and <i>Clostridium</i> spp.
1.5. Polymyxins				
1	Polymyxin B	Injectable Solution Topical	100 mg/mL 1% ointment 5% ointment	For gram negative enteric infections (<i>colibacillosis</i> , salmonellosis), septicemias and urinary tract infections
1.6. Sulfonamides				
1	Sulfacetamide	Ophthalmic Solution	10% in 5 ml 10 ml bottles	Eye infections caused by <i>E. coli</i> , <i>S. aureus</i> , <i>S. pneumoniae</i> , <i>Streptococcus</i> , <i>Haemophilus influenzae</i> , <i>Klebsiella</i> spp. and <i>Enterobacter</i> spp.

2	Sulfadiazine + Trimethoprim	Injectable Solution	200 mg + 40 mg/ml	Actinobacilli, Klebsiella spp. Bordetella spp. Pasteurella spp. Corynebacteria Salmonella spp. E. coli Staphylococci Haemophilus spp. and Streptococci
3	Sulfadimethoxine	Injectable Solution	40%	Shipping fever and bacterial pneumonia associated with <i>Pasteurella spp.</i> , calf diphtheria and foot rot
4	Sulfamerazine	Injectable Solution	333 mg/ml	Bronchitis, prostatitis and urinary tract infections
5	Sulfadimidine	Injectable Solution	333 mg/mL	For gastrointestinal, respiratory and urogenital infections caused by micro-organisms like E. coli, Staphylococcus, Streptococcus and Pasteurella spp.
1.7. Tetracyclines				
1	Chlortetracycline	Intrauterine Bolus	1000 mg	Conjunctivitis, Rickettsiae, Mycoplasmas, and Chlamydiae
		Eye Ointment	10 mg/g	
2	Chlortetracycline + Benzocaine	Topical Powder	2% w/w + 1% w/w	For the treatment of wound and superficial wound infections.
3	Oxytetracycline	Injectable Solution	10% 20%	Pneumonia, shipping fever, infectious bovine kerato conjunctivitis (pink eye); foot rot, diphtheria bacterial enteritis (scours); wooden tongue, wound infections and acute metritis.
4	Oxytetracycline + Flunixin Meglumine	Injectable Solution	100 mg/ml + 2 mg/ml	Respiratory disease (Mannheimia and Pasteurella infection) and acute mastitis (in conjunction with appropriate intramammary therapy)

5	Sodium Sulfacetamide	Ointment	5/10%	For the treatment of conjunctivitis and other superficial ocular infections.
6	Tetracycline	Ointment	1%	Bacterial conjunctivitis, bacterial keratoconjunctivitis, infections.
1.8. Other Antibiotics / Antibacterials				
1	Florfenicol	Injectable Solution	300 mg/ml 450 mg/ml	Many Gram-positive and Gram-negative organisms such as <i>Mannheimia haemolytica</i> , <i>Pasteurella multocida</i> , <i>Haemophilus somnus</i> , <i>Enterobacter cloacae</i> , <i>Escherichia coli</i> , <i>Klebsiella pneumoniae</i> , <i>Salmonella typhi</i> , and <i>Shigella dysenteriae</i>
2	Flunixin	Injectable Solution	50 mg/ml	Pyrexia associated with bovine respiratory disease, endotoxemia, acute bovine mastitis and inflammation in endotoxemia
3	Enrofloxacin	Injectable Solution	100 mg/ml	Single-Dose Therapy: is indicated for the treatment of bovine respiratory disease (BRD) associated with <i>Mannheimia haemolytica</i> , <i>Pasteurella multocida</i> , <i>Histophilus somni</i> and <i>Mycoplasma bovis</i> in beef and non-lactating dairy cattle; and for the control of BRD in beef and non-lactating dairy cattle at high risk of developing BRD associated with <i>M. haemolytica</i> , <i>P. multocida</i> , <i>H. somni</i> and <i>M. bovis</i> . Multiple-Day Therapy: is indicated for the treatment of bovine respiratory disease (BRD) associated with <i>Mannheimia haemolytica</i> , <i>Pasteurella multocida</i> and <i>Histophilus somni</i> in beef and non-lactating dairy cattle.

1.9. Antibiotics/Antimicrobial Combinations

1	Amoxycillin + Clavulanic Acid + Prednisolone	Injectable Solution Intramammary Infusion	200 mg + 50 mg + 20 mg 10 mg/syringe	<i>Colibacillosis</i> (bacterial enteritis)
2	Procaine Penicillin G + Neomycin	Injectable Solution	2000000 IU + 100 mg	<i>E. rhusiopathiae</i> , <i>Streptococcus</i> spp., <i>A. pyogenes</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Klebsiella</i> and <i>Staphylococcus</i> spp.
3	Procaine Penicillin G + DihydroStreptomycin sulfate	Injectable Solution	200, 000 IU + 200 mg/ml	Arthritis, mastitis and gastrointestinal, respiratory and urinary tract infections caused by <i>Campylobacter</i> , <i>Clostridium</i> , <i>Corynebacterium</i> , <i>E. coli</i> , <i>Erysipelothrix</i> , <i>Haemophilus</i> , <i>Klebsiella</i> , <i>Listeria</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Staphylococcus</i> and <i>Streptococcus</i> spp.
4	Lincomycin + spectinomycin	Injectable Solution	50 mg + 100 mg/mL	Used in the treatment of a variety of enteric, respiratory and other bacterial infections

COMPLEMENTARY LIST OF ANTIBIOTICS**1.1. Lincosamides**

SN	Medicines	Dosage Form	Strength	Indications
1	Lincomycin	Injectable Solution	100 mg/ml 300 mg/ml	Pneumococci, streptococci and staphylococci.
		Oral	500 mg	

1.2. Penicillins				
1	Ampicillin	Injectable Suspension	15% 30%	Bacterial pneumonia (shipping fever, calf pneumonia and bovine pneumonia) caused by <i>Aerobacter</i> spp., <i>Klebsiella</i> spp., <i>Staphylococcus</i> spp., <i>Streptococcus</i> spp., <i>Pasteurella multocida</i> and <i>E. coli</i>
2	Benzathine penicillin G	Injectable Suspension	150,000 IU/ml 200,000 IU/ml	Bacterial pneumonia caused by <i>Streptococcus</i> spp., <i>Actinomyces pyogenes</i> , <i>Staphylococcus aureus</i> Upper respiratory infections such as rhinitis or pharyngitis Blackleg (<i>Clostridium chauvoei</i>).
1.3. Sulfonamides				
1	Sulphachloropyridazine + Trimethoprim	Injectable Solution	200 mg/ml + 240 mg/ml	For most Gram positive and Gram negative organisms
2	Sulphaclozan sodium	Injectable Solution	200 mg + 40 mg	For most Gram positive and Gram negative organisms
1.4. Tetracyclines				
1	Doxycycline	Injectable Solution	25 mg/ml 50 mg/ml 100 mg/ml 200 mg/ml	Leptospirosis, Rocky mountain spotted fever, psittacosis, mycoplasma, Lyme disease and methicillin-resistant Staph intermedius
2	Tetracycline	Injectable Solution	10 mg 15 mg	Infectious keratoconjunctivitis (pinkeye) is a disease of the eyes of cattle caused by the bacteria <i>Moraxella bovis</i> .

1.5. Antibiotics/Antimicrobial Combinations			
1	Ampicillin + Cloxacillin	Injectable Solution	2.25 gm + 2.25 gm
		Intramammary Infusion	10 g/syringe
Respiratory tract, ear, nose and throat infections, pelvic infections, urinary tract infections, skin and soft tissue infections, and gastro- intestinal infections. This combination is the drug of choice for Metritis, Retained Placenta, Mastitis, Septicaemia, systemic and local infections, chronic wounds, abscesses, enteritis, post-surgical therapy, pyrexia of unknown origin and Pneumonia.			

2. ANTIPARASITIC				
2.1. ANTHELMINTIC DRUGS (CORE LIST)				
2.1.1. Benzimidazoles				
1	Albendazole	Bolus	300 mg 600 mg 2500 mg	▪ Gastrointestinal worms: Bunostomum, Cooperia, Chabertia, Haemonchus, Nematodirus, Oesophagostomum, Ostertagia, Strongyloides, Tricuris, and Trichostrongylus spp. ▪ Lung worms: Dictyocaulusviviparus and D. filaria ▪ Tapeworms: Monieza spp. ▪ Liver-fluke : Adult Fasciola
		Oral Suspension	10%	

2	Fenbendazole	Oral Suspension	25 mg/ml	Lung worms (<i>D. viviparus</i>), Stomach worms (<i>Ostertagiaostertagi</i> , <i>Haemonchuscontortus</i> , <i>H. placei</i> , <i>Trichostrongylusaxeii</i>), Intestinal worms (<i>Bunostomumphlebotomum</i> , <i>Nematodirushelvetianus</i> , <i>Cooperiapunctate</i> , <i>C. oncophora</i> , <i>Trichostrongyluscolubriformis</i> and <i>Oesophagostomumradiatum</i>).
			100 mg/ml	
		Bolus	3000 mg	
		Paste	7.5%	
3	Triclabendazole	Bolus	250 mg 900 mg 1800 mg 2700 mg 3400mg	Fascioliasis
		Oral Suspension	5% 10% 20%	
2.1.2. Imidazothiazoles				
1	Levamisole	Bolus	600 mg 1000 mg 3400 mg	Lungworms, roundworms, <i>Ostertagiaostertagi</i> and tapeworms
		Injectable Solution	2 mg/ml 50 mg/ml 75 mg/ml	

			100 mg/ml 200 mg/ml		
		Oral powder	10% 20% 750 mg/g		
		Oral Suspension	30 mg/ml 50 mg/ml 75 mg/ml 100 mg/ml		
2	Tetramisole	Bolus	300 mg 600 mg 900 mg 3400 mg		Gastrointestinal nematodes, lung nematodes, kidney worm, heartworm and eye parasites
		Injectable Solution	30 mg/ml 100 mg/ml		
		Oral Powder	10% 20%		
2.1.3. Microcyclic Lactones					
1	Doramectin	Injectable Solution	10 mg/ml 1% 10%		Gastrointestinal roundworms, lungworms, eyeworms, grubs (<i>Hypodermabovis</i>), sucking lice and mange mites.

			20% 30%		
		Pour-On	5 mg/ml		
2	Ivermectin	Injectable Solution	10 mg/ml 1% 2% 3%	Gastrointestinal roundworms, Lungworms, Grubs (<i>Hypodermabovis</i> , <i>H. lineatum</i>), sucking Lice (<i>Linognathusvituli</i> , <i>Haematopinus eurysternus</i> and <i>Solenopotes capillatus</i>) and mites (<i>Psoroptes</i>)	
		Tablet	0.2% 0.5% 1%		
2.1.4. Salicylanilides					
1	Closantel	Injectable Solution	5% w/v 10% w/v	Mange, cow skin fly, fascioliasis, gastrointestinal nematode, demodicidosis etc.	
		Oral Suspension	50 mg/ml		
2	Rafoxanide	Oral Suspension	1% 2.5% 3% 5%	<i>Fasciola spp.</i> (both juvenile and adult stages), <i>Haemonchus</i> , <i>Oesophagostomum</i> and <i>Bunostomum</i>	
		Injectable Solution	7.5 mg/ml		
		Oral Drench	30 mg/ml		
3	Oxyclozanide	Bolus	340 mg	Indicated for treatment of all stages of fascioliasis	
			2700 mg		

2.1.5. Substituted Phenols			
1	Nitroxynil	Injectable Solution	340 mg/ml Fascioliasis, Haemonchus contortus, Haemonchus placei, Oesophagostomum radiatum and Bunostomum phlebotomy
2.1.6. Others			
1	Piperazine	Oral Powder	10 mg/g 50 mg/g 100 mg/g 650 mg/g Ascaris, Oxyuris, Strongyloides and Trichuris
2	Praziquantel	Tablet/Bolus	20 mg 50 mg Schistosomiasis, cestodes (Moniezia & Stilesia) and Cysticercosis
		Injectable	56.8 mg/ml 2.5% 5.68%
		Oral Suspension	2.5%
2.2. ANTIPROTOZOAL DRUGS			
2.2.1. Anaplasma Drugs			
1	Imidocarb	Injectable Solution	12% w/v For prevention, control and treatment of anaplasmosis

2.2.2. Antibabesial Drugs				
1	Diminazene Diacetate + Phenazone	Injectable (PFI)	1.05 g + 1.31 g	Used against babesiosis.
2	Diminazene Acetate	Injectable (PFI)	1.05 g 1.1 g 10.5 g	For treating babesia species
2.2.3. Anticoccidial Drugs				
1	Sulphadimidine Sodium	Injectable Solution	250 mg/ml 300 mg/ml	For the treatment coccidiosis.
2	Sulfadimethoxine	Injectable Solution	40% 60%	Coccidial and protozoal infections
2.2.4. Anticoccidial Combinations				
1	Sulfadiazine + Trimethoprim	Injectable Solution	200mg + 40mg/ml,	Coccidiosis
2	Sulfamethoxazole + Trimethoprim	Injectable	200mg + 40mg/ml	Coccidiosis and bacterial diseases
2.2.5. Trypanocides				
1	Diminazene Acetate	Injectable (PFI)	1.1 g 10.5 g (23.6 g sachet)	Trypanosoma, Babesia spp., theileriosis (Theileria annulata)

2	Diminazene Diacetate + Phenazone	Injectable (PFI)	1.05 g + 1.31 g	Trypanosomiasis and other protozoan infection.
3	Homidium bromide	Tablet	250 mg	Trypanosomiasis caused by <i>T. vivax</i> and <i>T. congolense</i>
4	Isometamedium chloride hydrochloride	Injectable (PFI)	125 mg	<i>Trypanosoma vivax</i> and <i>T. congolense</i> . Can confer protection against trypanosomal infection for 3-6 months
5	Diminazene Aceturate + Vitamin B12 + Vitamin B6	Injectable (PFI)	1.05g + 1mg + 5mg (2.36g)	prophylactics and treatment of babesia, piroplasmosis and trypanosomiasis
2.3. ACARICIDES				
1	Amitraz	Topical	12.5% solution	Kills ticks, lice and mange mites
2	Cypermethrin	Pour on	1% m/v	Against external parasites: ticks, flies, fleas, lice, mites
3	Cypermethrin + chlorpyrifos + piperonylbutoxide	Topical/pour on	6% + w/v 7% + w/v + 0.5% w/v	Against external parasites: ticks, flies, fleas, lice, mites
4	Diazinon		200 g/l	Used against external parasites (ticks, flies, fleas, lice, mites)
5	Deltamethrin	Pour-on Suspension	7.5 mg/ml	Used against external parasites (ticks, flies, fleas, lice, mites)
		Topical	1%	

6	Imidacloprid + moxidectin	Topical/spot on	10% + 1% m/v	For treatment for internal and external parasites
7	Ivermectin	Injectable	1%	For the treatment and control of gastrointestinal roundworms, lungworms, grubs, horn flies, sucking and biting lice, and sarcoptic mange mites ...
		Pour-on	5 mg/mL	
8	Thiamenthoxam (neonicotinoid) + (Z) 9-tricosene	Bait on fly trap	10 g/kg + 1 g/kg	For the treatment and control of gastrointestinal roundworms, lungworms, grubs, horn flies, sucking and biting lice, and sarcoptic mange mites ...
		Bait-paint-on	100 g/kg + 0.5 g/kg	
9	Triazophos	Topical	40% m/m	Acaricides, insecticides and nematocides

COMPLIMENTARY LIST OF ANTIPARASITIC DRUGS					
2.1. ANTHELMINTIC					
2.1.1. Benzimidazoles					
1	Oxyfendazole	Bolus	1250 mg		Lungworms, roundworms, <i>Ostertagiaostertagi</i> and tapeworms
			1500 mg		
		Oral Suspension	22.5 mg/ml		
		Eye/Ear Drop	4% w/v		
2.1.2. Microcyclic Lactones					
1	Abamectin	Injectable Solution	10 mg/ml		Wide range of anti-parasitic activity and used for treatment of mange
		Tablet	5 mg		
		Capsule	10 mg		
		Oral Powder	2 mg/g		
		Oral Suspension	20 mg/ml		
		Pour On	5 mg/ml		
		Paste	20 mg/g		
2	Eprinomectin	Injectable Solution	20 mg/ml		Gastrointestinal roundworms, lungworms, grubs and mites
3	Moxidectin	Injectable Solution	1%		Gastrointestinal roundworms, lungworms, grubs, mites and lice
			2%		
		Oral Suspension	10%		
			0.10%		
		Pour on	0.50%		
2.1.3. Substituted Phenols					
1	Bithionol oxide	Bolus	2 g		Fasciola, Oesophagostomum, Paramphistomum, Moniezia and Thysanieziaovilla
2	Nitroscanate	Oral Tablet	100 mg		Roundworms, hookworm and Schistosoma japonicum
			500 mg		

2.1.4. Others				
1	Pyrantel Embonate	Oral Paste	40% 43.90% 9.50%	Ascariasis, hookworm infections, enterobiasis (pinworm), trichostrongyliasis and trichinellosis
2	Pyrantel Pamoate	Paste	171 mg/ml	Strongyles; pinworms (<i>Oxyuris equi</i>) and large roundworms (<i>Parascaris equorum</i>)
			180 mg/ml	
			226 mg/ml	
			2.27 mg/ml	
		Oral Suspension	4.54 mg/ml	
			22.7 mg/ml	
			50 mg/ml	
		Tablet	22.7 mg	
			50 mg	
			100 mg	

2.2. ANTIPROTOZOAL DRUGS

2.2.1. Antibabesial Drugs

1	Amicarbalide	Injectable Solution	1%	For the treatment of babesiosis and Theileriosis (<i>B. divergens</i> , <i>B. cabali</i> and <i>T. pavae</i>).
2	Imidocarb	Injectable Solution	12% w/v	Against babesiosis

2.2.2. Anticoccidial Drugs

1	Sulfachlorpyridazine	Injectable Solution	200mg/ml	Intestinal infections (mainly coccidia) and bacterial infections
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2.3. ACARICIDES

1	Chlorfenvinphos	Topical	10 % solution	For controlling livestock ecto parasites
		Pour-on	5 mg/mL	

2	Ivermectin + novaluron	Topical	3% m/v+2% m/v	For the treatment and control of gastrointestinal roundworms, lungworms, grubs, horn flies, sucking and biting lice, and sarcoptic mange
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3. ANTIFUNGAL DRUGS

CORE LIST

1	Enilconazole	wash concentrate (100 ml, 1 litter)	100 mg/m	Blastomycosis, coccidioidomycosis, chromomycosis, Aspergillosis and Histoplasmosis
2	Ketoconazole	Topical (cream)	2%	Blastomycosis, coccidioidomycosis, chromomycosis and paracoccidioidomycosis
3	Propionic acid	Topical	0.1 to 1% solution	For the treatment of skin and other cutaneous fungal infections

4. ANAESTHETIC, ANALGESIC, SEDATIVE AND EMERGENCY DRUGS

CORE

4.1. Anaesthetics and pre-anaesthetics

1	Atropine sulphate	Injectable Solution	0.5 mg/ml or 15mg/ml	Preanesthetic, anesthesia adjunct to prevent salivation, bradycardia linked with anesthesia and as organo phosphate antidote
2	Lidocaine Hydrochloride	Injectable Solution	5 mg/ml 10 mg/ml 15 mg/ml 20 mg/ml	Local anesthetic, pain management and for acute treatment of Ventricular arrhythmias
		Topical	4 mg/ml	

3	Ketamine	Injectable Solution	100 mg/mL	For short-term anesthetic procedures
4	Pentobarbital Sodium	Injectable Solution	50 mg/ml	To control severe seizures
5	Thiopental Sodium	Injectable Powder	250 mg 10 g	For induction of anesthesia or for short duration of anesthesia (10-15-minute). Induces rapid, smooth and free induction
4.2. Analgesics				
1	Flunixin meglumine	Injectable Solution	10 mg/ml 50 mg/ml	Good for bovine respiratory disease and endotoxemia
2	Ketoprofen	Injectable Solution	10 mg/ml 500 mg/ml 100 mg/ml	For treatment of moderate pain and inflammation
4.3. Sedatives				
1	Diazepam	Injectable Solution	5 mg/ml	Sedation, anesthetic adjunct, anticonvulsant, control seizures and produces muscle relaxation
2	Xylazine	Injectable Solution	20 mg/ml 100 mg/ml	Sedation, general anaesthesia combination with ketamine
3	Detomidine Hydrochloride	Injectable Solution	10 g/mL	Sedative and analgesic to facilitate minor surgery

4.4. Emergency Drugs				
1	Yohimbine	Injectable Solution	2 mg/ml	Reversal of α_2 agonists
2	Atipamezole Hydrochloride	Injectable Solution	5 mg/ml	Reverse α_2 -agonists and reverse sedation caused by amitraz intoxication
3	Flumazenil	Injectable Solution	0.1 mg/ml	Reversal after benzodiazepine administration
4	Epinephrine	Injectable Solution	0.1 mg/ml 0.2 mg/ml 1 mg/ml	Cardiac resuscitation, Allergic reactions (anaphylaxis)
5	Activated charcoal	Oral Solution	208 mg/ml	Acute poisoning after ingestion of a large amount of toxin or drug
6	Calcium borogluconate	Injectable Solution	23% 38% 19.14 mg/ml	Antidote for Fluoride
COMPLEMENTARY				
4.1. Anaesthetics				
1	Glycopyrrolate	Injectable Solution	0.2mg/mL	Bradycardia in the perioperative period, counteract the cholinergic effects when reversing neuromuscular blockade with a cholinergic drug such as neostigmine
2	Bupivacaine Hydrochloride	Injectable Solution	0.5% 5 mg/ml 7.5 mg/ml	Local anesthesia and epidural analgesia/anesthesia

