

(RESEARCH ARTICLE)



## Major livestock health constraints and veterinary service delivery system in Arbegona, district of Sidama Region, Ethiopia

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### Abstract

A study was conducted in 2019 G.C in Sidama Region, Arbegona woreda to identify existing constraints of livestock health and veterinary service delivery system to recommend intervention strategies for sustainable improvement of animal health service delivery. Data were collected by using pre-tested questionnaires, focus group discussion, retrospective data from woreda and observation of infrastructures. The result showed that Mastitis, Ovine Pasteurellosis and Newcastle diseases were the first ranked diseases of cattle, sheep and poultry, respectively in the study area. Most veterinary service delivery centers lacked appropriate facilities to restrain and handle clinical cases and they were not well equipped. 95% of the clinical cases were diagnosed only based on the clinical signs or history alone. Based on veterinarian's response, shortage of diagnostic and treatment materials including drugs (100%), lack of drug handling and storage room (75.5%) and budget shortage (42.8%) were management related problems while home service need of farmers (85.7%) and less interest of farmers in paid vaccination (64.3%) were farmers' related constraints. Whereas lack of commitment were the veterinarian related constraints raised by veterinarians themselves. The five years annual budget allocation was very low compared to the planned budget every year in government veterinary clinic. Fulfilling the necessary equipments for diagnosis and treatment, controlling smugglers, crush development in each kebele, awareness creation for farmers and capacity building of animal health assistants could help in improving the livestock health problems and quality of veterinary service delivery system in the district.

**Keywords:** Livestock; Constraints; Veterinary; Service; Delivery

### 1. Introduction

Livestock play a suppressing role in adding a stability of farm incomes, food security, farming systems, as form of insurance and a means of storing savings [8]. But animal diseases are one of the major constraints in livestock productivity in the developing country, mainly because of poor livestock health services [5]. Transboundary and zoonotic animal diseases significantly hinder the development of livestock sector and they also expose producers to high livelihood risks and uncertainties [6].

Delivery of quality and affordable veterinary services is one of the effective means of enhancing livestock productivity [1]. Veterinary services are important for the stable and sustainable development of a safe and fair world food system, by improving animal and veterinary public health. Healthy animals with good welfare (and their safe products), as supported by strong Veterinary Services can thus provide a sustainable pathway out of poverty by increasing market participation, enhancing smallholder and pastoral productivity and improving food safety and security and general wellbeing for communities globally[2].

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Though government veterinary institutions in Ethiopia traditionally provide basic animal health services, they generally encounter financial shortfalls limiting their ability to deliver sustainable animal health services [10]. According to a study [7], veterinary services must have the capacity to prevent, control and respond to emerging infectious zoonotic pathogens in a sustainable manner, at source in their animal hosts; otherwise the entire global community is more vulnerable to human epidemics and, in the worst case scenario, pandemics. But consequently in Ethiopia, the majority of diseases interventions consist of mass inoculations following outbreaks rather than preventive measures.

A constraint of livestock health and veterinary service delivery in Arbegona was not studied earlier. Since the Veterinary Services ensure the protection of livestock, it plays a major role in the financial and social wellbeing of people. Therefore, this study was conducted to identify existing constraints of livestock health and veterinary service delivery system to recommend intervention strategies for sustainable improvement of animal health service delivery in the study district.

## 2. Material and methods

### 2.1 Study area description

The study was conducted in Arbegona, district of Sidama Region, Ethiopia. It is located about 300 km south of Addis Ababa. The altitude varies from 2001-3500 m.a.s.l. The area experience mean annual temperature of about 10-17.5°C. The mean annual rainfall ranges from 1401-1600 mm. Total livestock population in the district during the study period were Cattle 230,861, Sheep 83,140, Goat 3,518, Poultry 56,508, Equine 2,535 and Bee hive 5,173 [2].

### 2.2 Data collection

Questionnaire survey, focus group discussion, retrospective data and observations were conducted to collect data. Semi-structured questionnaire was designed and veterinarians were interviewed. Focus group discussion was conducted at each selected peasant associations farmers according to the principle of participatory rural appraisal [9]. Each focus group discussion was composed of 12 discussants. A checklist (based on standards set by the regional bureau of agriculture) was prepared and both private and government animal health service delivery centers operating during the study period was observed for all available premises and facilities. Retrospective data over 5 years were collected from the agricultural district offices in order to assess budgetary and administrative constraints relating to planned activities and the ability to implement them with the available resources.

