Austin Journal of Veterinary Science and Animal Husbandry

Open Access

Austin Publishing Group

Research Article

Cross-sectional Investigation on Irrational Use of Veterinary Drugs in Masha Woreda, Sheka Zone, South West Ethiopia

Melkamu Melese Megalo*
Addis Ababa University College of Veterinary Medicine and Agriculture, Bishoftu, Ethiopia

***Corresponding author:** Melkamu Melese, Addis Ababa University College of Veterinary Medicine and Agriculture, Bishoftu, Ethiopia
Email: melkamu.gsr-3632-17@aau.edu.et

Received: July 19, 2025
Accepted: July 28, 2025
Published: July 31, 2025

Abstract

Irrational use of veterinary drugs is a critical problem affecting animal health, public health, and the economy, especially in developing countries. This cross-sectional study was conducted from January to June 2025 in Masha woreda, Sheka Zone, South West Ethiopia, to assess the extent and factors contributing to irrational use of veterinary drugs in food-producing animals. The study involved interviews with 84 farmers, 14 veterinary clinicians, and 12 private veterinary pharmacists, representing an approximately 40% greater problem magnitude compared to previous studies in similar Ethiopian districts. Results reveal that 98% of farmers use veterinary drugs, with 35% self-medicating their animals at home without professional guidance. Drug sourcing from informal markets (black market) is alarmingly higher at 42%, with 96% of these drugs reported ineffective or causing treatment failure. Clinicians reported 85% insufficient drug availability and noted that 95% of treatments occur without laboratory confirmation or drug sensitivity tests. Moreover, 80% of pharmacists dispense drugs without prescriptions, often disregarding disease history. Key contributing factors include lack of veterinary supervision, limited access to qualified professionals, inadequate drug regulation, and low awareness among farmers. The study underscores the urgent need for policy enforcement, community education, and strengthening of veterinary services to mitigate the escalating irrational use of veterinary drugs in Masha woreda.

Keywords: Masha; Sheka; Veterinary Drugs; Irrational Use; Drug Resistance; Veterinary Service; Ethiopia

Introduction

Veterinary drugs are essential for managing animal health, welfare, and productivity. Rational use entails appropriate indication, dosage, duration, and adherence to treatment protocols, which minimizes risks such as drug resistance and adverse effects. However, irrational use characterized by improper dosing, inappropriate drug choice, self-medication, and sourcing from unregulated vendors remains widespread, particularly in developing nations [1]. Consequences include increased antimicrobial resistance, treatment failures, economic losses, and public health threats [2,3]. However, irrational use remains a pervasive challenge, particularly in developing countries like Ethiopia, where limited access to veterinary services, poor regulation, and low awareness among farmers contribute to misuse [3,4].

Irrational use includes self-medication by farmers, use of drugs from unregulated sources such as black markets, incorrect dosing, and inappropriate drug selection. Such practices have been linked to treatment failures, emergence of resistant pathogens, drug residues in animal products, and public health risks [5,6]. Previous studies conducted in Ethiopian districts, including Adami Tulu Jiddo Kombolcha, have documented these issues, showing up to 20% of farmers self-treat animals and a significant proportion sourcing drugs from informal markets [1].

Masha woreda, Sheka Zone, with its significant livestock population and reliance on animal agriculture, is vulnerable to the consequences of veterinary drug misuse. Unlike prior studies conducted in East Shoa Zone (e.g., Adami Tulu Jiddo Kombolcha district), preliminary observations indicate a more severe problem in Masha woreda, necessitating detailed quantification and analysis.

This study aims to assess the irrational use of veterinary drugs in Masha woreda Sheka Zone, identify associated factors from the perspectives of farmers, veterinary clinicians, and pharmacists, and compare the problem's magnitude to existing data from similar Ethiopian contexts.

Masha Woreda in Sheka Zone, South West Ethiopia, is an important livestock-producing area with unique socio-economic and ecological settings that may exacerbate irrational veterinary drug use. Despite its significance, limited data exist on the extent and drivers of irrational drug use in this locality. This study aims to assess the irrational use of veterinary drugs in Masha woreda, Sheka Zone, identify associated factors from the perspectives of farmers, veterinary clinicians, and pharmacists, and compare the problem's magnitude to existing data from similar Ethiopian contexts.

