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Assessment of Utilization of Health Information and Associated Factors at District Level in East Wollega Zone, Oromia Regional State, West Ethiopia

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Abstract
Background: Health Information System in low income countries at all level has an important role to support Ministries of Health and other government agencies for informed decision making at all level. However, its utilization is a challenging task currently confronted by countries throughout the developing world in general and Ethiopia in particular. The main objective of this study was to assess the utilization of health information at district level in East Wollega Zone. **Methods**: A facility based cross-sectional study with quantitative and qualitative methods was conducted in nine randomly selected districts in east Wollega zone from March 1 to April 15, 2015. Data were collected using semi structured questionnaire. The data were analyzed using SPSS version 20.0. Both bivariate and multivariate methods of data analysis used to determine the predictors. **Results:** All of the respondents had training on Health Management Information System, only 36 (11.8%) had in service training. Based on the criteria 140(45.8%) were not utilized Health Information system, 202 (66.0%) of them utilized Health Information system to prepare plan of action. The independent predictors affecting utilization of Health Information were feedback from respective supervisor [AOR=14.5(6.9-30.3)], types of the decision [AOR= 3.9(1.9-7.8)] and, type of the organization [AOR= 3.5(1.5-8.1)]. The proportion quarterly completeness & timeliness of report were 86% and 89% respectively however data accuracy were not 100% maintained as per guideline. **Conclusion and Recommendation:** The utilization rate of Health Information at district level in east Wollega zone was found to be very low and training on HMIS was not adequate to implement the new system in line with Health Management Information System standard. Efforts should be made by the Zonal health department to strengthen supportive supervision at all levels and ensure availability of standard reporting formats& registers to maximize the utilization of Health Information.
Keywords: Utilization, health information system

Introduction

Health Information System which interchangeably called as Health Management Information System is a system that integrates health data collection, processing, reporting, and use of the information necessary for improving health service delivery, effectiveness and developing efficiencies in the reporting systems [1]. It also defined as "a set of components and procedures organized with the objective of generating information which will improve health care management decisions at all levels of the health system". It provides information necessary for all actors involved in health Care at all levels, from Primary Health Care Units (PHCU) to Ministry of Health, policy-makers and donors and for health staff to do their jobs effectively [2].

Health Information System (HIS) in low income countries including Ethiopia has an important role to support Ministries of Health and other government agencies in monitoring health service activities, morbidity, mortality, vital events, and achieved outcome of health services and helps leaders in evidence-based decision making, and resource allocation [3]. Routine health information forms a critical backbone of strong health systems and its strengthening is a challenging task currently being confronted by countries throughout the developing world. Providing complete, timely, good-quality health information/data for evidence-based decision-making is a not easy task [5, 6 & 7]. Despite the apparent suitability of an Health Management Information System for substantial resources invested in the development and operation, the extent to which data from Health Management Information System s are used to generate statistics of use to decision makers is extremely limited[8].

Ideally, all facilities report their data promptly and comprehensively every month. However, many of the facilities operate under difficult circumstances, and keeping detailed records and reporting them every month is not always at the top of the priority list [9, 10]. In addition, many developing countries delay seriously behind the developed world in the coordination and sharing of information [11].

In India, data are collected in vast amounts but are mostly incomplete, unreliable and unused [12, 13]. Similarly, WHO Regional Committee for Africa reviewed the situation of national health information systems and adopted a strategy for strengthening them. However, regardless of efforts in countries to make National Health Information System operational, there are still lack of necessary resources , incomplete data, late

processing and transmittal, lack of decentralized utilization of data for decision-making at all levels and insufficient use of available information[14].

In the same way the health information systems are expected to provide health workers and health managers with a systematic tool for decision making. However, study done in Western Cape showed that the Health Information Systems (HIS) of developing countries are not optimal enough to support decision-based management [4, 16].

In Ethiopia, since the primary Health care era the importance of Health information systems have increased to create better opportunities for community oriented decision making [15]. However, as any other developing countries, it has been reported that health information is rarely used for management decision-making at periphery level [17]. Even though, a number of reforms on HMIS have been made to improve the situation both at the federal and regional levels with the involvement of stakeholders in standardization of procedures in data collection, analysis and reporting, selection of sector-wide and programmatic indicators design of simplified items of the formats, and integrated flow of information, still there is insufficient use of health information to improve health service delivery across the country [4, 18]. Understanding the utilization of HIS at district level is critical to make improvements in decision making. However, few studies have addressed the utilization of Health Management Information System in Ethiopia and to the best of the investigators knowledge there is no study conducted on the utilization of HIS in East Wollega zone. Therefore, this study is aimed to assess utilization of health information at District level in East Wollega Zone.

