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# Assessment of Integrated Disease Surveillance and Response Implementation in Special Health Facilities of Dawuro Zone

Bayu Begashaw<sup>1,\*</sup>, Thomas Tesfaye<sup>2</sup>

<sup>1</sup>Public Health Department, College of Health Sciences, Mizan-Tepi University, Mizan-Aman, Ethiopia

<sup>2</sup>Dawuro Zone Health Desk, Tercha, Ethiopia

## Email address:

baybeg121@gmail.com (B. Begashaw), bayubegashaw@yahoo.com (B. Begashaw)

\*Corresponding author

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**Abstract:** Background: Widespread epidemics of malaria, yellow fever, meningitis and Tuberculosis across the Sub-Saharan African in the 1990s were largely attributed to poor surveillance systems which were neither able to detect communicable diseases on time nor build up an effective response. Effective communicable disease control relies on effective response systems which are dependent upon effective disease surveillance. Integrated Disease Surveillance and Response strategy (IDSR) was adopted by the AFRO members of the World Health Organization (WHO) to improve surveillance activities. Objective: This study was conducted to assess IDSR implementation in selected Health Facilities of Dawuro zone. Settings and Design: Dawuro zone is located in Southwestern Ethiopia. It shares borders with the Gamo-Gofa zone in south, Wolayta zone in the east, Kanta Special district in the west, Oromia region in North, Hadya and Kambata Tembaro Zones in North east. Based on the 2006 census, it has a population of 590,090. A cross-sectional facility based descriptive study was conducted. Materials and Methods: An interviewer administered questionnaire of an adapted from the WHO Protocol for the Assessment of National Communicable Disease Surveillance and Response systems was used. Data analysis was carried out using SPSS version 21. Results: All of the health facilities (38%) have any case definition for the priority diseases. About 43% of the health facilities had electricity. Only seven percent has standby generators, which were functional. All health centers had calculators and stationery available for data management while 36% had computers and but 28% have printers available. No form of data analysis was available in 93% of the health centers, analysis of data were however available in all 14 Health centers studied. A reporting system was available in 92% of health centers. There was no feedback from the region to the district health offices and Health centers, nor was there feedback from the national to the zone level. Conclusion and recommendation: The implementation of IDSR in Dawuro zone is moderate. Resources are insufficient and although some structures are present on ground like the presence of reporting mechanism, feedback is low from the higher to lower levels. Standard case definitions are not used in all health facilities for all priority diseases. Standard case definitions should be made available and used in all health facilities.

**Keywords:** Assessment, District Health Offices, Integrated Disease Surveillance and Response, Implementation, Health Center

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## 1. Introduction

Before 1998, most African countries used a variety of top down disease control programs for disease surveillance. Some of these programs were well funded, while others were in a zone were undermined. Surveillance data were collected

by programs under different authorities which led to disjointed and inconsistent systems in which health workers used multiple intricate reporting formats with different terminologies and reporting mechanisms [1-3]. This resulted in health workers becoming overloaded and not encouraged. The World Health Organization (WHO), African region

adopted the Integrated Disease Surveillance and Response (IDSR) strategy as a regional strategy in 1998. This was a paradigm shift, as in the integrated surveillance system, surveillance activities use analogous and consistent structures, processes and human resources [4, 5].

Effective Communicable diseases control relies on effective surveillance and response system that promote better coordination and integration of surveillance function. Recognizing this, the initiative to strengthen the disease surveillance system that promotes the integration of surveillance activities in Ethiopia was started in 1996. Later in 1998 the WHO/AFRO, following the resolution of the 48<sup>th</sup> assembly, started promoting Integrated Disease Surveillance and Response (IDSR) for all member state to adopt as the main strategy to strengthen national disease surveillance system. Ethiopia as a member state adopted this strategy, which is district centered and outcome oriented [6]. And based on the steps recommended by the strategy, the FMOH of Ethiopia and its development partners did an assessment of the country's surveillance system in October 1999 and subsequently prepared a five-year national plan. Currently Ethiopia is categorized among the countries, which have made a tremendous achievement in the implementation process of Integrated Diseases Surveillance and Response [7, 8].

A country somewhere IDSR is practical would use standard IDSR case definitions to identify and report priority diseases; gather and use surveillance data to alert higher levels and activate local action; investigate and confirm suspected outbreaks or public health events using laboratory confirmation, when indicated; analyze and interpret data collected in outbreak investigation and from routine monitoring of other priority diseases; use information from the data analysis to implement an appropriate response; provide feedback within and across levels of the health care system; and evaluate and improve the performance of surveillance and response systems [3, 9]. The flow of information in the IDSR system in Ethiopia is from the health facility, where diseases that have epidemic potential, which are targeted for eradication and elimination, are reported immediately to the focal persons in the health facility and to the District health offices. The District health offices receive data from the health facilities, compile and send to the next level, the Regional Health Bureau then Federal Ministry of Health (FMOH) [7].

