

## Original Research Article

# Assessment of veterinary drugs dispensing practices in veterinary clinics in Gondar town, North West Ethiopia: a cross sectional study

Birhanu Berihun Kidanu<sup>1</sup>, Dak Chuol Cay<sup>1</sup>, Zemene Demelash Kifle<sup>2\*</sup>

<sup>1</sup>University of Gondar, College of Veterinary Medicine and Animal Sciences, Department of Veterinary Pharmacy, Gondar, Ethiopia

<sup>2</sup>University of Gondar, College of Medicine and Health Sciences, School of Pharmacy, Department of Pharmacology, Gondar, Ethiopia

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**\*Correspondence:**

Zemene Demelash Kifle,

E-mail: zeme2010@gmail.com

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## ABSTRACT

**Background:** Dispensing practice plays a major role in the provision of rational drug therapy. This study aimed to assess the veterinary drug dispensing practice by pharmacists and other veterinarian assistance in veterinary clinic Gondar town.

**Methods:** A cross-sectional prospective descriptive study was carried out in the OPD of three public veterinary clinics in Gondar town for three months. The health facility indicators were examined by ensuring the good dispensing practices in three veterinary clinic and availability of essential drug list.

**Results:** The average consultation time was 13 min and 50 sec. The average dispensing time was 5 min and 3 sec calculated from 100 prescriptions. The percentage of drugs dispensed was 97.50% and percentage of drugs adequately labeled was high from the dispensed drugs (74.4%). The average patients with drug dosage knowledge were very low (25%). The result of the study revealed that the two veterinary clinic health facilities do not have any essential drug list. Out of three, one of them has a key drug from the WHO list 1 (30%) drug was available.

**Conclusions:** The overall good dispensing practices at three veterinary clinics is low. Training, supportive supervision through continuous medical education, regular up-to-date medicine information and standard treatment guideline, and therapeutic audit are required for improvement of medicine use by prescriber and dispensers.

**Keywords:** Dispensing, Drugs, Practice

## INTRODUCTION

Dispensing practice plays a key role in the stipulation of rational drug therapy. It begins with interpretation of prescriptions followed by preparation and labeling of medications, advice and counseling, handing over of medicine to patients for use as per direction and concludes when appropriate records are made.<sup>1</sup> Good dispensing practice ensures that the correct drug is delivered to the right patient in the required dosage and

quantities with clear instructions and a package that maintains integrity of drug.<sup>2</sup> Dispensing is defined as any process of preparing and giving medicine to a named person on the basis of a prescription. It involves the correct translation of the instructions of the prescriber and the accurate preparation and labeling of medicine for use by the patient.<sup>3</sup> This process may take place in a community pharmacy setting, hospital, health center, public or private clinic or in a shop. Also, it can be carried out by many different kinds of people with variety of training or background.<sup>4</sup>

The role of pharmacist in the community includes more than just dispensing medications. Poor dispensing practice by pharmacist can lead to serious problems that can be avoided by appropriate training therefore, pharmacists through good dispensing practice have a unique opportunity to maintain good health, to a void ill health and to make the use of medicine.<sup>5</sup>

The problem in dispensing of veterinary drug practice are non-rational use of drug, which is a problem, which already existed for a long time in the clinical practices in human and veterinary medicine. Although this issue was on many occasions subject of discussion on the numerous symposiums and congress, it is still very current, may be even more than before.<sup>6</sup>

Irrational use of drugs or poly pharmacy invite medicine-induced diseases like adverse drug reactions (ADR) and studies done in difference areas of the world reveal different drug use pattern.<sup>7</sup> Irrational or over use of medicines can stimulate in appropriate patient demand and lead to reduce access and attendances rates due to medicine stock out and loss of patient confidence in health.<sup>8</sup> This is the first study of its kind in Gondar that aimed at assessing and evaluating the dispensing practice provided by pharmacists and pharmacy assistants in veterinary clinics at Gondar town.

## **METHODS**

### ***Study design, study area and periods***

A cross-sectional study was conducted in three veterinary clinics which are found in Gondar. Gondar is one of the most historical places which found 727 km far from the capital city of Ethiopia. The study was conducted from 1 April to 25 June 2019. The town consisted of three public veterinary clinics.

### ***Inclusion criteria and exclusion criteria***

Pharmacy personnel with a diploma and above in pharmacy that worked on veterinary clinics in Gondar town and willing to complete the study questionnaire were included. However, pharmacy personnel who had work experience of fewer than six months were excluded from the study.

