



Assessment of Animal Health Surveillance Data Quality Audit in Meskan District, Central Ethiopia

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Abstract

A retrospective study was conducted between September and December 2025 in meskan district to identify animal health surveillance data quality gap. The study was based on monthly reported DOVARs (Disease Outbreak and Vaccination activity reports) from January, 2020 to November, 2025 in the study area. From the total 71 DOVARs (Disease Outbreak and Vaccination activity reports) which are expected to be sent every month between January 2020 to November 2025 G.C 17 DOVARs report were present. When we assessed the district DOVARs report based on data quality indicator completeness, accuracy and timeliness. Then we see available DOVAR report, there were only 23.9%(17/71) of data presents, from this 23.5% (4/17) were outbreak report, (100%) all of the reported outbreak is foot and mouth disease and 2% case fatality rate recorded. The study shows that 41.2% (7/17) of the report were capitalization problems, 35.3% (6/17) of report missing data such as phone number, designation, date and district location and 11.8% (2/17) of report inaccurate location of district, 35.3% (6/17) of report were improper use DOVAR guideline, and also 23.5% of the district report were received lately. In current study, we revealed that the animal health surveillance system lacks accuracy, completeness and timelines. Therefore, continuous awareness and training program needed to surveillance quality.

Introduction

Outbreaks of infectious diseases pose serious threats to public, animal, and plant health (one health) [19]. Moreover, infectious disease outbreaks affect not only one health but also the national and international economy and trade [9]. These overwhelming challenges highlight the need for more effective and efficient animal health surveillance systems. Animal health surveillance is the systematic, continuous or repeated, measurement, collection, collation, analysis, interpretation and timely dissemination of animal health and welfare-related data from defined populations [14]. Importantly animal health data also provides useful information for the timely detection of potential hazards and ensuring appropriate actions can be taken to

safeguard public health and decision-making and priority setting for control measures [7].

Surveillance data can be used to estimate the magnitude of specific problems, determine the distribution of illness, portray the natural history of a disease, generate hypotheses, stimulate research, evaluate control measures, monitor changes, and facilitate planning [16]. The term “data source” represents a wide array of materials, from reports collected using an informal data collection process to sources that are a result of statistically designed, regular data collection processes that guarantee a high standard of quality [15]. Surveillance data may come from animal production units, veterinary clinical data, and livestock market surveillance [12] laboratory diagnostics, sentinel surveil-



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lance, registries, surveys/research, administrative data systems [15], and electronic medical records [17]. Other sources of surveillance data include meat inspection reports and databases [8,21], media sources such as PROMED-mail [21], and medicine prescription from the veterinary drug shops [6]. The selection of data sources must consider the content of data, spatial coverage, accessibility, data collection frequency, accuracy and cost [15]. The integration of data from multiple sources can provide a complete picture of the disease in the population by reflecting different aspects of the disease [5,11].

The quality of the initial data may determine the data quality at all stages of the reporting process [10]. If stakeholders understand the value of the data collected and the impact of surveillance on animal and human health, this should lead to improved design of surveillance activities, enhanced compliance with data collection, increased likelihood of investment, and (ultimately) an increased probability of achieving the overall goal of the surveillance [13].

Timely and good quality disease surveillance data at regional and national levels are therefore needed to support and inform continuous improvements in animal health and to detect outbreaks of disease, including emerging and zoonotic diseases [22]. Real-time disease reporting and surveillance as opposed to interval-based “batch” reporting are essential in minimising the impact of livestock diseases, as early notice shortens the time between detection and providing measures for control [18].

General objective

- To assess the quality and importance of DOVAR (disease outbreak and vaccination report) and gaps of animal diseases surveillance data in study area

Specific objectives

- To assess two-way link between filed investigation with laboratory
- To assess way of surveillance data management, collection and reporting

Methods

Description of disease surveillance area

The district located south west of Addis Ababa, capital city of Ethiopia at 130 kms. The area bordered on north, south sodo district and on east, east meskan district, on south, silite zone, and on west, gurage zone. Butajira, is capital city of the district and also misraque gurage zone Geographically, located at latitude of 8°07' N and longitude of 38°22' E. The area has annual average rainfall of 1200mm, altitude of 2131masl and T° vary with 15 to 20°C.

The area had rich in livestock with a total of 693294 population of these 172891 cattle populations, 109228 sheep population, 70936 goat population, 320944 poultry population, 6795 horse, 315 mules, 12185 donkey (mesqan district agriculture Office annual report, 2024).

Data collection and management

A Retrospective study was conducted in study area both qualitative and quantitative approaches were used. As part of study, format was developed and interview the district responsible professional in animal diseases surveillance system. In addition, based on national standards and data quality principles,

achieved disease outbreak and vaccination activity reports (DOVAR) from 2020–2025 were examined for quality assessment then recorded data transferred to excel.

Data analysis

The data transferred into a spreadsheet program (Microsoft excel). Finally, analysis with descriptive statics and describe using table, histogram, chart and graph.

Result

Information obtained from the interview

Surveillance data source, collection, flow and analysis:

In the district, DOVAR is practiced and there was animal surveillance data flow starting from kebel/farmer. Farmer/livestock owner brought sick animal to nearest vet post, the keble expert submit the outbreak with reporting format or by phone call if there is outbreak. Sometimes, the animal surveillance data collected by district expert. The data reported by kebele expert should be organized and analyzed. The analyzed surveillance data inter to DOVAR format and send to east gurage zone agriculture office then to central Ethiopia region agricultural office and sodo regional veterinary laboratory. Surveillance data flow of the district summarized as flow (Figure 1).