Methods and Materials

Study area and Period

This study was conducted in East Wollega zone from March 1 to April 15, 2015. East Wollega is one of the 17 zones in the Oromia National Regional State.

Study design and Source population

Cross-sectional facility based study designs that utilize both quantitative and qualitative methods data collection was used.

All district Health Offices and Health Centers in East Wollega Zone, all district health office head and unit heads in the zone and all HCs heads, case managers and unit head in the zone. The study population all districts health office and Health Centers who are implementing Health Management Information System before July 2010 and Facility and Unit heads who have at least six months of work experience.

Samples size

Nine district health office heads & 81 units' heads of health office, eighteen Health Centers heads & 198 units' heads in the selected Health Centers were included in the study. The total sample size was 306 individuals. All report records in specified Health Centers units and district Health Management Information System (HMIS) units from July1, 2010 to December 30, 2015 was reviewed. For qualitative Part of the study, nine heads of the district Health Office and 18 case managers at HCs were enrolled for in-depth interview based on data saturation principle.

Data collection Instrument and Process

Quantitative data collection tools were adapted after review of relevant literatures and modified to the local situation. For qualitative data collection observational checklist developed based on Ministry of Health (MOH) of Ethiopia Health Management Information System guide lines and using semi-structured in-depth interview guide.

Data collection techniques

Quantitative data was collected through face-to-face interview using structured questionnaire on district health office vice heads, head of Units/departments in the district, Health Centers heads and heads of units/departments in the respective Health Centers.

Data process and analysis and Data quality assurance

For the quantitative data, the data was checked for completeness, inconsistencies, cleaned and then coded and entered in to SPSS for version 20.0. The data was expressed using descriptive analysis. Binary logistic regression analysis was made to obtain odds ratio and the confidence interval of statistical associations. To control the confounding effect of other variables and to determine independent factors logistic regression analysis was carried out by taking significant variables in the bi-variate logistic regression model.

Prior to the actual data collection, pre-testing was done on 15% of the sample size (district) in Nekemte Town and who were not part of the study and based on findings necessary amendments were done. Data

collectors and supervisors were trained for two days on the study instrument and data collection procedure.

Ethical consideration

Letter of permission was obtained from East Wollega Zonal health department; randomly selected nine district health office and respective Health Centers. In addition all of the study participants were informed about the purpose of the study and finally their oral consent was obtained before interview.

Results

Socio-demographic characteristics of the respondents

A total of 306 participants of different responsibility have responded to the interview yielding 100% response rate. Of all the respondents 64.4% were males and 35.6% were females. The majority 71.9% of the respondents had service experience of five years and lower, while 2.9% of the respondents had served for more than 21 years. The educational status revealed that majority 74% were diploma, (25%) of them were Bachelor. With respect to organizational responsibility about 21.6% of the respondents were head of the units while 78.4% were Experts. The majority 64.4% of the respondent earn monthly salary between 1233-2249, 26.8% of them earn 2250 ETB. With regard to qualification of the personnel's the majority 53.9% were Diploma nurses followed by 10.1%) bachelor Nurse and 3.3% were Environmental health workers.

Health data and information generation process

Health Management Information System training (HIMS)

Out of the 90 heads/experts from 9 district health office and 216 heads/experts from 18 Health Centers included in this study, all of them trained on HMIS. The training was provided to all staffs before starting implementation of the new system. Moreover, in- service training was given for 36 (11.8%) while for 270 (88.2%) not trained.