3	Mepivacaine	Injectable Solution	2% 20 mg/ml	Local anesthesia and epidural analgesia/anesthesia
4	Guaifenesin	Injectable Powder	10% 100 mg/ml	Adjunct to anesthesia and orally in animals as an expectorant
5	Halothane	Inhalation	250 ml bottle	General anesthesia
6	Isoflurane	Inhalation	100 ml bottle	General anesthesia with rapid induction of anesthesia and rapid recovery rates
7	Sevoflurane	Inhalation	100 ml bottle	An inhalant anesthetic with preanesthetics, opioids, alpha-2 agonists, and tranquilizers
4.2. Analgesics				
1	Meloxicam	Injectable Solution	5 mg/ml	Decrease pain, inflammation, and fever
4.3. Sedatives				
1	Midazolam Hydrochloride	Injectable Solution	5 mg/ml	Preanesthetic (anticonvulsant & muscle relaxation)
2	Romifidine	Injectable Solution	10 mg/ml 25 mg/ml	To facilitate handling, clinical examinations and minor surgery
4.4. Emergency Drugs				
1	Neostigmine	Injectable Solution	0.25 mg/ml 0.5 mg/ml 1 mg/ml	Antidote for anticholinergic intoxication, treat urinary retention and stimulate rumen and intestinal motility in postoperative patients

2	Methylene blue	Injectable Solution	10 mg/ml	Antidote for methemoglobinemia-producing agents (nitrates, chlorates ...)
3	Sodium thiosulfate/sodium nitrate	Injectable Solution	250 mg/ml	Acute cyanide poisoning

5. ELECTROLYTE, VITAMINS, MINERALS AND WATER BALANCE AGENTS

CORE

1	Sodium bicarbonate	Injectable Solution	4.25% solution	Metabolic acidosis, renal disease, shock or severe dehydration, extracorporeal circulation of blood, cardiac arrest and severe primary lactic acidosis
2	Calcium borogluconate	Injectable Solution	10% 40%	Hypocalcemia, prevention and treatment of calcium deficiency and vitamin A, D ₃ , E.
		Oral Suspension	360ml	
3	Dextrose	Injectable Solution	5%	Adjunctive treatment of shock or impending shock due to hemorrhage, burns, surgery or other trauma
4	Lactated Ringer's	Injectable Solution	1000 ml	Parenteral replacement of extracellular losses of fluid and electrolytes, with or without minimal carbohydrate calories, as required by the clinical condition of the patient
5	Glucose	Injectable Solution	5% 20% 40%	Glucose 40% w/v is for use in admixtures to provide temporary relief from the symptoms of increased intracranial pressure and hypoglycaemic coma and is also indicated for

				the supplementation of energy in parenteral nutrition but Glucose 5% is indicated for the treatment of carbohydrate and fluid depletion
6	Multivitamins	Injectable Solution	100 ml	For prevention and treatment of Vitamin deficiencies
COMPLEMENTARY				
1	Sodium acid citrate	Oral	280 g/l solution	Urine alkalization and ephrolithiasis
2	Sodium chloride (NS)	Injectable Solution	0.45% 0.9%	Dehydration, hypovolemia cardiopulmonary resuscitation & shock

6. ANTI-INFLAMMATORY				
CORE				
1	Betamethasone	Ointment	0.25-9 mg	Treat allergies and inflammation. It relieves swelling, redness and irritation.
2	Dexamethasone	Injectable Solution	2 mg/ml	Treat allergies and inflammation. It relieves swelling, redness and irritation.
		Ointment	0.05% 0.1%	
3	Flunixin Meglumine	Injectable Solution	50 mg/ml	For control of pyrexia associated with bovine respiratory diseases, endotoxemia and acute bovine mastitis
4	Meloxicam	Injectable Solution	5 mg/ml 10 mg/ml	Used for relief of pain and inflammation, osteoarthritis, acute respiratory infections and so on

7. ANTISEPTICS AND DISINFECTANTS**CORE**

1	Chlorhexidine digluconate (Savlon)	Topical	5% solution	It is an effective antiseptic with a wide range of activity against micro- organisms, including gram positive and gram negative bacteria, fungi and viruses.
2	Copper sulfate	Topical	5% solution 10% solution	Fungicide and as a foot-bath for the control of foot-rot
3	Formaldehyde	Topical	37% solution	Footbaths” for dairy cows to prevent hoof diseases
4	Hydrogen peroxide	Topical	6% w/v solution	Topical antiseptic and cleansing agent for minor cuts, abrasions and wounds
5	Iodine tincture	Topical	2.5% w/v solution	Topical antiseptic for superficial cuts, wounds, abrasions, insect bites and bruises on the skin of cattle
6	Isopropyl alcohol	Topical	70% w/v solution	Antiseptic for skin for cattle. Apply topically a solution of Isopropyl Alcohol, diluted at a final concentration of 70% (4.1 mL of sterile water to 10 mL of Isopropyl Alcohol.

7	Potassium permanganate	Topical	5% w/v solution	General antiseptic /disinfectant. Treats many skin infections, including eczema, dermatitis, bacterial skin infections and thrush
8	Povidone Iodine	Topical	10% aqueous (contains 90% water, 8.5% povidone and 1.5% iodine and iodide	It used as a surgical hand scrub and to wash the skin and surface of the eye before surgery to help prevent infections.

8. HORMONES				
CORE				
8.1. Oxytocin				
1	Oxytocin	Injectable Solution	10-40 IU/ml	Initiate strong, regular and purposeful contractions of the uterine muscle especially in the later stages of pregnancy and post-partum
8.2. Gonadotrophins				
1	Buserelin	Injectable Solution	0.004 mg/ml	Follicular cysts, improved conception rate, synchronization of oestrus and ovulation

2	Cloprostenol sodium	Injectable Solution	250mcg/ml	Treatment of pyometra or chronic endometritis, mummified fetus and luteal cysts, Estrus synchronization and termination of unwanted pregnancies
3	Follicle-stimulating hormone (FSH)	Injectable Solution	5 mg/ml	Stimulates the growth and development of follicles.
4	Gonadorelin-diacetate-tetrahydrate	Injectable Solution	100 µg/ml	To treat ovarian follicular cysts and to induce luteinization and ovulation
5	Gonadotrophin releasing hormone (GRH)	Injectable Solution	50 µg/ml	Treat cystic ovaries and other reproductive disorders.
6	Luteinizing hormone (LH)	Injectable Solution	1,000 IU 5000 IU	Increase libido, cystic ovaries treatment and induce ovulation.
7	Prostaglandin F2-alpha	Injectable Solution	5mg/ml	Used for treatment of chronic endometritis, induction of abortion and Estrus synchronization
8.3. Estrogens				
1	Estradiol 17β	Injectable Solution	5 mg/ml	Stimulate LH release which increase libido, onset of oestrus and fertility.
8.4. Progestogens				
1	Progesterone	Intra-vaginal device	0.3 g 1.9 g	For the treatment of disorders of the reproductive system, including termination of an unwanted pregnancy. Oestrus synchronization and preparation of donor and receptor animals in the case of embryo transfer

COMPLEMENTARY				
8.5. Corticosteroids				
1	Prednisolone	Injectable Solution	25 mg/ml	Inflammatory, immune-mediated disease and ketosis
8.6. Oxytocin				
1	Cloprostenol.	Injectable Solution	125 µg 250 µg	For treating mummified fetus, and luteal cysts; and for the treatment of pyometra.
8.7. Luteolysins				
1	Luprostiol	Injectable Solution	7.5 mg/ml	Treatment of corpora lutea, abortion etc.
2	Dinoprostromethamine	Injectable Solution	12.5 mg/ml	Estrus synchronization, silentcows with a corpus luteum, For treatment of pyometra (chronic endometritis)
8.8. Estrogens				
1	Estradiol benzoate	Injectable Solution	0.2%	Stimulate oestrus and ovulation. Enhances the precision of the onset of oestrus and ensures a high fertility
8.9. Progestogens				
1	Oestradiol-17 β benzoate +testosterone propionate	Implant	20 mg + 200 mg	Provides maximal growth stimulation
9. GENITO-URINARY TRACT DRUGS				
9.1. Urinary Antiseptics and Antispasmodics				
1.	Diazepam	Injectable Solution	0.1 mg	Urinary tract disease in cattle caused by obstructive uroliths.

2.	Xylazine	Injectable Solution	0.05-0.1 mg	To relax urethra and straighten the sigmoid flexure.
3.	Ammonium chloride	Oral	200-300 mg	To acidify urine and aid in struvite stone dissolution.
4.	Flunixin meglumine	Injectable Solution	1-2 mg	To reduce swelling and irritation of the urethra.
5	Hyoscine	Injectable Solution	4 mg/ml	Relief of gastro-intestinal or genito-urinary disorders
9.2. Diuretics				
1	Furosemide	Injectable Solution	50 mg/ml	The treatment of fluid retention associated with heart failure, mild to moderate hypertension.
COMPLEMENTARY				
9.3. Diuretics				
1	Allopurinol	Oral	100 mg	Reducing urate/uric acid formation.

10. GASTROINTESTINAL TRACT DRUGS

CORE

10.1. Antidiarrheals/Spasmolytics/Adsorbents and Gall Sickness

1	Bismuth carbonate	Oral	150 mg/5 ml	Non-specific antidiarrheal agent and GI protectant.
2	Kaolin pectate	Syrup	40 mg/5 ml	For the treatment of acute diarrhea

10.2. Antiflatulents/Antiacids and Antibloat

1	Aluminium Hydroxide	Tablet	600 mg	It is a good adsorbent and antacid
		Oral suspension	64mg/ml	

2	Indigestion (sodium carbonate + sodium bicarbonate + citric acid)	Powder	100 g	Excess stomach acid, abdominal pain, diarrhea and indigestion
3	Magnesium hydroxide	Oral	400 mg/5 ml	Used as an antacid to neutralize stomach acid
4	Poloxalene	Drench	59.1 ml	For treatment of legume (alfalfa and clover bloat)
10.3. Cathartics/Laxatives/Purgatives/Lubricants				
1	Mineral oil	Oral	500-1000 ml	Lubricant laxative. It increases water content of stool and acts as a lubricant for intestinal contents.
2	Liquid paraffin	Oral	474 mg	Increases water content of stool and acts as a lubricant for intestinal contents.
COMPLEMENTARY				
10.4. Antidiarrheals/Spasmolytics/Adsorbents and Gall Sickness				
1	Kaolin	Syrup	15-250 mg	Antidiarrheal agent and GI protectant.
10.5. Antiflatulents/Anti acids and Antibloat				
1	Calcium Carbonate	Oral	60-360 gm	Commonly used antacid. Its effects are rapid in onset and prolonged induration.
2	Proloxalene	Oral	25 g/30 ml	For treatment of bloat cattle
3	Sodium bicarbonate	Oral Tablet	520 mg 650-mg	For treatment of metabolic acidosis
10.6. Cathartics/Laxatives/Purgatives/Lubricants				

1	Magnesium sulfate	Injectable Solution	50%	To treat hypomagnesaemia and laxative
10.7. Digestants				
1	Polyethylene glycol	In water	925 g	For the treatment of constipation
2	Ractopamine HCL	Premix	20 g/kg 50 g/kg	It promotes muscle mass development and limits fat deposition
10.8. Emetics and Antiemetics				
1	Chlorpromazine	Injectable Solution	25 mg/ml	Sedative and/or antiemetic
11. DRUGS ACTING ON THE CARDIOVASCULAR SYSTEM				
COMPLEMENTARY				
1	Procainamide	Injectable Solution	100 mg/ml	Ventricular arrhythmias
2	Propranolol	Injectable Solution Oral	1 mg/ml 10 mg 40 mg	Hypertension, angina pectoris (coronary atherosclerosis), atrial fibrillation, myocardial infarction, migraine, essential tremor, hypertrophic subaortic stenosis, pheochromocytoma & proliferating infantile hemangioma
3	Digoxin	Oral Injectable Solution	0.25 mg, 5 mg 0.5 mg/2 mL	Congestive heart failure with systolic failure and supraventricular tachycardias
4	Diltiazem	Oral bolus Injectable Solution	60 mg 120 mg 5 mg/ml	Cardiac arrhythmia like atrial flutter, atrial fibrillation and supraventricular tachycardia

5	Furosemide	Injectable Solution Oral bolus	50 mg/ml 40 mg	Edema associated with congestive heart failure, cirrhosis of the liver, and renal disease
6	Dobutamine	Injectable Solution	12.5 mg/ml	Short-term support for cardiac failure
7	Sodium pentobarbital	Injectable Solution	200 mg/ml	Rapid, painless, and humane euthanasia of animals
8	Embutramide	Injectable Solution	200 mg/ml	Rapid, painless, and humane euthanasia of animals

12. RESPIRATORY SYSTEM DRUGS

CORE

1	Bemegride	Injectable Solution	25 mg/ml	Respiratory stimulant and in the treatment of barbiturate overdose
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COMPLEMENTARY

1	Doxapram	Injectable Solution	20 mg/ml	To decrease the respiratory depressant
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13. VACCINES

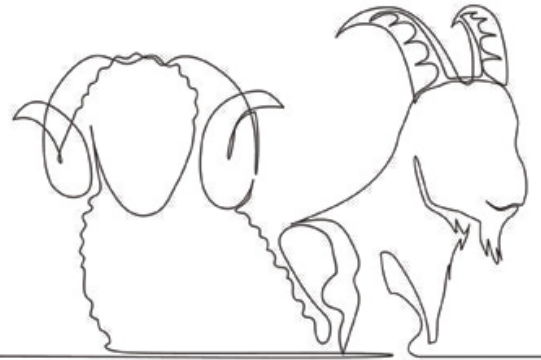
CORE

1	Anthrax	Injectable	5 ml or 20 ml per vials	1 ml/ cattle, SC
2	FMD	Trivalent inactivated vaccine, Solution; Injectable	50 ml vial of 10 doses or 100 ml vial of 25 doses	4 ml/ cattle, SC
3	Lumpy Skin Disease (LSD)	Live attenuated (Lyophilized) vaccine; Reconstitute in 100ml of sterile water;	5 ml or 20 ml per vials	1 ml/ cattle, SC

		Injectable			
4	Contagious Bovine Pleuropneumonia (CBPP)	Injectable		100 ml/vial	1 ml/ cattle, SC
5	Blackleg	Killed vaccine; Solution, 50 doses; Injectable		100 ml/vial	2 ml/ cattle, SC
6	Bovine pasteurellosis	Killed vaccine		100 ml/vial	2 ml/ cattle, SC
7	BVD virus vaccine	Live, Freeze dried powder (contain BVDV-1 and BVDV-2)		20ml/vial	2ml/cattle,
8	IBR virus vaccine	Live, Freeze dried powder		10ml/vial	2ml/cattle
COMPLEMENTARY					
1	Bovine Rota virus vaccine	Injectable, Live			2ml, IM
2	<i>Brucella abortus</i> strain A19	Injectable, Live			1ml, SC

SMALL RUMINANTS

EVMs List



2.2. SMALL RUMINANTS LIST

1. ANTIBIOTIC DRUGS				
CORE LIST				
S/n	Name of drugs	Dosage form	Strength	Indications
1.1 AMINOGLYCOSIDES				
1	Spectinomycin	Injectable	50 mg/ml 100 mg/ml	- Has activity against a wide variety of G +ve and G -ve bacteria, including <i>E. coli</i>, <i>Klebsiella</i>, <i>Proteus</i>, <i>Enterobacter</i>, <i>Salmonella</i>, <i>Streptococci</i>, <i>Staphylococcus</i> and <i>Mycoplasma</i>. - For bronchopneumonia and fibrinous pneumonia
2	Streptomycin sulfate	Injectable (Solution for Injection)	200mg/ml, 250 mg/ml	- Active against a wide range of G +ve and G -e pathogens. - Indicated for treatment of infections caused by <i>E. coli</i>, <i>Klebsiella</i> spp., and some species of <i>Proteus</i>, <i>Pasteurella</i> and <i>Salmonella</i>.

3	Gentamicin	Injectable (Gentamicin Sulfate)	40mg/ml, 50mg/ml, 100mg/ml	- Has good activity against a variety of bacteria, predominantly Gram-negative aerobic bacilli. - Treatment of serious gram-negative infections when there is either a documented lack of susceptibility to other less toxic antibiotics or when the clinical situation dictates immediate treatment of a presumed gram-negative infection before culture and susceptibility results are reported
1.2	MACROLIDES			
1	Erythromycin	Injectable	50 mg/ml, 100mg/ml,	It is often employed when an animal is hypersensitive to penicillins or if other antibiotics are ineffective against a certain organism. For respiratory infections and dysentery in newborn lambs.
		Intramammary infusion	50 mg/ml in 12 ml tubes (for use in non-lactating dairy cattle)	Infuse contents of one syringe into each affected quarter at time of drying off. Repeat after each milking for 3 milkings.

			300 mg/6 ml syringe (lactating cows)	
2	Spiramycin	Injectable	600,000 IU/ml	▪ Treatment of acute clinical mastitis in lactating cows caused by <i>Staphylococcus aureus</i> strains sensitive to spiramycin. ▪ Treatment of respiratory infections caused by <i>P. multocida</i> and <i>M. haemolytica</i>.
3	Tilmicosin	Injectable	300 mg/ml	Indicated for the treatment of bovine respiratory diseases (BRD) caused by <i>P. haemolytica</i> .
4	Tylosin	Injectable solution	50mg/ml, 200mg/ml,	For bronchopneumonia and fibrinous pneumonia in cattle associated with penicillin G-refractory <i>C. pyogenes</i> infections or other bacteria sensitive to Tylosin and resistant to sulfas, penicillin G and tetracyclines.
1.3	PENICILLINS			
1	Benzylpenicillin (Penicillin G)	Injectable	300,000 Units/ml	Penicillins have been used for a wide range of infections.

2	Benzathine penicillin + Benzylpenicillin procaine	Injectable	150,000 IU +150,000 IU/ml	
		Intramammary infusion	100,000 units/ml in 10 ml units	For use in dry cows only
3	Amoxicillin	Injectable	100mg/ml, 150mg/ml	The aminopenicillins have been used for a wide range of infections in various species.
		Oral Tablet	50mg, 100mg, 150mg, 200mg, 400mg	Calves: 7 mg/kg PO q8-12h
		Intramammary Infusion	62.5 mg/syringe in 10 ml syringes	Approved for use in lactating dairy cattle
		Ointment	40mg/5gm	
4	Ampicillin	Injectable solution	Powder for Suspension 1g, 3g, 10g, 25g	The aminopenicillins, also called the “broad-spectrum” or ampicillin penicillins, have increased activity against many strains of Gram-negative aerobes not covered by either the natural penicillins or penicillinase-resistant penicillins, including some strains of <i>E. coli</i> , <i>Klebsiella</i> , and <i>Haemophilus</i> .
5	Amoxicillin + Clavulanic acid	Injectable (Suspension for injection)	140 + 35 mg/ml	For the treatment of urinary tract, skin and soft tissue infections caused by susceptible organisms.

				Treatment of mastitis and respiratory infections due to <i>P. multocida</i> and <i>M. haemolytica</i> in cattle.
		Intramammary infusion	200mg+ 50mg	Intramammary syringe of 3g (Amoxicillin as amoxicillin trihydrate 200mg, Clavulanic acid as potassium clavulanate 50mg, Prednisolone 10mg)
6	Cloxacillin	Intramammary Suspension	200mg in 10 ml syringe, 500mg in 10ml syringe,	Used when penicillinase-producing <i>Staphylococcus</i> species have been isolated.
1.4	PHENICOLS			
1	Florphenicol	Injectable	300 mg/ml	A broad-spectrum antibiotic that has activity against many bacteria (e.g., Mycoplasma). Used in the treatment of respiratory diseases associated with <i>Pasteurella haemolytica</i> , <i>Pasteurella multocida</i> and <i>Haemophilus somnus</i>
1.5	QUINOLONES			
1	Enrofloxacin	Injectable solution	100mg/ml	Has good activity against many gram-negative bacilli and cocci, including most species and strains of <i>Pseudomonas aeruginosa</i> , <i>Klebsiella</i> spp <i>E. coli</i> , <i>Enterobacter</i> , <i>Campylobacter</i> , <i>Shigella</i> , <i>Salmonella</i> , <i>Aeromonas</i> , <i>Haemophilus</i> , <i>Proteus</i> , <i>Yersinia</i> , <i>Serratia</i> , and <i>Vibrio</i> species.

