Evaluation of Utilization of Health Management Information System data for Evidence-Based Decision Making and its associated factors in selected public health institutions of Oromiya region, Ethiopia, 2017

By Thomas Teshome (BSc)

An Evaluation report submitted to Jimma University, Institute of Health Science, Faculty of Public Health, Department of Health Economics, Management and Policy, Health Monitoring and Evaluation for the partial fulfillment of the requirement for the Degree of Master of science in Health Monitoring and Evaluation

Jimma, Ethiopia

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Advisers:

Yibeltal kifile (BSc, MSc in Health M&E, Assistant Professor)

Meskerem Seboka(BSc, MSc in Health M&E)

Jimma, Ethiopia

October 2017

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

Name: **THOMAS TESHOME**

Signature: _____

Name of the institution: **JIMMA UNIVERSITY**

Date of submission: _____

This thesis has been submitted for examination with my approval as University advisor.

Name and Signature of the first advisor:-

YIBELTAL KIFILE (BSc, MSc in Health M&E, Assistant Professor)

Signature: _____

Name and Signature of the second advisor

MESKEREM SEBOKA(BSc, MSc in Health M&E)

Signature: _____

ABSTRACT

Background: *Appropriate and timely use of health and health-related information is an essential element in the process of transforming the health sector. In Ethiopia, there is a limited culture of using information for decision-making. Only 37% of the facilities had exercised discussion and made decisions using findings from routine health information. Therefore, the objective of this evaluation was to assess the level of utilization of health management information system data for decision-making and to identify the factors that affect information use in the selected health institutions of Oromiya regional state health sector.*

Methods and Materials: *The institution-based cross-sectional study was conducted in 53 randomly selected health institutions and 245 respondents which included heads of health institutions / units/departments from February 5 –March 03/2017. Quantitative and qualitative data were collected semi-structured questionnaires. Information utilization, Availability and compliance dimensions were assessed. Data were analyzed using SPSS version 23. The logistic regression analysis was done for individual-level variables. The Description of data was made using tables, charts and graphs for quantitative data. Qualitative data were summarized. The study was conducted after getting approval from Jimma University Public Health Faculty.*

Result: *Findings indicate that out of the number of monitoring and evaluation unit professional required per standard 88.6% were available. Fifty five percent of health institutions have electronic health management information system database. However, in this study, none of the institutions allocated budget for M&E unit from the government fund. Overall 52.8% of health institutions visited by immediate supervisor and out of them 78.6% of health institutions supervisors send feedback. Regarding Completeness of the report, 74.90% of the facilities were observed to be reporting to Administrative unit (woreda health office and zonal health office). Overall 64.3% of the health facilities met the reporting deadline. Based on the set criteria for HMIS data utilization, the overall utilization rate was found to be 49.1%. Among Administrative unit 61.5%, Health facility (Health center & hospitals) 62.5% and Health Post 18.8% were utilized data for decision-making. Based on the judgment criteria Information utilization, Availability and Compliance dimensions are 61.23%, 65.85% and 64.96% respectively. Overall evaluation of health information system at Oromiya regional state public health institution shows 63.74%, which categorized under fair judgment category.*

Conclusion and Recommendation: *From the findings, it is concluded that utilization of health management information system data for decision-making was found to be comparable with health sector transformation plan two however; it is very low at health post levels. Overall evaluation of health management information system at Oromiya regional state public health institution shows inadequate which needs more leadership role. Emphasis should be given to monitoring and evaluation unit to have their own budget, Supportive supervision and technical assistance with periodic feedback should be delivered to monitor their progress towards the reformed health management information system.*

ACKNOWLEDGEMENT

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

EC   Ethiopian Calendar

FMOH   Federal Ministry of Health

HC   Health Center

HIs   Health Institutions

HIS   Health Information System

HIT   Health Information Technician

HMIS   Health Management Information System

HP   Health Post

HSDP   Health Sector Development Program

HSTP   Health Sector Transformation Plan

ICT   Information Communication Technology

IPD   In Patient Department

LQAS   Lot Quality Assurance Sampling

M&E   Monitoring and Evaluation

MDG   Millennium Development Goals

MIS   Management Information System

OPD   Out Patient Department

PHCU   Primary Health Care Units

PHEM   Public Health Emergency Management

PRM   Performance Review Meeting

PRT   Performance Review Team

RHB   Regional Health Bureau

SBA   Skilled Birth Attendants

SNNPR   South Nation Nationality People Region

WHO   World Health Organization

WorHO   Woreda Health Office

ZHO   Zonal Health Office

OPERATIONAL DEFINITIONS

Availability of resources: availability of HMIS/M&E unit expert, guidelines, budget, performance monitoring team, electronic M&E database and reports copy (monthly & weekly (PHEM)).

Completeness of the reports: - is the percentage of all reports that were actually received by WorHO, ZHO and RHB regardless of whether they were received within the institution-reporting deadline.

Content Completeness was assessed by proportion of filled data items in HMIS report (service delivery monthly report) for Tikimt 2009 EC out of expected (at least 90 percent of data elements) complete.

Timeliness was assessed by proportion of health facilities sending monthly and weekly reports before reporting deadlines.

For Health post to health center 18-20th of the same month

Health center to WorHO 21-26th of the same month

Hospital / WorHO to Zonal health office 27-03rd of the month

ZHO to RHB 4-8th of the same month

Utilization of health information: - Is measured using information for:

- Appreciation and acknowledgement based on number/percentage of facilities showing performance within control limits over time (month to month comparisons)
- Review strategy by examining service performance target and actual performance from month to month
- Review facility personnel responsibilities by comparing service targets and actual performance from month to month
- Mobilization/shifting of resources based on comparison by services/facilities
- Advocacy for more resources by showing performance gaps in ability to meet targets/ by comparing performance by areas.
- Presence of key indicators (Related to maternal health , child health, facility utilization or disease surveillance main indicators) with charts, tables or maps
- HIs has annual/monthly planned targets based on HMIS information

If at least three of the above criteria applied then that institution was concluded as routine health information system data are utilizing for decision-making.

CHAPTER ONE: INTRODUCTION

1.1 Background

The World Health Organization has identified in 2007, health information systems as one of the six building blocks of a health system. Which shows Health information systems are critical for decision-making within each of the other five building blocks (health service delivery, health workforce, access to essential medicines, health systems financing, and leadership and governance), hence forming the foundation of decision-making across health systems (1).

Health information systems serve multiple users and a wide array of purposes. It is essential for health system policy development and implementation, governance and regulation, health research, human resources development, health education and training, service delivery and financing (2). Health information systems integrate data generation, compilation, analysis and synthesis, and communication and utilization of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services (3).

The health system in developing countries has changed drastically in the past decade from a centralized system with hierarchical reporting to a decentralized system. Decentralization inherently implies the expansion of choice at the local level, with decentralization of management responsibilities and resource allocations to the local administrative, generates new needs for availability and use of information for evidence-based health practice (4).

However, health information systems in most countries are inadequate in providing the needed management support. Study findings suggest in many counters of the world routine health information utilization for evidence based decision was inadequate e.g in South Africa, Uganda, Liberia and Pakistan the information utilization were 65%, 41%, 32% and 10% respectively(5)(6). In addition, decision-making in health is all too often based on political opportunism, expediency or donor demand (7). Moreover, reliable and timely information is not available, owing to chronic under-investment in systems for data collection, analysis, dissemination and use. Even when data are available, they are often out of date, rendering the challenge of assessing trends even more difficult(8).

The inefficiency of most existing health information systems in developing countries are associated to the structural weakness of the system, lack of integration in the overall health system, inadequate financial and human resources; limited attention paid to data quality assurance and supervisory support; and failure to maximize the potential of emerging information technologies(9)(10).

In Ethiopia Legislation enacted in 2002 decentralized authority for delivery of public services to the woreda. Elected Assemblies at these administrative levels have authority to allocate the financial resources and mobilize community support for health services(11). The Federal Ministry of Health (FMOH) and the Regional Health Bureaus (RHBs) focus more on policy and strategy matters and technical support while Woreda Health Offices (WorHO) manage and coordinate the operation of the Woreda health system under their jurisdiction(12).

To strengthen the health information system, Ethiopia has undertaken an extensive reform and re-design of the health management and information systems. The reform has taken major steps in response to the lack of complete, accurate and timely data that as a result affected the quality of care, planning and management systems. (11)(13).