### ***Sample size determination and sampling techniques***

All pharmacy professionals that met the inclusion criteria were included in the study.

### ***Examining of patient care indicators***

Patient care indicators such as average consultation time, average dispensing time, percentage of patients' knowledge of correct dosage were collected.

### ***Average consultation time***

Investigators accompanied 100 appointments (100 appointments with general clinicians). Time was measured using a stopwatch and the amount of time the patient spent in the consultation room was recorded in minutes. Following WHO recommendations, we included the first patients seen by each prescriber. Data collection was possible only in facilities in which the physical infrastructure allowed us to distinguish the exact moments in which the patients were called to and left the consultation room.

### ***Average dispensing time***

Average dispensing time was measured in which 100 patients were accompanied in each period of the day (morning/afternoon), totaling 3 dispensations. This indicator was investigated only in units whose structure allowed the investigator to listen to the dialogue between owner and clerk. The time consumed with writing on files or with subjects unrelated to the drug being dispensed was not considered. A stopwatch was used and time was recorded in seconds.

### ***Percentage of drugs actually dispensed***

In order to calculate the percentage of medication dispensed, we used the same prescriptions used for calculating prescribing indicators. In total, 195 drugs were dispensed. Dispensed medications identified as free samples were not included.

### ***Examining of owners knowledge***

As the patients left the outpatient clinics, the investigator would then instruct the patient to collect the prescribed drug from the veterinary clinics and to meet the owner of animal again to record data for the patient care indicators. Informed consent was obtained from the patients after simple and clear explanation of the research objectives and methodology. The questionnaires had close ended questions and consist of identification.

Patients' knowledge of the correct dose of the drugs dispensed to her/him immediately after leaving the dispensing window was tested. They were asked to show the drugs given to them, which were recorded by the investigators. Prospective data from 100 interviews were held discretely in the drug information center, where pharmacist would record the data on predesigned WHO forms.

### ***Examining of health facility indicators***

For health facility indicators observation was performed to ensure the availability of essential drug list and key drugs in the stock.

### Data analysis

All prescriptions obtained from the three veterinary clinics and outpatient departments of the selected patients, dated from April 2019 to June 2019 were recorded and entered into a personal computer. Data was analyzed using Microsoft excel. Indicators were calculated based on the following ratios.

#### Patient care indicators

$$\frac{\text{Average consultation time}}{\text{total time for a series of consultations}} \times 100.$$

$$\frac{\text{Average dispensing time}}{\text{total time for dispensing drugs to series of patients}} \times 100.$$

$$\frac{\text{Percentage of drugs actually dispensed}}{\text{(number of drugs actually dispensed)}} \times 100.$$

$$\frac{\text{Percentage of drugs adequately labeled}}{\text{(number of drugs adequately labeled)}} \times 100.$$

$$\frac{\text{Percentage of patients who can adequately report the dosage schedule for all drugs}}{\text{(number of patients who can adequately report the dosage schedule for all drugs)}} \times 100.$$

#### Health facility indicators

A national essential drugs list or a local formulary must exist for that level of care; if not, the indicator would always be scored no. Calculation: yes (or) no, per veterinary clinic facility.

$$\frac{\text{Availability of key drugs}}{\text{(number of specified drugs actually in stock)}} \times 100.$$

Included to measure the availability of a more complete range of essential drugs data were coded, checked for completeness and consistency.

#### Ethical consideration

The confidentiality of data obtained was assured starting from the design of data collection tool by making sure that no direct prescriber or dispensary and owner of animal identifier were gathered.

#### Operational definition

Drug means any substance or mixture of substances used in the diagnosis, treatment, mitigation or prevention of a disease in man or animal.

Prescription is an order for medication issued by authorized medical practitioner (physicians, veterinary doctors, dentists).

Prescriber means any medical practitioner who is licensed or authorized to write prescription. Dispensing means to prepare drugs and/or medical supplies and distribute them to their users.

Oral request means verbal request of care providers or animal owners for drugs or medical supplies without presenting a prescription. Patient means a person or an animal with ill health.

ADR means a noxious and unintended effect of drug that occurs in doses normally used in humans or animals for the diagnosis, prophylaxis or treatment of disease.

Generic drugs are the essential veterinary drug list of Ethiopia is used as a basis to determine drugs as generic or brand name.

Antibiotics any of various chemical substances such as penicillin, streptomycin, chloramphenicol and tetracycline produced by various microorganisms, especially fungi or made synthetically and capable of destroying or inhibiting the growth of microorganisms, especially bacteria when used in the context of antibiotics.