1.6 SULFONAMIDES				
1	Sulfadiazine + Trimethoprim	Injectable/oral	48 mg/ml	Potentiated sulfonamide antimicrobial agent. important in the treatment of a wide range of diseases (bacterial, coccidial and protozoal infections)
2	Sulfadimidine sodium	Injectable	333.3 mg/ml	Indicated for the treatment of coccidiosis and foot rot.
3	Sulfadoxine + trimethoprim	Injectable	200mg + 40mg/ml, 400mg + 80mg/ml	Respiratory infections of bacterial origin including pneumonia, rhinitis, bronchitis and secondary bacterial infections following virus pneumonia mycoplasmal infections. Urogenital tract infections including cystitis, vaginitis, urethritis, nephritis and metritis. Alimentary tract infections, neonatal diarrhea, salmonellosis, and post-weaning enteritis.
1.7 TETRACYCLINES				
1	Chlortetracycline	Tablets	25mg, 500mg	Tetracyclines are important in the treatment of many bacterial and chlamydial diseases. Critically important in the treatment of animals against heartwater (<i>Ehrlichia ruminantium</i>) and anaplasmosis (<i>Anaplasma marginale</i>)
		Spray	2.8%	
2	Oxytetracycline	Injectable solution	5%, 10%, 12%, 20%, 30%	

		Intrauterine	500 mg syringe, 500 mg	
1.8	AMINOGLYCOSIDE AND PENICILLIN COMBINATION			
1	Dihydrostreptomycin Sulphate + Procain Penicilline G	Injectable	200mg + 200,000IU/ml, 250mg+ 200,000IU/ml	Used to treat shipping fever syndrome, wound infections, foot and navel infections, bronchitis, and tracheitis.
		Intramammary Suspension	250mg + 300,000IU/dose, 500mg + 300,000IU/dose	For treatment of infections caused by bacteria sensitive to penicillin or streptomycin
	COMPLEMENTARY LIST (ANTIBACTERIAL)			
1	Lincomycin	Injectable	25mg/ml; 50 mg/ml, 100 mg/ml	Essential in the treatment of <i>Mycoplasmal pneumonia</i> , infectious arthritis and hemorrhagic enteritis.
2	Flumequin	Injectable	50 mg/ml	Used in the treatment of septicemias and infections such as Colibacillosis

2. ANTIFUNGAL DRUGS				
S/n	Medicines	Dosage form	Strength	Description
1	Amphotericin B	Liposomal Injection,	10mg/ml, 50mg/vial	- Disseminated histoplasmosis - Disseminated and meningeal coccidioidomycosis - Disseminated and meningeal cryptococcosis - Invasive aspergillosis - Deep candidiasis - Mucormycosis
2	Clotrimazole	Powder, Mouth paint, 1% Tablet (vaginal),	1% 100mg, 500mg	- Blastomycosis - Paracoccidioidomycosis - Chronic pulmonary histoplasmosis - Meningeal coccidioidomycosis - Meningeal cryptococcosis - Cutaneous and deep candidiasis
3	Griseofulvin	Tablet, Oral suspension,	125mg, 250mg 125mg/5ml	<i>Dermatophytes (Microsporum, Epidermophyton, Trichophyton)</i>

3. ANTIPARASITIC MEDICINES				
CORE MEDICINES				
S/n	Medicines	Dosage form	Strength	Indication
3.1	ANTIHELMINTH DRUGS			
3.1.1	BENZIMIDAZOLE GROUP			
1	Triclabendazole	PO / Drench	10mg	Highly effective against immature <i>Fasciola hepatica</i> in the liver parenchyma and against the mature stage in the bile ducts.
2	Albendazole	Bolus / PO Suspension	300mg 113.6 mg/mL	Active against mature <i>F hepatica</i> ;
3	Oxfendazole	Oral	5mg	GI round worms, <i>Dictyocaulos filarial</i> , Monezia in sheep
		Oral		<u>Muellerius capillaris</u>
4	Praziquantel	Oral	3.75 mg	Tapeworms (moneizia, Coenurus cerebralis for sheep and goat
5	Fenbendazole	Drench solution	100mg/ml 10%	for the control of gastrointestinal roundworms and lungworms and aids in the control of tapeworm and whipworms

3.1.2 IMIDAZOLTHIAZOLES				
1	Levamisole	Injectable, and oral formulations	200mg, 20%	Highly effective against the common adult GI nematodes and lungworms and many larval stage
2	Tetramisole	Injectable, and oral formulations	7.5mg	Lungworm
3.1.3 SALICYLANILIDES				
1	Rafoxanide	Oral	1-3%	Highly effective in cases of fascioliasis and haemonchiasis and is mainly indicated for the treatment of acute and chronic liver flukes infestation in sheep
2	Oxyclozanide	Oral	15 mg/kg	Used for the treatment and control of fascioliasis in cattle, sheep and goats

3.2	ANTI PROTOZOAL DRUGS				
S/n	Medicines	Dosage form	Strength	Indication	
1	Diminazene aceturate	Injectable (IM)	70mg	Effective against babesiosis, trypanosmosis	
2	Diminazeneaceturate + Phenazone,	Injectable (IM)	70mg + 375mg	Babesiosis For mixed infection of babesia and trypanosomiasis.	
3	Amprolium	PO	200 mg	Coccidiosis	

4	Toltrazuril	Oral suspension	50mg, 5%	For the prevention of clinical signs of coccidiosis and reduction of coccidial shedding in lambs on farms with a confirmed history of coccidiosis caused by <i>Eimeria crandallis</i> and <i>Eimeria ovinoidalis</i>
5	Diaclazuril	Oral suspension	2.5 mg/mL suspension	Treatment and prevention of coccidial infections in lambs and to aid in the control of coccidiosis treatment and prevention of coccidial infections in lambs and to aid in the control of coccidiosis
6	Sulfadiazine and pyrimethamine	PO tablet	Sulfadoxine 500 mg/pyrimethamine 25 mg co-formulated	Act synergistically and are widely used for treatment of toxoplasmosis.

3.3 DRUGS FOR ECTOPARASITES

S/n	Medicines	Dosage form	Strength	Indication
1	Ronnel in propylene glycol	Topical		Effective against demodex
2	Ivermectin 1%	Injectable (SC)	1%	Effective against chorioptes, demodex
3	Trichlorfon	Spray or dipping		
4	Rotenone in alcohol	Topical	2%	

5	Organophosphates acaracides /Diazinon	Topical		Psoroptes (Sheep Scab), ticks
		Spray or dip.	15%, 16.2%, 20%, 60% w/v	For Psoroptes (in goats)
6	Amitraz (formamidines) applications	Topical	12.5% solution	Effective for Sarcoptes
7	BTH dressing (Boric acid, tar oil, bentonite mixture	Topical		For treatment of cutaneous myiasis

4. ANAESTHETICS, ANALGESICS, SEDATIVES AND EMERGENCY DRUGS

4.1. ANAESTHETIC DRUGS

CORE LIST

	Name of the drug	Dosage form	Strength	Indication
1	Ketamine	Solution for injection IV	10 mg / ml, 50mg/ml, 100 mg/ml	For short-term anesthetic procedures
2	Alfaxalone	Solution for injection	10 mg/ml	General anesthetic for induction and maintenance of anesthesia. Duration of anesthesia 6.4±3.6 minutes Time to standing 22±10.6 minutes.
3	Propofol	Solution for injection	10 mg/ml	Smooth recovery and light anesthesia 5–10 minutes
4.2. ANALGESIC				
1	Meloxicam	Injectable Solution	5 mg/ml	Decrease pain, inflammation, and fever

4.3. LOCAL ANAESTHETICS			
1	Lidocaine	Solution for injection	20 mg/ml 1-2, SC, 2.5, IV, Loading dose: 2-5, IV CRI: 3- 6mg/kg/hour
SEDATIVES			
1	Xylazine	Solution for injection	20mg/ml, 100mg/ml Standing castration, light to moderate sedation
		Solution for injection	0.3, IM Standing sedation for 60 minute
2	Detomidine	Solution for injection	10mg/ml Sedation
		Solution for injection	10mg/ml Good analgesia and marked muscle relaxation
3	Acepromazine	Solution for injection	0.5 mg/ml, 2 mg/ml, 10 mg/ml Moderate sedation and may increase risk for regurgitation
4	Diazepam	Solution for injection	5mg/ml Sedation
4.4. EMERGENCY DRUGS			
1	Atipamezole	Solution for injection	0.05, IV Reversal for $\alpha 2$ agonists
2	Tolazoline	Solution for injection	1-2, slow IV Reversal for $\alpha 2$ agonists Can be given half IV, half IM Some prefer IM
3	Yohimbine	Solution for injection	2mg/ml Reversal for $\alpha 2$ agonists
4	Doxapram	Solution for injection	0.4, IV Nonspecific reversal
5	Flumazenil	Solution for injection	- Reversal for benzodiazepines
6	Naloxone	Solution for injection	- Reversal for opioid agonists

COMPLEMENTARY ANAESTHETIC DRUGS

	Medicines	Dosage form	Strength	Description
S/N	Inhalation Anesthesia			
1	Halothane	Inhalation	250ml, 0.05%	Vapor setting is at 5% (2.5-4 % in small ruminants) at induction with oxygen flow at 20 ml/kg/min and is reduced between 1-3 % during the maintenance with oxygen flow at 10 ml/kg/min
2	Isoflurane	Inhalation	1000 mg/g	Vapor setting is at 5% (3-4 % in small ruminants) at induction with oxygen flow at 20 ml/kg/min and is reduced between 1.5-3 % during the maintenance with oxygen flow at 10 ml/kg/min
3	Sevoflurane	Inhalation	100% v/v	Sevoflurane (1 MAC = 2.3 %) is less potent than halothane or isoflurane, but more potent than desflurane

5. ANTI-INFLAMMATORY DRUGS

	Medicines	Dosage form	Strength	Description
1	Flunixin Meglumine	Solution for injection	50mg/ml	Anti-inflammatory
2	Metamizole	Solution for injection		Anti-inflammatory

6. FLUID THERAPY				
	Medicines	Dosage form	Strength	Description
1	Normosol-R	Solution for injection, IV		To treat grain overload
2	Propylene glycol	Solution for injection, IV	(300–500ml)	To treat Ketosis / Pregnancy Toxemia
3	Glucose	Solution for injection, IV	5%, 20%, 40%	Hypoglycaemia in sheep and goat
4	Dextrose	solution for injection, IV	5%	For circulatory shock due to hemorrhage, burns, surgery or other trauma
5	Lactated Ringer's solution	solution for injection, IV	1000ml	It is ideal in patients with metabolic acidosis

7. SMALL RUMINANTS VACCINES		Indications
S/n	Name of vaccine	
1	Ovine pasteurellosis vaccine	- Contains whole broth culture of <i>Pasteurella multocida</i> type A - For best results vaccinate according to regional conditions, and at least 3 weeks before the risk season. - Revaccinate every 6 months - The currently available vaccine contains only <i>P. multocida</i>
2	Contagious caprine pleuropneumonia (CCPP) vaccine	- Inactivated bacterial vaccine produced using F – 38 Kenyan strain of <i>Mycoplasma capricolum</i> subsp. <i>capripneumoniae</i> (Mccp) - Confers immunity for 1 year.

3	Anthrax vaccine	It is a freeze – dried live spore bacterial vaccine produced using 34 F2, strain of <i>Bacillus anthracis</i> Annual revaccination.
4	Peste des petits ruminants (PPR) vaccine	▪ Lyophilized virus vaccine PPR virus strain cultured on VERO – cells ▪ Freeze – dried vaccine with a minimum titer of 2.5 TCID₅₀ per field dose. ▪ Immunization above 6 months of age
5	Footrot vaccine (<i>Dichelobacter nodosus</i>)	Footrot
6	Sheep and goat pox Vaccine (Capripox viruses)	Sheep pox, goat pox Provide protection for up to 2 years.
7	Enterotoxemia vaccine	<i>Cl. perfringens</i> type C (enterotoxemia), type D (enterotoxemia)
8	Contagious ecthyma or orf vaccine	• Contagious ecthyma or Orf in sheep and goats • Ewes and Does should be vaccinated well ahead of lambing. • They should be revaccinated annually.
9	Foot and mouth disease vaccine	- 4 months and above - Twice in a year
10	<i>Chlamydia abortus</i> vaccine enzootic abortion of ewes	For the active immunization of breeding female sheep against <i>C. abortus</i> infection

POULTRY

EVMs List



2.3. POULTRY LIST

1. ANTIMICROBIALS				
1.1. Antibacterials				
S/N	Name of drugs	Dosage form	Strength	Indication
1	Amoxicillin-trihydrate	Soluble powder	10%-50%	• Respiratory and reproductive colibacillosis • Clinical salmonellosis in young birds. • Erysipelas infection (<i>Erysipelothrix rhusiopathiae</i>) • Spirochetosis (avian borreliosis, <i>Borrelia anserina</i> infection) • <i>Clostridium perfringens</i> infection
2	Enrofloxacin	Oral suspension	2.5%, 10%, 20%	CRD or airsacculitis, Colibacillosis, Pullorum disease, infectious coryza (<i>Haemophilus paragallinarum</i> infection), erysipelas (<i>Erysipelothrix rhusiopathiae</i>)
3	Erythromycin	Soluble powder	20%, 50%	Campylobacteriosis, CRD or airsacculitis; fowl cholera; infectious coryza (<i>Avibacterium paragallinarum</i> infection), Gangrenous dermatitis (<i>S. aureus</i> infection), Other staphylococcal infections, streptococcosis (systemic or local disease), infectious synovitis

					(<i>Mycoplasma synoviae</i> infection), necrotic enteritis (<i>Clostridium perfringens</i> infections)
4	Gentamycin sulphate	Oral Powder	10%		In the treatment of enteric infections
5	Gentamycin+ Doxycycline		10% + 5%		<i>Bordetella</i> , <i>Campylobacter</i> , <i>E. coli</i> , <i>Haemophilus</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Staphylococcus</i> and <i>Streptococcus</i> spp. <i>Doxycycline</i> is also active against <i>Chlamydia</i> , <i>Mycoplasma</i> and <i>Rickettsia</i> spp.
6	Lincomycin	Soluble powder	40%		Necrotic enteritis (<i>Clostridium perfringens</i> infections)
7	Sulfamethazine-trimethoprim	Oral suspension	400 mg+ 80 mg		Colibacillosis, infectious coryza (<i>Haemophilus paragallinarum</i> infection), white diarrhoea, enteritis, colisepticaemia, early chick mortality and to prevent secondary bacterial infections
		Oral powder	400 mg+ 80 mg		
8	Chlortetracycline	Oral Powder	10%		- Chlamydiosis, fowl cholera, gangrenous dermatitis (<i>S. aureus</i> infection), other staphylococcal infections, streptococcosis (systemic or local disease), infectious synovitis (<i>Mycoplasma synoviae</i> infection) - It is indicated as a second line treatment for necrotic enteritis (<i>Clostridium perfringens</i>) next to Amoxicillin
9	Doxycycline	Oral powder	20%, 50%		Chlamydiosis, Mycoplasma infection

10	Oxytetracycline	Oral Powder	20%	Infectious coryza, fowl cholera, infectious synovitis, fowl typhoid, CRD, bacillary white diarrhea, spirochaetosis. Generally, for bacterial enteritis.
11	Tylosin	Oral powder	10%, 20%, 30%, 100%	Spirochetosis (avian borreliosis, <i>Borrelia anserina</i> infection), CRD or airsacculitis, Gangrenous dermatitis (S. aureus infection), Infectious synovitis (<i>Mycoplasma synoviae</i> infection), infectious sinusitis
1.2. Antifungals				
1	Copper sulfate	Oral powder	95%	Candidiasis, Aspergillus infection
2	Nystatin	Oral powder	4.4%	Candidiasis

2. ANTIPARASITIC DRUGS

2.1. Anthelmintics

1	Fenbendazole	Oral suspension- in drinking water	20%	For the treatment of gastrointestinal nematodes in chicken infected with ascaridia galli and <i>Heterakis gallinarum</i>
2	Levamisole	Oral powder, Oral suspension	20%	Used against <i>Ascaridia</i> , <i>Heterakis gallinarum</i> , and <i>Capillaria</i> spp.
3	Albendazole	Oral suspension	2.5%	Used against <i>Ascaridia</i> , <i>Heterakis gallinarum</i> , and <i>Capillaria</i> spp and <i>Cestodes</i> .

2.2. Antiprotozoals				
1	Amprolium	Oral powder	20% 40%	For the treatment of intestinal coccidiosis caused by <i>Eimeria</i> spp.
2	Amprolium + Sulphaquinoxaline + Vitamin K	oral powder	20%+20%+ 3.5% and 10%+10%+ 1.75%	For the treatment of coccidiosis
3	Diclazuril	Oral solution	2.5%	For treatment of coccidial infections caused by <i>Eimeria tenella</i> , <i>E. necatrix</i> , <i>E. acervulina</i> , <i>E. brunetti</i> , <i>E. mitis</i> (<i>mivati</i>), and <i>E. maxima</i> .
4	Lasalocid A	Oral powder	20%	Used for the treatment of coccidiosis caused by <i>Eimeria tenella</i> , <i>E. necatrix</i> , <i>E. acervulina</i> , <i>E. brunetti</i> , <i>E. mivati</i> , <i>E. maxima</i> , <i>E. meleagritidis</i> , <i>E. gallopavonis</i> , <i>E. adenoeides</i> and <i>E. legionensis</i> .
5	Monensin sodium	Oral powder	20%	Used for prophylactic control of the coccidial species: <i>Eimeria acervulina</i> , <i>E. maxima</i> , <i>E. necatrix</i> , <i>E. praecox</i> , <i>E. Mitis</i> , <i>E. tenella</i> and <i>E. brunetti</i> .
6	Piperazine	Oral powder in drinking water	100%	Used for the treatment of adult large roundworm
7	Sulphaquinoxaline / Trimethoprim	Oral solution	400 mg+ 80 mg	Used for the treatment of Coccidiosis.
8	Toltrazuril	Oral solution	2.5%	The prophylactic control and treatment of of coccidial species in poultry.

2.3. Acaricides				
1	Cypermethrin	Emulsified solution	10%	Tick, lice, mites, fleas, flies
2	Deltamethrin	Emulsified solution	2.5%	Tick, lice, mites, fleas, flies
3	Fluralaner	Oral solution in drinking water	1%	For treatment of poultry red mite (<i>Dermanyssus gallinae</i>) infestation in pullets, breeders and layer hens. Administered twice 7 days apart
3. MINERALS AND VITAMINS				
1	Trace vitamins/minerals	Oral powder Oral solution	As required	• Prevents vitamins deficiencies • Overcomes stress • Increases immune system against diseases • Reduces mortality in chicks
2	Vitamin E + Selenium	Oral solution	100mg + 0.5mg/ml	To enhance immunity, improve fertility, hatchability and egg production and protecting against viral diseases.
4. DISINFECTANTS				
1	Didecyl Dimethyl Ammonium Chloride,	Suspension for Spray	As required	Broad-spectrum disinfectant which kills bacteria, fungus and viruses

	Benzalkonium Chloride and Tributyltin oxide (TBTO)				
2	Glutaraldehyde solution	Solution	As required	Multipurpose disinfectant that is effective against gram-positive and gram-negative bacteria, fungi, and a variety of viruses including IBD virus, ND virus, Avian Reovirus, Avian Rotavirus, strains of Avian Influenza virus, etc.	
3	Potassium Peroxymonosulfate triple salt, Sodium chloride	Powder	As required	Virucide: effective against bacteria & fungi highly versatile – surface, equipment, water and aerial disinfectant	
4	Silver nitrate And Hydrogen peroxide	Suspension for spray	As required	Aerial fumigation and for surface and water disinfection.	
5	Dechlorinating agents (e.g. carbon adsorption, sodium metabisulfite, sodium bisulfite, sodium thiosulfate and hydrogen peroxide.)	Solution/ Powder/ tablet	As required	To remove chlorine from drinking water during vaccination and stabilize minerals of hard water.	

5. VACCINES		
S/N	Name of Vaccine	Indication
1	Avian colibacillosis vaccine	For active immunization against <i>Escherichia coli</i> infection (colibacillosis).
2	Chicken Anaemia Virus	Against Chicken Anaemia Virus
3	Coccidiosis vaccine	Against monovalent or polyvalent species and strains of <i>Eimeria</i>
4	Egg drop syndrome	For vaccination of layers and breeding stock against Egg Drop Syndrome throughout the laying period.
5	Encephalomyelitis vaccine	Vaccine against Encephalomyelitis disease
6	Fowl Cholera Vaccine	Vaccine against fowl cholera disease caused by <i>Pasteurella multocida</i>
7	Fowl Pox vaccine	Against fowl pox disease
8	Fowl Typhoid Vaccine	To immunize birds against <i>Salmonella gallinarum</i>
9	Infectious Bronchitis Vaccine	For active immunization of birds against infectious bronchitis virus
10	Infectious Bursal Disease (Gumboro) Vaccine	To immunize birds against infectious bursal disease virus
11	Infectious Laryngotracheitis Vaccine	Immunization against infectious laryngotracheitis virus
12	Marek's Disease Vaccine	Active immunization of birds against Marek's disease
13	Mycoplasmosis Vaccine	Immunization of chicken against <i>Mycoplasma gallisepticum</i> and <i>M. synoviae</i>
14	Newcastle Disease Vaccine	Active immunization of chicken against Newcastle Disease Virus
15	Infectious Coryza Vaccine	To immunize chicken against Infectious coryza caused by <i>Avibacterium paragallinarum</i>
16	Pullorum Disease Vaccine	To immunize poultry against Pullorum disease caused by <i>Salmonella pullorum</i>

17	Salmonella Typhimurium vaccine	For vaccination of healthy chickens against <i>Salmonella Typhimurium</i> colonization of the internal organs, including the intestines and ceca.
18	Salmonella Enteritidis vaccine	For vaccination of healthy chickens against <i>Salmonella Enteritidis</i> colonization of the internal organs, including the intestines and ceca
19	Reovirus vaccine	For immunization of birds against Reovirus diseases

PETS

EVMs List



2.4. PETS LIST

1. ANTIMICROBIALS				
CORE LIST				
1.1. Antibacterial drugs				
S.N	Drugs name	Dosage form	Strength	Indication
1.1.1. Penicillins				
1	Amoxicillin/clavulanate	Tablet	62.5 mg, 125 mg, 250 mg and 375 mg per tablets 62.5 mg/mL	For superficial or deep pyoderma and other common skin and soft tissue infections associated with staphylococci and other Gram-positive bacteria.
2	Ampicillin	Suspension Injection	10.25 mg/vial	Respiratory Tract Infections: Bacterial pneumonia (shipping fever, calf pneumonia and bovine pneumonia) caused by <i>Aerobacter</i> spp., <i>Klebsiella</i> spp., <i>Staphylococcus</i> spp., <i>Streptococcus</i> spp., <i>Pasteurella multocida</i> and <i>E. coli</i>
1.1.2. Cephalosporins				
1	Cephalexin	Capsule Tablet Suspension	250 mg, 500 mg per capsules 250 mg, 500 mg per tablets 100 mg/mL	Respiratory tract infections caused of <i>Streptococcus pneumoniae</i> and <i>Streptococcus pyogenes</i>