To fill the information need FMOH bases its activities on the implementation framework of the Health Sector Development Program (HSDP) and health sector transformation plan (HSTP). Each of these successive plans has identified strengthening Health Management Information System/ Monitoring and Evaluation (HMIS/M&E) as a key strategy for successful implementation(14). Accordingly, the National HMIS Strategy identifies five critical strategic areas to strengthen and continuously improve HMIS/M&E. These are standardization and integration of data collection and reporting, capacity building, the linkage between information sources, action-oriented performance monitoring, and use of the appropriate technologies(11).

1.2 Statement of the problem

Appropriate and timely use of health and health-related information is an essential element in the process of transforming the health sector. However Study done in Ethiopia shows culture of using information for decision-making in planning and management of implemented programmes was limited. Only 37% of the facilities had exercised discussion and made decisions using findings from routine health information(20)

In Ethiopia Only 33.6% of Performance Review team analyzed report using plan vs. achievement on monthly basis. Half of the facilities were never compared plan with the achievement for performance review meetings(13). Meanwhile the data was minimally coordinated, analyzed and interpreted for decision-making(17)

Moreover, around 70% of the facilities were not developing the action plan for recommended activities and disseminate to responsible bodies. In addition, around 33% of health centers and 33% of hospitals never displayed updated information on a monthly basis(13).

According to Ethiopian ministry of health, identified challenges for evidence-based decision making at all levels were lack of integration of HMIS with pharmaceutical, regulatory, human resource, and other information systems, low level of implementation of HMIS at private facility, poor data quality at the lower administrative levels, low level of data use for decision-making and limited human resource(18).

In addition, Information flows slowly and there is limited expertise in synthesizing information at the district level According to the ministry of a health study, only 61.7% of facilities were assigned fulltime HMIS focal person. Of them 25.7 %were HIT graduates. These imply an acute shortage of technical and administrative staffs means that staffs are overburdened, and technical staff are often required to carry out tasks originally planned for those with more training (task shifting)(19).

Also On average 43% of facilities (46.7% HC and 22 % hospital) not had HMIS recording, reporting, indicator and information use guidelines. In addition, 57.9% facilities received HMIS focused supportive supervision from outside organ while only 28.0% had written feedback. Around 66.6 % of facilities did not allocate budget for HMIS activity(13).

According to the ministry of health, Also Timeliness was another problem identified which shows National aggregate district level timeliness was 68% and Aggregate regional timeliness was 73%. That means only 73% districts sent their report timely to respective regions(13).

Recently the government of Ethiopia designed second health sector transformation plan, which incorporates Information revolution – "is reforming the methods and practice of collecting, analyzing, presenting and disseminating information. It is a radical shift from the traditional way of data utilization to a systematic information management. It includes advancing the data collection, aggregation, reporting and analysis practice; promoting the culture of information use at the place of generation; harnessing ICT; improving data visibility and access; and strengthening verification and feedback systems"(20).

However, to the knowledge of the researcher in Oromiya region, there was no evaluation of routine health information management system data utilization for decision and determinant factors to information use study done at which all level of the public health system included. so this study assessed the states information utilization and identified factors that affect information use.

1.3 Significance of the Study

This evaluation assessed the status of HMIS utilization and identified factors that affect information utilization. The findings and recommendations of the study will contribute towards the ongoing efforts of developing a better health management information system. Specifically, the findings of the study benefit facilities and institutions by helping them identify their weakness in implementing the reformed HMIS and propose better ways that help them improve their utilization of health information for evidence-based decision-making. In addition, it will use as a reference to other researchers in this area.

CHAPTER TWO: PROGRAM DESCRIPTION

Health Management Information system (HMIS) is a system that integrates data collection, processing, reporting and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services. It is a routine system of generating information on the routine activities (21). The following program description clarifies all the components and intended outcomes of the program, thus helping focus the evaluation on the most central and important questions.

2.1 Program stakeholders

Stakeholders are all those who need to be considered in achieving project goals and whose participation and support are crucial to its success(22). During evaluability assessment, the Stakeholder analysis was conducted in December 5-10/2016; the analysis includes identification of key stakeholders, the roles of each stakeholder in the program and in the evaluation and ways to establish communication with stakeholders as summarized in (table 1)

Table 1 Stakeholders identification and analysis matrix for process evaluation of HMIS program in Oromiya regional state, December 2016

Key stakes	Role in program	Interest in the evaluation	Role in evaluation	Communication Strategies
Federal ministry of health	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget ♣ Supportive supervision and monitoring ♣ Provide evidence based decision ♣ Evaluation of the program	Use of finding for planning, design and further program improvement by capacity building and supportive supervision and planning for identified gap.	♣ Identification of indicators ♣ describing the program, ♣ defining the evaluation question ♣ Providing support in the entire process of the evaluation	♣ Telephone
Oromiya regional health bureau	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget ♣ Supportive supervision and monitoring ♣ Provide evidence based decision ♣ Evaluation of the program	Use of finding for planning, design and further program improvement by capacity building and supportive supervision and planning for identified gap.	♣ Identification of indicators ♣ describing the program ♣ defining the evaluation question, ♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion ♣ Telephone
Zonal health departments	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget ♣ Supportive supervision and monitoring ♣ Provide evidence based decision ♣ Evaluation of the program	Use of finding for planning, design and further program improvement by capacity building and supportive supervision and planning for identified gap.	♣ Identification of indicators ♣ describing the program ♣ defining the evaluation question, ♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion ♣ Telephone
Hospitals	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget ♣ Provide evidence based decision ♣ Supportive supervision and monitoring	Use of findings for program improvement by capacity building, supportive supervision and further budgeting of the program	♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion ♣ Telephone
Woreda Health Office	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget	Use of finding for planning, design and further program improvement by capacity building and supportive	♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion

	♣ Supportive supervision and monitoring ♣ Provide evidence based decision ♣ Evaluation of the program	supervision and planning for identified gap.		♣ Telephone
Health centers	♣ Program owner ♣ Coordinating the program ♣ Allocation of budget ♣ Supportive supervision and monitoring ♣ Provide evidence based decision ♣ Planning and Implementation of the program	Use of finding for program improvement through strengthening the quality of the HMIS system and further enhancement	♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion ♣ Telephone
Health Post	♣ Planning and Implementation of the program ♣ Provide evidence based decision ♣ Program owner	Use of finding for program improvement through strengthening the quality of the CHIS system and further enhancement	♣ Data source for evaluation ♣ Providing support in the entire process of the evaluation	♣ Formal Letter ♣ Face to Face discussion
Community	♣ Beneficiary of the program; involve in the implementation of the program	Program improvement		
JSI/l10k	♣ Provision of Capacity building training ♣ Mentorship	Use of finding for program improvement and enhancement of technical and material support	♣ Identification of indicators ♣ describing the program ♣ defining the evaluation question ♣ Providing support in the entire process of the evaluation	♣ Telephone ♣ Face to Face discussion

2.2 Program objectives

2.2.1 General objective

General objective of health information system is availing reliable, timely and complete information to make evidence based decision making possible at each level of the health system for improving the performance of health services delivery (20)**.**

2.2.2 Specific objective

Specific objectives (12)

1. By 2016 Increase the completeness of HMIS reports from 80% to 90% in Ethiopian health facility

2. By 2016 Increase the timeliness of HMIS reports from 80% to 90% in Ethiopian health facility

3. By 2016 Increase the Data accuracy of HMIS reports from 80% to 90% in Ethiopian health facility

4. By 2016, increase proportion of Institutions that conduct supportive supervision and provide feedback as per the standard to their next lower level to 100%.