## RESULTS

The present study revealed that the average consultation time was 13 minutes and 50 seconds and the average dispensing time was 5 minutes and 3 seconds calculated from 100 prescriptions. The percentage of drugs dispensed by the practitioners' was 97.50% and the percentage of drugs adequately labeled by the professionals was high in the dispensed drugs (74.4%). However, the average patients with drug dosage knowledge were very low (25%).

The result of the study revealed that the veterinary clinics do not have any essential drug list. Out of the three veterinary clinics, two of them do not have key drugs and one veterinary clinic has both key drugs and national drugs. Due to that the average dispensing time, average consultation, percentage of drugs dispensed and percentage of drugs adequately labeled were calculated based on the ratio which was mentioned above. The figure was drawn based on number of patient, availability of key drug or essential drug, national drugs list and patient knowledge based on name of drug, dose of drug, duration of treatment, frequency of administration, knowledge on possible side effect and advice regarding the proper use of your medicines.

When examined patient's perception about the outpatient dispensed medicines, 88% of the participants reported that they cannot remind the name of the drug. Ninety five

percent did not know the dose of drug, hundred percent of patient's claimed that they did not know the side

effects of the drugs and they are not receiving any advice regarding proper use of medicines.

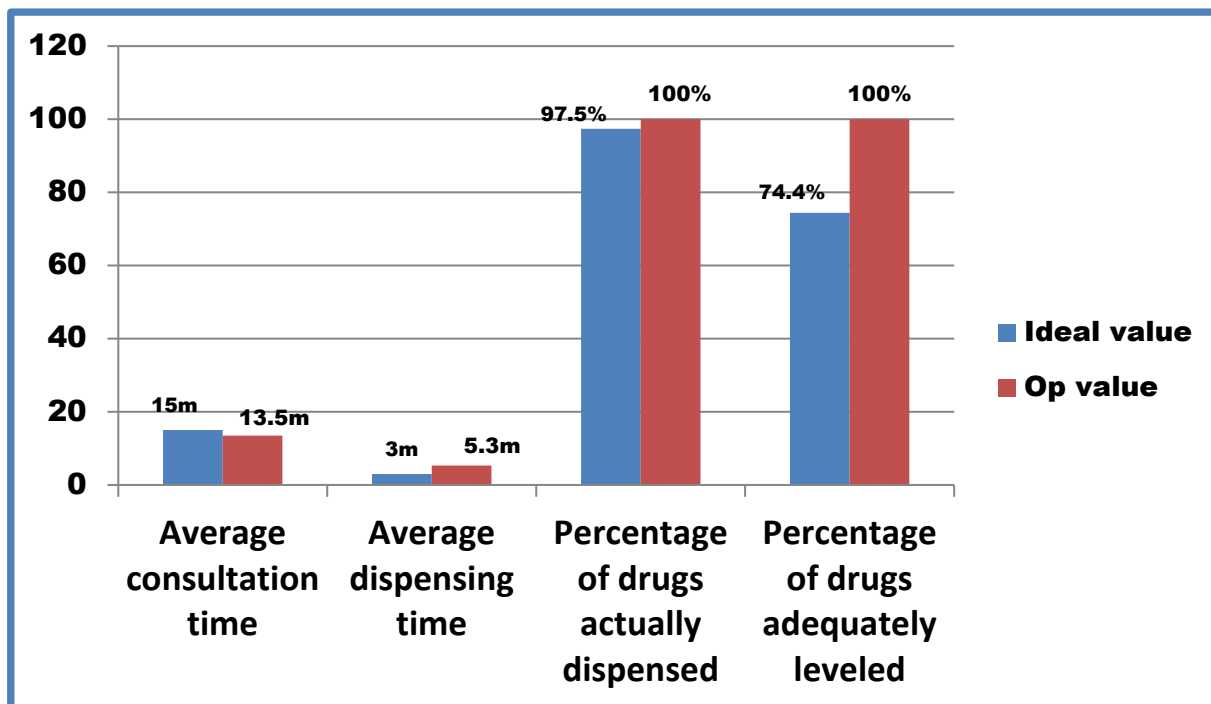


Figure 1: Patient care (N=100).