Citation: Melkamu Melese Megalo. Cross-sectional Investigation on Irrational Use of Veterinary Drugs in Masha Woreda, Sheka Zone, South West Ethiopia. Austin J Vet Sci & Anim Husb. 2025; 12(3): 1173.

Materials and Methods

Study Area

Masha, Sheka Zone is located in South West Ethiopia, characterized by mixed crop-livestock farming systems and a diverse livestock population. The zone experiences bimodal rainfall and has significant geographical challenges impacting veterinary service delivery.

Study Design and Population

A cross-sectional descriptive study was conducted between January and June 2025. The study population included livestock farmers, veterinary clinicians, and private veterinary pharmacists within the zone.

Sampling and Data Collection

Using a three-stage sampling technique, 84 farmers from seven peasant associations and 14 veterinary clinicians (government and private) along with 12 private veterinary pharmacists were randomly selected. Data were collected through structured questionnaires, adapted from Feyyisa Koji *et al.* [1] and translated into local languages for effective communication. The questionnaire addressed drug use practices, sources of drugs, awareness levels, regulatory issues, and challenges faced by veterinary service providers.

Data Analysis

Data were entered into SPSS v25 and analyzed using descriptive statistics and chi-square tests to assess associations between drug sources, treatment outcomes, and other variables. Results were considered significant at $P < 0.05$.

Results

Veterinary Drug Use

Among Farmers out of 84 farmers interviewed, 82 (97.6%) reported using veterinary drugs. Among these, 29 (35%) self-administered drugs at home without professional consultation, representing a 75% increase compared to 20% reported in the Adami Tulu district [1] (Table 1).

Table 1: Use of Veterinary Drugs and Self-Administration among Farmers in Masha Woreda, Sheka Zone, 2025.

Drug Use Variable	Number (n)	Percent (%)	Previous Study (%) (Adami Tulu)
Farmers using veterinary drugs	82/84	97.6	95 (approx.)
Self-administering drugs at home	29/82	35.4	20

Table 2: Sources of Veterinary Drugs and Reported Treatment Outcomes among Farmers.

Source of Drug	Number (n)	Percent (%)	Previous Study (%)
Black market	35/84	41.7	30
Veterinary pharmacy/clinic	(not specified)	(rest)	(not specified)
Treatment Outcome (Black Market Drugs)	**Number (n)**	**Treatment Outcome (Black Market Drugs)**	
No clinical response	34/35	97.1	

($\chi^2 = 45.789$, $P < 0.001$).

Table 3: Veterinary Clinicians and Pharmacists Perspectives.

Variable	Number (n)	Percent (%)
Clinicians noting insufficient drug availability	12/14	85.7
Treatments without laboratory confirmation/ sensitivity	13/14	92.9
Pharmacists dispensing without prescription	10/12	83.3

Sources of Veterinary Drugs and Treatment Outcomes

Drug sourcing from the black market was reported by 35 (42%) farmers, significantly higher than the 30% previously documented. A striking 96% of these farmers reported no clinical response following treatment with black market drugs. Drugs obtained from veterinary pharmacies and clinics were reported ineffective by 18% and 22% of farmers, respectively (Table 2). Statistical analysis confirmed a strong association between drug source and treatment success ($\chi^2 = 45.789$, $P < 0.001$).

Drug Regulation and Veterinary Service Challenges

Farmers identified drug supply shortages (78%), lack of veterinary supervision (75%), and poor access to qualified veterinary professionals (80%) as key factors contributing to irrational drug use (Table 3).

Veterinary Clinicians' Perspective

Among 14 clinicians interviewed, 85% reported insufficient drug availability, and 95% acknowledged that laboratory diagnostics and drug sensitivity testing were rarely performed before treatment. Additionally, 28% reported treating animals based on farmer demands rather than professional judgment (Table 3).

Pharmacists' Practices

Of the 12 pharmacists, 10 (83%) admitted selling drugs without prescriptions, and 9 (75%) did not require disease history before drug dispensation, indicating poor adherence to regulatory standards (Table 3).

Discussion

Drug access is a combination of three factors: availability, affordability and rational use. In developing countries, drugs of standard quality are not available; the majority of the population cannot afford the high cost of the available drug therapies; and drugs are not rationally used [7]. In biomedical context the following criteria may be used to qualify an act as rational use of drugs [9]; appropriate indication, appropriate drug, appropriate dosage, appropriate patient, correct dispensing and patient adherence to the treatment.

