



Regional Workshop on Advancing WOAH AMR Standards in Veterinary Practice

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CONTINUING EDUCATION FOR VETERINARY PROFESSIONALS:

STRENGTHENING LEARNING ON ESSENTIAL VETERINARY MEDICINES LIST AND USE OF CRITICALLY IMPORTANT ANTIMICROBIALS IN ANIMAL HEALTH



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Learning Objectives

By the end of this CE module, veterinary practitioners will be able to:

- 01 Define and explain the WVA/Brooke Essential Veterinary Medicine List (EVML) and its purpose across species and settings
- 02 Identify the categories and examples of medicines on the EVML relevant to their practice context
- 03 Understand the WHO and OIE/WOAH classification of Critically Important Antimicrobials (CIAs) in veterinary medicine
- 04 Apply responsible prescribing principles for CIAs — including indication criteria, restriction, and documentation
- 05 Integrate EVML and CIA stewardship into everyday clinical decision-making and client communication



What is the Essential Veterinary Medicine List (EVML)?

Definition

A curated list of veterinary medicines — including antimicrobials, anti-parasitics, anaesthetics, analgesics, and biologics — considered the minimum necessary to address priority animal health needs, developed jointly by the World Veterinary Association (WVA) and Brooke.

Developed by: WVA & Brooke (2020)

Inspired by: WHO Essential Medicines List (human)

Scope: All major domestic animal species

Focus: LMICs & working animal contexts

Why the EVML Was Created

Equity of Access

Ensure all practitioners — especially in LMICs — have access to a minimum medicine set

Rational Use

Guide prescribing decisions toward evidence-based, cost-effective, appropriate medicines

Reduce AMR Risk

Promote selection of narrow-spectrum agents and discourage unnecessary CIA use

Education Tool

Form the basis for veterinary CE curricula and prescribing guidelines worldwide



What are Essential Medicines?

Definition

Essential veterinary medicines are defined as those that fulfil the primary healthcare and welfare requirements of food-producing animals, encompassing both veterinary medicines and vaccines

Developed by: WVA & Brooke (2024)

Importance of access to veterinary pharmaceuticals in animal health care

Access to safe veterinary pharmaceuticals is crucial for animal health globally

Quality medicines and vaccines are vital for disease prevention and animal welfare

Proper stewardship is needed for effectiveness

Veterinary medicines impact human health and the environment



Essential Veterinary Medicines list

Purpose And Scope	Medicines essential for animal health
Target	Several species of food producing animals
Regulatory & Policy Use	Guides national veterinary medicines and policies, use and procurement
Complementary	One health tool, zoonoses control, and antimicrobial resistance

WHO Essential Medicines List

Medicines essential for human health, addressing priority diseases and public health needs

Divided into adult and child medicines

Guides national essential medicines lists, procurement , reimbursement policies, and clinical guidelines

Addresses human public health priorities, including antimicrobial stewardship and access to medicines

Why Access to Essential Veterinary Medicine Matters

- Common challenges in accessing veterinary medicines
- Uneven geographical distribution of medicines
- Weak or fragmented supply chains
- Limited regulatory capacity and enforcement
- Shortage of veterinary services and professionals
- Informal or unregulated markets

= Inconsistent and inequitable access worldwide



Why Do Some Regions Struggle?

Availability

- Limited local production
- Import restrictions and supply disruptions
- Poor last-mile distribution (rural/ remote areas)

Affordability

- High medicine cost relative to income
- Lack of subsidies or financial support
- Out of pocket payments by farmers
- Diminazene aceturate
- Imidocarb dipropionate

Quality

- Circulation of substandard or falsified medicines
- Weak quality control and surveillance systems



Why It Matters

Animal Health

- Delayed or absent treatment – diseases spread
- Reduced Productivity and animal welfare
- Poor last-mile distribution (rural/ remote areas)

Public Health

- Increased risk of zoonotic disease transmission
- Misuse of medicines – antimicrobial resistance (AMR)

Livelihoods

- Economic losses for farmers and communities
- Threats to food security and resilience



EVML Categories & Key Medicines

Antimicrobials

First-line agents; CIAs excluded from routine use

- Penicillin G (injectable)
- Amoxicillin
- Trimethoprim-sulfa
- Oxytetracycline
- Procaine penicillin

Anaesthesia & Analgesia

Essential for welfare, surgery, pain management

- Xylazine
- Ketamine
- Lidocaine (local)
- Meloxicam / Flunixin
- Butorphanol

Anti-Parasitics

Endoparasites, ectoparasites, haemoparasites

- Albendazole / Fenbendazole
- Ivermectin
- Praziquantel
- Diminazene aceturate
- Imidocarb dipropionate

Biologics & Other Essentials

Disease prevention, obstetrics, emergency care

- Core vaccines (rabies, FMD, CDV)
- Oxytocin
- Dexamethasone
- Activated charcoal
- Vitamin B complex



Applying the EVML in Daily Practice

Prescribing Decision Framework

Step 1

Is a medicine necessary?