Availability of newly designed register and tally sheet a*t HC level*

96(44.4%) of unit/department had the newly designed register while 120(55.6%) of them did not have. Regarding the availability of tally sheet, 85(39.4%) of unit/department had the newly designed tally sheet whereas about 131 (60.6%) of them hadn't. With respect to the availability of the formats from the total in 97(45 %) of units/departments the newly designed monthly and quarterly reporting formats were available but not in 119(55 %) of units/departments. In about 82(38 %) the units/departments, the required stationeries for recording of health information were available. Moreover, participant from key informant two case managers mentioned "*we used piece of paper for tallying the daily activities of some units*". Furthermore, during observation at Health Centers; registers, tally sheets and reporting formats were not available in all units/departments. However, in all Health Centers ART unit's registers and Standard reporting formats were 100% available. (**Table 1**)

Table 1: Availability of Standard recording register, reporting formats & Tally sheet at HC at in East Wollega Zone, for April, 2015

Units/ Departments	Standard recording registers (N=180)		Standard reporting formats (N=216)		Tally sheet (N= 180)	
	Number	%	Number	%	number	%
HC head	-	-	12	66.7	-	-
MCH	14	77.8	12	66.7	9	50
EPI	16	88.9	14	77.8	12	66.7
VCT	15	83.3	10	55.6	9	50
OPD	13	72.2	9	50	10	55.6
ART	18	100	18	100	15	83.3
Lab.	5	27.8	4	22.2	4	77.8
Pharmacy	2	11.1	5	72.2	2	88.9
TB & Lep.	16	88.9	14	77.8	13	72.2
Delivery /In Pt.	15	83.3	12	66.7	9	50
HMIS	-	-	11	61.1	-	-
Triage	10	55.6	7	38.9	6	33.3
Total	**116**	**64.4**	**120**	**55.6**	**89**	**49.4**

Data management (*completeness, timeliness, accuracy, supervision and tools)*

The study revealed that 192(62.7%) of the respondents in the selected units compile data on daily basis and 185(60.5%) of the respondents fill the data registration book completely. On the other hand 199(65.1%) of them

compiled there services monthly and reported using the standard reporting formats. Majority of the key informants said that the departments do not uniformly aggregate data and the register are not filled completely.

Two hundred thirty seven (77.5%) of respondents submitted their reports by keeping its completeness within agreed time and from the total respondents in the selected departments, 69(22.5%) were not submitted their reports by keeping its completeness and within proper time.

Data accuracy assessment was conducted by 109(35.6%) of the departments. The accuracy assessment was conducted by 66(60.5%) monthly and by 43(39.5%) quarterly. The reasons mentioned for not conducting the assessment was lack of awareness on its importance 95(48.2%) and 102(51.8%) it is not applicable in their specific units/department.

The finding from record review on the accuracy of data that was reported from the Health Center to District health office during July- December, 2010 on eight data elements showed that the data accuracy was 96% for OPD, 95% for Maternal and child health (MCH) unit/department 101% for TB&Lep and 100% for ART (**Table 2**).

Table 2: Data accuracy of recorded and reported data elements services at HCs in East Wollega zone, April 2015

S. N.	Data element	Quarter I (July-Sept.2010)			Quarter II Oct. – Dece.2010)		
		recorded	Reported	Accuracy (%)	recorded	Reported	Accuracy (%)
1	MCH	3351	3179	95	3568	3272	92
2	EPI	2252	2336	104	2138	2120	99
3	VCT	5424	5395	99	6135	6135	100
4	OPD	26989	26458	98	27294	26188	96
5	ART	210	210	100	195	189	95
6	LAB	28730	26283	91	28370	26019	92
7	TB& Lep	473	482	102	400	400	100
8	Delivery & inpt	298	314	105	314	334	106

On the other hand, the completeness of reports from Health Centers units/departments to Health Center Health Management Information System unit were 82% for weekly, 90% for monthly, 88% for quarterly and 93% for bi-annually respectively. While, from Health Center to District health office were 89% for weekly, 92% for monthly, 86% for quarterly and 94% for bi-annually. Similarly, the Completeness of Reports submitted from each Units/Department of District health office to District health office Health Management Information System unit on weekly, monthly, and quarterly and bi-annually bases were 86%, 80%, 90% and 93% respectively (**Table 3**).

Table 3: Completeness of submitted Reports for July- December, 2010 at various level of the Districts East wollega zone, April 2015

Reports submitted from	*Weekly*			*Monthly*			*Quarterly*			*Biannually*		
	Expected	Submitted	% of Completeness	Expected	Submitted	% of Completeness	Expected	Submitted	% of Completeness	Expected	Submitted	% of Completeness
HC to District health office	432	384	89	108	99	92	36	31	86	18	17	94
Units/Dep. to District health office HMIS	216	186	86	432	378	80	144	130	90	72	67	93
HC Units/Dep. to HC HMIS	432	356	82	1080	972	90	360	316	88	180	168	93

Review of record for timeliness of reports for quarterly bases from July-December 2010 from Units of Health Centers to Health Centers HMIS unit, shows that, 90% were submitted on the agreed time schedule. On the other hand 88.9% of Health Center reports were submitted on time to District health office. (**Table 4**).