5. By 2016, Increase proportion of Health facilities implementing e-HMIS from less than 50 to 100%

6. By 2016, increase proportion of Institutions with functional performance monitoring team to 100%.

7. Identified positions filled by trained professionals as per the national standard guideline from 50% to 80%.

8. Woredas/HMIS sub systems with budget line for HMIS activities from 10% to 60%.

9. By 2016 Increase proportion of health institutions that met minimum information use standards/criteria (regular performance review with plan Vs achievements, root cause analysis, charts/figures display, action plans, shares responsibility and track implementation of endorsed plan) from 29 to 50%.(20)

2.3 Strategic Initiatives: (20)

1. Implement a "one plan", "one budget" and "one report" approach at all levels of the health system

2. Develop and implement evidence-based, scientifically sound policy decision and planning.
3. Strengthen routine reporting and performance monitoring system
4. Strengthen survey and surveillance systems
5. Build capacity of health facilities, Woredas, Zones, and regions to analyze and use data for decision-making at the local level
6. Supportive supervision
7. Data quality assurance and auditing
8. Conduct basic and applied research to promote evidence-based practices
9. Collaborate with relevant authorities to scale-up civil registration and vital statistics nationally and use the data to inform planning and programming

2.4 Program activities and resources

2.4.1 Program activities

❖ Providing training
❖ Awareness creation
❖ Recording medical information
❖ Collecting data
❖ Generating reports
❖ Displaying information
❖ Conducting data quality check (LQAS& RDQA)
❖ Analyzing and Interpreting data
❖ utilizing Data for decision-making
❖ Providing information to customer
❖ Ensuring documentation
❖ Printing and distribution of formats, guidelines, manuals and other materials
❖ Card room renovation
❖ Conducting supportive supervision
❖ Conducting review meeting
❖ Conducting evaluation and operational research

2.4.2 Program resources

- ❖ Human resources [IT, M&E, statistics and HMIS experts
- ❖ Financial resource
- ❖ M&E unit/ space
- ❖ Material resources
  - ✓ Training manual
  - ✓ Implementation guideline
  - ✓ Tally sheet, registration book and reporting formats
  - ✓ Computer, shelf, master patient index box, telephone, photocopy machine, internet access
  - ✓ Existing data base unit (card room)

2.5 Program logic model

Logic model is a simplified picture of a program, initiative or intervention that is a response to a given situation. Shows the logical relationships among the resources that are invested, the activities that take place, and the benefits or changes that result(23).

Goal; To support decentralized, action-oriented, evidence-based decision making, resulting in: − use of evidence-based M&E by managers and health workers at all levels of the health system to plan, monitor, and improve performance,(31)

Problem statements; In Ethiopia At most Health Institutions the HMIS does not deliver its most important product- utilization information for decision making. Only 37% of the facilities had exercised discussion and made decisions using findings from routine health information(20) In addition, Only 33.6% of Performance Review team were analyze report-using plan vs. achievement on monthly basis (13). Meanwhile the data was minimally coordinated, analyzed and interpreted for decision-making(17)

Input	Processes/ activates	Outputs	Outcome	Impact

Input
- Human resources /expert
- Financial resource
- Material resources
- Training manual
- Implementation guideline
- Tally sheet, registration book and reporting formats
- Computer, shelf, master patient index box, telephone, photocopy machine, scanner
- Existing data base unit (card room)

Processes/ activates
- Printing and distribution of formats, guidelines, manuals and other materials
- Provide training & refreshment
- Awareness creation
- Conducting data quality check (LQAS and RDQA)
- Collecting, Recording , tallying, analyzing, Interpreting and Reporting data
- Utilizing HMIS Data for decision-making
- Conducting supportive supervision and Providing feed back
- Conducting review meeting
- Conducting evaluation and operational research
- Dissemination of the finding

Outputs
- No. of guidelines, manuals, recording and reporting formats printed and distributed
- No. of trained human resource
- No of sessions conducted for awareness creation
- No. of monthly reports conducted LQAS & RDQA
- No. of reports submitted timely, complete and accurately
- No. of decision made based on HMIS data
- No. of supportive supervisions conducted and feedback given
- No of periodical review meetings conducted
- No. of evaluations and operational researches conducted
- No. of disseminated report

Outcome
- Increased knowledge and skill on HMIS
- Increased quality of data
- Increased information use for decision making
- Increased client satisfaction
- Improved health service delivery/ program implementation
- Increased efficiency of services

Impact
- Contribution to health promotion and disease prevention
- Contribution to reduction of morbidity and mortality

2.6 Stage of program development

In Ethiopia the reformed HMIS was designed, piloted and tested in 2006–2007 with technical assistance from John Snow, Inc. (JSI)(24). In the same year, a standardized and harmonized HMIS reform program was launched a nationwide by the Ministry of Health (MoH) as the primary source of information for evidence-based decision-making and monitoring health sector performance(25). In Oromiya, the reformed HMIS scale up began in 2009 in 18 zones and 12 special woredas(26).

Following the health management information system reform, the Ministry of Health introduced a community health information system to capture basic health and health-related information through health extension workers at household and individual level(12). The community health information system collects data on basic demographic statistics, health service delivery and utilization based on the health extension package, using a family folder. This is reported to the woreda health offices and then to the Ministry of Health as part of the health management information system(31,36). In 2011, Training of Health Extension Workers (HEW) On Family Folder and HMIS Procedures Facilitators' Guide was developed by federal minister of health (28).

In 2011 computerized HMIS/monitoring and evaluation data processing and reporting application known as an electronic HMIS (eHMIS) program was started. A system helps to accurately and timely enter, aggregate, store, analyze and evaluate health-related data from health facility to the federal level. eHMIS is composed of a set of interrelated components and procedures organized with the objective of generating health information and intelligence to monitor the health status and health services of the nation to improve public healthcare leadership and management decisions at all levels.(24) Its main users are public policy makers, health officers, researchers, planning departments of health offices, HMIS focal persons, data entry clerks and many others ranging from health facility to federal management levels(29).

In 2013, To further build the skills of the health managers and professionals in using the information generated by HMIS and linking it to program planning and performance monitoring, HMIS Information Use Guide (Technical Area 4, Version 2) Training Manual published by the FMOH and follows the experiential training methodology recommended by FMOH for in-

service trainings. This Training Manual is intended for workshop-based training and trainings organized through Health Science Colleges (30,31).

In addition, the Ministry of Health in Ethiopia publishes health and health-related indicators annually, the annual summary of health service statistics which is shared at annual review meetings and policy and practice bulletin on a quarterly basis to promote information-sharing, document best practices and support evidence-based decision-making(32).

In general based on the evaluablity assessment conducted, the program is matured and ready to assess the implementation status of the program.

CHAPTER THREE: LITERATURE REVIEW

3.1 Introduction

The following section discusses various studies that have dealt with study of health management information system (HMIS) and factors affects' information utilization.

3.2 HMIS information utilization

Both demand for and supplies of data vary in complex ways at different levels of the health system. At the level of individuals and communities, information is needed for effective clinical management and for assessing the extent to which services are meeting the needs and demands of communities. At the level of the district, health information enables health planners and managers to take decisions regarding the effective functioning of health facilities and of the health system as a whole. At higher levels, health information is needed for resource allocation and strategic policy-making. Although the data requirements at every level of the health system are different. The quantity and detail of data needed is generally greater at lower levels of the system, where decisions on the care of individuals are made, than at higher levels where broader policy-making takes place(7).

Study done in Mexico shows, 64% of the facilities had reports (feedback, monthly, quarterly, others). Out of those facilities, reports showed decisions for strategy review (94%), adjust personnel (92%), advocacy (84%), and mobilizing resources (76.2%). indicating an overall 86.1% use of information for various decisions in available reports. The district level showed a better use of data than the facility level when making decisions(33).

A study done in Jimma zone by Sultan et al shows, Based on the set criteria, the utilization of collected health data/information at units/departments were 26.7%, 31.3% and 36.0% for Health Posts, Health Centers and District Health Offices respectively. Overall, 32.9% units/departments of health facilities used their data/information for decision making, planning, budget and M&E of their activities(34).

Similarly A study done in Diredawa town administration by Kidist Teklegiorgis et al.: shows based on the set criteria for HMIS utilization, the overall utilization was found to be 53.1% (35).

In addition, Study done in SNNPR shows, 44.8% of HC, 50% of hospitals and 68% administrative health institutions (ZHD and WorHO) were discussed HMIS data on performance review . Out of those institution 69% of Health facility(HC& hospitals) and 36% administrative health institutions (ZHD and WorHO) had evidence of making decisions using HMIS data in 3 months(36).

Data display is an important process for showing progress over time. Study done in Mexico showed, overall 71 % of the facilities exhibited selected data display. Among data display, 62.7% maternal health, 65.1% child health, 57.2 % diabetes and 65.1 % surveillance(33).

In cross sectional study conducted by Belay et al in SNNPR shows, about 89% of health facilities were displaying data; of them 56% HFs had all the indicators updated over the three months period. The most common indicators displayed were maternal health indicators on 100% HFs, child health indicators in 100% HFs, disease data were displayed in 85% and facility utilization data were displayed in 74% HFs(36). However in national level study only 47% of facilities were displaying updated information on monthly basis(13).

Study done in SNNPR shows 74% of HFs displayed the map of their catchment area and 79% of HFs displayed a summary of the demographic information. At zonal/woreda level 100% of the ZHDs and 86% of the WorHOs displayed map of the catchments area, service delivery data and demographic data(36).