At the end zone level, analysis and feedback to health facilities is to be done. The PHEM collates data from the Health facilities and forwards it to regional PHEM work owner unit. At the Region, analysis and feedback to the health facilities and public is done as well as planning appropriate operations and strategies for disease control [10].

At the region, data is collated and forwarded to the statistics division, analysis and feedback is carried out, as well as planning for appropriate intervention based upon the results of analysis.

The aim of the study was to assess the implementation of Integrated Disease Surveillance and Response (IDSR) in selected Health facilities in Dawuro zone.

## 2. Materials and Methods

### 2.1. Background of Study Area

Dawuro zone is located in Southwestern part of Ethiopia. Dawuro zone is located in Southwestern Ethiopia. It shares borders with the Gamo-Gofa zone in south, Wolayta zone in the east, Konta Special district in the west, Oromia region in North, Hadya and Kambata Tembaro Zones in North east. Based on the 2006 census, it has a population of 590,090. There are several districts and Health Centers units in each District health offices

The zone is divided into six Districts: Mareka includes of Waka, Dashi, Gendo, and MariHealth Centers. Esera comprises of Bale, Hageli 02, Churchura and Dali Health Centers. Loma includes Balee, Addis Bodari, Yello, Gessa and Dissa Health Centers. Tocha includes Abba, Tocha, Kechi, Boka and Wara Health Centers. Gena district includes Duga, Karawo and Angela Health Centers.

Dawuro zone has 22 government Health Center 175 health posts, one general hospital and two primary hospitals. Under the Integrated Disease Surveillance and Response system, all health facilities collect data on 22 the priority disease and send to the District and zonal health office where they are located. The District Health Office then collates the surveillance data and carries out some analysis and then sends the data to the Zone Public Health and Emergency management work unit. The PHEM organize surveillance data from all District Health Office in the zone before sending the data to the Regional Health Bureau Public Health and Emergency Management Work Owner unit [11]. Some analysis is also carried out at zone level.

### 2.2. Study Design

A cross-sectional facility based descriptive study was conducted. Observation was also done.

### 2.3. Selection of Sites

Out of six district health offices in the zone three were randomly selected for the study. From each selected district, three total of nine health centers were selected randomly:

### 2.4. Sampling Technique

Multistage sampling was used. Three health centers from each district were selected first. The following Health centers were selected: Churchura, Bale and Dali Health centers from Esera district, Gessa, Dissa and Yello Health centers from Loma districts and Kechi, Boka and Tocha Health centers from Tocha district were selected by simple random sampling in each district.

### 2.5. Data Collection

Quantitative data was collected in this study using interviewer administered questionnaires administered to the IDSR focal persons and heads in charge of the health facilities. Records and reports were also reviewed at the

Health facilities at PHEM unit. The tool used was adapted from the World Health Organization Protocol for the Assessment of National Communicable Disease Surveillance and Response systems [4].

Pretest was done at Hageli Health center and corrections were made before data collection began.

### 2.6. Data Analysis

Data collection began when approval was obtained from

## 3. Results

### 3.1. Resources Availability for IDSR at Health Facility

*Table 1. Logistics available for IDSR at health facility level.*

Variables (n=14)	Availability	Percentage	Number functional	Percentage
Electricity	8	57.1	-	-
Standby generator	7	50	2	28.6
Bicycles	14	100	7	50
Motorcycles	13	92.8	3	23
Car	3	21.4	3	100
Computer	5	35.7	2	40
Printer	4	28.6	1	25
Calculator	14	100	9	64.3
Shelf	11	78.6	10	90.9
Stationery	14	100	13	92.8
Telephone	1	7.2	1	100

About 57.1% of the health facilities had electricity. Half of health facilities had standby generators, from which 28.6% were functional.

Ninety three percent had bicycles available, from them while 29% had motorcycles and cars available [Table 1]. Sixty two percent of health facilities had calculators available for data management, while 29% had computers and printers.

About 8 Health centers had electricity. Half of Health centers had standby generators available out of these only 28.6% were functional. All Health centers had bicycles and 13 have motorcycles available, out of which 50% and 23% respectively were functional [Table 1].

Only 5 Health centers had computers, but only 40% were functional. All Health centers had calculator and stationery. 28.6% of Health centers had a printer available. Only 1 Health centers had telephone availability. There is no statistical package utilization and application at all Health centers.

### 3.2. Availability of Data Analysis on Priority Diseases at Health Centers

About ninety three percent (93%) of the health centers had no form of data analysis available on the priority diseases. All the Health facilities had data analysis by age & sex distribution and spot maps available for at least one priority disease.

Only 1 health centers had a line graph available. All the Health centers reported that they had used local data for prevention and control measures for diarrheal disease

the Health Facilities. Data was analyzed using SPSS version 21. Proportions were calculated at each level- health facility and district offices.

### 2.7. Ethical Considerations

Prior to starting the study, Permission was obtained from the Dawuro Zone Department of Health. Informed consent was also obtained from the respondents.

outbreak and measles outbreak.