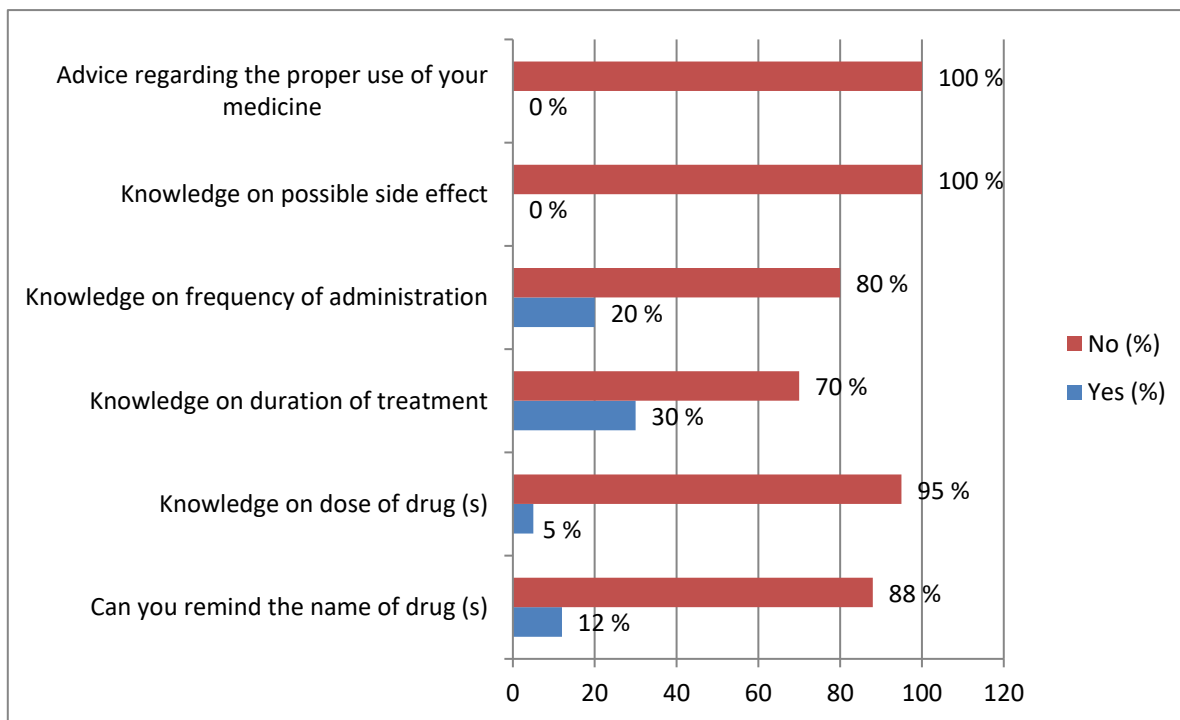


Figure 2: Patient perception about outpatient pharmacy dispensed drugs (N=100).

Table 1: Health facility indicator.

Sr. No.	Parameters	Indicator result	Ideal value
1.	Availability of essential copy of drug at health facility	No	Yes per facility
2.	Availability of key drugs	30%	100%

## DISCUSSION

Dispensing practices influence the patient's compliance and thereby therapeutic success or failure.<sup>9</sup> In the current study, 97.5% of prescribed drugs were dispensed, which was higher than the figure reported in Indian and Brazil (60.3%).<sup>10</sup> The percentage of drugs adequately labeled by the professionals was (74.4%). However, much lower figure was reported in Tanzanian (21.4%).<sup>7</sup> The current findings showed that, only 25% of patients know the correct dosage schedule. Similar study conducted in Indian and Western Nepal reported that (81%) of patients know the correct dosage schedule. An appropriate diagnosis is an important component in the rational drug therapy.<sup>11</sup> For correct diagnosis, clinicians should spend more time in evaluating the signs, symptoms and laboratory investigations.<sup>12</sup> In the present study, the consultation time was found to be 13.50 minutes which was below the recommended time (15 minutes). Although this duration was longer than the study conducted in Brazilian (9.2 min). This did not necessarily mean that patients received better care, since number of factors may influence the result of this indicator.<sup>9</sup>

WHO recommended that pharmacist should spend at least 4 minutes in orienting each patient.<sup>13</sup> Therefore, in the present study, the average duration of dispensing time was 5.3 minutes which was in fact adequate for proper pharmaceutical orientation. Some inadequacy was reported in Indian and Western Nepal (52 seconds), Brazil (18.4 seconds) and Southwest Ethiopia (1.3 minutes). The availability of key drugs was not ensured in the present study (30%) which was lower than the WHO value (100%). However, the study conducted in India showed that the availability of key drugs was optimal (100%).<sup>14</sup>