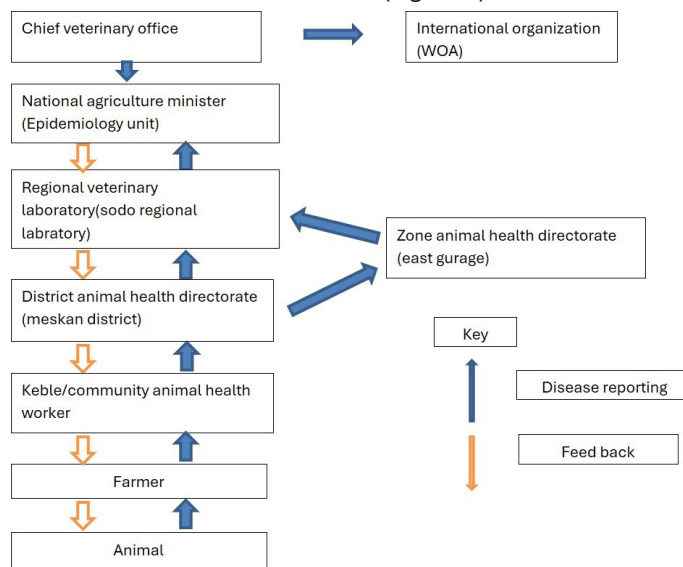


Figure 1: Surveillance data flow of the district.

Awareness of data use by stakeholders:

As we consider, surveillance data had important for to know spatial distribution of disease, zero reporting and vaccination coverage of the area. But, in the district there is gab in time-lines, accuracy and Completeness of surveillance data. In addition, almost all of the district stakeholders have no awareness on what will be done with the collected data

Use of laboratory in field investigation:

Laboratory diagnostics are the cornerstone of modern animal health management, providing the scientific basis for control and prevention strategies [20]. The link of veterinary laboratory with filed epidemiology was not similar district to district and also country to country with different reason. Sodo regional veterinary laboratory was the responsible institution to provide diagnostic support for meskan district. But recently the link is poor due to administrative division. Therefore, the time to sample collection and getting permission from authorized office/person too late, this affects the laboratory result and increase

Discussion

The present study shows that from the expected monthly DOVAR report 23.9% (17/71) were reported, while 76.1% (54/71) were not reported. The obtained targeted data in the district measured with completeness, timeliness and accuracy like missing data, inaccurate data, and improper use of guideline. This is agreed with Adugna D *et al* 2025 the obtained targeted data quality variable were missing data; inaccurate data and problem of timeliness were assessed DOVARs of Meta Welkite agricultural office.

According to the current study 11.8% (2/17) of report inaccurate location of district. This in line with Adugna D et al 2025 who reported 7.3% inaccurate data were recorded in meta welkite district, Oromia region. 41.2% (7/17) of the report were capitalization problems, 35.3% (6/17) of report missing data such as phone number, designation, date and district location and 35.3% (6/17) of report were improper use DOVAR guideline. Generally, 43.8% of the total DOVARs reports in meskan district, central Ethiopia were accuracy problems. Similarly, Abduljami G 2022 42.8% of animal health surveillance data in Guchi woreda, Borena zone, Ethiopia lacks accuracy such as typing error, improper filling of data, poor message

The present finding indicated that 23.5% of the district report were received lately. This agrees with balcha 2022 that reported 31.6% animal health surveillance data received lately in karsa district, jimma zone, Oromia, Ethiopia.

According to this study only 23.5% of DOVARs report indicates outbreak occurrence. This higher than balcha 2022 that reported 6.7% is outbreak animal health surveillance data quality audit in karsa district, jimma zone, Oromia, Ethiopia. The outbreak 23.5% is lower than who reported 77% in their study on animal health surveillance DQA in Guchi Woreda.

The current study shows that only or 100% foot and mouth disease occurrence proportion observed in the district and 2% case fatality rate. This is due to there is no annual vaccination calendar for FMD and animals are not vaccinated against foot and mouth disease in the district. This agrees with Berhanu and Shibru 2016 that reported the result of high proportion rate shows as due to lack of attention for the Prophylaxis Vaccination of animals in the area.

Conclusion and recommendation

In meskan district, animal health surveillance data presents, but the surveillance system or way of reporting lacks accuracy, completeness and many of report lacks timeliness. Based on above conclusion the following recommendation forwarded.

- ❖ Continuous training and awareness need to improve quality of DOVARs
- ❖ The link communication between regional laboratory and field/ district epidemiologist must improve.

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[illegible]

Figure 5: Capitalization problems.

In the designation space the expert filled his/her signature

MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT
DEPARTMENT OF ANIMAL HEALTH

MONTHLY REPORT OF DISEASE OCCURRENCE AND VACCINATIONS

MONTH & YEAR

Feb	2021
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REGION Sagor

ZONE Gusset

WEREDA meleka

INTRODUCTION AND COMMENTS

Mention any factors which may have affected the health and productivity of livestock in the Wereda - eg shortage of feed extreme climatic conditions etc.

If necessary, give additional information regarding the disease outbreaks included in this report about the progress of disease control programmes etc.

Epidemiology Unit

In cover page all the data filled in capital letter. But, in the reported format data are capitalized only first letter.

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