*Table 2. Availability of data analysis on priority diseases.*

Availability of data analysis	Frequency	Percentage
Data analysis available	1	7.1
No data analysis available	13	92.9
Total	14	100

At the health district office level, analysis of data on priority diseases was plotted by time (line graphs) as well as place (spot maps).

### 3.3. Availability of a Reporting System and Feedback Mechanism on Priority Diseases at Health Centers and Health District Office Level

Nine (64.3%) of health centers have a reporting system to the district health offices in place. About 5 (35.7%) health facilities with an existing reporting system send in reports by hand delivery. All district health offices reported sending reports to the zone level. All of them send their monthly reports by mobile phone.

At the zone level, reporting to the regional level is through email. All of primary health centers reported receiving feedback from their respective district health offices. There were no feedback reports from the zone to the health centers nor were there any form of feedback reported from the regional level to the district level.

**Table 3.** Reporting system Availability for IDSR implementation.

Reporting system	Frequency	Percentage
Reporting system available	9	64.3
No reporting system available	5	35.7
Total	14	100

## 4. Discussion

An assessment of the implementation of the Integrated Disease Surveillance and Response (IDSR) in Dawuro zone health facilities assessed with resources available for IDSR. All Health facilities have calculators and bicycles available (100%) than any other data management tool. This was similar to findings in Tanzania [12] and more than the figures of the 2001 assessment of surveillance in India Maharashtra, where 73% of health facilities had calculators available. The findings were also higher than in Nigeria, where 47% of health facilities had calculators [4]. Data management tools like calculators are an important resource, as they can be used for simple calculations and data analysis at the health facility, district health offices and health centers. At the Health centers level, all had stationery and shelf available, this was much similar than the findings in Tanzania, where all districts surveyed had calculators available [1].

All Health facilities surveyed had computers available for data management, out of which 1 was functional. This was less than other studies in Mozambique and Tanzania where all districts and provincial directorates studied had computers available [1, 13]. The findings showed a lower over the 2012 IDSR assessment in Nigeria, where 29% of Health facilities had computers [4]. Computers are important data management tools for IDSR as they can be used for data entry and analysis. At the zone level, a computer, printer and calculator were available for data management. Although there were no internet facilities available at the zone level, reporting to the zonal level was by the use of mobile phones. This affords a relatively fast and cheap way of reporting, but the inconvenience due connection lower quality. Seventy four percent of health facilities had at least one standard IDSR case definition available; this was higher than the 35% reported in Tanzania [2] [12] and higher than to findings in Nigeria, where case definitions were not used for recording diagnosis in registers [4]. However, this differed from the assessment of surveillance in Nigeria in 2013, where 62% health facility had case definition for any of the priority diseases and the 2009 assessment of IDSR where 68% of health facilities did not have case definitions for any of the priority diseases [4]. Use of standard case definitions is very important as it allows for standardization and consistency of reporting across the country from all health facilities. Non use of standard case definitions would not allow proper tracking of the priority diseases across the country. Seven percent of the health facilities had a form of data analysis on surveillance data available. This was lower than the 10% and 17% reported in Uganda and Nigeria respectively, [9, 10] [14] but lower than the 32% reported by Mghamba in Tanzania, [11] and much lower than the 41-78% reported in Ghana from 2004 to 2005 [12]. Analysis and

interpretation of data at the health centers and district health offices level is important and is one of the determinants of IDSR implementation. It allows for practical use of the data collected for surveillance at both health facility and district health offices levels. Over 64% of the health facilities have a reporting system in place for reporting to the district health offices. Reports are sent by hand delivery, although other studies have reported increasing use of electronic reporting of surveillance data by email and telephone [15]. This may be connected to the unavailability of internet facilities at all levels. Although the district health offices have no internet facilities, reporting to the zonal level was by mobile phones. In the study, a clear reporting system was available at all levels compared to findings by Gueye in Tanzania [1] where districts had no clear reporting mechanism. Lower percent of health centers reported receiving feedback from district health offices; this was lower than that reported from Uganda and Tanzania [1, 14]. There was no feedback from the zone to the health centers, similar to findings from a peer review assessment [5]. This differed from findings in Mozambique and [12] Tanzania where 50% of districts received feedback from the provincial level [13]. The zone reported not receiving any feedback from the national level. This differed from findings in Nigeria in 2006 where more than 50% of LGAs reported receiving feedback reports from the national level [4].

Lack of feedback from higher levels discourages staffs especially focal persons as they may not see the results of reporting, and may lead to a poor performance in future.

## 5. Conclusion

The implementation of IDSR in Dawuro zone is moderately good. Resources are insufficient and there is weak feedback from the higher to the lower levels. Standard case definitions for priority diseases are not used usually in all health facilities.

## Abbreviation

IDSR- Integrated Diseases Surveillance Response  
 PHEM-Public Health Emergency and Management

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