2	Cefazolin	Injection	50 mg, 100 mg/mL	To treat a variety of bacterial infections, including skin infections, wound infections, bone infections, pneumonia and bladder infections.
3	Cefovecin	Injection	8mg/kg	
1.1.3. Tetracycline				
1	Doxycycline	Suspension Injection	10 mg/mL oral suspension 100 mg/vial	Leptospirosis, Rocky Mountain spotted fever, psittacosis, mycoplasma, Lyme disease and methicillin-resistant Staph intermedius
1.1.4. Sulphonamides				
1	Sulfadiazine/ trimethoprim	Injection Tablets Oral powders	200 mg + 40 mg/ml injection, 100 mg + 20 mg and 400 mg + 80 mg per tablets, 500 mg + 50 mg/g 400 mg + 80 mg/kg 500 mg + 50 mg/g 500 mg + 50 mg/g oral powder	Both Gram positive and Gram negative organisms including <i>Actinobacilli Klebsiella</i> spp. <i>Bordetella</i> spp. <i>Pasteurella</i> spp. <i>Corynebacteria</i> <i>Salmonella</i> spp. <i>E. coli</i> <i>Staphylococci</i> <i>Haemophilus</i> spp. and <i>Streptococci</i>

1.1.5. Aminoglycosides				
1	Gentamycin sulfate	Injection	35mg/ml, 40 mg/ml 50 mg/ml and 100 mg/mL	1. Gram-negative: <i>E. coli</i> , <i>Shigella</i> , <i>Salmonella</i> , <i>Proteus</i> , <i>Pseudomonas</i> , <i>Klebsiella</i> and <i>Pasteurella</i> 2. Gram-positive: <i>Staphylococcus</i> , <i>Streptococcus</i> and <i>Corynebacterium</i> 3. <i>Mycoplasma</i> spp.
1.1.6. Macrolide				
1	Erythromycin	Capsule	250 mg, 500 mg per capsules	For treatment of severe <i>Campylobacter</i> infections and chronic enteric infections responsive to antimicrobial therapy
1.1.7. Lincosamides				
1	Clindamycin	Capsule Oral solution Injection	25 mg, 75 mg, 150 mg and 300 mg per capsules 25 mg/mL oral liquid 150 mg/mL injection	For canine superficial or deep pyoderma. For treatment of infections involving anaerobic bacteria
1.1.8. Combinations				
1	Procaine penicillin G 200000 IU + Dihydrostreptomycin sulphate 200 mg /ml	Injection	200000 IU + 200 mg /ml	The combination of procaine penicillin G and dihydrostreptomycin acts additive and, in some cases, synergistic. Procaine penicillin G is a small-spectrum penicillin with a bactericidal action against mainly

				Gram-positive bacteria like <i>Clostridium</i> , <i>Corynebacterium</i> , <i>Erysipelothrix</i> , <i>Listeria</i> , penicillinase-negative <i>Staphylococcus</i> and <i>Streptococcus</i> spp. Dihydrostreptomycin is an aminoglycoside with a bactericidal action against mainly Gram-negative bacteria like <i>E. coli</i> , <i>Campylobacter</i> , <i>Klebsiella</i> , <i>Haemophilus</i> , <i>Pasteurella</i> and <i>Salmonella</i> spp.
COMPLEMENTARY LIST				
1	Enrofloxacin	Tablet	22.7 mg, 68 mg, and 136 mg per tablets	Urinary tract and respiratory system, as well as infections that result from wounds
		Injection	22.7 mg/ml	
2	Marbofloxacin	Tablet	25 mg, 50 mg, 100 mg and 200 mg per tablets	For skin and soft tissue infections in dogs and cats and for urinary tract infections in dogs.
3	Orbifloxacin	Tablet	5.7 mg 12.7 and 68 mg per tablets	Used to treat certain skin, soft tissue (such as kidney and prostate), respiratory, and urinary tract bacterial infections in pet animals only
4	Pradofloxacin	Tablets	15 mg, 60 mg and 120 mg per tablets	Urinary tract infections, including <i>E. coli</i> and <i>Staphylococcus</i> spp.
5	Cefadroxil	Tablet	200 mg, 1000 mg per tablets	Used to treat infections of the skin, respiratory tract, and urinary tract.
		Suspension	50 mg/mL	

1.2. Antifungal drugs				
CORE LIST				
1	Econazole	Tablets	0.25, 0.5, 0.75, 1, 1.5, 2, 4, 6 mg	A topical broad spectrum antifungal cream for use with Ringworm and bacterial or fungal dermatitis, with a rapid, broad spectrum action including activity against bacteria, fungi, pathogenic yeasts and molds.
		Injection	2 mg/mL, 3.33 mg/mL	
		Cream	1%	
2	Enilconazole	Injection	100 mg/mL	Used as a topical antimycotic (4 mg/kg bw) against dermatophytes in cattle, horses and dogs
3	Clotrimazole	Cream	1%	Clotrimazole Cream is an over-the-counter (OTC) product used to treat fungal infections such as ringworm.
4	Miconazole	Injection	1%	Used on dogs and cats to treat fungal skin infections such as ringworm and yeast infections.
COMPLEMENTARY LIST				
1	Amphotericin B	Injection	5 mg/mL, 10 mg/mL	Used for life-threatening IFIs and azoles are used for mild-to-moderate disease or following (step-down) amphotericin B therapy.
		Topical	3% lotion/cream	
2	Itraconazole	Capsules	100 mg, 65 mg per Capsules	Used to treat fungal infections of the skin, claws, bone, respiratory tract, and brain. The most common uses for

				this drug include cryptococcosis in cats and dermatophyte infections in both cats and dog
3	Terbinafine	Tablet	250 mg/ tablets	A topical antifungal used occasionally to treat skin fungal infections in dogs
1.3. Anti-viral Drugs				
CORE LIST				
1	Idoxuridine	Injection	0.1%	An antiviral topical medication used to treat viral infections of the eye, such as feline herpesvirus-1 (FHV-1) in cats. It may also be useful for treating canine herpesvirus-1 in dogs
2	Trifluridine	Injection	0.1%	Antiviral topical medication used to treat viral infections of the eye, such as herpesvirus-1 in cats. It may also be useful for treating canine herpesvirus-1 in dogs.
COMPLEMENTARY LIST				
1	Famciclovir	Tablets	250 mg/tablet	An anti-viral medication used to treat feline herpesvirus (FHV-1).
2	Zidovudine	Capsule Tablet Oral syrup	100 mg/capsule 300 mg/tablet 10 mg/mL	Zidovudine belongs to a group of medicines called nucleoside analogues. These drugs cause retroviruses (like feline immunodeficiency virus or FIV) to replicate more slowly.

2. ANTIPARASITIC DRUGS				
2.1. Anthelmintic Drugs				
CORE				
1	Pyrantel pamoate	Paste Suspension	180 mg/mL paste 50 mg/mL suspension	This drug is agonists of nematode acetylcholine nicotinic receptors with drug specific spectrum of activity against gastrointestinal nematodes.
2	Praziquantel	Tablet Injection	23, 34 mg /tablet; 56.8 mg/mL injection	Used primarily to treat infections caused by tapeworms.
3	Fenbantel + Praziquantel + Pyrantel pamoate	Oral tablet	150mg + 50mg + 144mg	To treat tape worms, round worms, hook worms and whip worms
COMPLEMENTARY LIST				
1	Fenbendazole	Granules Suspension	granules 22.2% (222 mg/g); 100 mg/mL oral suspension	Benzimidazole anti-parasite drugs. Effective for treatment of Giardia
2.2. Antiprotozoal Drugs				
CORE LIST				
1	Amprolium	Soluble powder	20%	To treat coccidiosis
2	Diminazene diacetate	Granule for injection	2.36 g	For treatment of Babesiosis in dogs
3	Meglumine antimonate	Injectable	300 mg/ml	Anti-leishmania

4	Metronidazole	oral suspension	50 mg/mL	To treat Giardia and Amebiasis
		Oral tablet	250, 500 mg	
5	Pyrimethamine	Tablet	25mg	Used to treat Toxoplasmosis/ <i>Neospora</i>
6	Pyrimethamine + Sulfadiazine	Oral Oil Suspension	Pyrimethamine from 450 mg/30ml to 500 mg/30ml Sulfadiazine from 1 mg/ml to 5 mg/ml Sulfadiazine from 10 gm/30ml to 12.272 gm/30ml Sulfadiazine from 100 mg/ml to 200 mg/ml	Used to treat Toxoplasmosis/ <i>Neospora</i>
		Oral paste	Pyrimethamine 500 mg/30ml Sulfadiazine 10 gm/30ml	
		Oral powder	Pyrimethamine 500 mg/60cc scoop Pyrimethamine 600 mg/90cc scoop	

			Sulfadiazine 10 gm/60cc scoop Sulfadiazine 12 gm/90cc scoop		
7	Sulfadimethoxine	oral suspension	5%	Antibacterial and Anticoccidial	
		Injection	40%		
		oral tablets	250mg		
COMPLEMENTARY LIST					
1	Azithromycin + Atovaquone	Oral oil suspension	10 mg/ml to 300 mg/ml + 50 mg/ml to 375 mg/ml.	Treatment of Babesiosis in dogs	
2.3. Acaricides					
1	Fluralaner	Chewable tablet	45, 100, 200, 400, and 560 mg/ tablet	Inhibit GABA (gamma-aminobutyric acid)-gated and glutamate-gated chloride channels. Effective against fleas, ticks, and mites.	
		Topical spot-on solution	280mg/mL		
2	Deltamethrin	Collar	4% topical collar	Effective against fleas and ticks. may also have insect repellent properties and in some cases prevent the transmission of vector-borne pathogens.	
3	Ivermectin	Injection	1% (10 mg/mL)	antiparasitic activity and, for some agents, ectoparasite control with activity against fleas,	
		Oral solution	10 mg/mL		

		Paste Tablet	Oral solution; mg/mL oral paste; 68,136, and 272 mcg/tablets	18.7 mites and ticks
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3. ANESTHETIC DRUGS				
3.1. Local Anesthetics				
CORE LIST				
1	Bupivacaine hydrochloride	injection	2.5 and 5 mg/mL	Longer acting and more potent than lidocaine or other local anesthetics.
2	Lidocaine + Adrenaline	Injection	40mg + 20mcg/ml, 20mg + 10mcg/ml	Local anesthetic
3	Lidocaine Hydrochloride	Injection	20mg/ml	Local anesthetic
		Oral spray	20mg/ml	
4	Mepivacaine	Injection	20mg/ml	Local anesthetic
COMPLEMENTARY LIST				
1	Lidocaine + Noradrenaline	Injection	20mg + 0.08mg/ml	local anesthetics
3.2 General Anesthetics				
CORE LIST				
1	Butorphanol	Tablets	1, 5, 10 mg	

		Injection	0.5 or 10 mg/mL	Opioid analgesic receptor agonist and weak receptor antagonist. Butorphanol is used for perioperative analgesia, chronic pain, and as an antitussive agent.
2	Ketamine Hydrochloride	Injection	10mg/ml, 50mg/ml, 100mg/ml	Used for induction or producing general Anesthesia.
3	Morphine sulfate	Injection	1 and 15 mg/mL	Morphine also may inhibit release of some inflammatory mediators. Central sedative and euphoric effects related to receptor effects in brain.
		Tablets	30, 60 mg	
4	Propofol	Injection	1% 10mg/ml	Used for induction or producing short-term general anesthesia.
5	Thiopental sodium	Injection	250 mg to 10 g/ml	Primarily for induction of anesthesia or for short duration of anesthesia (10-15 min procedures).

COMPLEMENTARY LIST

1	Halothane	Inhalation	250 mL bottle, 0.05%	Inhalant anesthetic
2	Isoflurane	Inhalation	1000mg/g	Inhalant anesthetic.
3	Sevoflurane	Inhalation	100 mL bottle	Inhalant anesthetic

4. FLUIDS, ELECTROLYTES, VITAMINS, MINERALS, AMINO ACIDS AND FATTY ACIDS

1	Dextrose	IV infusion	5%, 10%, 20%, 15.73%, 25%, 40%,	Sugar added to fluid solutions. Isotonic
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2	Dextrose + Sodium Chloride	IV infusion	10% + 0.9%	Sugar and electrolyte supplement
3	Glucose monohydrate	Injection	5g/100ml	
4	Dextrose + Sodium Chloride + Potassium Chloride + Calcium Chloride (dihydrate) + Sodium Lactate	IV infusion	20gm + 0.6gm + 0.04gm + 0.027gm + 0.312gm/100ml	Sugar and electrolyte supplement
5	Iron	Injection	100mg/ml, 150mg/ml, 200mg/ml	Iron supplement
6	Magnesium Sulfate	Injection	25%w/v	Used as cathartic when administered orally. It also has been used as a source of magnesium for relating refractory arrhythmias
7	Vitamin B complex	Oral powder, solution for injection, oral solution	As required	Treatment of vitamin B complex deficiency
8	Vitamin A	Injectable	50,000 IU/ml	Treatment and prevention of Vitamin A deficiency
		Oral capsules	10 mg, 20 mg	

5. EUTHANASIA DRUGS				
CORE LIST				
1	Thiopentone sodium	Injection	200mg/ml, 300/ml, 400mg/ml, 500mg/ml	Euthanasia of animals
COMPLEMENTARY LIST				
1	Pentobarbitone sodium	Injection	50 mg/mL	Euthanasia of animals
2	Potassium chloride	Injection	2 mEq/ml	Euthanasia in pre-anesthetized animals
6. GASTROINTESTINAL DRUGS				
6.1. Antiulcer Drugs				
CORE LIST				
1	Ranitidine	Tablets	75, 150, 300 mg	Decrease proton secretion and decrease gastric acid secretion
		Capsules	150, 300 mg	
		Injection	25 mg/mL	
2	Sucralfate	Tablets	1 g	Physical barrier and protecting against hydrogen ions, pepsin and bile, promoting ulcer healing
		Oral suspension	200 mg/ mL	
COMPLEMENTARY LIST				
1	Famotidine	Tablet	10 mg	Decrease proton secretion and decrease gastric acid secretion
		Injection	10 mg/mL	

2	Omeprazole	capsules	20 mg	Used to treat gastric ulcers, gastroesophageal reflux disease and esophagitis
6.2. Emetic Agent				
CORE LIST				
1	Apomorphine	Tablets	6 mg	Inducing emesis in cases of inadvertent/accidental toxin/drug ingestion if given promptly
COMPLEMENTARY LIST				
1	Xylazine	Injection	20 and 100 mg/mL	Used to induce vomiting in cats
6.3. Antiemetic Drugs				
CORE LIST				
1	Metoclopramide	Tablet; Oral solution Injection	10, 5 mg 1 mg/mL 5 mg/mL	Control of vomiting associated with drug administration or disease
2	Ondansetron	Tablets Injection	4, 8 mg 2 mg/mL	Control of vomiting
COMPLEMENTARY LIST				
1	Maropitant	Tablets Injection	16, 24, 60, or 160 mg 10 mg/mL	Prevention of motion sickness
6.4. Colonic Acidifier				
1	Lactulose	Oral suspension	10 g/15 mL	Treatment of hepatic encephalopathy, but also as an osmotic laxative in constipation

6.5. Adsorbents			
1	Activated charcoal		For the treatment of gastrointestinal toxiosis

7. CARDIORESPIRATORY AND RENAL DRUGS			
7.1. Loop Diuretics			
1	Furosemide	Tablets	12.5, 20, 50 mg
		Oral	50 mg/mL
		Injection	10 mg/mL
Block the reabsorption of sodium (and water) in the ascending loop of Henle			

7.2. Inodilator			
1	Pimobendan	Chewable tablets	1.25 mg and 5 mg
		Capsules	1.25 mg, 2.5 mg and 5 mg
Vasodilator and an inotrope in dogs with heart failure			

7.3. Vessel Selective Calcium Channel Blocker			
1	Amlodipine	Tablets	2.5, 5, and 10 mg
First-choice drug for feline hypertension and it is used in cats with chronic renal disease			

7.4. Angiotensin Converting Enzyme (ACE) Inhibitors			
1	Enalapril	Tablets	2.5, 5, 10, 20 mg
Treatment of dogs with dilated cardiomyopathy or myxomatous mitral valve degeneration			
2	Benazepril	Tablets	5, 10, 20, 40 mg
For treatment of hypertension and heart failure			

7.5. Immunomodulatory			
1	Prednisolone	Tablets	5 and 20 mg Immunosuppressant in immune-mediated diseases
8. CENTRAL NERVOUS SYSTEM DRUGS			
8.1. Sedative			
1	Acepromazine Maleate	Injection	10mg/ml Sedatives, muscle relaxants and analgesics
		Tablet	10mg, 25mg
2	Diazepam	Injection	5mg/ml Used for sedation, anesthetic adjunct, anti-convulsant, muscle relaxant and behavioral disorders.
		Tablets	2, 5 mg per tablets;
3	Dexmedetomidine	Injection	0.5mg/ml Sedatives, muscle relaxants and analgesics
4	Xylazine	Injection	20mg/ml, 100mg/ml To produces sedation, ataxia and muscle relaxant
8.2. Opioid Analgesics			
1	Buprenorphine hydrochloride	Injection	0.3mg/ml Opioid analgesic. 50 times more potent than morphine.
2	Butorphanol	Injection	0.5mg/ml, 5mg/ml, 10mg/ml Used for perioperative analgesia, chronic pain, and as an antitussive agent.
3	Medetomidine Hydrochloride	Injection	1mg/ml Used primarily as sedative, anesthetic adjunct, and analgesia.
4	Methadone Hydrochloride	Injection	20 mg/mL Opiate analgesic
8.3. Steroids			
1	Betamethasone dipropionate	Injection	3 mg/mL sodium phosphate injection Use is for treatment of inflammatory and immune-mediated disease of skin e.g FAD.

		Tablet	0.6 mg per tablet	
		Cream	0.02%	
2	Dexamethasone (Azium SP)	Tablets	0.25, 0.5, 0.75, 1, 1.5, 2, 4, 6 mg	Increases tissue perfusion (Multiple anti-inflammatory effects)
3	Hydrocortisone	Injection	2 mg/mL, 3.33 mg/mL	Anti-inflammatory effects and greater mineralocorticoid effects
4	Prednisolone Acetate	Tablet suspension	5, 10, 20 mg Per tablets 20 or 40 mg/mL	Used for intra-lesional therapy, intra-articular therapy, and inflammatory conditions
8.4. Non-Steroidal Anti-inflammatory Drugs (NSAID)				
CORE LIST				
1	Carprofen	Tablets	25, 75, 100 mg Tablet	Used for treatment of pain and inflammation, particularly pain and inflammation associated with osteoarthritis.
		Injectable	50 mg/mL	
2	Ketoprofen	Tablet	12.5 mg tablet	Used to treat arthritis and other inflammatory disorders.
3	Ketorolac tromethamine	Tablets	10 mg tablets;	Used for short-term relief of pain and inflammation.
		injection,	15 and 30 mg/mL,	
4	Meloxicam	Injection	5 mg/mL injection	It has been used in dogs and cats for pain and osteoarthritis
		Oral suspension,	1.5 mg/mL	

5	Phenylbutazone	Injection Tablet	200 mg/mL injection 100, 200, 400 mg and 1 g tablets;	Used primarily for arthritis and various forms of musculoskeletal pain and inflammation.
COMPLEMENTARY LIST				
1	Firocoxib	Tablets	57 or 277 mg	Produces analgesic and anti-inflammatory effects by inhibiting the synthesis of prostaglandins.

9. ANTI-CANCER DRUGS

CORE LIST

1	Vincristine	injection	1 mg/mL	Vincristine is a first line chemotherapeutic agent used in many lymphoma and leukaemia protocols and for the treatment of transmissible venereal tumour (TVT).
2	Carboplatin	injection	50 and 150 mg vial	Carboplatin is widely used to treat a variety of sarcomas and carcinomas, including osteosarcoma, transitional cell carcinomas, prostatic carcinomas, head and neck carcinomas, pulmonary carcinomas and others.

COMPLEMENTARY LIST

1	Doxorubicin	injection	2 mg/mL	A chemotherapeutic agent used alone or in combined protocols to treat lymphoma, hemangiosarcoma, osteosarcoma, mammary carcinomas, feline injection
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				site sarcomas and most epithelial and mesenchymal tumours in dogs and cats
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10. DRUGS USED IN ENDOCRINE DISORDERS

1	Insulin	Injection	100 U/mL	For emergency treatment of diabetic ketoacidosis
2	Medroxyprogesterol acetate	Injection	150mg/ml	Birth control by suppressing ovulation/keeping ovaries from releasing an ova
3	Oxytocin	Injection	10, 20 U/mL	Used to induce or maintain normal labor and delivery in pregnant animals.
		Nasal solution	40 U/mL	
		Oral solution	25 mg/mL	
4	Prednisolone	Tablets	5 and 20 mg	For the acute treatment of undiagnosed hypoadrenocorticism or emergency treatment of hypoadrenocorticism, in addition to immune-mediated disease.

11. BLOOD PRODUCTS AND DRUGS AFFECTING THE BLOOD

1	Heparin sodium	injection	1000 and 10,000 U/mL	Potentiates anticoagulant effects of antithrombin III. Used primarily for prevention of thrombosis
2	Warfarin sodium	tablets	1, 2, 2.5, 4, 5, 7.5, 10 mg	Anticoagulant. Depletes vitamin K, which is responsible for generation of clotting factors. Used to

				treat hypercoagulable disease, prevent thromboembolism
3	Vitamin K	Injection	2 or 10 mg/mL	Vitamin K used to treat coagulopathies caused by anticoagulant toxicosis (Warfarin or other rodenticides)
		Tablet	5 mg	
		Capsule	25 mg	

12. EMERGENCY DRUG (ANTIDOTES)

CORE LIST

1	Activated charcoal	Granules	475g	Used primarily to adsorb drugs and toxins in intestine to prevent their absorption
		Oral suspension	104mg/ml	
2	Atropine sulphate	Injection	15mg/ml	Parasympatholytic effect
3	Dexamethasone	Tablets	0.25, 0.5, 0.75, 1, 4, 6 mg	Increases tissue perfusion (Multiple anti-inflammatory effects)
		Injection	2 g/mL, 3.33 mg/mL	
4	Dextrose solution 5%	injection	Fluid solution	Fluid therapy during shocking
5	Doxapram	injection	20 mg/mL	Respiratory stimulant
6	Epinephrine (Adrenaline)	Injection	1mg/ml	Used primarily for emergency situations to treat cardiopulmonary arrest and anaphylactic shock
7	Yohimbine Hydrochloride	Injection	2mg/ml	Used primarily to reverse actions of xylazine or detomidine

COMPLEMENTARY LIST				
1	Sodium bicarbonate	Tablets	325, 520, 650 mg 1 mg/mL	To treat systemic acidosis or to alkalize urine
		Oral suspension	104mg/ml	
2	Glycopyrolate	Injection	0.005-0.01 mg/kg	Prevention or treatment of bradycardia in the perioperative period and in the emergency setting during cardiac resuscitation
3	Manitol	Injection	10%, 20%, 25%	Osmotic diuretic, reduce cerebral edema
4	Methylene blue 0.1%	Injection	1% (10 mg/mL)	Antidote for intoxication. Used to treat methemoglobinemia.