### 2.3 Data analysis

The data collected were entered in to MS-Excel 2000 computer program. The analysis and summarization of the data was made using simple descriptive statistics.

## 3. Results and discussion

Cattle and poultry were the major economically important livestock species in Arbegona (Figure 1). In contrast with this study, study [4] reported that poultry comprise the largest proportion of the livestock herd followed by sheep in Gantaafeshum Woreda, Eastern Zone of Tigray.

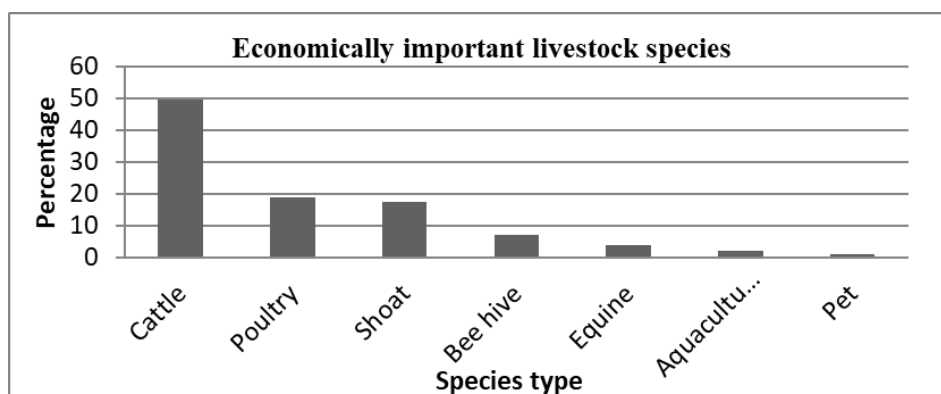


Figure 1 Economically important livestock species

### 3.1 Major livestock diseases, common vaccines and frequently vaccinated animals

Mastitis, Ovine Pasteurellosis and Newcastle diseases were the first ranked diseases of cattle, sheep and poultry diseases in the study area, respectively (Table 1). A study [3] reported that Foot and Mouth Disease, Pasteurellosis and Anthrax were the major cattle diseases in Astbiwomberta, Tigray region of Ethiopia. Similar findings were reported by [4] and [5] that Newcastle was the most prevalent poultry disease in Gantaafeshum Woreda, Eastern Zone of Tigray and North Gondar, Ethiopia, respectively.

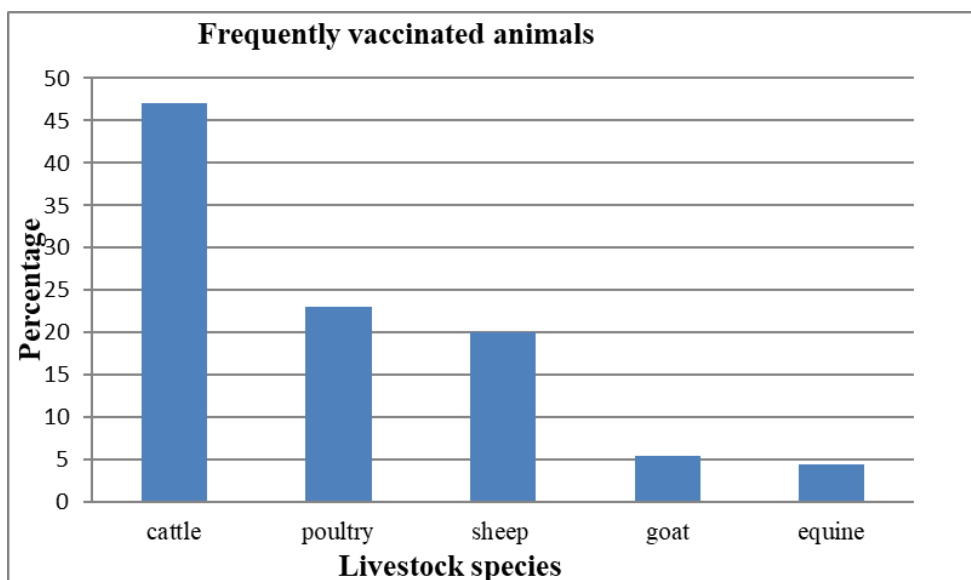
Common vaccines given to animals in the study area are listed in Table 2 and Cattle and poultry were frequently vaccinated animals followed by Sheep (Figure 2).