Study done in SNNPR shows Data analysis at WorHOs Calculate indicators for each facility catchment area 84%, Summary report for woreda 100%, Comparisons among HFs 58%, Comparison with woreda/zone target 74%, Comparison among types service coverage 47% and Comparison of data over time 84%. However the study shows at health facility comparatively lower which is 73% calculated indicators for their catchment area, also fewer HFs were carrying out comparisons with woreda/zonal targets (13%) or comparisons among types of service coverage (31%) or comparison over time (40%) (36).

3.3 Factors of information utilization

3.3.1 Behavioral Factors

HMIS users' demand, confidence, motivation and competence to perform RHIS tasks affect HMIS processes and data utilization directly(37). High self-efficacy or confidence levels to complete a task ensure that the task will be done, and done correctly. Similarly, if one feels that performing a task will bring about a positive outcome, one is more likely to perform that task.

Study done in Mexico showed that the average confidence level for checking data quality, calculation, data plotting and data interpretation was 74.3%, 76.1% , 76.3% and 70.9% respectively. In general respondents also believed that performing HMIS tasks bring about positive outcomes, (average motivation level was 69.2%) (33). Similarly Study done in SNNPR showed confidence level for checking data quality, calculation, data plotting, data interpretation and data use was 76%, 64% , 74%, 54% and 59% respectively(36).

3.3.2 Organizational Factors

3.3.2.1 Perceived Promotion of a Culture of Information

People working within an organization perform tasks and behaviors that they believe the organization values and promote. In other words, organizations create a culture for promoting and sustaining certain values around organizational functions to be performed at optimal levels(37).

Study done in Mexico showed that overall the respondents strongly believe that the health department emphasizes data quality, promotes use of HMIS information, evidence-based decision making, problem solving, feedback, sense of responsibility and empowerment were 75%, 76.7%, 65.5%, 77.8%, 71.8%, 73.3%, 74.3% and 73% respectively (33).

Study done in SNNPR showed that overall the respondents at facility level strongly believe that the health department emphasizes data quality, use of information, problem solving, empowerment and sense of responsibility (scores of 70% or above). At WoHOs and ZHDs levels were higher (scores of 85% or above) than at the facility levels. It indicates that the respondents at this level feel strongly that the management gives due emphasis to data quality, use of information, problem solving, feedback and empowerment(36).

3.3.2.2 Activities for promotion of culture of information

PRISM frame work postulate that promoting a culture of information will improve information utilization(37). Study done in Mexico showed Communication about targets was observed for 63.9% of facilities, directives on the use of information (51.2%), advocacy (51.8%) and sharing success stories on use of information (22%). Similarly, at district level, all district action plan were prepared based on HMIS information, directives on the use of information (87.5%), advocacy (87.5%). and sharing success stories on use of information where find none. In addition, 49% of facility director attended meetings at district level to discuss HMIS information, while 75% of the district records showed that facility director attend meetings(33).

Study done in SNNPR showed that 65% of persons in charge of HCs and the 67% hospitals attend meetings at the woreda level for discussing performance. Such performance review meetings provide a forum for peer review that could stimulate interest in use of HMIS information and strengthening HMIS. Those officers can then replicate these messages at their facility level—fostering the promotion of a culture of information (36).

3.3.2.3 Supportive Supervision

Supervision is very important for providing support to staff and it is a means for on- job training. Study done in Mexico showed that 50% of the facilities reported receiving one or more supervisory visit in the three months. Of those facilities reporting one or more supervisory visit in the three months, 85%, 70% and 68% reported that the supervisor checked data quality, helped them make a decision and discussed facility performance using HMIS information respectively. However, 73% of the facilities received supervisor's feedback from their supervisory visit (33).

Study done in SNNPR, 65% of the health facilities (69% health posts and 61% health centers) had received supervisory visits in three months. In addition, at health posts supervisors used checklist (62%), checked data quality (62%), Helped in decision-making (81%) and Send feedback (58%). Similarly, at health centers supervisors used checklist (71%), checked data quality(57%), Helped in decision making (81%) and Send feedback (76%) (36).

 In Routine Data Quality Assessment (RDQA) conducted in Ethiopia by Noah et al shows, 57.9% facilities received HMIS focused supportive supervision from outside organ while only 28.0% had written feedback (13).

3.3.2.4 Availability of Resources

The availability of resources to perform HMIS tasks is crucial. Study done in Mexico shows 85% and 71% of the facilities surveyed had computer and calculators respectively while only 40% had a regular telephone line and 43% internet (33)

Study done in Ethiopia shows, 61.7% of health facilities were assigned full time HMIS focal persons. Moreover, Around 33% of facilities allocate budget for HMIS activity(13) Study done in Jimma zone shows, over all 71% of the data was documented in the form of hard copy and 5% had data in both hard and soft copy form (34).

Study done in SNNPR, shows all the Health Centers, 44% HP and all the administrative health institutions (ZHD and WorHO) in the cluster had Performance Review Teams. In addition, in 47% of WorHOs HMIS procedural guidelines for quality standards were available. Sixty percent of HMIS focal persons in the WorHOs received an HMIS training (36).

3.3.3 Data quality

The quality of health care delivery or the effectiveness of health planning and policy making depend on the availability of accurate and timely information to support decision making(38). Study done in Mexico showed 78% of the health facilities were completed the monthly form before reporting. In addition, completeness and timeliness of the report at the district level were 100% and 62.7% respectively(33).

Study done in Jimma zone shows, 46.0% unit of Health Posts, 38.46% units/departments of Health Centers and 36.0% departments of Districts reported monthly reports to the next higher level with in time schedules (34).

Study done in SNNPR 77% of the health facilities met the reporting deadline. In addition, 93% of the facilities completed the monthly form (met the 90% acceptable completeness standard) before reporting. Similarly over 99% of the facilities were reporting to WorHOs (36).

3.4 Conceptual framework

Behavioral Factors

- ♣ Confidence levels for HMIS Tasks
- ♣ Motivation

HMIS Processes

- ♣ Data transmission
- ♣ Data Processing
- ♣ Data Analysis

Quality of data

- ♣ Timeliness of the reports
- ♣ Completeness of the reports

Organizational Factors

- ♣ Availability of resources
- ♣ Supportive Supervision and feedback
- ♣ Promotion of culture of information use

Utilization of Routine Health Information

Figure 2: Conceptual framework of information use adapted from PRISM (Performance of Routine Information System Management) framework (37)

CHAPTER FOUR: EVALUATION QUESTION AND OBJECTIVES

4.1 Evaluation question

The evaluation questions were:

➢ Are health care providers and managers congruence with the national HMIS guideline while implementing the program. If not, why?
➢ What is the level of utilization of routine health data for decision-making?
➢ What factors affect information utilization?

4.2 Objectives of the Evaluation

4.2.1 General objective

♣ To assess the level of utilization of routine health data for decision-making and to identify factors that affect information utilization in the selected public health institution in Oromiya region, 2017.

4.2.2 Specific objectives

♣ To assess the congruence of health care providers and managers to national guideline while implementing the program in the selected public health institution in Oromiya region, 2017.
♣ To determine the level of routine health data utilization for decision-making in the selected public health institution of Oromiya region, 2017
♣ To identify the factors that affects the information utilization in the selected public health institution in Oromiya region, 2017.

CHAPTER FIVE: EVALUATION METHODS

5.1 Evaluation area and Period

Oromiya is one of the nine national states and two city administrations towns of Ethiopia. The State of Oromiya borders Afar, Amhara and the State of Benshangul Gumuz in the north, Kenya in the south, The State of Somali in the east, the Republic of the Sudan and the state of Benishangul/gumuz in the west, the State of Southern Nations, Nationalities and Peoples' and the state of Gambella in the south. Oromiya is the largest national state in Ethiopia in terms of population size and areal coverage. Its average estimated area is about 363,375 km^2, accounting for about 34.3% of the country's total area. An estimated population of Oromiya region accounts about 45.179 million(year July 2014) (38).

Administratively, Oromiya regional state is sub divided into 20 zones, 305 districts(265 rural districts and 41 urban centers under reform) and more than 6889 peasant and urban dwellers associations/gandas (39). A Woreda/District is the basic decentralized administrative unit and has an administrative council composed of elected members. In the region 6,519 health post, 1,363 public health centers and 65 public hospitals are available(39).