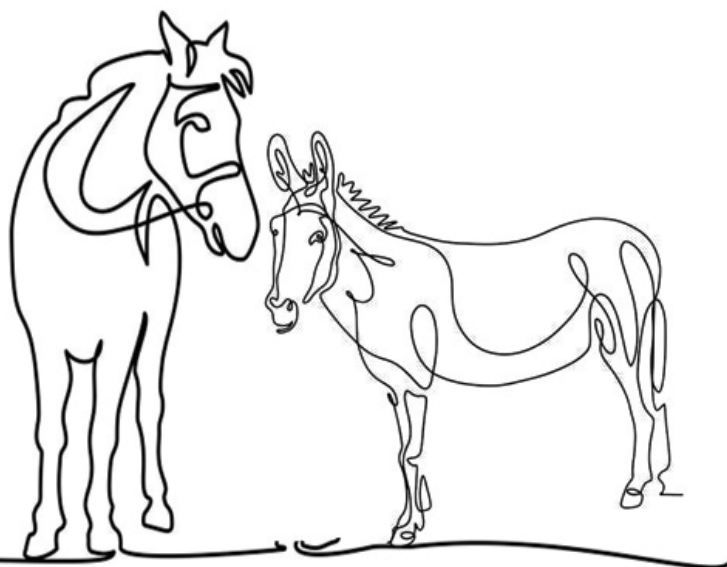
13. ANTISEPTICS AND DISINFECTANTS				
1	Chlorhexidine	External application	2%	Widely used for the preparation of surgical patients
2	Ethanol	Topical application	70% solution	Destroys pathogenic organisms on inanimate objects
3	Formaldehyde	External application	37%	Kills bacteria, viruses and spores
4	Iodine tincture	External application	2%	Effective bactericidal and viricidal

14. VACCINES

SN	Drugs name	Dosage form	Indication
1	Bordetella bronchiseptica vaccine	Injection or intra-nasal route.	<i>Bordetella bronchiseptica</i> or kennel cough
2	Canine adenovirus (CAV) vaccine	Injection	For canine adenovirus
3	Canine Distemper vaccine	Injection	For Canine Distemper virus
4	Canine Parvovirus vaccine	Injection	For canine parvovirus
5	Feline herpesvirus-1 (FHV) vaccine	Injection	For feline herpes virus
6	Feline Panleukopenia vaccine	Injection	For Feline Panleukopenia virus
7	Feline parvovirus (FPV), vaccine	Injection	feline parvovirus
8	Feline Rhinotracheitis vaccine	Injection	For Feline Rhinotracheitis virus
9	Leptospirosis vaccine	injection	For Leptospira cause diseases
10	Rabies vaccine	Injection	For rabies virus
11	Canine Para influenza vaccine	Injection	For canine para-influenza virus

EQUINE

EVMs List



2.5. EQUINE LIST

1. ANTIBACTERIALS				
S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1.1. PENICILLIN				
1	Procaine penicillin G (Procaine benzyl Penicillin)	Injectable Suspension (PPF)	300,000IU/vial, 4,000,000IU/vial	Tetanus, Anthrax, Strangles, septic arthritis, Leptospirosis Actinomycosis, bacterial Pleuropneumonia, Acute Puerperal Metritis, NB: Not used in IV/Sc , local inflammation, maximum dose per site should be 10ml
2	Procaine penicillin G + Streptomycin sulphate	Injectable solution	200,000IU +200mg/ml, 200,000IU +250mg/ml	Acute broncho interstitial Pneumonia in Foals by Rhodococcus equi, Aspiration Pneumonia, Endometritis, Retained fetal membrane, distocia
3	Pen strep (dihydrostreptomycin sulphate+ procaine Penicillin G)	Injectable suspension	200mg+200,000 IU /ml, 250mg +200,000IU /ml	Infections like respiratory, uterine and alimentary susceptible to penicillin & dihydrostreptomycin
4	Amoxacillin + Clavulanic acid	Injectable solution	140mg+35mg/ml	Clavulanate extends spectrum of activity of amoxicillin to include beta-lactamase producing <i>E. coli</i> , <i>Klebsiella</i> ,

				Proteus, Staphylococcus Spp. anaerobes, including Bacterioides fragilis
5	Amoxicillin + Sulbactam sodium	Powder for injection	500mg+125mg /ml	Improves activity against β -lactamase-producing bacteria.
6	Ampicillin +Sulbactam sodium	Powder for injection	500mg+125mg/ml	Improves activity against β -lactamase-producing bacteria.
1.2. TETRACYCLINE CORE MEDICINE				
1	Oxytetracycline	Injectable solution	50 or 100mg/ml (5%, 10%)	Bronchointerstitial Pneumonia in Foals by Rhodococcus equi, Pleuropneumonia, <i>Actinobacillus equuli</i> , <i>B. anthracis</i> equine Ehrlichiosis, Equine protozoal myeloencephalitis (EPM) Saracocyst NB: avoid SC injection
		intrauterine Bolus	500mg,1000mg, 2000mg	Abortion due to Mycoplasma spp, Endometritis, Retained fetal membrane, dystocia
		eye Ointment	1% Topical eye	Conjunctivitis (Pink Eye) <i>Pseudomonas aeruginosa</i> and <i>Sterptococcus equi</i> subsp. Zooepidermicus
2	Oxytetracycline + hydrocortisone	Ointment	10 mg+ 5 mg/ml	Eye/Ear applications topical treatment of infections caused by bacteria and certain other micro-organisms & corticosteroid-responsive inflammatory

3	Chlortetracycline	Ointment	10 mg/g	Topical eye 4 times a day for 5 day Conjunctivitis (Pink Eye) <i>Pseudomonas aeruginosa</i> & <i>Streptococcus equi</i> subsp. <i>Zooepidermicus</i>
4	Doxycycline	Injection	25mg/ml, 50mg/ml, 100 mg/ml	For treatment of upper & lower respiratory infections, variety of infections caused by (Ehrlichia Mycoplasma, Anaplasma spp.).
1.3 AMINOGLYCOSIDE CORE MEDICINE				
1	Gentamycin	Injectable solutions	40mg/ml 50mg/ml 100mg/ml	Pleuropneumonia, Gram-negative septicemia, infectious arthritis & before abdominal surgery. Abortion, distocia, Endometritis, Retained fetal membrane, Wound treatment <i>Pseudomonas aeruginosa</i> infections
		Eye drop	0.3%, 0.5%	Conjunctivitis (Pink Eye) <i>Pseudomonas aeruginosa</i> and <i>Sterptococcus equi</i> subsp. <i>Zooepidermicus</i> NB: Prohibited for use in food producing animal due to carcinogenic effect
1.4. MACROLIDES CORE MEDICINE				
1	Erythromycin	Injectable solution powder	50 mg/ml 5%, 20%, 30%	For treatment of <i>R. equi</i> infections in foals

1.5. METRONIDAZOLE CORE DRUG				
2	Metronidazole	Injectable	5mg/ml	Penicillin-resistant anaerobic bacteria Clostridium spp., Fusobacterium, Protozoal (Giardia & Trichomonas spp). NB: Prohibited for use in food producing animals
1.6. SULFA DRUGS CORE MEDICINE				
1.6.1 POTENTIATED SULFA DRUG				
1	Sulfamethoxazole + Trimethoprim (co-trimoxazole)	Injectable suspension Oral suspension Tablet	200mg+40 mg/ml 40mg+8mg/ml 80mg+20mg/ml 100mg+20mg/ml 400mg + 80mg	Inhibit gram positive & negative bacteria actinobacillosis, colibacillosis & coccidiosis, toxoplasmosis, pododermatitis, polyarthritis, respiratory infection
2	Sulfadiazine+ Trimethoprim (co-trimazine)	Injectable suspension Oral suspension Oral Powder Oral Granule Oral Paste	100mg+20mg/ml 200mg+40mg/ml 400mg+80mg/ml 50mg +10mg/ml 400mg+80mg/ml 500mg+50mg/g 400mg+80mg/g 33.33g+6.67g/100g 12.5g+2.5g 333mg+67mg/g	Inhibit gram positive & negative bacteria strangle, actinobacillosis & colibacillosis protozoa: coccidiosis, toxoplasmosis Urogenital infection, pododermatitis, polyarthritis, respiratory infection,

3	Sulfadiazine + Pyrimethamine	Oral suspension /paste	333mg +17mg/ml	Indication: Equine protozoal meylencephalitis (EPM) due to Saracocyst. Penetrates CNS better than other sulfonamides
		Oral powder	10%+2%	
COMPLEMENTARY LIST				
PENICILLINS				
1	Cloxacillin	Eye ointment	15. (835mg/5g)	Ocular condition (conjunctivitis) infection due to beta lactamase producing staphylococcus spp.
AMINOGLYCOSIDE COMPLEMENTARY MEDICINES				
1	Kanamycin	Injectable solution	5%, 10%, 20%, 30%	Limited spectrum of activity & more toxic aminoglycosides, rarely used in equine medicine
2	Neomycin sulphate	Eye drop	0.5%w/v	Bacterial infection of eye
POTENTIATED SULFA DRUGS COMPLEMENTARY MEDICINE				
1	Sulfadoxine+ Trimethoprim	Injectable suspension	200mg+40mg/ml 400mg+80mg/ml	Gastrointestinal, respiratory & urinary tract infections caused by trimethoprim & sulfadoxine sensitive bacteria, <i>E. coli</i> , <i>Haemophilus</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Staphylococcus</i> & <i>Streptococcus</i> spp
		Oral Powder	10%+2%	
		Oral Paste	13g+2.6g	
2	Sulphachlorydiazine +Trimethoprim	Injection	200mg+40mg/ml	Used to treat a variety of infections of the urinary tract, respiratory system and gastrointestinal tract

2. ANTIVIRAL (CORE LIST)				
S/n	Medicines	Dosage form	Strength	Indication
2.1	Valacyclovir	Tablet	500mg, 1gm	Antiviral therapy for equine herpes Viruses 1 and 4

3. ANTIFUNGAL				
S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
3.1	Itraconazole	Ointment	10%	Used to treat <i>Aspergillus fumigatus</i> , <i>Candida albicans</i>
		Oral solution	10mg/ml	NB: has an improved safety margin, compared to ketoconazole
3.2	Fluconazole	injection	2mg/ml	Effective at treating Cryptococcus infections in the CNS, not effective against Aspergillus & limited activity against <i>Blastomyces dermatitidis</i> and <i>Candida</i> spp.
		Oral suspension	10mg/ml	NB: has an improved safety profile over other azoles
			40mg/ml	
			50mg/ml	
3.3	Natamycine	Topical Ointment	0.01%	Ring worm, Fungal eye infection
		Eye ointment	5%	
3.4	Sodium iodide	Injectable	10%	Epizootic lymphangitis

3.5	Potassium iodide	Oral	30g/200-250kg horse	Epizootic lymphangitis
3.6	Amphotericin-B	Injection	5mg/ml, 10mg/ml	Epizootic lymphangitis
		Powder for infusion	50mg/vial	
		Topical	4mg/ml	
COMPLEMENTARY LIST				
3.7	Griseofulvin	Oral paste	33.3% w/w	Systemic antifungal used to treat ringworm. Given orally has good activity against Trichophyton, Microsporum and Epidermophyton
		Oral powder	7.50%	Contraindication: Hepatic impairment, pregnant
3.8	Ketoconazole	Oral suspension	20mg/ml	No maximum residual limit
				Fungistatic against wide range of fungi. Systemic antifungal used to treat fungal pneumonia & guttural pouch mycosis. Systemic Candida, Dermatophyte infection
3.9	Clotrimazole	Cream/ointment	1% w/w	Dermatophytosis and Mucocutaneous candidiasis.
3.10	Miconazole	Cream	1% cream/ lotion 2% cream	Dermatophytosis

4. ANTIPARASITIC DRUGS				
S/n	Medicines	Dosage form	Strength	Indication
4.1 ANTHELMINTICS				
CORE LIST				
4.1.1 BENZIMIDAZOLE				
1	Fenbendazole	Oral Granule	4%,20%,22%,25%	Indication: GIT nematodes adult & migrating larvae of large & small strongly, <i>Parascaris equorum</i> , <i>Oxyuris equi</i> lung worm, <i>Strongyloides westeri</i> NB: Not effective on hypobiotic cyathostomes & tapeworm
		Paste syringe	20g	
		Oral Suspension	2.25%, 5%, 10%, 12.5%, 20%	
2	Triclabendazole	Oral Suspension,	5%,10%,20%,24%,40%	Indication: Immature & adult liver fluke
4.1.2 TETRAHYDROPYRIMIDINE CORE MEDICINE				
1	Pyrantel pamoate	Paste	9.5%, 171mg/ml, 226 mg/ml 1,180 mg/ml	Adult large & small strongyles, <i>Parascaris equorum</i> , <i>Oxyuris equi</i> , for tapeworms 13.2mg/kg
		Oral suspension	2.27 mg/ml, 4.54 mg/ml, 50 mg/ml	
4.1.3 MACROCYCLIC LACTON				
1	Ivermectin.	Oral paste syringe	0.1%,0.2% 1.879%,8%	

		Oral powder	0.2%, 0.5%	Adult & migrating large & small strongyle larvae, <i>P. equorum</i> , <i>O. equi</i> , <i>S. westeri</i> , <i>Habronema muscae</i> , eye worm & Onchocerca spp & Gastrophilus spp. <i>Dictyocaulus arnfeldi</i> , ectoparasites
		Oral solution	800mcg/ml	
		Pour-on	5mg/ml (0.5-1%)	
2	Moxidectin	Injection	1%, 2%, 10%	Adult large strongly, migrating large strongyle larvae, adult small strongyle, Ascaris, stomach worm, eye worm & Onchocerca spp & Gastrophilus spp., ectoparasites
		Oral solution	0.1%	
		Oral gel syringe	18.92mg/g, 20mg/ml	
		Pour on	0.5%	
4.1.4. OTHER ANTIHELMINTHES				
1	Piperazine	Syrup	100mg/ml	Efficacy 100% against <i>Parascaris equorum</i> & adult stages of cyathostomes
		Oral Powder	65%	
2	Febantel	Oral suspension	25mg/ml, 100mg/ml	Nematodes, lung worm, Tape worm
		Paste	7.5%	
3	Praziquantel	Injection	2.5%, 5.68%	For treatment of adult and larval cestodes and trematodes of the genus Schistosoma.
		Oral suspension	2.5%	
4.1.5 COMBINATION ANTIHELMINTHES				
1	Ivermectin + Praziquantel	Oral Paste syringe	18.7mg/g+140.3mg/g	Adult large & small strongly, migrating large & small strongyle larvae, <i>P. equorum</i> , stomach worm, eye worm & Onchocerca spp Gastrophilus spp. & Tape worm, trematode, ectoparasites

2	Ivermectin + Triclabendazole	Oral Suspension	10%+0.08%, 0.5%+0.1%	Adult large & small strongly, migrating large & small strongyle larvae, <i>P. equorum</i> , stomach worm, eye worm & Onchocerca spp <i>Gastrophilus</i> spp. & Trematode, ectoparasites
3	Moxidectin+ praziquantel	Oral paste syringe	19.5 mg/g+121.7mg/g	Adult large strongly, migrating large strongyle larvae, adult small strongyle, <i>Ascaris</i> , stomach worm, eye worm & Onchocerca spp & <i>Gastrophilus</i> spp., Trematode, tape worm, ectoparasites
4	Moxidectine+Triclabendazole	Oral suspension	1mg+50mg/ml, 5mg+200mg/ml	Adult large & small strongly, migrating large & small strongyle larvae, <i>P. equorum</i> , stomach worm, eye worm & Onchocerca spp, <i>Gastrophilus</i> spp. & Trematode, ectoparasites
		Pour on	5mg+200mg/ml	
4.2. ANTIPROTOZOAL DRUGS				
4.2.1 ANTIBABESIAL				
1	Imidocarb propionate	Injectable solution	85mg/ml, 120mg/ml	For the treatment of babesiosis 2.2mg/Kg deep IM q24x 2 <i>Babesia caballi</i> , 4mg/Kg q 72hr. x 4 <i>Babesia equi</i> , <i>Anaplasma</i> Donkey 1-2mg/kg
2	Buparvaquone	Injectable	50 mg/ml , 150 mg/ml	For the treatment of babesiosis effective in eliminating B. equi when used in combination with Imidocarb

4.2.2. ANTITRYPANOSOMAL				
1	Isometamidium chloride	Injectable solution	35mg/ml	For curative & prophylactic treatment of Trypanosoma
		Powder for injection (PFI)	1g, 125mg	
		Granule for injection	510mg/g	
2	Amicarbalide	Injectable solution	500mg/ml	For treatment of Trypanosoma, babesia
3	Suramin sodium	Injectable solution	10%	
4.3 ACARICIDES				
4.3.1. PYRETHROIDS DRUG				
1	Deltamethrin	Emulsified liquid	5% , 12.5% w/v	Lice, sarcoptes, chorioptes, flies
		Pour on solution	0.35%, 0.75%, 1% w/v	
2	Permethrin	Emulsified liquid	0.5%	Lice, sarcoptes, chorioptes, flies
		Dusting powder	1.05%	
		Pour on	4%, 65%	
		Shampoo	1.05%	
3	Cypermethrin	Emulsified liquid	5%, 10%w/v	Lice, sarcoptes, chorioptes flies
		powder	25%	
		Pour on solution	1%, 1.25%, 2%	

4.3.2. MACROCYCLIC LACTONES

1	Ivermectin	Oral paste syringe	0.1%, 0.2%, 1.879%, 8%	Ectoparasite
		Oral powder	0.2%, 0.5%	
		Oral solution	800mcg/ml	
		Pour-on	5mg/ml (0.5-1%)	
2	Moxidectin	Injection	1%, 2%, 10%	Ectoparasites
		Oral solution	0.1%	
		Oral gel syringe	18.92mg/g, 20mg/ml	
		Pour on	0.5%	

4.3.3. BENZYLE BENZOATE

1	Benzyle benzoate	Topical skin	25% lotion	Lice, sarcoptes
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4.3.4. PHENYLPYRAZOLE

1	Fipronil	Spray	250 mg/mL	For mange mite Requires high volume (expensive)
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4.3.5. FLY REPELLENTS

1	Summer fly Cream (DEET – N,N-Diethyl-M-Tolamide, P-Menthane 3.8-diol, Lanolin)	Cream	600ml	Repels flies, stable flies, and all biting insects Apply around sensitive areas such as eyes, nose, ears, muzzle, dock, sheath and teats.
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2	DEET – N, N-Diethyl-M-Tolumide, P-Menthane 3.8-diol.	Spray	500ml,2L	Repels flies, stable flies, and all biting insects
COMPLEMENTARY LIST				
1. ANTHELMINTICS				
1.1. BENZIMIDAZOLE				
1	Oxfendazole	Oral Suspension	22.65mg/ml, 90.6mg/ml	GIT nematodes adult large & small strongly, , <i>Parascaris equorum</i> , <i>Oxyuris equi</i> , lung worm
2	Oxibendazole	Oral Suspension	22.65mg/ml,50mg/ml, 90.6mg/ml	GIT nematodes adult large & small strongly, , <i>Parascaris equorum</i> , <i>Oxyuris equi</i> , lung worm,
		Oral Powder	5%	Strongyloides westeri
		Oral paste	2g/syringe	
2. ACARICIDES				
2.1. ORGANOPHOSPHOROSE COMPLEMENTARY MEDICINE				
1	Diclorovos	Liquid	76% w/v	Ectoparasite& bot fly
2	Chlorfenvinphos	Liquid	10% w/v	Lice, tick, blow fly
3	Diazinon	Liquid, spray	15%, 16.2%,20%, 60%w/v	Ectoparasite

5. ANAESTHETICS, ANALGESICS, SEDATIVES AND EMERGENCY DRUGS

CORE LIST

5.1. NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS):

S/n	Medicines	Dosage form	Strength	Indication
1	Phenyl butazone	Injection	200mg/ml	Provide significant analgesic, anti-inflammatory, antipyretic activity, musculoskeletal pain, endotoxemia
		Oral paste	1g paste	Donkeys metabolize Phenyl butazone at faster rate than horses
		Oral powder	1g	NB: effective and relatively cheap but very narrow safety margin
2	Flunixin meglumine	injection	50mg/ml	Anti-inflammatory, analgesic agent, colic, exertional rhabdomyolysis, endotoxemia, laminitis, ocular inflammation & pain, musculoskeletal disorders. have a wider safety margin
		Granule	250mg/10g,	Donkey metabolize flunixin meglumine at faster rate than horses
		Oral syringe	25mg/g, 50mg/g	NB: avoid if gastric ulceration is suspected
3	Meloxicam	injectable	5 mg/ml Solution for Injection	Inflammation and pain associated with musculoskeletal disorders or colic pain:
		Oral Paste	30mg/ml (10ml paste/500 kg)	