Table 4: Timeliness of submitted Reports for at various level of the Districts East Wollega zone, April 2015

Reports submitted from	*Weekly*			*Monthly*			*Quarterly*			*Biannually*		
	Expected	Submitted	% of Timeliness	Expected	Submitted	% of Timeliness	Expected	Submitted	% of Timeliness	Expected	Submitted	% of Timeliness
HC to District health office	432	377	87	108	97	90	36	32	89	18	18	100
Units/Dep. to District health office HMIS	216	189	88	432	376	87	144	130	90	72	69	96
Units/Dep. to HC HMIS	432	374	81	1080	983	91	360	324	90	180	166	92

Regarding Supervision and feedback from immediate supervisor, about 130(42.5%) of unit/department head/experts were supervised and 176(57.5%) were not. Among the supervised department/units the frequency of supervisions made during the past two quarters were once for 74(56.9%), twice for 41(31.5%) and three times for 15(911.5%).Nevertheless, feedback was received by 40.2 %. The feedback was in written form for about 50.4% & verbal for 49.6%. Participants of in-depth interview claimed that supervision was inadequate and irregular.

One of the key informants from District health office said that "*from my experience and observation supervision is less frequent from immediate supervisors and supervision records are not kept properly by most of the units/departments*". Similarly, one of the Health Centers case manager mentioned that "*to my opinion supervisions are not planned and the majority of the supervisions I have observed lack feedback*".

Utilization of Health Information

Data on utilization of information for decision -making in the study area, revealed that 166 (54.2 %) of the units and departments have utilized the generated health information. Based on multiple response, information was used by 279 (91.1 %) for decision-making, 122(39.9%) to provide feedback to respective supervisors, 73(23.9%) for calculation of area coverage & preparation of Maps, 85(27.8%) for development of key indicators with charts /tables and 182(59.5%) for Presentation of achievements of target.

In depth interviews with heads of district health office and Health Center case managers showed that they did not used the information for decision making.

As to departments / units at District health office or Health Center level who specifically utilized the health information, from the total at Health Center level, about 15(83.3%) of Health Center heads, 15(83.3%) ART, 11(61.1%) EPI and 10(55.6) MCH utilized Health Information whereas at District health office level, from the nine District all of District health office heads & HIV/ AIDS unit and except one all of ,Health program unit, Health Extension Workers coordinators unit and Environmental health unit utilize Health information. However, laboratory unit at HC level and pharmacy unit at District health office level less frequently utilized HIS.

Assessment of knowledge of respondents on who should utilize Health information, indicated, the majority 279(91.2) reported correctly while, 27(8.8) of them did not.

Two hundred forty five (80.1 %) of the units /departments change their data in to information every month.

Similarly from the total study subjects 202 (66.0%) of the units /departments head/expert used information to prepare plan of action or used for short term decision. Among the total (56.6%) of them did not adapt national target to local situation and 58.2% of them did not have key indicators with charts or table (**Table 5).**

Table 5: Utilization of Health Information for different purpose at HC & District Health office In East Wollega Zone, April 2015

Statements (N=306)	Number	Percent (%)
Change the data in to information every month	245	80.1
Calculating area coverage for essential services and Prepare Maps	122	36.6
Use data to prepare plan of action/for short-term	202	66.0
Departments adapted national target to local situation	136	44.4
Department who have key indicators	128	41.8
Maintain worksheets and charts for monitoring Performance	114	37.3
Identify problems in performance, discuss and analyze	161	52.6

Availability of resources

Findings from observation shows about 204(66.7%) of units/departments had standard reporting formats and 98(29%) of them had Indicators and information use guideline. In addition from the expected chart to be displayed in each units/departments 43.6% displayed Map of catchment area, 40.8% Catchment Population Profile, 22.4% Ten Top Causes of Morbidity, 6.5% Ten Top Causes of Morbidity in < 5 Children,30.0% Immunization Monitoring chart,18.2% Disease cases 9.8% quarterly and 11.4% Annual Plan & Performance Monitoring charts respectively (**Table 6**).