The Ethiopia health sector implemented a three-tier health care delivery system. Which is characterized by a first level of a Woreda/District health system comprising a primary hospital (with population coverage of 60,000-100,000 people), health centers (1/15,000-25,000 population) and their satellite Health Posts (1/3,000-5,000 population) that are connected to each other by a referral system. A Primary Hospital, Health center and health posts form a Primary health care unit (PHCU) with each health center having an average of five satellite health posts. The second level in the tier is a General Hospital with population coverage of 1-1.5 million people; and the third a Specialized Hospital that covers population of 3.5-5 million (12).

This evaluation was conducted at Oromiya regional state level from February 5 –March 03/2017.

Figure 3: Oromiya regional state political map

5.2 Evaluation approach

Formative evaluation was employed with the intention of improving a program through information gathered. Reformed Health management information system is recently introduced program, which is one components of national health system. Therefore, by using the recommendations of the evaluation, the program will be improved for further enhancement of implementation of the program.

5.3 Evaluation design

An institution based, cross sectional study design was employed using both quantitative and qualitative study methods.

5.4 Focus of evaluation and dimensions

5.4.1 Focus of evaluation

Process evaluation is a type of evaluation used to examine the operations of program, including which program resource are available, which activities are taking place and who is conducting the activities. It also to assess whether input or resources have been allocated or mobilized and whether activates are implemented as planned. Further, it also helps to identify program strength, weakness and areas that need improvement(40).

The evaluation focus was process evaluation. It focused on the input of the program, activities conducted, the immediate output result of activities and factors that affect the information use.

5.4.2 Evaluation dimensions

During evaluablity assessment the stakeholders, suggested dimensions in this evaluation were availability, compliancy and data utilization. For each dimensions indicators to be measured were identified in collaboration with key stakeholders of the program. Accordingly, the weight for each of the indicators under the dimensions was given based on their relative relevance during an evaluablity assessment.

So that availability dimension was assessed the quantity of existing resources to user by type and according to the need, that includes availability of budget, guidelines, report copes, HMIS focal person. Similarly, Compliancy dimension was assessed compliance of program implementers to national standards and guideline that includes supportive supervision conducted, review meeting conducted, timeliness and completeness reports and data utilization dimension was assessed level of information utilization that includes displaying key indicators and data utilized for different decision.

5.5 Indicators and Variables

5.5.1 Indicators of the evaluation

During evaluablity assessment, the following indicators were selected in collaboration with key stakeholders of the program based on previous literatures and national documents (HMIS Information Use Guide). In Total 51 indicators were used; availability 14 indicators, Compliance 25 indicators and data utilization 12 indicators.

5.5.1.1 Availability indicators

- Proportion of health facility (HCs and hospitals) identified positions which are filled by appropriate professionals as per the national standard guideline
- Proportion of administrative unit (WorHO, ZHO and RHB) identified positions which are filled by appropriate professionals as per the national standard guideline
- Proportion of health posts having CHIS guidelines
- Proportion of health facility (HCs and hospitals) having HMIS and eHMIS guidelines
- Proportion of health facility (HCs and hospitals) with a budget line for HMIS activities (printing, supportive supervision, HMIS review meeting,)
- Proportion of administrative unit (WorHO, ZHO and RHB) with a budget line for HMIS activities (printing, supportive supervision, HMIS review meeting,)
- Proportion of health post with functional performance monitoring team
- Proportion of health facility (HCs and hospitals) with functional performance monitoring team
- Proportion of administrative unit (WorHO, ZHO and RHB) with functional performance monitoring team
- Proportion of health facility (HCs and hospitals)with functional electronic M&E database
- Proportion of administrative unit (WorHO, ZHO and RHB) with functional electronic M&E database
- Proportion of 2016 all monthly & weekly PHEM reports copy available at health posts
- Proportion of 2016 all monthly & weekly PHEM reports copy available at health facility (HCs and hospitals)
- Proportion of 2016 all monthly & weekly PHEM reports copy available at administrative unit (WorHO, ZHO and RHB)

5.5.1.2 Compliance indicators

- Proportion of health posts received any feedback report During the last three month, (December to February 2016)
- Proportion of health facility (HCs and hospitals) received any feedback report During the last three month, (December to February 2016)
- Proportion of administrative (WorHO, ZHO and RHB) received any feedback report During the last three month, (December to February 2016)
- Proportion of health posts displayed a map of the catchment area
- Proportion of health facility (HCs and hospitals) displayed a map of the catchment area
- Proportion of administrative unit (WorHO, ZHO and RHB) displayed a map of the catchment area
- Proportion of health posts displayed a summary of 2009 E.C demographic information
- Proportion of health facility (HCs and hospitals) displayed a summary of 2009 E.C demographic information
- Proportion of administrative unit ((WorHO, ZHO and RHB) displayed a summary of 2009 E.C demographic information
- Proportion of health posts with PRTs maintaining PRM records

- ♣ Proportion of health facility (HCs and hospitals)with PRTs maintaining PRM records
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) with PRTs maintaining PRM records
- ♣ Proportion of health posts which review their monthly institutions activates performance in last three month as per the standard
- ♣ Proportion of health facility (HCs and hospitals) which review their monthly institutions activates performance in last three month as per the standard
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) which review their monthly institutions activates performance in last three month as per the standard
- ♣ Proportion of health facilities which sent reports to administrative unit (WorHO, ZHO and RHB) before deadlines on sene and tikimt month 2017
- ♣ Proportion of health facilities which sent reports to administrative unit (WorHO, ZHO and RHB)out of those supposed to report as per standard on sene and tikimt month 2017
- ♣ Proportion of health post reports meeting over 90% completeness criteria(monthly form data elements filled) in HMIS service delivery monthly report for Tikimt 2009 EC
- ♣ Proportion of health facility (HCs and hospitals) reports meeting over 90% completeness criteria (monthly form data elements filled) in HMIS service delivery monthly report for Tikimt 2009 EC
- ♣ Proportion of health posts that supportive supervision conducted by next higher level in last three month per national standard guideline
- ♣ Proportion of health facility (HCs and hospitals) that supportive supervision conducted by next higher level in last three month per national standard guideline
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) that supportive supervision conducted by next higher level in last three month per national standard guideline
- ♣ Proportion of health posts that got supportive supervision feedback as per the standard from their next higher level in last three month
- ♣ Proportion of health facility (HCs and hospitals) that got supportive supervision feedback as per the standard from their next higher level in last three month
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) that got supportive supervision feedback as per the standard from their next higher level in last three month

5.5.1.3 Data utilization
- ♣ Proportion of health posts that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators
- ♣ Proportion of health facility (HCs and hospitals) that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators
- ♣ Proportion of health posts with decisions made based on CHIS data at PRM in the last 3 months at list ones

- ♣ Proportion of health facility (HCs and hospitals) with decisions made based on HMIS data at PRM in the last 3 months at list ones
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) with decisions made based on HMIS data at PRM in the last 3 months at list ones
- ♣ Proportion of health posts that have annual/monthly planned targets that were prepared based on HMIS information
- ♣ Proportion of health facility (HCs and hospitals) that have annual/monthly planned targets that were prepared based on HMIS information
- ♣ Proportion of administrative unit (WorHO, ZHO and RHB) that have annual/monthly planned targets that were prepared based on HMIS information
- ♣ Proportion of health posts utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review Appreciation/ acknowledgment) in the last 3 months
- ♣ Proportion of health facility (HCs and hospitals) utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review Appreciation/ acknowledgment) in the last 3 months
- ♣ Proportion of administrative (WorHO, ZHO and RHB) utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review or Appreciation/ acknowledgment) in the last 3 months

5.6 List of variable

Study variable

The study was assessed the following variables at different levels

Independent Variable

It comprised:

Behavioral Factors; Confidence levels for HMIS Tasks and Motivation

Organizational Factors ; Availability of resources, Supervision and Promotion of culture of information use

HMIS Processes; Data transmission, Data Processing and Data Analysis

Quality of data; Timeliness of the reports and Completeness of the reports

Dependent variables:
- routine health management information system data utilization

5.7 Populations and sampling

5.7.1 Source population
The source population for this study was:

- ❖ All public health institutions in Oromiya region.
- ❖ All regional health bureau, zonal health departments and Woreda health office heads and unit/departments heads in the Oromiya region.
- ❖ All hospitals, Health Centers and health post heads, case team managers, unit head and HMIS focal person in the Oromiya region
- ❖ Health data records and reports at different levels of the health system

5.7.2 Study population
The study population consists of a selected sample of health institutions; health workers involved in the M&E system and health data elements reported in the health sector.