Confirm diagnosis; consider watchful waiting for mild/self-limiting conditions

Step 2

Is an EVML medicine available?

Default to EVML agent first; ensure appropriate spectrum for the indication

Step 3

Is empiric use justified?

If C&S not feasible, select first-line EVML agent; plan review at 48–72h

Step 4

Is a CIA the only option?

Only if EVML first-line agents failed or C&S demands it; document fully

Practical Tips

- ✓ Keep a printed or digital EVML reference in consult rooms
- ✓ Build EVML first-line options into practice management software defaults
- ✓ Document the clinical rationale whenever deviating from the EVML
- ✓ Use EVML as a teaching tool with students and new graduates
- ✓ Engage clients: explain why the simpler, first-line drug is the right choice
- ✓ Review the EVML annually alongside your local antibiogram data

Understanding Critically Important Antimicrobials (CIAs)

WHO Definition: CIAs are antimicrobials of critical importance to human medicine. Their use in animals poses the greatest risk of selecting for resistance that can transfer to humans via the food chain, environment, or direct contact.

TIER 1 — Critically Important

Examples: Fluoroquinolones, 3rd & 4th gen cephalosporins, Macrolides, Glycopeptides, Carbapenems, Polymyxins (colistin)

Practice Rule: Reserve for cases where no alternatives exist; CIA pre-authorization required

TIER 2 — Highly Important

Examples: Aminoglycosides, Streptogramins, Amphenicols, Lincosamides, 2nd gen cephalosporins, Monobactams

Practice Rule: Use with clinical justification; monitor outcomes; avoid prophylactic use

TIER 3 — Important

Examples: Penicillins, Tetracyclines, Trimethoprim combinations, Sulfonamides, Nitrofurans

Practice Rule: First-line options; preferred agents from the EVML; broaden only with culture support



When CAN You Use a CIA? A Decision Framework

✓ ALL of These Must Be Met

- ✓ Diagnosis is confirmed or strongly suspected based on clinical findings
- ✓ Culture & sensitivity performed or documented reason why not feasible
- ✓ First-line EVML agents have failed or are contraindicated
- ✓ CIA is supported by C&S results OR specialist / formulary guidance
- ✓ Valid VCPR exists and case records are fully documented
- ✓ No equivalent non-CIA alternative is available or effective

✗ Never Use a CIA For...

- ✗ Routine prophylaxis or growth promotion in food animals
- ✗ Convenience — when a first-line EVML agent would be effective
- ✗ Viral infections (e.g., uncomplicated feline URI, canine parvovirus)
- ✗ Minor, self-limiting conditions (superficial wounds, mild diarrhoea)
- ✗ Client request or to avoid the cost of C&S testing
- ✗ Extra-label use without documented clinical justification

CIA Drug Classes: Key Facts for Practitioners

Drug Class	Examples	Vet Indication	Key Restriction Rule
Fluoroquinolones	Enrofloxacin, Marbofloxacin, Pradofloxacin	Resistant UTIs, pyoderma, respiratory (last resort)	Never first-line; C&S required; avoid in growing animals
3rd/4th Gen Cephalosporins	Cefovecin, Cefpodoxime, Ceftiofur	Complicated wounds, resistant gram-negatives	Pre-authorization; document failed first-line therapy
Macrolides	Azithromycin, Tulathromycin, Tilmicosin	Respiratory infections (bovine, swine, equine)	Avoid extra-label in food animals; withdrawal period critical
Carbapenems	Meropenem, Imipenem	MDR gram-negative infections (referral only)	Restricted to specialist centres; culture mandatory
Polymyxins (Colistin)	Colistin sulfate	Historically: enteritis in food animals	Banned for growth promotion; WHO highest priority CIA

Source: WHO CIA List (2019), OIE/WOAH List of Antimicrobial Agents of Veterinary Importance