The present study conducted in Masha Woreda, Sheka Zone highlights an alarming level of irrational veterinary drug use, with indicators such as self-administration and black market drug reliance exceeding those previously recorded in other Ethiopian districts. Specifically, 35% of farmers reported self-medicating animals (compared to 20% in Adami Tulu, East Shoa Zone), and 42% relied on black market drugs, with a 96% failure rate in treatment efficacy signaling a growing and severe problem. The findings reveal a markedly worsened scenario of irrational veterinary drug use in Masha woreda, Sheka Zone compared to the Adami Tulu Jiddo Kombolcha district [1]. The higher rates of self-medication, black market drug reliance, and lack of professional veterinary involvement exacerbate risks

such as antimicrobial resistance and treatment failure, with profound economic and public health implications.

The predominance of black market drugs, often substandard or expired, and the widespread lack of adherence to rational drug use principles highlight systemic weaknesses in veterinary supply chains and regulatory enforcement. Clinician and pharmacist practices underscore the urgent need for capacity building, professional training, and stricter regulation.

The significant statistical associations between drug source and treatment outcome reinforce the call for improved drug quality control and responsible dispensing practices.

Conclusion and Recommendations

The study's overall findings show that several significant forms of irrational veterinary drug use are prevalent in the area, largely driven by actions taken independently by both farmers and animal health professionals. Globally, but especially in developing countries where resources and qualified personnel are limited, inappropriate use of veterinary medicines is a widespread issue. In this study context, major contributing factors to irrational drug practices include the presence of unregulated black market drug vendors, low literacy among farmers, poor access to animal health services, and shortages of veterinary equipment. These challenges collectively encourage both community members and animal health practitioners to misuse veterinary drugs. The irrational use of veterinary drugs in Masha woreda, Sheka Zone is alarmingly high, with problem indicators approximately 40% worse than previously reported in comparable Ethiopian settings. Key drivers include unregulated drug markets, inadequate veterinary services, and low awareness among farmers and veterinary professionals.

Recommendations

- Strengthen regulatory enforcement to control illegal veterinary drug sales, particularly black market operations.
- Expand veterinary education and training programs to increase qualified personnel availability.
- Enhance veterinary clinic infrastructure with laboratory diagnostic capabilities to guide targeted treatments.
- Conduct community awareness campaigns emphasizing the dangers of irrational drug use and benefits of professional veterinary care.

Implement continuous monitoring and evaluation systems to track veterinary drug use and resistance trends.

Declarations

Acknowledgements

We extend our sincere gratitude to the Masha woreda Livestock and Fisheries Development Office for facilitating data collection, and to all study participants for their valuable cooperation.

Abbreviation

WHO: World Health Organization, FAO: Food and Agricultural Organisation, OIE: World Organisation for Animal Health

Data Availability: Data will be made available on request.

Ethical Consideration: Authors approved to participate in this review and in the manuscript.

Consent for Publication: Authors approved this manuscript to be published.

Funding Information: Masha Woreda Agricultural office.

References

1. Feyyisa Koji A, Kumbe A Beyene. Cross-sectional Assesses on Irrational Use of Veterinary Drugs in Adami Tulu Jiddo Kombolcha Distrct, East Shoa Zone, Oromia Regional State, Ethiopia. International Journal of Biomedical Science and Engineering. 2020; 8: 22-27.
2. World Health Organization (WHO). Rational use of medicines. 2010.
3. Amin N. Use and misuse of antibiotics. Ibrahim Cardiac Medical Journal. 2011; 1: 7-9.
4. Kardas P, Devine S, Golembesky A & Roberts C. A systematic review and meta-analysis of misuse of antibiotic therapies in the community. International Journal of Antimicrobial Agents. 2005; 26: 106-113.
5. Widayati A, Suryawati S, Decrespigny C & Hiller JE. Self-medication with antibiotics in Yogyakarta City Indonesia: A cross-sectional population-based survey. BMC Research Notes. 2011; 4: 491.
6. FAO/OIE/WHO. Expert workshop on non-human antimicrobial resistance: scientific assessment. Geneva, Switzerland. 2003.
7. Vazquez ECS. Increasing Drug Access for the Poor Using Generic Drugs: Regulation and Policy Alternatives. 2003; 108-112.