**Table 1** Major livestock diseases (pair wise ranking system)

Species	Major livestock diseases	Rank
Cattle	Bovine Pasteurellosis	2 <sup>nd</sup>
	Mastitis	1 <sup>st</sup>
	Foot and mouth disease	6 <sup>th</sup>
	Lumpy skin disease	7 <sup>th</sup>
	GIT parasites	5 <sup>th</sup>
	Cowdriosis	3 <sup>rd</sup>
	External parasite(Tick)	4 <sup>th</sup>
Sheep	Ovine pasteurellosis	1 <sup>st</sup>
	GIT parasites	3 <sup>rd</sup>
	Circling disease	2 <sup>nd</sup>
	Orf	4 <sup>th</sup>
Poultry	Newcastle disease	1 <sup>st</sup>
	Fowl cholera	2 <sup>nd</sup>
	Fowl typhoid	3 <sup>rd</sup>

**Table 2** Common vaccines for animals

Species	Common vaccines
Cattle	Bovine Pasteurellosis
	Black leg
	Foot and mouth disease
	Lumpy skin disease
	Anthrax
	External parasite(Tick)
Sheep and goat	Ovine pasteurellosis
	Sheep and goat pox
Poultry	Newcastle disease



**Figure 2** Frequently vaccinated animals

### 3.2 Practices and premises in veterinary service delivery centers

There were three animal health posts, 1 governmental veterinary clinic, 36 animal health assistants, 3 veterinary drug shops and 1 private vet clinic in the woreda.

Vaccination, Clinic service (Treatment, castration, minor surgery, pregnancy diagnosis and delivery service) and Abattoir service (Ante mortem and post mortem) were the existing practices that have been doing in the government veterinary service delivery centers. Only clinic service has been conducted in private service delivery center. Minor surgical procedures were performed in government service delivery center using local anesthetic agents.



**Figure 3** Surgical procedures performed in the district

A thermometer and stethoscope was the only instrument available for the diagnosis of diseases in the study area. A study [5] also reported that a thermometer was the only instrument available in all the clinics of North Gondar Ethiopia. The only antibiotics found in the veterinary clinic and health posts were penstrip, oxytetracycline and sulphonamides. The anthelmintics found were Albendazole, Tetramisole and Ivermectin and there were no antifungal agents. The disinfectants were Alcohol, Savlone, Iodine and Gentian violet.

Most farmers in the study area practiced going to veterinary clinic when their animals are sick and others practiced giving modern medicine by themselves (Table 3).

**Table 3** Practices by farmers during the occurrence of diseases

Existing practices by farmers	%
Going to veterinary clinic only	66.5
Modern medicine on their own	13
Traditional initially and then going to veterinary clinic	12.5
Traditional medicine alone	5
Modern medicine on their own and then going to veterinary clinic	3

**3.3 Constraints in veterinary service delivery centers by observation**



**Figure 4** A bag that was used for carrying drugs



**Figure 5** Drug stores and clinic rooms

From the results of the visits, except the government clinic, the other kebele veterinary service deliveries lacked appropriate facilities to restrain and handle clinical cases and they were not well equipped. There were only seven

crushes in total and six were in different kebeles. A thermometer and Stethoscope were the only instruments available for diagnosis of diseases. But 95% of the clinical cases in kebeles were diagnosed only on based on the clinical signs or the history alone. There were laboratory diagnostic aids for faecal egg screening in the government clinic but not functional at the study period. 100% of veterinarians that gives service to each kebele except in clinics and health posts kept the drugs in their home because of unavailability of rooms for drug store in the Farmer training center (FTC)/Kebele and they travel for treatment carrying the drug with their bag the whole day.