5.2. STEROIDAL ANTI-INFLAMMATORY DRUGS (SAIDS): CORE MEDICINE

1	Prednisolone	Oral powder	33.3 mg/g	Corticosteroid therapy, anti-inflammatory & for Shock: Duration of action is intermediate
		syrup	3mg/ml	
2	Dexamethasone	Injectable Powder	1mg/ml, 2mg/ml,	Lower end of range anti-inflammatory, higher end of range for shock & hypersensitivity 25 times more potent than cortisol & duration of action is long
			4mg/ml, 5mg/ml, 10mg/ml	NB: Not recommended for racing
		eye drop	4mg/ml	

5.3. SEDATIVE

1	Acepromazine	Injectable	0.5 mg/ml 2 mg/ml, 10 mg/ml	Preanesthetic, sedative and muscle relaxant used when only mild to moderate sedation is required doesn't provide analgesia
		Oral paste	8.9mg/ml	
2	Chlorpromazine	Injectable	25 mg/ml	Preanesthetic, sedative and muscle relaxant used when only mild to moderate sedation is required doesn't provide analgesia

3	Xylazine	Injectable	20 mg/ml, 100 mg/ml	Sedative, preanesthetic sedation, together with ketamine for general anesthesia NB: Don't use for horses with pulmonary diseases dehydration
4	Detomidine hydrochloride	Injectable	5mg/ml, 10mg/ml	Sedative, analgesic, muscle relaxant, more potent than Xylazine
5	Romifidine	Injectable	10mg/ml	Sedative, analgesic, muscle relaxant
5.4. ANAESTHETIC DRUGS				
1	Ketamine hydrochloride	Injectable solution	10mg/ml, 50mg/ml, 100mg/ml	General anesthesia in combination with detomidine, Xylazine
2	Thiopental sodium	Powder for injection PFI)	2.5g/5g w/w	Induction of general anesthesia
3	Lidocaine (lignocaine 2%)	Injectable solution	20 mg/ml (2%)	Local, regional and topical anesthetic Antiarrhythmic for ventricular arrhythmia, prokinetic and analgesic properties. NB: No maximum residual limit in food producing
5.5. EMERGENCY DRUGS / ANTIDOTES				
1	Atropine sulphate	Injectable	15mg/ml	Antidote for organophosphate

2	Activated Charcoal	Oral granule	475g	Universal antidote to toxic substances
		Oral suspension	104mg/ml	
3	EDTA calcium disodium	Injectable solution	200 mg/ml	Antidote for lead intoxication
4	Methylene blue	Injectable solution	10 mg/ml	Antidote for Methemoglobinemia-producing agents (nitrates, chlorates etc.)
5	Sodium thiosulfate/ sodium nitrate	Injectable solution	250 mg/ml (25 to 50 mg/kg sodium thiosulfate + 5 mg/kg of sodium nitrite)	Acute cyanide poisoning

COMPLEMENTARY LIST

NON-STEROIDAL ANTI-INFLAMMATORY DRUGS -

1	Acetylsalicylic acid(Aspirin)	Injection	100mg/ml	Inflammatory and pain, thromboembolic disorder
2	Ketoprofen	Injectable solution	10mg/ml 100 mg/ml 150 mg/ml	For musculoskeletal pain, endotoxemia, abdominal pain, colic
		Oral tablet	50,75mg,100 mg	
3	Carprofen	injectable	5% w/v	Anti-inflammatory, analgesia

		Oral	20mg,25mg,40mg, 50mg, 75mg, 100mg,120mg	
ANAESTHETIC DRUGS				
1	Lidocaine + hydrocortisone	Topical cream	3% + 0.5%	Topical anesthesia, antipruritic
2	Lidocaine + Adrenaline	Injection,	40mg+ 20mcg/ml 20mg+ 10mcg/ml	Field block, perineural anesthesia
3	Pentobarbitone Sodium	Injection	60mg/ml, 200mg/ml	General anesthesia, convulsion, muscle rigidity
4	Guaifenesin	Injection	100mg/ml	Skeletal muscle relaxant, some sedation

6. ELECTROLYTE, CALORIC AND AMP WATER BALANCE AGENTS

S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1	Sodium bicarbonate	Injectable	4.25%, 8.4%	Metabolic acidosis, renal disease, uncontrolled diabetes, circulatory insufficiency due to shock/severe dehydration, extracorporeal circulation of blood, cardiac arrest & severe primary lactic acidosis
2	Hypertonic saline			Dehydration, endotoxemia, hemorrhage, restoring circulating volume in shock
		Injectable	7-7.5%	

3	Lactated Ringer's or Hartmann's solution	Injectable	1000mL BAG	Parenteral replacement of extracellular losses of fluid and electrolytes, with or without minimal carbohydrate
4	Glucose	Injectable solution	5% 20% 40%	Glucose 40% w/v provide temporary relief from symptoms of increased intracranial pressure and hypoglycemic coma and is also indicated for the supplementation of energy in parenteral nutrition but Glucose 5% is indicated for the treatment of carbohydrate and fluid depletion
5	Dextrose	Injectable infusion	50 g/l (5%), isotonic	500 ml, treatment of hypoglycemia, ketosis
6	Vitamin B Complex	Injectable solution	150mg/ml	Prevention & treatment of conditions associated with Vitamin B deficiency, animal not eating adequately, debilitating disease
7	Vitamin K	Injection	2mg/ml, 10mg/ml	Main function is coagulation the nutrient has several properties that help blood clot properly
COMPLEMENTARY LIST				
1	Ringer's solution	Injectable	8.60 g/l sodium chloride, 0.30 g/l potassium chloride & 0.33 g/l calcium chloride dehydrate	Replace extracellular fluid losses and restore the sodium, potassium, calcium and chloride balances

2	Calcium borogluconate	Injectable	5% 10% 40%	Treatment of hypocalcaemia
3	selenium + DL- α tocopherol acetate	Injectable solution	3mg +150 IU/ml	For treatment of equine degenerative myeloencephalopathy
4	Vitamin E (d-alpha-tocopheryl)	Oral capsule	400 IU capsules, 28,000 IU/oz bottle	Indication: for treatment of equine degenerative myeloencephalopathy

7. ANTISEPTICS AND DISINFECTANTS

S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1	povidone Iodine	Topical ointment	3-5% w/v solution	Topical antiseptic for superficial cuts, wounds, abrasions, insect bites and bruises on the skin epizootic lymphangitis
		Topical Solution, surgical scrub	0.50%	
2	Iodine tincture	Topical	2.5% w/v solution	Topical antiseptic for superficial cuts, wounds, abrasions, insect bites and bruises on the skin
3	Chlorhexidine (Savlon)	Topical	0.5- 1%	Antiseptic /disinfectant. Treats many skin infections
4	Potassium permanganate	Topical Ointment	5% w/v solution	General antiseptic /disinfectant. Treats many skin infections, including eczema, dermatitis, bacterial skin infections and thrush

5	Zinc oxide	Topical	20%	Wound treatment, skin irritation once or twice per day
6	Virkon S (Potassium Peroxymonosulfate + Sodium Chloride)	powder	1. : 21.41% + 1.50%	Broad Spectrum Disinfectant and Virucide for cleaning and disinfecting industrial, animal and agricultural facilities.
COMPLEMENTARY LIST				
1	Hydrogen peroxide	Topical	6% w/v solution	Topical antiseptic and cleansing agent for minor cuts, abrasions and wounds
2	Dermisol Cream (Benzoic Acid, Malic Acid Anhydrous, Propylene Glycol, Salicylic Acid)	Cream	30gm, 100gm	Wounds with delayed healing by the presence of necrotic tissue, coagulum, debris or wax (traumatic injury, surgical wounds, infected wounds and otitis externa)

8. EUTHANASIA

S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1	Sodium pentobarbitone	Injectable	200 mg/ml	Humane euthanasia
2	Embutramide	Injectable	200 mg/ml	Rapid, painless, and humane euthanasia of animals
3	Somulose: Quinalbarbitone Sodium (Secobarbital Na) + Cinchocain hydrochloride	injection Iv	400mg/ml+25 mg/ml	Rapid, painless, and humane euthanasia of animals
4	Saturated Potassium chloride	injection IV	340gm/1liter	Used for humane euthanasia

9. CARDIOVASCULAR DRUGS				
S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1	Adrenaline(epinephrine)	Injectable	1 mg/ml	Active drug for cardiac resuscitation, anaphylaxis shock
2	Manittol	Injection solution	10%, 20%, 25%	Reduce brain oedema & intracranial pressure, decrease intraocular pressure renal failure, Oliguria, anuria
3	Furosemide	Injectable solution	50mg/ml	Edema associated with congestive heart failure, cirrhosis of the liver, and renal disease, including the nephrotic syndrome Contraindicated for animals with dehydration and Glomerulonephritis
4	Bumetanide	Injectable Solution	0.25mg/ml	More potent loop diuretic than furosemide useful in treating severely affected equine patients

10. BLOOD PRODUCTS & DRUGS AFFECTING THE BLOOD				
S/n	Medicines	Dosage form	Strength	Indication
CORE LIST				
1	Heparin sodium	Injectable	1000 IU/ml,	Abdominal surgery, laminitis, thrombo emboli, disseminated intravascular coagulation (DIC)
		Solution	5000 IU/ml, 10IU/ml	
2	Iron Dextran	Injectable	100 mg iron/ml,	Injectable hematinic

COMPLEMENTARY LIST

1	Warfarin	Injectable solution	15mg/ml	Abdominal surgery, laminitis, thrombo emboli, disseminated intravascular coagulation(DIC)
2	Ferrous sulfate + vitamin B12	Injectable	100mg + 1.5 mg/ml	Anti-Anemic

11. REPRODUCTION

S/n	Medicines	Dosage form	Strength	Indication
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CORE LIST

1	Pregnant mare serum gonadotropin	Powder for Injectable	500 IU, 1,000 IU	Female for anestrous mare at the time of insemination Male: for impaired spermatogenesis
2	Oxytocin	Injectable	10 - 20 units/ml	Uterine inertia, dystocia, retained placenta, milk let down
3	Prostaglandin (cloprostenol sodium)	Injectable	250mcg/ml, 0.075mg/ml	Luteolysis of persistent corpus luteum associated with mummified fetus, pyometra, luteal cyst,

COMPLEMENTARY LIST

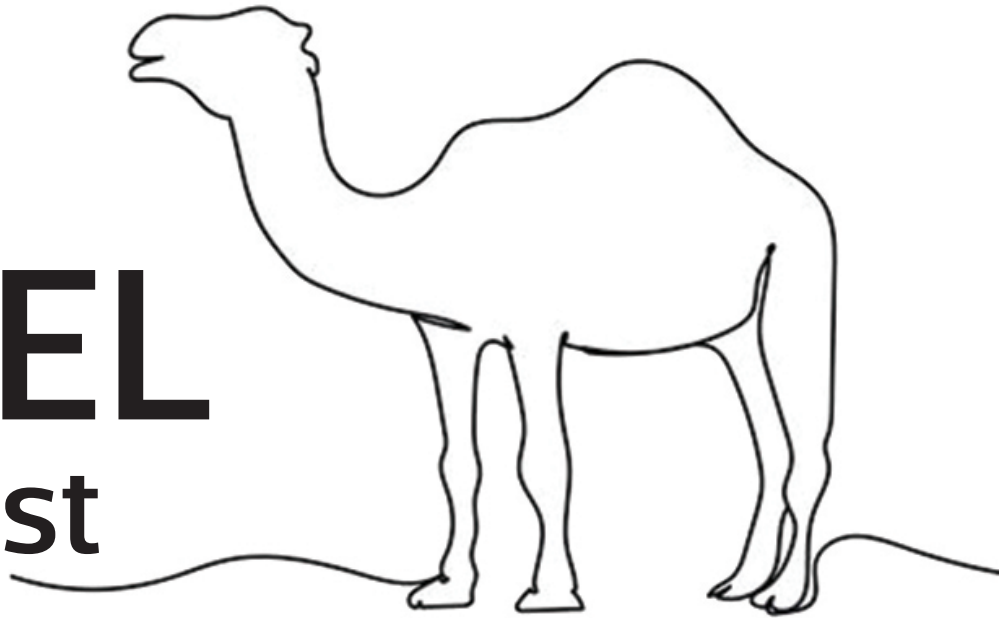
1	Equine chorionic gonadotrophin	Injectable	100000IU	Reversal of anestrous, induction of puberty, enhancement of fertility, and super ovulation
2	Oestradiol benzoate	injection	5mg/ml	For suboestrus, urinary incontinence

12. ANTI-CANCER (CORE MEDICINE)				
S/n	Medicines	Dosage form	Strength	Indication
1	Cisplatin	Intralesional	3.3 mg /ml	Equine Sarcoide
2	Mitomycin C	Intralesional	0.26-0.46 mg/ml	Equine Sarcoide

13. VACCINES				
S/n	Medicines	Dosage form		Indication
1	African horse sickness	Injectable		Prevention of African horse sickness
	Lyophilized neurotropic type 2,4, 9-strain cultured on Vero cell			
2	Tetanus toxoid formalin-inactivated adjuvant	Injectable		Prevention of clostridium tetani
3	Tetanus antitoxin	Injectable		Immunity lasts longer than 1 year.
4	Anthrax vaccine (freeze-dried live bacterial spore vaccine, Sterne 34F2 strain with saponin&4% skimmed milk	Injectable		Short-term protection and treatment of tetanus in horses. transient, persisting for only 10-14 days
5	Equine herpes virus EHV-1 (strain 438/77, inactivated)	Injectable		Prevention of bacillus anthracis
6	Strangle vaccine	Injectable		Prevention of equine herpes virus 1 of gestation &9month gestation
		Injectable		Prevention of streptococcus equi(strangle)

CAMEL

EVMs List



2.6. CAMEL LIST

1. ANTIBIOTICS				
CORE LIST OF ANTIBIOTICS				
SN	Medicines	Dosage Form	Strength	Indications
1.1. Aminoglycosides				
1	Gentamicin	Injectable Solution	50 mg/ml	Pneumonia caused by Gram-negative and Gram-positive bacteria including <i>Mycoplasma</i> spp.
		Intramammary Infusion	500 mg	Mastitis caused by Gram negative bacteria
		Solution (eye drop)	0.3%	Conjunctivitis, keratitis, kerato-conjunctivitis
1.1.2. Macrolides				
1	Spiramycin	Injectable Solution	600,000 IU/ml	Pneumonia, enteritis, colibacillosis, salmonellosis, arthritis, mastitis, metritis, vaginitis, wound, urogenital infections
2	Tilmicosin	Injectable Solution	50mg/ml; 300mg/ml	Respiratory disease associated with <i>Mannheimia haemolytica</i> .
3	Tylosin	Injectable Solution	50mg/ml, 100mg/ml, 150mg/ml, 00mg/ml,	Respiratory infections caused by bacteria including mycoplasma, metritis and mastitis caused by Gram-positive microorganisms

				300mg/ml, 500 mg/ml	
1.1.3. Penicillin					
1	Amoxicillin	Injectable Suspension	100, 150, 200 mg/ml	Gastrointestinal, respiratory (pneumonia), and urinary tract infections caused by <i>Campylobacter</i> , <i>Clostridium</i> , <i>Corynebacterium</i> , <i>E. coli</i> , <i>Erysipelothrix</i> , <i>Haemophilus</i> , <i>Pasteurella</i> , <i>Salmonella</i> , <i>Staphylococcus</i> and <i>Streptococcus spp.</i>	
2	Benzathine penicillin + Procaine penicillin	Intramammary Infusion	500 mg	Mastitis during the dry period. Effective for <i>Streptococcus agalactiae</i> and <i>S. aureus</i>	
3	Cloxacillin	Intramammary Infusion	200 & 500 mg/syringe	Mastitis treatment caused by streptococcal, pneumococcal, and staphylococcal infections including beta-lactamase-producing organisms	
4	Procaine penicillin G	Injectable Suspension	250 mg/ml; 300mg/ml	Management of Gram +ve bacterial infections: Anthrax, pneumonia, etc	

1.1.4. Tetracyclines					
1	Chlortetracycline	Intrauterine Bolus	1000 mg	Retained fetal membrane and metritis caused by <i>Rickettsia</i> , <i>Mycoplasmas</i> , and <i>Chlamydiae</i>	
		Eye Ointment	10 mg/g	Conjunctivitis	

2	Doxycycline	Injectable Solution	25 mg/ml 50 mg/ml 100 mg/ml 200 mg/ml	Critically important in the treatment of many bacterial and chlamydial diseases in a wide range of animal species ¹³ . Leptospirosis, mycoplasma, and methicillin-resistant <i>S. intermedius</i> .
3	Oxytetracycline	Injectable Solution	5% (50mg/ml) 10% (100mg/ml)	Variety of bacterial, rickettsia, mycoplasma and chlamydial infections: Pneumonia, brucellosis, keratoconjunctivitis, bacterial enteritis, wound infections, acute metritis, dermatophilosis, etc. 5% is recommended to reduce local irritation.
4	Tetracycline	Ointment	1%	Bacterial conjunctivitis and keratoconjunctivitis
1.1.5. Fluroquinolones				
2	Enrofloxacin	Injection	100mg/ml 200mg/ml	Multipurpose: treatment of a variety of enteric, respiratory and other bacterial infections
		Intramammary suspension	4g/syringe	All mastitis-causing pathogens (only for resistance to penicillin groups)
1.1.6. Sulfonamides				
1	Sulfadimethoxine	Injectable Solution	40% (400mg/ml)	Shipping fever (Pasteurellosis) and bacterial pneumonia associated with <i>Pasteurella spp.</i> , Hemorrhagic septicemia, calf diphtheria and foot rot
2	Sulfadimidine	Injectable Solution	333 mg/mL	Gastrointestinal (<i>E. coli</i>), respiratory (<i>Pasteurella spp</i>) and urogenital infections.

				250 mg/ml 300 mg/ml	It can also be used for coccidiosis and chlamydia infection
3	Sulfamerazine		Injectable Solution	333 mg/ml	Bronchitis, prostatitis and urinary tract infections
1.1.7. Antibiotics/Antimicrobial Combinations					
1	Amoxicillin + Clavulanic Acid + Prednisolone	Injectable Solution		200 mg + 50 mg + 20 mg	<i>Colibacillosis</i> (bacterial enteritis) and respiratory infections
		Intramammary Infusion		10 mg/syringe	Mastitis caused by Gram-positive bacteria
2	Lincomycin + spectinomycin	Injectable Solution		50 mg + 10mg/ml	Used in the treatment of a variety of enteric, respiratory and other bacterial infections
3	Oxytetracycline + Flunixin Meglumine	Injectable Solution		100 mg/ml + 2mg/ml	Respiratory disease (Mannheimia and Pasteurella infection) with inflammation and acute mastitis
4	Procaine Penicillin G + Neomycin	Injectable Solution		200000 IU + 100 mg	Pasteurellosis (pneumonia), salmonellosis, colibacillosis, wounds infected with <i>A. pyogenes</i> , and <i>Staphylococcus spp.</i>
5	Procaine Penicillin G + Dihydrostreptomycin sulfate	Injectable Solution		200,000 IU + 200 mg/ml	Arthritis, mastitis, and gastrointestinal, respiratory, and urinary tract infections, severely contaminated and infected saddle sore
6	Sulfadiazine + Trimethoprim	Injectable Solution		200 mg + 240 mg/ml	Gram-positive and negative bacteria and other GI protozoal infections. See Sulfadimethoxine.
7	Tetracycline + hydrocortisone	Ointment		5ml/packet	Eye bacterial infections

II. COMPLEMENTARY LIST OF ANTIBIOTICS / ANTIMICROBIAL AGENTS				
1	Ampicillin + Cloxacillin	Injectable Solution	2.25 gm + 2.25 gm	Upper and lower respiratory tract, urinary tract, ear, skin and soft tissue and gastro-intestinal (GI) infections. This combination is the drug of choice for Metritis, Retained Placenta, Mastitis, Septicemia, systemic and local infections, chronic wounds, abscesses, enteritis, post-surgical therapy, pyrexia of unknown origin and Pneumonia.
2	Lincomycin	Injectable Solution	100 mg/ml 300 mg/ml	Pneumococci, streptococci and staphylococci.
3	Erythromycin	Injectable Solution Intramammary Infusion	50 mg/mL 300 mg/syringe	Infections with penicillin resistant Gram-positive bacteria Mastitis cases that do not respond to penicillin
4	Sulfacetamide	Ophthalmic Solution	10% in 5 ml; 10 ml bottles	Eye infections

2. ANTIFUNGAL DRUGS				
I. CORE LIST OF ANTIFUNGALS				
SN	Medicines	Dosage Form	Strength	Indications
1	Amphotericin-B	Injectable solution	5mg/ml, 10mg/ml	Aspergilloses, Blastomycosis, Dermatomycosis, and fusarium infections.
2	Chlorhexidine + Miconazole	Shampoo	11.26mg + 17.37mg 2% + 2%	Dermatophytosis
3	Natamycin	Topical ointment	10%	Dermatomycosis
4	Itraconazole	Oral solution	10mg/ml	Blastomycosis, coccidioidomycosis, chromomycosis and paracoccidioidomycosis
		Capsule	100mg	

3. ANTIPARASITIC DRUGS				
3.1. ANTHELMINTICS				
I. CORE LIST OF ANTHELMINTIC DRUGS				
S.N.	Medicines	Dosage Form	Strength	Indications
2.1.1. Benzimidazoles				
1	Albendazole	Bolus	300 mg, 600 mg, 1500mg, 2500 mg	Gastrointestinal worms, Lung worms, Tapeworms, Liver-fluke
		Oral Suspension	5%, 10%, 12.5%, 20%	