Any drug utilization study based on the WHO core drug use indicators has limitations. Determining the quality of diagnosis and evaluating the adequacy of drug choices was beyond the scope of the prescribing indicators. Also, the patient care indicators did not capture many fundamental issues related to the quality of examination and treatment. Therefore, the drug dispensing system in the health facility should be evaluated in order to improved efficiency of the dispensing practices which is essential for patient care.<sup>15</sup> Furthermore, dispensing practices specifically labeling affect patient knowledge which could in turn affect adherence.<sup>16</sup> The average dispensing time in this study was found to be short (5 seconds) which was comparable with dispensing time in Botswana (25 seconds) and Sudan (21.8 seconds) and Pakistan (52.5 seconds).<sup>2</sup> The unsatisfactory labeling and gaps in patient knowledge observed or examined in this study could be attributed to the short dispensing time. Therefore poor dispensing practice by pharmacist can lead to serious problems that can be avoided by appropriate training.<sup>17</sup> Pharmacists through good dispensing practice have a unique opportunity to maintain good health, to avoid ill health and to make the best use

of medicine. In dispensing a prescription, a pharmacist has to exercise an independent judgment to ensure the medicine is a safe and appropriate for the patient as well as that it conforms to the prescriber requirement.<sup>18</sup> Several reports from both developed and developing countries indicated that incorrect dispensing, self-medication and use of sub therapeutic doses to be major causes of irrational drug use.<sup>19</sup> Since pharmacists provided drugs information during dispensing, they had substantial role in avoiding medication misuse and latent error. Furthermore, the quality of counseling offered can improve treatment safety and patient compliance as it can improve patients understanding about the use and side effects associated with medications prescribed.<sup>1</sup> In Ethiopia, poor understanding about medications leading to non-adherence was a common phenomenon indicated by different studies.<sup>20</sup> This might have been attributed by poor dispensing practices in the current study.

In the present study, ninety five percent of the respondents did not know the dose of drug, hundred percent of patient's claimed that they did not know the side effects of the drugs and they were not receiving any advice regarding proper use of medicines. During dispensing process, patients' well-being and their drug-related needs were the primary concern of the pharmacist. Pharmacists dispense medicine for the purpose of achieving definite outcomes that would improve the patients' quality of life. These outcomes were either curing the disease, reducing or eliminating symptoms, arresting or slowing disease progression or preventing diseases or symptom.<sup>3</sup> However, if any error or failure in the dispensing process occurs, this can result in an unpredictable adverse drug reaction, increases in morbidity, mortality or increases health care cost and seriously affect the care of the patient. Pharmacists provide appropriate information to the patient about the rationalized use of medication or intervene in case of problems.<sup>4</sup> The role of pharmacists in the community includes more than just dispensing medications. It involves identifying, preventing and resolving drug-related problems as well as encouraging proper use of medications, general health promotion and patient education, thus improving clinical outcome. Poor dispensing practices by pharmacist can lead to serious problems that can be avoided by appropriate training. Therefore, pharmacists through good dispensing practice have a unique opportunity to maintain good health, to avoid ill health and to make the best use of medicines.<sup>21</sup> Additionally, to be an effective dispenser he/she needs an adequate drug supply, dispensing equipment, a relationship with the prescriber and status in the community.<sup>22</sup>

### Limitations

As the study was a cross-sectional and depended on self-reported assessment, under-reporting was more likely to occur. This study did not include the attitude, awareness

of the participants towards veterinary drug dispensing practice.

## CONCLUSION

In this finding it is possible to conclude that irrational dispensing practice like dispensing of poorly labeled drugs and lack of patient counseling were occurred in three veterinary clinics. In addition, illegible prescription was the most commonly encountered practice on prescription during dispensing. The main causes of dispensing error were illegible prescription, lack of professionalism and brand name similarity. Training, supportive supervision through continuous medical education (CME), regular up-to-date medicine information and standard treatment guideline, and therapeutic audit are required for improvement of medicine use by prescriber and dispensers.

## Recommendations

Based on the above findings and conclusions the following recommendations were forwarded. Dispensing personnel must receive an appropriate level of training, which will enable them to correctly dispense the range of medicine prescribed in the facilities to minimize the factor that affect the dispensing. Dispensers should also be trained about good dispensing practice to decrease dispensing errors. Further interventional studies should be conducted in order to develop corrective action plans, regulations and policies.

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