Broad spectrum antibiotics and anthelmintics have been used in both the government and private centers. There were no antifungal agents found in woreda clinic. In all sites, anthelmintics were given based on the history taken from the owner. There was no permanent ready place for disposal of expired drugs and no regular monitoring and controlling action was there to control smugglers who sell veterinary drugs in the local market without any permission. Drug stores are poorly handled and not standardized.

### 3.4 Constraints mentioned by veterinarians and farmers

Shortage of diagnostic and treatment materials including lack of drug handling and storage room, low perception in vaccination and lack of commitment were the main management, farmers and veterinarian related constraints raised by veterinarians (Table 4). Unavailability of kebele professionals as soon as possible was ranked first by farmers as major constraint in government veterinary service delivery centers (Table 5). The constraints in private veterinary service delivery mentioned by farmers are listed in Table 6. Similarly the report revealed that government service o North Gondar was confronted by many constraints. like inadequate availability of instruments, lack of awareness, shortage of budget and insufficient government attention to the sector, resulting in an inability to maintain full service provision[5].

**Table 4** Government service constraints mentioned by veterinarians

Problem type	Major Constraints	Frequency (n =14)*	%
Management related	Shortage of diagnostic and treatment materials including drugs	14	100
	Lack of drug handling and storage room	11	78.5
	Shortage of budget	6	42.8
	Less attention in controlling vet drug smugglers	6	42.8
	Lack of support from kebele administrative during vaccination	5	35.7
Farmers related	Farmers need the service at home	12	85.7
	Less interest of farmers in paid vaccination	9	64.3
	Low perception in vaccination	8	57.1
	Farmers buy drugs from smugglers and give treatment by themselves	6	42.8
	Coming after several trials by themselves	3	21.4
Veterinarians related	Lack of commitment because of tiresome of the service(long distance travelling)	4	28.6
	Lack of commitment because of Lack of incentives during vaccination	10	71.4

\* Respondents may have given more than one constraint.

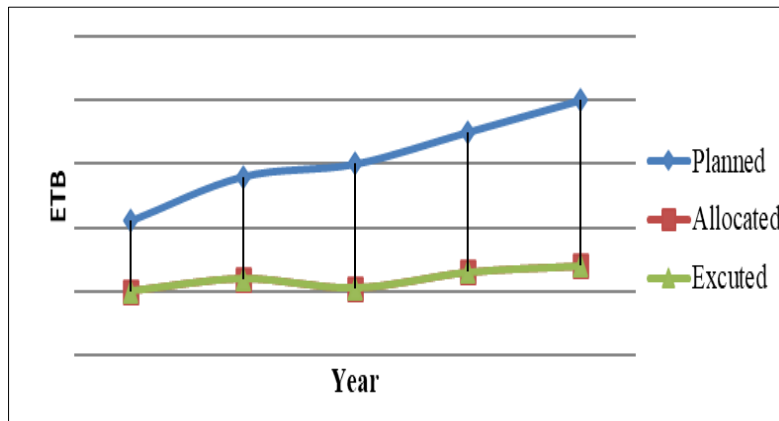
**Table 5** Government service constraints mentioned by farmers

Major Constraints	Rank
Unavailability of kebele veterinarians as soon as possible	1
Shortage of drugs	2
Less service in chicken disease control	3

**Table 6** Private Service constraints mentioned by farmers

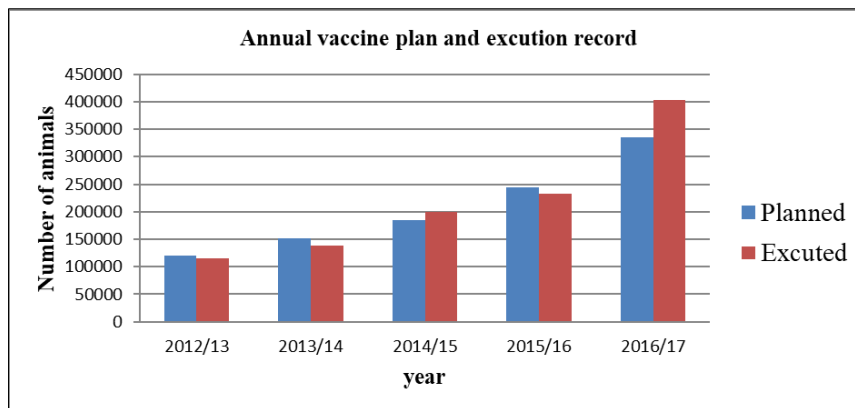
Major Constraints	Rank
The service is very expensive	1
Unavailability of home service as soon as possible	3
Shortage of veterinarians	2