The study unit were health extension workers, unit/department/ case team coordinator (hospital and health center), HMIS focal person, unit/department/ case team coordinator (woreda health office, zonal health office and regional health Bureau) and head of health institution. In addition, service documents selected and included in the study (monthly & PHEM report copes, PRT minute book, management minute book, supportive supervision feedback reports,).

5.8 Sampling procedure and sample size estimation

Information system in the Ethiopian health sector is designed centrally. Despite the level of administrative decentralization, the health system is more or less uniform particularly in predominantly agrarian regions. Sampling strategy and sample size heavily depend on this assumption of homogeneity.

Based on the above assumptions for the evaluation number of study institutions were limited to four zones, eight woreda health office, eight hospitals, 16 health centers and 16 health post due to shortage of resource. Based on this, at regional level Oromiya regional health bureau were included in the study. Four zones (north Shewa, Arsi, Iluababora and east Wolega) were selected out of 16 zones using lottery methods.(However, Guji zone, Bale zone and Borena zone were

excluded from sampling considering they are pastoralist and semi pastoralist so they are different from the rest of zones in the region (which will be difficult to reach the institution on those zones). In addition, town administrations were also excluded from source sample). From each of the selected zones, randomly selected two woredas/district and two hospitals were included in study. From each of the selected woredas, randomly selected two-health center were included. One health post (HP) attached to each sampled health center was randomly chosen for the health post level assessment (Table 2). Then accordingly, the sample size was distributed to each health institution.

To estimate the sample size for self-administer questionnaire

The sample size was calculated using single population proportion with the following assumptions. P=32.9% (the utilization of health information system at district level in Jimma zone)(34), marginal error (d) of 5%, confidence interval of 95% and Zα/2 is the value of the standard normal distribution corresponding to a significant level of alpha (α) of 0.05, which is 1.96. This yields a sample size of 339.

$$ n = \frac{(Z_{\propto/2})^2 . pq}{d^2} $$

$$ n = \frac{(1.96)^2 \times 0.32 \times 0.68}{0.05^2} $$

n= 339

The source population number is less than 10000-population correction formula was used

$n = n / (1- (n / m)) = 339/ (1+ (339/3698) = 310$, total sample size was 310

Retrospective document review: The document reviews were conduced including administrative records, reports (monthly, quarterly and weekly), PRT minute books, supportive-supervision feedback and registration book of 2016.

Table 2 Summary of sampling study unit (Health institution) included in the study description, Oromiya region, March 20

Regional bureau (n=1)	Zonal health office (n=4)	Hospitals (n=8)	Woreda health office (n=8)	Health centers(n=16)	Health post(n=16)
Oromiya regional health bureau	North shewa ZHO	• Fiche hospitals • Kuyu hospitals	Dera WorHO	cheka HC	Jiru dada HP
				kara HC	Goda chaffee HP
			Allelitu WorHO	Mikawa HC	Chole sonkole HP
				Fitche gelila HC	Koke nasebar HP
	Arsi ZHO	• Bale gasgar hospital • Robe didea hospital	Bale WorHO	Jida HC	Jidda HP
				Bale HC	Koshimo HP
			Tena WorHO	Sole medero HC	Sole chefa HP
				Wadego hetose HC	Wadego misa HP
	Illuababora ZHO	• Metu carl hospital • Darimu hospital	Ale WorHO	Gore HC	Seggi HP
				Onga HC	Kachi boren HP
			Darimu WorHO	Gobbe HC	Gobbe HP
				Kidame HC	Loda kama HP
	East wollega ZHO	• Gida ayana hospital • Nekemte hospital	Ebantu WorHO	Hinde HC	Kekero HP
				Kello HC	Kilo badiya HP
			Wama hagelo WorHO	Mote HC	Kilo HP
				Keso HC	Ugga HP

5.9 Inclusion criteria

Those zonal health offices, District Health Offices, Health Centers and Health Posts fully functioning before the year 2016 were included in the study. All public health institutions found in Oromiya region and their unit/ department head and an institution head that have work experience for more than three months on current position were included. Health data reported during the second semester of 2008 Ethiopian fiscal year (January to June 2016) and the first six months of the 2009 Ethiopian fiscal year (July to December 2016) were eligible for the study.

5.10 Data Collection

5.10.1 Data collection tool developments

The quantitative and qualitative methods were employed using a Semi-structured questionnaire. The questioners were adopted from Tools for Data Demand and Use in the Health Sector MEASURE Evaluation MANUAL and in addition, additional questions were added after reviewing literature. The data collection tools include;

RHIS Performance Diagnostic Tool

This is the primary component of the toolset and this assesses the HMIS performance as measured by use of information, the processes and technical determinants. At each level, the main officers in charge of HMIS related activities were interviewed by the principal investigator. It also involved review and observation of facility records and information system infrastructure.

Organizational and Behavioral Assessment Tool

This looks at behavioral and organizational determinants that affect HIS performance and processes. It assesses the perceived knowledge of rationale, confidence, motivation and the perceptions about the promotion of the culture of information in the health system. This tool was administered to field and management staff at all levels who are involved in the routine HMIS processes.

Finally, prior to the actual data collection, Pretest was conducted in Jimma zone and Jimma town public health institution, which accounts 5% of the total sample size before the actual study done then the data were analyzed and based on the result correction was done on data collection tool.

5.10.2 Data collectors

Eight data collector and two supervisors were recruited to participate in data collection. They were selected other than the study health facility to minimize bias. Data collectors were provided training for two days on the content of the data to be collected, ethical issues to be addressed during gathering the data, communication skill, how to use the data collection guide and tools by the principal evaluator.

Supervisors were also trained for one day on the content data to be covered, on how to manage data collection process and the way to monitor the quality of data by the principal evaluator.

All Data collectors and supervisors were BSc holder, which are three Nurses, two public health officer and three environmental health officer.

5.10.3 Data collection fieldwork

The process of data collection was supervised for each data collector daily and appropriate correction was taken for the next day in the case when the problem occurs. Quantitative and qualitative data were collected by using semi-structured questioner. The data were checked for completeness, supervisors gave daily appropriate correction and principal evaluator at any time during data collection fieldwork.

5.11 Data management and analysis

5.11.1 Data entry

The data were checked for completeness every day after data collection by principal evaluator together with data collectors and supervisors and any problems encountered were discussed among the evaluation team and solved immediately. Finally, the data were coded and entered to Epi data 3.1 for further processing then transported to SPSS version 23 for analysis. For the qualitative data, the interview responses were summarized.

5.11.2 Data cleaning

Incomplete, inconsistent and invalid data were refined properly to get maximum quality of data before, during and after data entry. In addition, Corrections were made according to the original data.

5.11.3 Data processing and analysis

After the data cleaning, sorting, coding and entering finished, it was analyzed using SPSS version 23, Description of data was made using tables, charts and graphs for quantitative data. Qualitative data were carefully summarized.

Individual level variables were computed with HMIS information utilization. Variables with p-value ≤ 0.25 in the binary analysis were transferred into a multiple logistic regression analysis to identify factors associated with utilization of health information system based on this with the p-value of <0.05 were considered to have a significant association with the outcome variable.

5.13 Ethical Consideration

The study was carried out after getting permission from the ethical clearance committee of Jimma University institute of health. In addition, Data was collected after being written Ethical clearance from Oromiya region health bureau. In addition, Information sheet and written consent forms were delivered along with each questionnaire and all the subjects were asked if they are willing to participate in the study. Informed verbal consents were obtained from all participant subjects. The Objective of the study was discussed with each participant and privacy was maintained.

5.14 Evaluation dissemination plan

The final evaluation finding will be presented to Jimma University for approval then organizing a one-day finding presentation session for key stakeholders. Finally, hard and electronic copies of the report will be disseminated to key stakeholders.

CHAPTER SIX RESULT

6.1 Socio-demographic background information

A total of 53-health institutions were selected for the study. From those health institution based on inclusion/ exclusion criteria only 245 (79.1%) heads of the units/departments composed of 72(29.39%) from the administrative unit (regional health bureau, zonal health office and woreda health office), 155 (63.27%) facility (hospitals and health centers) and 18 (7.35%) from Health Posts were participated in this study.

From total interviewed, head of the institution accounts 34(13.88%), Department Head accounts 178(72.65%) and HMIS Focal Person accounts 33(13.47%). The sex distribution of participants in the study units showed that 180(73.5%) were males. Among the respondent 179(73.1%) were within the age range of 21- 30 years old (Table 3).