Table 6: Result from observation on availability of resource/chart & presence HMIS committee at HC and District health offices in East Wollega Zone, April 2015

Name of Chart/Statements	HC (18)	District health office (9)	Total		%
			expected	observed	
Standard reporting formats	120	84	306	204	66.7
Indicators and information use guideline	27	71	306	98	29.0
Map of catchment area	28	54	188	82	43.6
Catchment Population Profile	20	42	152	62	40.8
Ten Top Causes of Morbidity(Males & Females)	8	14	98	22	22.4
Immunization Monitoring chart For < 1 Children (Penta 3, Measles)	16	14	100	30	30.0
Routine Report Submission Check	46	52	306	98	32.0
Feedback received Report/ registers	12	31	306	43	14.1
Supervision worksheet	2	30	126	32	25.4
Quarterly Plan &Performance Monitoring chart	8	22	306	30	9.8
Annual Plan & Performance Monitoring chart	16	19	306	35	11.4
Review meeting register	2	4	54	6	11.1
presence of HIS committee	3	4	27	7	26.0

Factors affecting utilization of Health Information District /district level

Human attribute related factor

The results of multivariate logistic regression on respondent's salary, organizational responsibility were found to be significant in determining utilization of Health Information. those respondents whose monthly salary is 2250 and above ETB were 3.19 times more likely to utilize Health Information than those whose monthly salary is 1232 and less ETB (AOR = 3.19 and P = 0.02) and those respondents who were working as an expert position were 66% less likely to utilize Health Information as compared those working at head position (AOR = 0.34 and P = 0.002). Sex, Year of service and educational level were not statistically significant to affect Health Information utilization (**Table 7**).

Table 1*:* Human attribute related factors that affect utilization of health information at District /district level in East Wollega Zone, April 2015

Variable	N (%)	COR(95%CI)	P	AOR(95%CI)	P
Monthly salary					
<=1232	27(8.8)	1		1	
1233-2249	197(64.4)	1.3(0.6-2.9)	0.53		
>=2250	82(26.8)	4.5(1.8-11.3)	0.001	3.19(1.24-8.23)	0.02
Position in organization					
Head	66(21.6)	1		1	
Expert	240(78.4)	0.2(0.1-0.5)	0.001	0.34(0.17-0.66)	0.002

Over all factors affecting HIS utilization

Multiple logistic regression analysis was done to control potential confounders of factors affecting utilization of Health Information. Consequently from data characteristics factor, feedback from respective supervisor, types of the decision made and organization/institution type were found to be the overall significant factors affecting Health Information utilization.

Feedback from respective supervisor which was significant before adjusting confounders and still shows significant association yet in multiple logistic regressions analysis [AOR=14.5(6.9-30.3)]. Likewise, almost all of the key informants stated that the absence of on job training, absence of planed supervision and feedback, shortage of recording and reporting materials, quality of the data, capacity of unit/department to make decision, types of organization or unit and type of decision, absence of information use guideline/manuals and deficiency of sense of owner ship of the data were the main factors affecting utilization of Health information system.

Table 8: Multiple logistic regressions analysis on factors affecting utilization of health information at District level, East Wollega Zone, April 2015

Variable	N (%)	COR(95%CI)	P	AOR(95%CI)	P
Feedback					
Yes	123 (40.2%)	21.5(11-42.3)	0.001	14.5(6.9-30.3)	0.001
No	183 (59.8%)	1		1	
Type of decision					
Short term decision	202 (66%)	7.9(4.6-13.6)	0.001	3.9(1.9-7.8)	0.001
Long-term decision	104 (34%)	1			
Type of institution					
HC	216 (70.6%)	1			
District health office	90 (29.4%)	4.0 (2.3-7.0)	0.001	3.5(1.5-8.1)	0.004

Discussion

Health Information System is a system that integrates health data collection, processing, reporting, and use of the information necessary for improving health service delivery, effectiveness and developing efficiencies in the reporting systems. Without reliable and appropriate health information system, health care managers and health care providers cannot improve the quality of health services.

This study identified that all of the studied facilities were trained on the use of the new Health Management Information System. This is higher than the study conducted in Tanzania which was 19% [5] and study done in North Gondar reported that 23.8 % were trained both in the Health Centers and District Health Office level [23]. This difference may probably due to emphasis given to training on Health Information System to build the capacity of staffs on Health Information utilization at the study area and the time difference among the studies.