### 3.5 Annual budget allocation in government veterinary clinic



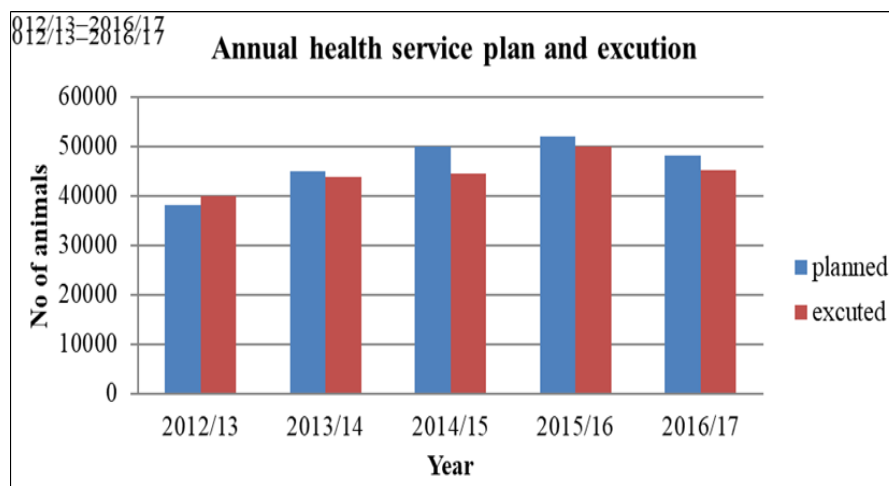
**Figure 6** Annual planned, allocated and executed budgets

The annual vaccination and treatment plan and execution are shown in Figure 4 and Figure 5, respectively.



**Figure 7** Annual vaccine plan and execution

The planned, allocated and executed budget in the last five years was seen in the public veterinary service and the budget allocation in Ethiopian Birr (ETB) was lower than the planned budget in all years (Figure 3). The government of North Gondar budgets for veterinary service has not kept pace with the increased livestock population and price of drugs and each year, no satisfactory budget had been allocated to the districts [5].



**Figure 8** Annual treatment plan and execution

#### 4. Conclusion

Since livestock diseases have been one of the major constraints to livestock production in Ethiopia, the poor veterinary service delivery system could be improved to secure the production and productivity of livestock species by decreasing the occurrence and increasing the control of diseases.

According to the present study, Mastitis, Ovine Pasteurellosis and Newcastle diseases were the first ranked diseases of cattle, sheep and poultry in the study area, respectively. Except the government clinic, the other kebele veterinary service deliveries lacked appropriate facilities to restrain and handle clinical cases and they were not well equipped. Broad spectrum antibiotics and anthelmintics have been used for treatment in both the government and private centers.

The status of the veterinary service is not satisfactory in terms of standardized service provision in both the government and private sectors. Shortage of diagnostic and treatment materials including drugs and lack of drug handling and storage room; the home service need of farmers and less interest of farmers in paid vaccination and lack of commitment were the main management, farmers and veterinarian related constraints raised by animal health professionals. Unavailability of kebele veterinarians as soon as possible was ranked first by farmers as major constraint in government veterinary service delivery centers.

The budget allocation was insufficient to provide quality service delivery that is accessible to the whole community. The yearly budget allocation does not match the requirements for service provision in government sector for the past 5 years.

Based on the above conclusions the possible solutions which help in improving the quality of veterinary services in the district includes fulfilling the necessary equipment for diagnosis and treatment, controlling smugglers, crush development in each kebele, awareness creation for farmers and capacity building of animal health assistants/veterinarians.

#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

The authors declare no conflict of interest.



*Statement of ethical approval*

Informed consent was obtained from all individual participants included in the study.

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