2	Fenbendazole	Oral Suspension	25 mg/ml, 100 mg/ml	Lung worms, Stomach worms, Intestinal worms
		Bolus	3000 mg	
		Paste	7.5%	
2.1.2. Imidazothiazoles				
1	Tetramisole	Bolus	300 mg, 600 mg, 900 mg, 3400 mg	Gastrointestinal nematodes (Trichostrongylus), lung nematodes, kidney worm, heartworm and eye parasites
		Injectable Solution	30 mg/ml, 100 mg/ml	
		Oral Powder	10%, 20%	
2.1.2. Microcyclic Lactones				
1	Doramectin	Injectable Solution	10 mg/ml	Gastrointestinal roundworms, lungworms, eye worms, sucking lice and mange mites.
		Pour-On	1%, 10%, 20%, 30%	
			5 mg/ml	
2	Ivermectin	Injectable Solution	10 mg/ml	Camel myiasis, Gastrointestinal roundworms, Lungworms, and mange mites (Sarcoptes)
		Tablet	1%, 2% & 3%	
			0.2%, 0.5%, & 1%	
		Pour on		Ectoparasites (mange mites and lice)
2.1.3. Salicylanilides				
1	Closantel	Injectable Solution	5% w/v, 10% w/v	Fascioliasis, gastrointestinal nematode, mange mites, camel myiasis, demodicosis etc

		Oral Suspension	50 mg/ml	
2	Oxyclozanide	Bolus	340 mg 2700 mg	Indicated for the treatment of all stages of fascioliasis
		Oral suspension	34mg/ml	
3	Rafoxanide	Oral Suspension	1%, 2.5%, 3% & 5%	Camel myiasis (<i>Wohlfahrtia nuba</i> , <i>Lucilia cuprina</i> and <i>Cephalopina titillator</i>) and other endo-parasites
		Injectable Solution (S/C)	7.5 mg/ml	
2.1.4. Anthelmintics combinations				
1	Albendazole + Ivermectin	Bolus	2500mg+100mg 3000mg+100mg	Endo and ectoparasites
2	Ivermectin + Clorsulon	Injection solution	1% + 10%	Nematodes, liver flukes and ectoparasites / camel myiasis
II. COMPLEMENTARY LIST OF ANTHELMINTICS				
1	Abamectin	Injectable Solution	10 mg/ml	Wide range of anti-parasitic activity and used for treatment of mange mites
		Oral Powder	2 mg/g	
		Oral Suspension	20 mg/ml	
		Pour On	5 mg/ml	
		Paste	20 mg/g	

2	Eprinomectin	Injectable Solution	20 mg/ml	Gastrointestinal roundworms, lungworms, grubs and mites
3	Moxidectin	Injectable Solution	1%, 2%, 10%	Gastrointestinal roundworms, lungworms, grubs, mites and lice
		Oral Suspension	0.1%	
		Pour on	0.5%	
4	Oxyfendazole	Bolus	1250 mg, 1500 mg	Lungworms, roundworms, and tapeworms
		Oral Suspension	22.5 mg/ml	
5	Piperazine	Oral Powder	10 mg/g, 50 mg/g, 100 mg/g, 650 mg/g	Ascaris, Oxyuris, Strongyloides and Trichuris
6	Pyrantel Embonate	Oral Paste	40%, 43.9%	Ascariasis, hookworm infections, enterobiasis (pinworm), trichostrongyliasis
7	Pyrantel Pamoate	Paste	9.5%; 171 mg/ml, 180 mg/ml, 226 mg/ml	Strongyles; pinworms (<i>Oxyuris equi</i>) and large roundworms (<i>Parascaris equorum</i>)
		Oral Suspension	2.27 mg/ml, 4.54 mg/ml, 22.7 mg/ml, 50 mg/ml	
		Tablet	22.7mg, 50g, 100 g	
8	Praziquantel	Bolus	3125mg	
		Injectable	2.5%, 5.68%	

		Oral Suspension	2.5%	1.2.1 Schistosomiasis, cestodes (<i>Moniezia</i> & <i>Stilesia</i>) and <i>Cysticercosis</i>
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3.2. ANTIPROTOZOAL DRUGS

I. CORE LIST OF ANTIPROTOZOAL DRUGS

3.2.1. Antibabesial drugs

S.N.	Medicines	Dosage Form	Strength	Indications
1	Amicarbalide	Injectable Solution	1% (500mg/ml)	Babesiosis (<i>B. divergens</i> , <i>B. cabali</i>) and Theileriosis (<i>T. pavae</i>). It is also used for the prevention, control and treatment of anaplasmosis
2	Diminazene aceturate	Injectable solution	1.05 g, 1.1g, 10.5 g	Babesiosis (caused by all species)
3	Diminazene aceturate + Phenazone	Injectable solution Granule/powder for injection	70mg/ml+375mg/ml 1.05 g + 1.31 g	Babesiosis
4	Diminazene diacetate + Vit B12	Granule/powder for injection	1.05g+0.0012g, 445mg+555mg	Babesiosis, specially associated with anaemia
5	Imidocarb	Injectable Solution	8.5%, 12% w/v	Babesiosis (curative)

6	Amprolium	Peros	16.5 mL/100 kg (9.6%) for 5 days	Coccidiosis
7	Sulfadimethoxine	Injectable Solution	40%, 60%	Coccidiosis and other protozoal infections (toxoplasmosis)
8	Sulfamethoxazole + Trimethoprim	Injectable	200mg + 40mg/ml	Coccidiosis and bacterial diseases (see above)
9	Toltrazuril	Peros	50 mg/mL	Coccidiosis, Giardia, Balantidium coli. (20 mg/kg (1.8 mL/4.5 lb) for 5 days)
10	Paromomycin Sulfate 250 mg capsule	Peros (capsule)	250 mg	Cryptosporidium spp (24 – 48.5 mg/kg, BID, for 5 to 10 days)
3.2.2. Trypanocidal agents				
1	Diminazene aceturate	Injectable (PFI)	1.1 g, 10.5 g (23.6 g sachet)	Curative treatment of Trypanosmosis, Babesiosis and Theileriosis
2	Diminazene diacetate + Phenazone	Injectable (PFI)	1.05 g + 1.31 g	Treatment of Trypanosomosis and other protozoan infections.
3	Isometamedium chloride	Injectable (PFI)	125 mg (preferably IV)	<i>Prophylactic use for T. brucei evansi / T. evansi.</i> Can confer protection against trypanosome infection for 3-6 months. N.B. It is irritant to camels.

4	Melarsomine	Injectable (PFI)	25mg/ml 50mg	Preferred for <i>T. evansi</i> (approved for camel use)
5	Quinapyramine sulfate	Injectable (PFI)	1g, 3g	Curative treatment of trypanosomosis: preferred for <i>T. evansi</i> therapy and also for drug-resistant <i>T. evansi</i>
6	Suramin	Injectable	10%, 20% solution	<i>Treatment and prevention of trypanosomosis: preferred and commonly used to treat T. burcei evansi /T. evansi.</i>

4. ACARICIDES AND INSECTICIDES

I. CORE LIST OF ACARICIDES AND INSECTICIDES

S.N.	Medicines	Dosage Form	Strength	Indications
1	Cypermethrin	Spray and Pour on	5%, 10% w/v 25% w/v	Against external parasites: ticks, flies, fleas, lice, mites
2	Cypermethrin + chlorpyrifos + piperonylbutoxide	Topical/pour on	6% + w/v 7% + w/v + 0.5% w/v	Against external parasites: ticks, flies, fleas, lice, mites
3	Deltamethrin	Pour-on Solution Topical spray	10 mg/ml 5%, 6%, 12.5%	Used against external parasites (ticks, flies, fleas, lice, mites)
4	Imidacloprid + moxidectin	Topical/spot on	10% + 1% m/v	For treatment of internal and external parasites (<i>mange mites: Sarcoptes</i>)
5	Ivermectin	Injectable	1%	

		Pour-on	5 mg/mL	For the treatment and control of gastrointestinal roundworms, lungworms, grubs, horn flies, sucking and biting lice, and sarcoptic mange mites.
II. COMPLEMENTARY LIST OF ACARICIDES AND INSECTICIDES				
1	Amitraz	Topical	12.5% solution	Kills ticks, lice and mange mites <i>N.B. Recent study shows low efficacy</i>
2	Fipronil	Spot-on solution Spray	12.5mg/ml, 50mg/ml, 65mg/ml 2.5mg/ml	Acaricides and insecticides
3	Flumethrin	Pour-on solution	1%, 4%, 65%	Acaricides and insecticides activities
4	Thiamethoxam (neonicotinoid) + (Z) 9-tricosene	Bait on fly trap	10 g/kg + 1 g/kg	For the treatment and control of gastrointestinal roundworms, lungworms, grubs, horn flies, sucking and biting lice, and sarcoptic mange mites
		Bait-paint-on	100 g/kg + 0.5 g/kg	
5	Triazophos	Topical	40% m/ml	Acaricides, insecticides and nematocides
6	Selamectin	Spot-on solution	15mg/ml, 30mg/ml, 60mg/ml, 120mg/ml, 240mg/ml, 360mg/ml	Control of all ectoparasites as well as endo parasites (nematodes)

5. ANAESTHETIC, ANALGESIC, SEDATIVE AND EMERGENCY DRUGS					
5.1. ANAESTHESIA					
S.N.	Medicines	Dosage Form	Strength	Indications	
1	Atropine sulphate	Injectable Solution	0.5 mg/ml, 1mg/ml or 15mg/ml	Pre-anesthetic, anesthesia adjunct to prevent salivation, and bradycardia linked with anesthesia and as organophosphate antidote	
2	Lidocaine Hydrochloride	Injectable Solution	5 mg/ml, 10 mg/ml, 15 mg/ml, 20 mg/ml	Local anesthetic, pain management and for acute treatment of Ventricular arrhythmias	
		Topical	4 mg/ml		
3	Ketamine hydrochloride	Injectable Solution	100 mg/mL	For short-term anesthetic procedures	
4	Pentobarbital Sodium	Injectable Solution	50 mg/ml	To control severe seizures	
5	Propofol	Injectable solution	10mg/ml	For induction of general anesthesia	
6	Thiopental Sodium	Injectable Powder	250 mg 10 g	For induction of anesthesia or for short duration of anesthesia	

5.2. ANALGESICS				
1	Dexamethasone	Injectable Solution	1 mg/ml, 2mg/ml, 4 mg/ml	Anti-inflammatory
2	Flunixin meglumine	Injectable Solution	10 mg/ml 50 mg/ml	Adjunct therapy for respiratory infections and endotoxemia
3	Phenylbutazone	Injectable solution Oral powder	200mg/ml 1g	Analgesic, antipyretic and anti-inflammatory
5.3. SEDATIVES				
1	Diazepam	Injectable Solution	5 mg/ml	Sedation, anesthetic adjunct, anticonvulsant, control seizures and produces muscle relaxation
2	Xylazine	Injectable Solution	20 mg/ml 100 mg/ml	Sedation, pre-anaesthetic, general anaesthesia in combination with ketamine, propofol and diazepam
3	Detomidine Hydrochloride	Injectable Solution	10mg/mL	Sedative and analgesic to facilitate minor surgery
5.4. EMERGENCY DRUGS / REVERSAL AGENTS				
1	Atipamezole Hydrochloride	Injectable Solution	5 mg/ml	Reverse alpha2-agonists and reverse sedation caused by amitraz intoxication
2	Activated charcoal	Oral Solution Tablets	208 mg/ml	Adsorbents in the case of acute poisoning after ingestion of a large amount of toxins (see above).

3	Atropine sulphate	Injectable Solution	0.5 mg/ml, 1mg/ml or 15mg/ml	Organophosphate poisoning (see above)
4	Epinephrine	Injectable Solution	mg/ml, 0.2mg/ml, 1 mg/ml	Cardiac resuscitation, Allergic reactions (anaphylaxis)
5	Flumazenil	Injectable Solution	0.1 mg/ml	Reversal after benzodiazepine administration
6	Yohimbine	Injectable Solution	2 mg/ml	Reversal of α_2 agonists

6. GASTROINTESTINAL TRACT DRUGS

6.1. ANTIDIARRHEALS/SPASMOLYTICS/ADSORBENTS

S.N.	Medicines	Dosage Form	Strength	Indications
1	Bismuth carbonate	Oral	150 mg/5 ml	Non-specific antidiarrheal agent and GI protectant.
2	Kaolin + Pectin	Oral suspension	200mg +4.3mg/ml	For the treatment of acute diarrhea
3	Activated charcoal	Oral Solution Tablets	208 mg/ml	Adsorbents in the case of acute poisoning after ingestion of a large amount of toxin or drug.

6.2. ANTIACIDS AND ANTIBLOAT

1	Digestion Powder	Powder	100 g	Excess stomach acid, abdominal pain, diarrhea and indigestion
2	Dimethicone	Oral suspension	15, 2%	Bloat remedy
3	Magnesium hydroxide	Oral	400 mg/5 ml	Used as an antacid to neutralize stomach acid

4	Sodium bicarbonate	Oral Tablet	520 mg, 650 mg	For treatment of metabolic acidosis
6.3. CATHARTICS/LAXATIVES/PURGATIVES/LUBRICANTS				
1	Magnesium sulfate	Injectable Solution	50%	To treat hypomagnesemia, Laxative
		Oral powder	49%, 90%	
2	Liquid paraffin	Oral	474 mg	Increases water content of stool and acts as a lubricant for intestinal contents.
3	Mineral oil	Oral	500-1000 ml	Lubricant laxative. It increases water content of stool and acts as a lubricant for intestinal contents.

7. ELECTROLYTE, VITAMINS, MINERALS AND WATER BALANCE AGENTS

S.N.	Medicines	Dosage Form	Strength	Indications
1	Calcium borogluconate	Injectable Solution	10mg/ml (10%)	Hypocalcemia, prevention and treatment of calcium deficiency and vitamin A,D ₃ ,E. It is also used antidote for Fluoride toxicity
		Powder	40mg/ml (40%)	
		Oral Suspension	100 g, 10 kg	
			360ml	
2	Calcium Magnesium gluconate	Injectable solution	20%, 40%	Hypocalcemia; treatment of calcium deficiency
3	Dextrose /Glucose	Injectable Solution	5%	Adjunctive treatment of shock or impending shock due to hemorrhage, burns, surgery or other trauma
			20%	

				40%	40% w/v is for use in admixtures to provide temporary relief from the symptoms of increased intracranial pressure and hypoglycaemic coma. Glucose 5% is indicated for the treatment of carbohydrate and fluid depletion
4	Lactated Ringer's	Injectable Solution		1000 ml BAG	Parenteral replacement of extracellular losses of fluid and electrolytes, with or without minimal carbohydrate calories, as required by the clinical condition of the patient
5	Multivitamins (including Vitamin B complex)	Injectable Solution		100 ml	For prevention and treatment of Vitamin deficiencies, Wry-neck syndrome and paralysis of unknown cases
6	Ringer's solution	Injectable Solution		1000 ml BAG	Replace extracellular fluid losses and restore the sodium, potassium, calcium and chloride balances-
7	Sodium bicarbonate	Injectable Solution		4.25% solution	Metabolic acidosis, renal disease, shock or severe dehydration, extracorporeal circulation of blood, cardiac arrest and severe primary lactic acidosis

8. EUTHANASIA

1	Sodium pentobarbital	Injectable Solution		200 mg/ml	Rapid, painless, and humane euthanasia of animals
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2	Embutramide	Injectable Solution	200 mg/ml	Rapid, painless, and humane euthanasia of animals
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9. GENITO-URINARY TRACT DRUGS

9.1. URINARY ANTISEPTICS AND ANTISPASMODICS

SN	Medicines	Dosage Form	Strength	Indications
1	Ammonium chloride	Oral	200-300 mg	To acidify urine and aid in struvite stone dissolution.
2	Diazepam	Injectable Solution	0.1 mg	For obstructive uroliths. See above for other uses
3	Hyoscine	Injectable Solution	4 mg/ml	Relief of gastro-intestinal or genito-urinary disorders characterized by smooth muscle spasm.

9.2. DIURETICS

1	Furosemide	Injectable Solution	50 mg/ml	The treatment of fluid retention associated with heart and kidney failure
2	Mannitol	Injectable solution	20mg/ml	Used as irrigation fluid (cerebral edema and other edematous condition)

10. RESPIRATORY SYSTEM DRUGS

1	Bemegride	Injectable Solution	25 mg/ml	Respiratory stimulants and in the treatment of barbiturate overdose
2	Doxapram	Injectable Solution	20 mg/ml	To decrease the respiratory depressant

11. DRUGS ACTING ON THE CARDIOVASCULAR SYSTEM**II. Complementary drugs**

SN	Medicines	Dosage Form	Strength	Indications
1	Procainamide	Injectable Solution	100 mg/ml	Ventricular arrhythmias
2	Diltiazem	Injectable Solution	5 mg/ml	Cardiac arrhythmia
3	Furosemide	Injectable Solution	50 mg/ml	Edema associated with congestive heart failure, cirrhosis of the liver, and renal disease
4	Dobutamine	Injectable Solution	12.5 mg/ml	Short-term support for cardiac failure

12. ANTISEPTICS AND DISINFECTANTS (CORE LIST)

SN	Medicines	Dosage Form	Strength	Indications
1	Chlorhexidine gluconate + cetrimide	Topical	0.5% + 0.2%	Antiseptic activity (wound cleaning)
2	Copper sulfate	Topical	5% solution 10% solution	Fungicide and as a foot bath for the control of foot-rot
3	Hydrogen peroxide	Topical	6% w/v solution	Topical antiseptic and cleansing agent for minor cuts, abrasions and wounds

4	Iodine tincture	Topical	2.5%, 4% w/v solution	Topical antiseptic for superficial cuts, wounds, abrasions, insect bites and bruises on the skin
5	Isopropyl alcohol	Topical	70% w/v solution	Antiseptic
6	Potassium permanganate	Topical	5% w/v solution	General antiseptic /disinfectant. Treats many skin infections, including eczema, dermatitis, bacterial skin infections and thrush
7	Povidone iodine	Topical	0.1-0.5% solution	Wound lavage for chronic lesions (Saddle sore)
8	Lead acetate	Topical	2% astringent pack	Treat early stage of saddle sore.

13. HORMONES AND HORMONE ANALOGUES

SN	Medicines	Dosage Form	Strength	Indications
1	Betamethasone	Injectable Solution Ointment	3 mg/ml 0.25-9 mg	Inflammatory and immune-mediated disease. Eye inflammation
2	Buserelin	Injectable Solution	0.004 mg/ml	LH blocker: used for treatment of follicular cysts, improve conception rate, and for synchronization of oestrus and ovulation
3	Cloprostenol sodium	Injectable Solution	125 µg	Used for synchronization, terminate pregnancy, induce parturition, and control the breeding pattern of a herd.

4	Dexamethasone	Injectable Solution Oral Eye ointment	1 mg/ml, 2 mg/ml 2 mg 0.05%, 0.1%	Inflammatory, immune-mediated disease and ketosis. It also be used to treat allergies and inflammation of eyes. It relieves swelling, redness and irritation.
5	Dinoprost tromethamine	Injectable Solution	12.5 mg/ml	Estrus synchronization, silent camel with a corpus luteum, For treatment of pyometra (chronic endometritis)
6	Estradiol 17 β	Injectable Solution	5 mg/ml	Stimulate LH release which increases libido, onset of oestrus and fertility.
7	Follicle-stimulating hormone (FSH)	Injectable Solution	5 mg/ml	Stimulates the growth and development of follicles.
8	Gonadorelin-diacetate-tetrahydrate	Injectable Solution	100 μ g/ml	Synthetic GnRH: used to treat ovarian follicular cysts and to induce luteinization and ovulation
9	Gonadotrophin releasing hormone (GRH)	Injectable Solution	50 μ g/ml	Treat cystic ovaries and other reproductive disorders.
10	Luteinizing hormone (LH)	Injectable Solution	1,000IU, 5000IU 10,000 IU	Increase libido, cystic ovaries treatment and induce ovulation.
11	Oxytocin	Injectable Solution	10-40 IU/ml	Initiate strong, regular and purposeful contractions of the uterine muscle especially in the later stages of pregnancy and post-partum

12	Progesterone	Intra-vaginal device	0.3 g 1.9 g	Treatment of reproductive system disorders (termination of an unwanted pregnancy), Oestrus synchronization and preparation of donor and receptor animals in the case of embryo transfer
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14. VACCINES

SN	Medicines	Dosage Form	Strength	Indications
1	Anthrax	Injectable, Live attenuated	1ml/ camel, SC	Prevent anthrax <i>N.B Bovine dose can be used</i>
2	<i>Brucella abortus</i> strain 19 (live) and Rev. 1 vaccine	Injectable, Live attenuated	1ml, SC (modified dose)	Prevent brucellosis
3	Camel Pox (live attenuated)	Injectable	1ml/ animal, SC	Camel pox
4	Ovine ecthyma vaccine	Injectable, Live attenuated	1ml, SC	Contagious ecthyma (Orf) <i>N.B. The same product used for sheep and goats</i>
5	<i>Inactivated P. multocida & M. haemolytica vaccine</i>	Injectable	4ml/animal, IM	<i>Hemorrhagic septicemia</i>
6	Inactivated bovine Rota & Crona virus vaccine	Injectable	2ml/ calves, IM	For Neonatal Viral Diarrhea
7	Combination vaccines Clostridia Spp.+ Toxoid (Clostridium C&D + Tetanus vaccine)	Injectable	2ml, IM	Prevent tetanus. Recommended for camels that are used for transportation services.