The accuracy of reported data across the units/departments at Health Center were not 100% in both quarter I and II which is not in accordance with FMOH- Health Management Information System guideline[22] which may be attributed to lack of standard reporting format.

Concerning the availability of the Health Management Information System registers and forms this study identified unacceptably low achievements as per standards which is 45.8% and 57.8% of the all units/department had respectively. This is a slightly lower than study done in four region of Ethiopia which were 50% and 60% respectively [21]. Even though 100% availability is expected both at the given area and nationwide as per Health Management Information System guideline [30], for this particular study the difference may be attributed to the difference in sample size and coverage. The newly designed registry and tally sheets were expected to be available in all Health Centers and Health Management Information System standard guidelines are also supposed to be presented in all units. But, interruption of supply of forms and registers may frustrate the health staff in units/departments, compromising the attention paid to successful utilization of the health information system. In most unit/departments, Health Management Information System standard guidelines were not available at various levels which might affect the quality of generating, aggregating and utilization of health data. Regarding Health Information utilization based on the set criteria only 54.2% units/departments utilized Health information system. This comparably higher than Health Information System utilization rate in Ghana 10%, Maria Uganda 20% and north Gondar 22.5 % [19, 20&23]. These greater differences might be due to relatively higher trained unit/department head/experts on the new Health Information System utilization guideline in the current study and difference in time duration of the study.

The use of health data for decision making in the current study was 66% which is comparable with reports of Oromia, Amhara, SNNP and, Tigray regional states[21] and slightly comparable with study findings in Tanzania[12]. In this study 45.8% of the respondents had not utilized health information and supported by key informants. .

As to the factor affecting Health Information utilization in general from the literature training of staff on HMIS, monthly salary of the staff, supportive supervision and feed backs, availability of HIS materials, quality of the data, types of decision in Health Information utilized for, at which level of health institution HIS utilized, position of health experts in the organization and service experience, education level, appropriate incentive and motivation of the staff were found to be significant factors affecting Health Information [4,12]. From identified factors affecting Health Information utilization related to Human attribute, those who get monthly salary of 2250 and above ETB per month were more three times more likely to utilize health information as compared to those with monthly salary of 1232 and less ETB per month (AOR=3.19) and those respondents who working as an expert position were 66% less likely to utilize health information as compared those working at head position (AOR=0.34). The monthly salary factor is slightly comparable with study findings from North Gondar [23].

Feedback from immediate supervisors in which those who got feedback were about 20 times more likely utilize health information than those who did not got feedback (AOR= 20.24). Types of decision were also one of the highly significant factor affecting the utilization of Health Information System in the study area in which health information has been utilized over seven times for making short term decision than for long term decision (COR=7.9).

Identified organizational characteristics that significantly affecting Health Information utilization were the level of institution in which District health office utilized health information four times than HCs (COR=4.0). Generally the overall utilization of health management information System in all the study units was found to be low based on WHO standard guide lines and FMOH- Health Management Information System information use guideline.

Conclusion and Recommendation

- In spite of the fact that all of the unit/department experts trained on Health Management Information System , still the key informants claim that the training was not sufficient to implement the new system in line with Health Management Information System standard.
- The quality of the data in relation to timeliness and completeness were in line with the set national Health Management Information System guide line whereas the accuracy of data in east Wollega zone was low in line with Health Management Information System guide line.
- Feedback from respective supervisor, types of decision to be made and types of organization or institution were the factors affect the utilization rate of health information.

East Wollega health department should:

- Enhance in-service training and capacity building programs so that it improve decision making.
- Ensure availability of standard reporting formats and registers at all HCs and ensure availability of indicators, information use guideline and all other resource needed at all units/departments..
- Establish timeliness and completeness of report tracking system at all levels in the district.
- Improve use of HIS data/information for service delivery improvement & link with the planning system and also make certain informed decisions making that lead to action and positive change at all levels in the Zone.

Competing interests

We declare that we have no competing interests

Authors' contributions

Kefiyalew Emiru, Habtamu Oljira Desta and Meseret Ifa were the Principal Investigators, participated in Conceptualize the study, designed the study instrument draft of the manuscript and involve in a critical review of the manuscript.

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