Documentation & Record-Keeping for CIA Prescriptions

What to Document

Patient signalment & diagnosis

Species, breed, age, weight; confirmed/presumptive diagnosis

Culture & sensitivity results

Lab ref number, date, organism, susceptibility pattern

Prior treatment history

First-line drugs tried, doses, duration, reason for failure

CIA selected & justification

Drug name, dose, route, duration; clinical rationale stated

Withdrawal period (food animals)

Meat/milk/egg withholding times communicated to owner

Follow-up plan

Date for reassessment; criteria for discontinuation

Why It Matters

Regulatory Compliance

VCPR and CIA prescribing records are subject to inspection in many jurisdictions

AMR Surveillance

Records feed into national/regional AMR monitoring programs

Continuity of Care

Enables de-escalation or therapy switch at follow-up review

Practice Auditing

Supports internal VASP audits and benchmarking against CIA use targets

Case Studies: Applying EVML & CIA Principles

Case 1
Canine Recurrent Pyoderma

Scenario
3-year-old Labrador with 3rd episode of skin infection in 12 months. Owner asks for 'the strongest antibiotic available.'

EVML Approach
Cefalexin (1st-line EVML) for 21 days — appropriate if C&S confirms susceptibility

CIA Guidance
Fluoroquinolone NOT indicated; MRSP suspected? Refer for dermatology C&S first

Key Learning
Culture before escalating. Educate owners that first-line drugs ARE effective when used correctly.

Case 2
Bovine Respiratory Disease (BRD)

Scenario
25 beef calves in a pen showing fever, nasal discharge, cough. Producer requests mass treatment.

EVML Approach
Oxytetracycline or Trimethoprim-sulfa for confirmed cases; vaccinate remainder

CIA Guidance
Tulathromycin (macrolide CIA) only if first-line fails + C&S supports; document

Key Learning
Metaphylaxis with CIAs drives resistance. Target treatment + biosecurity + vaccination is the EVML approach.

Case 3
Feline Lower Urinary Tract Disease

Scenario
6-year-old neutered male cat with dysuria. No urine culture performed. Vet considers enrofloxacin.

EVML Approach
Urinalysis + culture first. Amoxicillin-clavulanate (EVML) if bacterial UTI confirmed

CIA Guidance
Enrofloxacin contraindicated as empiric first-line for feline UTI

Key Learning
Most feline LUTS is non-infectious. Diagnostics before antibiotics saves unnecessary CIA exposure.

Knowledge Check — CE Assessment Questions

Q1. Which of the following is the MOST appropriate first step when a dog presents with a suspected bacterial skin infection?

Q1

A. Prescribe enrofloxacin empirically

B. Perform cytology ± culture & sensitivity before initiating therapy

C. Prescribe a broad-spectrum CIA to cover all possibilities

D. Advise the owner to wait and see for 2 weeks

Answer: B — Cytology and C&S guide targeted therapy; CIAs are not first-line for skin infections.

Q2. According to the WVA/Brooke EVML, which antimicrobial is considered an appropriate first-line agent for many bacterial infections in cattle?

Q2

A. Ceftiofur (3rd gen cephalosporin)

B. Enrofloxacin (fluoroquinolone)

C. Oxytetracycline

D. Imipenem (carbapenem)

Answer: C — Oxytetracycline is an EVML first-line agent; the others are CIAs not indicated as first-line.

Q3. Colistin (polymyxin) is classified by WHO as which type of CIA?

Q3

A. Important

B. Highly Important

C. Highest Priority Critically Important

D. Not restricted in veterinary use

Answer: C — Colistin is a Highest Priority CIA; it is banned for growth promotion and restricted globally.



CE MODULE SUMMARY

Key Takeaways

1

The WVA/Brooke EVML provides a minimum medicine set to guide rational, equitable, and responsible prescribing

3

CIAs (fluoroquinolones, 3rd-gen cephalosporins, colistin) carry the highest AMR risk for both animals and humans

5

Documentation of CIA prescriptions is a professional, regulatory, and stewardship obligation

2

Always default to EVML first-line agents — CIAs should only follow confirmed failure of appropriate first-line therapy

4

Culture & sensitivity is the cornerstone of responsible CIA use — diagnostics before escalation

6

Every prescribing decision is a One Health decision — veterinary antimicrobial use affects human medicine

"Use the right medicine, at the right dose, for the right duration — and reserve our last-resort drugs for last resort."



Thank you!