REFERENCE

- AAAP (American association of avian pathologists) (2013). Avian disease manual, 7th ed.
- Abere, T., Bogale, B. and Melaku, A. (2013): Gastrointestinal helminth parasites of pet and stray dogs as a potential risk for human health in Bahir Dar town, North Western Ethiopia. *Vet World*, **6**: 388–92.
- Alasaad, S., Walton, S., Rossi, L., Bornstein, S., Abu-Madi, M., Soriguer, RC, et al. (2011): Sarcptes-world molecular network (Sarcptes-WMN): integrating research on scabies. *Int J Infect Dis.*, **15**: 294–7.
- Ali BH, Oukessou M, Bashir AK. Pharmacokinetic considerations in the camel (*Camelus dromedarius*): A review. *Comp Biochem Physiol Part C Pharmacol Toxicol Endocrinol*. 1996;115 (1):1-9. doi:10.1016/S0742-8413(96)00120-X
- Ali Mohamed (2014). Veterinary Drugs' Guide the 3rd edition VDG3.
- Amajo M, Tesfaye A, Sori T, Negussie H. (2022). Seroepidemiology of Infectious Bursal Disease in Poultry Reared Under Backyard Production System in Wolaita Zone, Southern Ethiopia. *Vet Med (Auckl)*., **6**;13:1-8. doi: 10.2147/VMRR.S342970. PMID: 35024351; PMCID: PMC8747771.
- Beetz, A., Julius, H., Turner, D. and Kotrschal, K. (2012a): Effects of social support by a dog on stress modulation in male children with insecure attachment. *Frontiers in psychology*, **3**: 352.
- Beetz, A., Uvnäs-Moberg, K., Julius, H. and Kotrschal, K. (2012b): Psychosocial and psychophysiological effects of human-animal interactions: the possible role of oxytocin. *Frontiers in psychology*, **3**: 234.
- Biffa D, Woldemeskel M. Causes and factors associated with occurrence of external injuries in working equines in Ethiopia. *Intern J Appl Res Vet Med*. 2006; 4(1): 1-7
- Branson W. Ritchie; Greg J. Harrison and Linda R. Harrison (1994). Avian Medicine: Principles and Application. Wingers Pub., Lake Worth, Fla.
- Codex Alimentarius Standards For Protecting Health and Facilitating Trade
- CSA (2021). Federal Democratic Republic of Ethiopia, Central Statistical Agency, Agricultural Sample Survey 2020/21 [2013 E.C.], Volume II, Report on Livestock and Livestock Characteristic (Private Peasant Holdings), *Statistical Bulletin 58*. Addis Ababa March 2021.

-
- CSA (Central Statistical Agency), 2017/18. Agricultural sample survey report on livestock and livestock characteristics. Addis Ababa, Ethiopia 2: 9-12.
- CSA. Agricultural Sample Survey 2019/20 [2012 E.C.] Volume II Report on Livestock and Livestock Characteristics (Private Peasant Holdings). Vol 2.; 2020.
- CX/MRL. Maximum Residue Limits (Mrls) and Risk Management Recommendations (Rmrs) for Residues of Veterinary Drugs in Foods CX/MRL 2-2018. *FAO/WHO*. 2018;2:19.
- Dabritz, HA. and Conrad, PA. (2010): Cats and Toxoplasma: implications for public health. *Zoonoses Public Health*. **57**: 34–52.
- DACA (2006). STANDARD VETERINARY TREATMENT GUIDELINES (Drug Administration and Control Authority of Ethiopia).
- Daouam S, Ghzal F, Naouli Y, et al. Safety and immunogenicity of a live attenuated Rift Valley fever vaccine (CL13T) in camels. *BMC Vet Res*. 2016;12(1):1-5. doi:10.1186/S12917-016-0775-8/FIGURES/2
- David E. Swayne (2020). Diseases of Poultry 14th edition. Wiley-Blackwell
- Debela Abdeta, Yobsan Tamiru, Morka Amante, Dereje Abebe, Felmeta Kenei, Jirata Shiferaw, Misgana Tefera (2022). Seroprevalence and Associated Risk Factors of Infectious Bursal Disease in Chickens Managed Under Intensive and Backyard Production Systems in Western Oromia, Ethiopia. *Veterinary Medicine: Research and Reports*, 2022;13 39–46.
- Dechassa Tegegne, Yosef Deneke, Takele Sori, Mukarim Abdurahaman, Nigatu Kebede, Mattia Cecchinato and Giovanni Franzo (2020). Molecular Epidemiology and Genotyping of Infectious Bronchitis Virus and Avian Metapneumovirus in Backyard and Commercial Chickens in Jimma Zone, Southwestern Ethiopia. *Vet. Sci.*, 2020, 7, 187. <https://doi.org/10.3390/vetsci7040187>.
- Deplazes, P., Knapen, F., Van Schweiger, A. and Overgaauw, PAM. (2011): Role of pet dogs and cats in the transmission of helminthic zoonoses in Europe, with a focus on echinococcosis and toxocariasis. *Vet Parasitol.*, **182**: 41–53.
- Deressa, A., Ali, A., Beyene, M., Selassie, BN., Yimer, E. and Hussen, K. (2010): The status of rabies in Ethiopia: a retrospective record review. *Ethiop J Health Dev.*, **24**: 127–32.
- Dobler, G. and Pfeffer, M. (2011): Fleas as parasites of the family Canidae. *Parasit. Vector.* **4**: 139.
- Donald C. Plumb (2018). Plumb's Veterinary Drug Handbook: Desk, 9th Edition. Wiley-Blackwell.
- Dubey, JP. (2004): Toxoplasmosis-a waterborne zoonosis. *Vet Parasitol.*, **126**: 57–72.

- Dubey, JP. (2009): Toxoplasmosis in sheep-the last 20 years. *Vet Parasitol*, **163**: 1–14.
- Dubey, JP. (2010): Toxoplasma gondii Infections in chickens (Gallus domesticus): prevalence, clinical disease, diagnosis and public health significance. *Zoonoses Public Health*, **57**: 60–73.
- Dubey, JP., Tiao, N., Gebreyes, WA. and Jones, JL. (2012): A review of toxoplasmosis in humans and other animals in Ethiopia. *Epidemiol Infect.* **140**: 1935–8.
- Dwight D. Bowman (2014). Georgis' Parasitology for Veterinarians 10th edition. Elsevier Saunders.
- EHNRI (Ethiopian Health and Nutrition Research Institute) (1997): Zoonoses and anti-rabies vaccine production annual report. Addis Ababa, Ethiopia.
- EHNRI (Ethiopian Health and Nutrition Research Institute) (2012): Proceeding of the national workshop on rabies prevention and control in Ethiopia. Adama, Ethiopia.
- Elmore, SA., Jones, JL., Conrad, PA., Patton, S., Lindsay, DS. and Dubey, JP. (2010): Toxoplasma gondii: epidemiology, feline clinical aspects, and prevention. *Trends Parasitol.* **26**: 190–6.
- Ethiopian Veterinary Drugs List 2019, 2nd Edition
- EVMLU (2020). Essential Veterinary Medicines List for Uganda (EVMLU) Published by the Ministry of Agriculture, Animal Industry and Fisheries, Republic of Uganda, Directorate of Animal Resources, Department of Animal Health, Ministry of Agriculture, Animal Industry and Fisheries Headquarters, Lugard Avenue, Entebbe Uganda Revised: 2020.
- FAO/WHO (2018). Maximum Residue Limits (MRLS) And Risk Management Recommendations (RMRS) For Residues of Veterinary Drugs in Foods: Codex Alimentarius International Food Standards (CX/MRL 2-2018), p: 46.
- Faye B. The camel, new challenges for a sustainable development. *Trop Anim Health Prod.* 2016;48(4):689-692. doi:10.1007/S11250-016-0995-8/FIGURES/2
- Flaim, D. (2003): The Holistic Dog Book: Canine Care for the 21st Century. Hoboken, NJ: Howell Book House.
- Foryet, J.W. (2001): Veterinary Parasitology: Reference Manual, 5th ed. Blackwell, Inc. USA.
- Friedmann, E. and Son, H. (2009): The human-companion animal bond: how humans' benefit. *Vet Clin North Am Small Anim Pract.*, **39**: 293–326.
- Garrido Frenich A., P. Plaza-Bolaños, M.M. Aguilera-Luiz, J.L. Martínez-Vidal (2010). Veterinary Drugs and Growth-Promoting Agent Analyses. Nova Science Publishers Inc; UK.

-
- Gebremedhin, EZ, and Tadesse, G. (2015): A meta-analysis of the prevalence of *Toxoplasma gondii* in animals and humans in Ethiopia. *Parasite Vector*, **8**: 291.
- German, A. (2012): The extent and implications of unwanted cats and dogs. *Vet Rec.*, **170**: 491–2.
- Getahun, Z. and Addis, M. (2012): Prevalence of gastrointestinal helminthes among dogs in Bahir Dar town, Ethiopia. *World applied sciences journal*, **19**(5): 595-601.
- Gray P, Jenner R, Norris J, Page S, Browning G., and the Australian Veterinary Association Ltd and Animal Medicines Australia. (2021). Antimicrobial prescribing guidelines for poultry. *Australian Veterinary Journal*, **99** (6):181-235.
- Gutema, F.D., Yohannes, G.W., Abdi, R.D., Abuna, F., Ayana, D., Waktole, H., Amenu, K., Hiko, A. and Agga, G.E. (2020): *Dipylidium caninum* infection in dogs and humans in Bishoftu town, Ethiopia. *Diseases*, **9**(1): 1.
- Habte, T., Amare, A., Bettridge, J., Collins, M., Christley, R. and Wigley, P. 2017. Guide to chicken health and management in Ethiopia. ILRI Manual 25. Nairobi, Kenya: International Livestock Research Institute (ILRI).
- Hamdani, N., Daban-Huard, C., Lajnef, M., Richard, JR., Delavest, M., Godin, O., et al. (2013): Relationship between *Toxoplasma gondii* infection and bipolar disorder in a French sample, brief report. *J Affect Disord.* **148**: 444–8.
- Hodgson, K. and Darling, M. (2011): Pets in the family: practical approaches. *Journal of the American Animal Hospital Association*, **47**(5): 299-305.
- Jacque Jacob (2022). Use Of Anticoccidial Medications and Vaccines In Poultry Production. Retrieved from: <https://poultry.extension.org/articles/feeds-and-feeding-of-poultry/feed-additives-for-poultry/use-of-anticoccidial-medications-and-vaccines-in-poultry-production/> .
- Jaime Borrell Valls (2021). Poultry Pharmacology. Retrieved from: <https://www.veterinariadigital.com/en/articulos/poultry-pharmacology/>.
- Jaime Samour (2015). Avian Medicine, 3rd Edition. Elsevier.
- Jim E. Riviere; Mark G. Papich (2018). Veterinary Pharmacology and Therapeutics 10th edition. Wiley-Blackwell.
- Jirata Shiferaw, Firaol Shifara, Misgana Tefera, Abdi Feyisa, Yobsan Tamiru (2022b). Seroprevalence and Associated Risk Factors of *Mycoplasma gallisepticum* Infection in Poultry Farms of Hawasa and Bishoftu, Central Ethiopia. *Veterinary Medicine: Research and Reports*, 2022:13 101–107.

- Jirata Shiferaw, Tamiru Dego, Misgana Tefera, Yobsan Tamiru (2022a). Seroprevalence of Infectious Bronchitis Virus in Broiler and Layer Farms of Central Ethiopia. *BioMed Research International*, vol. 2022, Article ID 8915400. <https://doi.org/10.1155/2022/8915400>.
- John Pringle. Robinson. *Current Therapy in Equine Medicine*, 7th ed Elsevier, 2015
- Josep J Berton *Equine clinical pharmacology*, 1st ed, Elsevier, 2004,
- Kandeel M, Al-Mubarak AIA. Camel viral diseases: Current diagnostic, therapeutic, and preventive strategies. *Front Vet Sci.* 2022; 9:1218. doi:10.3389/FVETS.2022.915475/BIBTEX
- Khalafalla AI, Hussein MF. *Infectious Diseases of Dromedary Camels A Concise Guide*; 2021. <https://link-springer-com.proxy.library.uu.nl/book/10.1007/978-3-030-79389-0>.
- Khalafalla AI. Emerging infectious diseases in camelids. *Emerg Re-emerging Infect Dis Livest.* January 2017:425-441. doi:10.1007/978-3-319-47426-7_20/FIGURES/8
- Kuma, G. S. and Smith, H. (2002): Pets, Poop and parasites. *Microbiology today*. **27**: 84-86
- Kumsa, B., Abiy, Y. and Abunna, F. (2019): Ectoparasites infesting dogs and cats in Bishoftu, central Oromia, Ethiopia. *Veterinary Parasitology: Regional Studies and Reports*, **15**: 100263.
- Kumsa, B.E. and Mekonnen, S. (2011): Ixodid ticks, fleas and lice infesting dogs and cats in Hawassa, southern Ethiopia. *Onderstepoort Journal of Veterinary Research*, **78**(1): 1-4.
- Larson J. *Information Resources on Old World Camels: Arabian and Bactrian 2004-2009*. AWIC Resou. Beltsville, Maryland: Animal Welfare Information Center; 2010. http://www.flickr.com/photos/mr_angeloux/2466667912/. Accessed March 27, 2023.
- Lemma, W., Erenso, G., Gadisa, E., Balkew, M., Gebre-Michael, T. and Hailu A. (2009): A zoonotic focus of cutaneous leishmaniasis in Addis Ababa, Ethiopia. *Parasite Vector*. **2**: 60.
- Leonard, L.B. (2014): *Children with specific language impairment*. MIT press.
- Ling, VJ., Lester, D., Mortensen, PB., Langenberg, PW. and Postolache, TT. (2011): Toxoplasma gondii seropositivity and suicide rates in women. *J Nerv Ment Dis*. **199**: 440–4.
- MAAIF (Uganda). *Essential Veterinary Medicines List for Uganda*. 2nd ed.; 2020.
- Macpherson, CNL., Meslin, FX. and Wandeler AI. (2000): Dogs, zoonoses, and public health. London, UK: CAB International.

- McPherron, S.P., Alemseged, Z., Marean, C.W., Wynn, J.G., Reed, D., Geraads, D., Bobe, R. and Béarat, H.A. (2010): Evidence for stone-tool-assisted consumption of animal tissues before 3.39 million years ago at Dikika, Ethiopia. *Nature*, **466**(7308): 857-860.
- Mirkena T, Walelign E, Tewolde N, Gari G, Abebe G, Newman S. Camel production systems in Ethiopia: a review of literature with notes on MERS-CoV risk factors. *Pastor* 2018 *81*. 2018;8(1):1-17. doi:10.1186/S13570-018-0135-3
- MOA (2022). Disease Occurrence and Vaccination Activity Reporting (DOVAR-II) 2021 summary and feedback from January to December 2021, Addis Ababa, Ethiopia, p: 17.
- MOA (Ministry of agriculture) (2015): Zoonotic disease prioritization for inter-sectoral engagement in Ethiopia September 29–30.
- MoA, livestock and fisheries resource development sector epidemiology directorate, disease occurrence and vaccination activity reporting, DOVAR-II, 2021.
- Molyneux, D.H. (2004); Neglected diseases but unrecognized successes-challenges and opportunities for infectious disease control. *Lancet*, **364**: 380 – 283
- Montoya, JG. and Liesenfeld, O. (2004): Toxoplasmosis. *Lancet*. **363**: 1965–76.
- NVI 2016: National Veterinary Institute (NVI) Product catalog. PP:1-35
- OIE. list of antimicrobials of veterinary importance, 2021
- Palmer, BS. (2007): Meta-analysis of three case-controlled studies and an ecological study into the link between cryptogenic epilepsy and chronic toxoplasmosis infection. *Seizure*. **16**: 657–63.
- Paul, M., King, L. and Carlin, EP. (2010): Zoonoses of people and their pets: a US perspective on significant pet-associated parasitic diseases. *Trends Parasitol.* **26**: 153–4.
- Pearson, R. A. 2000. Use and Management of Donkeys by Poor Societies in Peri-urban Areas of Ethiopia. In: D. G. Smith, T. Agajie and L. More (eds.), *Alleviating Poverty in Peri-Urban Ethiopia by Improving the Health, Welfare and Management of Donkeys*. CTVM, Edinburgh, pp. 2–5
- Peek H.W. and Landman W.J.M. (2011). Coccidiosis in poultry: anticoccidial products, vaccines and other prevention strategies. *Veterinary Quarterly*, Volume 31, - Issue 3.
- Plum, D. (2015): *Plumb's Veterinary Handbook*. 8th ed. Hoboken, NJ: John Wiley & Sons.
- Poland G and Raftery A (2019). Formulary. In: *The BSAVA Manual of Backyard Poultry Medicine and Surgery*. (Ed.), VetBook. PP-1-374.
- Poultry vaccines: Overview of Vaxxinova's live and inactivated licensed poultry vaccine range. <https://vaxxinova.com/poultry-vaccines/>

- Reuben J. Rose, David R. Hodgson Manual of equine practice /.—2nd ed. w.b. Saunders company 2000,
- Richard W. Gerhold, Jr (2014). Overview of Coccidiosis in Poultry <https://www.msdevetmanual.com/poultry/coccidiosis/overview-of-coccidiosis-in-poultry>.
- Robert-Gangneux, F. and Dardé, M. (2012): Epidemiology of and diagnostic strategies for toxoplasmosis. *Clin Microbiol Rev.* doi:10.1128/CMR.05013-11.
- Robertson, I.D., Irwin, P.J., Lymbery, A.J. and Thompson, R.C.A. (2000): The role of companion animals in the emergence of parasitic disease. *International Journal of Parasitology*, **30**: 1369-1377.
- Rosa Estela Quiroz-Castañeda (2018). Avian Coccidiosis, New Strategies of Treatment, Intech Open, DOI: 10.5772/intechopen.74008
- Sandra Noack, H. David Chapman, and Paul M. Selzer (2019). Anticoccidial drugs of the livestock industry. *Parasitol Res.*, 118(7): 2009–2026. doi:10.1007/s00436-019-06343-5.
- Smith, A. and Whitfield, Y. (2012): Household pets and Zoonoses, In Canada, National collaborating center for environmental health.
- Smith, LM., Hartmann, S., Munteanu, AM., Villa, PD., Quinnell, RJ. and Collins, LM. (2019): The effectiveness of dog population management: a systematic review. *Animals.*, **9**: 1020.
- Song, SJ., Lauber, C., Costello, EK, et al. (2013): Cohabiting family members share microbiota with one another and with their dogs. *eLife*. **2**: e00458.
- Soulsby, E.J.L. (1982): Helminthes, Arthropods and protozoa of Domesticated animals 7 edition, the Baillie Tindal, London. Pp: 809.
- Standard Veterinary Treatment Guidelines for Ethiopia. *Vet Drug Feed Adm Control Auth.* 2020; 2.
- Tadiose Habte, Priscilla F. Gerber, Fozia Ibrahim, Peter J. Groves, Stephen W. Walkden-Brown (2022). Seroprevalence of major respiratory diseases of chickens in central Ethiopia in different chicken production systems, *Poultry Science*, 101: 10. <https://doi.org/10.1016/j.psj.2022.102065>.
- Tamerat, N., Abera, D., Teha, R., Terefe, Y. and Lemma, F. (2015): Cat and dog gastrointestinal helminth and assessment of community perception on helminthic zoonosis in Haramaya town, eastern Ethiopia. *AEJSR*, **10**: 299-306.
- Tanyüksel, M., Uzun, Ö., Araz, E., Koru, Ö. and Babür, C. (2010): Possible role of toxoplasmosis in patients with first-episode schizophrenia. *Turk J Med Sci.* **40**: 399–404.
- The Merck Veterinary Manual, 11th edition. The Merck Veterinary Manual 11th Edition (2020).

-
- The Working Equine Veterinary Manual, Whittet Books,
- Torrey, EF. and Yolken, RH. (2013): Toxoplasma oocysts as a public health problem. *Trends Parasitol.* **29**: 380–4.
- VDFACA. Standard Veterinary Treatment Guidelines for Ethiopia. *Vet Drug Feed Adm Control Auth.* 2020;2.
- Veterinary Drug and Animal Feed Administration and Control Authority of Ethiopia
- Veterinary Drug Formulary, Colorado State University, 2014
- Vinay Kant, Pardeep Singh, Pawan K. Verma, Isha Bais, Mehtab S. Parmar, Anu Gopal and Vijayta Gupta (2013). Anticoccidial Drugs Used in the Poultry: Overview. *ScienceInternational*, 1:261-265. <https://scialert.net/abstract/?doi=sciintl.2013.261.265>
- WHO (2006) The control of neglected zoonotic diseases. Report of a joint WHO/DFID/AHP meeting with the participation of FAO and OIE. Geneva.
- World Organization for Animal Health (WOAH). OIE List of Antimicrobial Agents of Veterinary Importance. *World Organ Anim Heal.* 2021.
- Yared A. Ebsa, Harpal S., and Gebeyehu G. Negia (2019). Challenges and chicken production status of poultry producers in Bishoftu, Ethiopia. *Poultry Science*, 98:5452–5455. <http://dx.doi.org/10.3382/ps/pez343>.
- Yereli, K., Balcioglu, IC. and Ozbilgin, A. (2006): Is Toxoplasma gondii a potential risk for traffic accidents in Turkey? *Forensic Sci Int.* **163**: 34–7.
- Yohannes Asfaw, Gobena Ameni, Girmay Medhin, Gezahegn Alemayehu, and Barbara Wieland (2019). Infectious and parasitic diseases of poultry in Ethiopia: a systematic review and meta-analysis. *Poult Sci.*, 98 (12): 6452–6462.
- Yohannes, T., Ameni, G., Girmay, M., Balako, G., Yohannes, H. and Wieland, B. (2021). Poultry disease occurrences and their impacts in Ethiopia. *Tropical Animal Health and Production*, 53, 54 (2021). <https://doi.org/10.1007/s11250-020-02465-6>.
- Yolken, RH., Bachmann, S., Rouslanova, I., Lillehoj, E., Ford, G., Torrey, EF., et al. (2001): Antibodies to Toxoplasma gondii in Individuals with first-episode schizophrenia. *Clin Infect Dis.* **32**: 842–4.
- Yonas, T.R., Daniel, T., Zerihun, A. and Asamnew, T. (2020). Seroprevalence of infectious laryngotracheitis disease in backyard chickens in villages of Ada’a district, Oromia, Ethiopia: first report. *Trop Anim Health Prod.*, 52: 3109–3112. <https://doi.org/10.1007/s11250-020-02334-2>
- Zucker, M. (1999): The Veterinarians’ Guide to Natural Remedies for Dogs. New York, NY: Three River.