Regarding the level of education, from the total interviewed individuals, Majority 115 (46.9%) holds Level 4/Diploma, next 103(42.0%) holds Bachelor Degree and the list one (0.41%) hold Level 2/Certificate. Regarding the profession, from total interviewed, Nurses all type accounts 116(47.3%), Health Officer accounts 23(9.4%) and the list Sociology, statistics and Health Monitoring and Evaluation accounts similarly one (0.4%). (Table 3)

Respondents had an average work experience of 7.78 years (SD 6.63). On current position, they had an average experience of 2.98 years (SD 2.50).

Table 3 Demographic information of respondents at regional, ZHO, WorHO, hospitals, HC and Health Posts, selected public health institution in Oromiya region, March 2017.

Field of study	frequency	%
Nurse(all type)	116	47.3%
Health Officer	23	9%
Health Information Technology	20	8%
Public Health (Mph)	18	7%
Laboratory Technology	16	7%
Health Extension Worker	18	7%
Other	34	13.9%
total	245	100%
level of education	frequency	%
Level 2/Certificate	1	0.41%
Level 3/Certificate	3	1.2%
Level 4/Diploma	115	46.9%
Bachelor Degree	103	42.0%

Master degree	19	7.8%
Position of person interviewed	frequency	%
Head of institution	34	13.88%
Department Head	178	72.65%
HMIS Focal Person	33	13.47%
Age group of respondents	frequency	%
20 or younger	1	0.40%
21-30 years old	179	73.10%
31 to 40 years old	43	17.60%
41 to 50 years old	19	7.80%
Above 50 years old	3	1.20%
Sex of respondent	frequency	%
Male	180	73.50%
Female	65	26.50%

6.2 Information utilization

Use of information was assessed by review of documents that verify whether and how HMIS data were used in decision-making processes. The use of HMIS information is measured by a series of dichotomous indicators, including whether decision is done based on HMIS information, whether HMIS information was used to set annual/monthly plane targets; and whether updated information on various topics was displayed.

6.2.1 Types of decision based on types of analysis

At health facility level, a review of the reports (feedback, monthly, quarterly) available in 17(70.8%) health facility (HC & hospitals) and in seven (43.7%) health Posts. Out of those HIs with reports, all (100%) Health facility (HC & hospitals) and six (85.7%) Health Posts report described that a strategy was reviewed by examining services. Sixteen (94.1%) Health facility (HC & hospitals) and five (71.4%) Health Posts reports described review facility personnel responsibilities by comparing service targets and actual performance. In addition, six (35.3%) health facilities (HC & hospitals) did Mobilization/shifting of resources based on services comparison. Seven (41.2%) Health facility (HC & hospitals) and two (28.6%) health post decision done for advocacy for more resources by showing gaps inability to meet targets. (Figure 4)
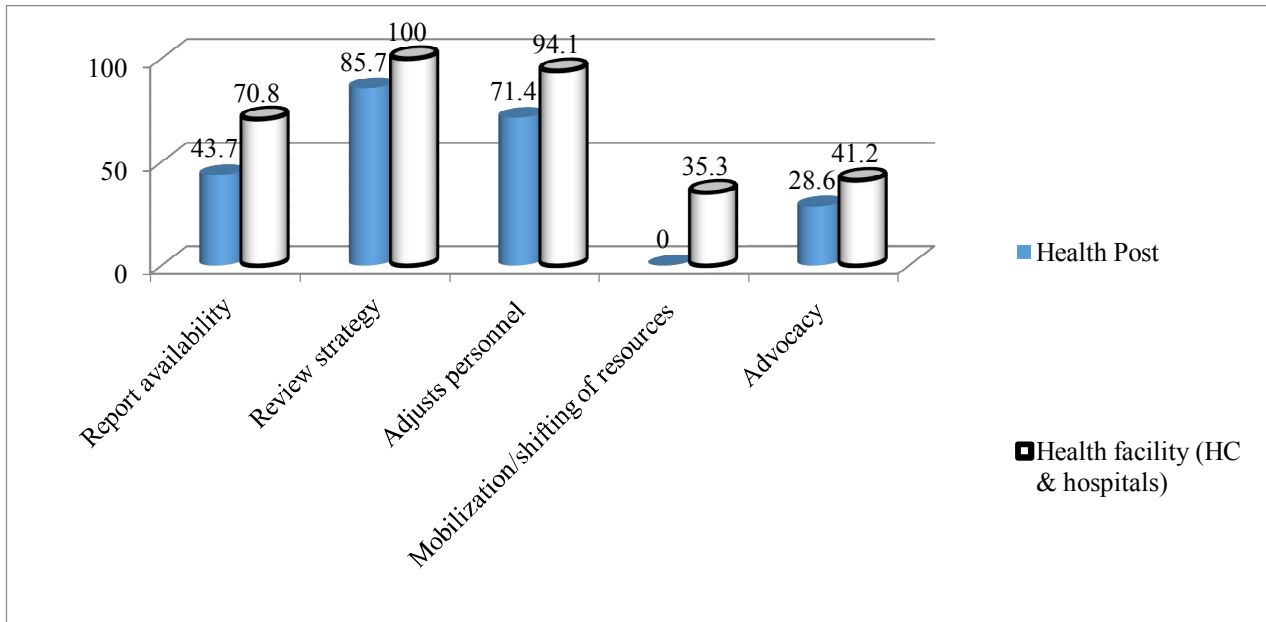
Figure 4 Proportion of Health facilities Data processing in selected public health institution in Oromiya region, March 2017

At the administrative unit, A review of the reports (feedback, monthly, quarterly..) available in nine(69.2%) HIs. Out of those HIs with reports, eight (61.5%) of HIs the reports described that a strategy was reviewed by examining services. In addition, two(15.4%), one(7.69%) and seven (53.85%) of HIs available reports also showed decisions about mobilizing resources, advocacy and Appreciation/ acknowledgment based on number/percentage of facilities were done respectively. (Figure 5)
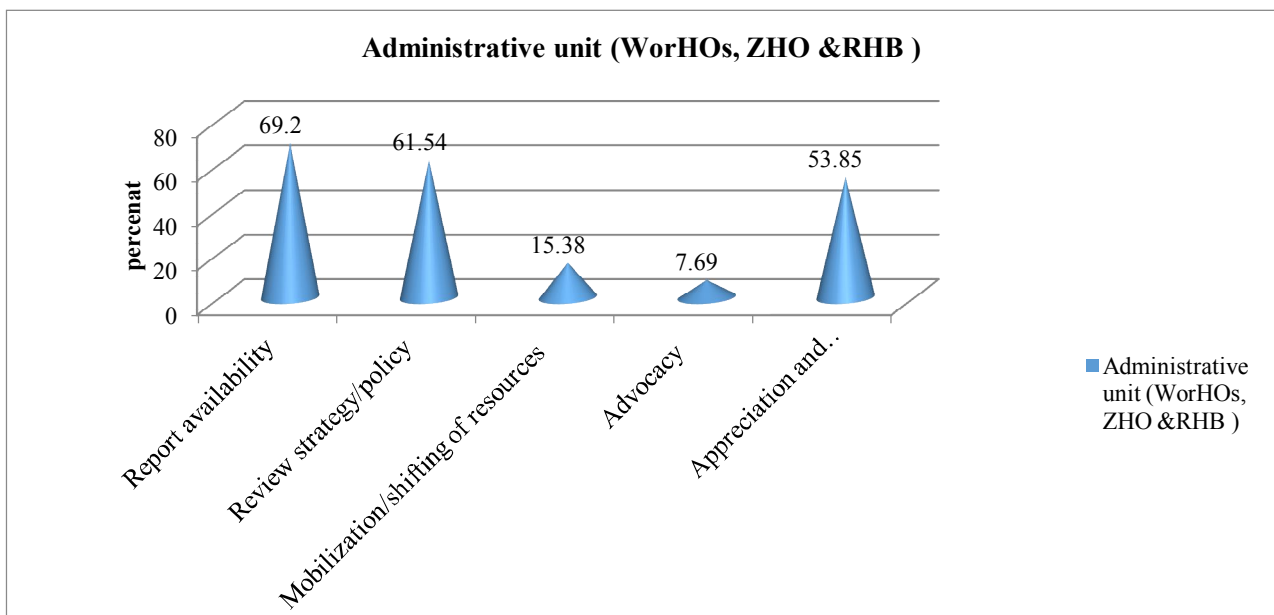
Figure 5 Proportion of Health administration unit Data processing in selected public health institution in Oromiya region, March 2017

6.2.2 Display of HMIS Information in the health institution

Availability of tables, charts and/or maps on (1) maternal health indicators, (2) child health indicators,(3) facility utilization, and/or (4) disease surveillance indicators were assessed for understanding the level of data display in the health facilities, woreda health offices, zonal health departments and regional health bureau.

(Figure 6) shows, overall 46 (86.8%) health institutions were displaying data. Among Administrative unit 11(84.6%), among Health facility (HC & hospitals) 22(91.7%) and among health post 13(81.3%) were displayed data in table &/or chart &/or map. Out of those displayed HIs, Administrative unit, Health facility (HC & hospitals) and health post with all displayed data updated for the last reporting period were account 7(63.6%), 15(68.2%) and 9(69.2%) respectively.
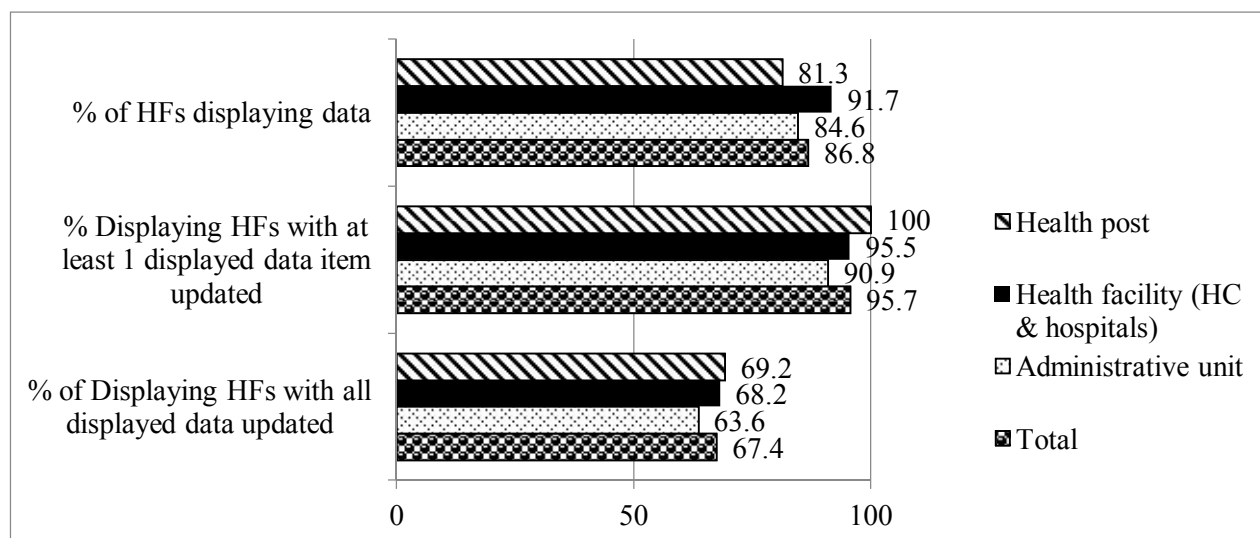
Figure 6: Proportion of HIs Displayed Data and proportion of HIS displayed data up to date in selected public health institution of Oromiya region, March 2017

6.2.3 Annual/monthly planned targets prepared based on HMIS information

Only 19(35.9%), of health institutions have annual/monthly planned targets that were prepared based on HMIS information.(Figure 7)
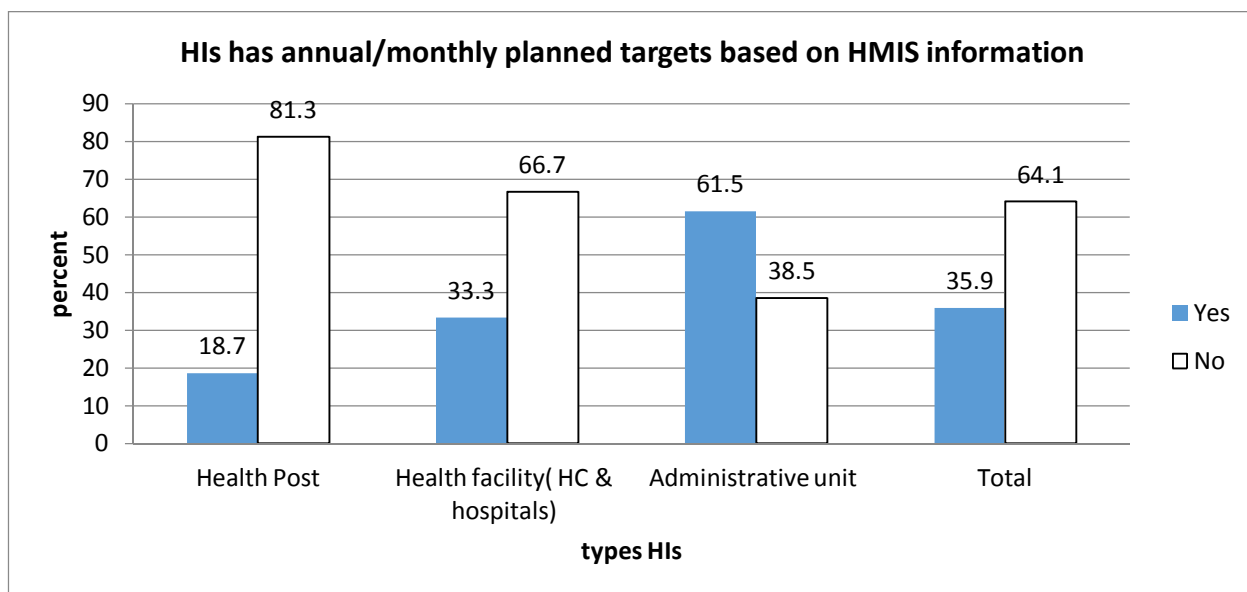
Figure 7 Proportion of HIs has annual/monthly planned targets based on HMIS information in selected public health institution of Oromiya region, March 2017

Based on the set criteria for HMIS utilization, the overall utilization rate was found to be 26(49.1%). Utilization of HIS was also compared based on health institution type and from the analysis; the highest utilization rate was 15(62.5%) at Health facility (HC & hospitals), next eight (61.5%) at Administrative unit and three (18.80%) at health posts. (Table 4)

Table 4 Information utilizations in selected health institutions in Oromiya region, March 2017

Type of institution	Information utilization			
	NO		YES	
	# of HIs	%	# of HIs	%
Administrative unit	5	38.5%	8	61.5%
Health facility(HC & hospitals)	9	37.5%	15	62.5%
Health Post	13	81.30%	3	18.80%
total	27	50.9%	26	49.1%

Specific examples of actual information use by the health facilities were stated in response to a subsequent open-ended question. Based on the data from HMIS, Out of the examples (three out of 17 comments or 18%) cited strategy redesigning to address defaulter of children from EPI program. Also three out of 17 comments based on HMIS report, the root cause was identified especially related to maternal health. Based on this finding strategy were formulated including to increase institution delivery, to construct maternal waiting room, and to identify the cause of maternal death (audit of maternal death).

Moreover, Five out of 17 comments an increase in IEC activities (social mobilization etc.) as the response to information showing an increase in numbers of selected health problems (e.g. acute watery diarrhea, TB). Six out of 17 cited planning or management areas where the use of information was made (e.g. outbreak response, action plan based on the strength and weakens of different zones etc.).

Reasons for not using HMIS information for decisions were assessed using free listing questions. Based on this the following reason was responded by health institution summarized at each administrative level as follow

- **At health post level Reason for not using HMIS information for decisions were**
  - Eight (50.0%) of HPs reported due to lack of routine supportive supervision on CHIS, no feedback sent based on monthly reports from supervising health institution and poor follow-up system
  - Seven (43.75%) of HPs reported due to lack of commitment and lack of motivation because of lack of promotion for long period of years
  - Seven (43.75%) of HPs reported due to no standard registration book across health post and shortage of logistic like stationery materials, reporting formats, family folder, tally sheet and registration book to produce quality data and also no supply like tickler box
  - Three (18.75%) of HPs reported due to no accountability, supervisor & decision makers are driven by per-diam, they did not work toward the goal of the institution
  - Seven (43.75%) of HPs reported due to skill gap on using CHIS(recording, reporting and data analysis and using for decision)
  - Two (12.5%) of HPs reported due to language barrier (the format is in English)
  - Five (31.25%) of HPs reported due to poor quality of data due to false reports, improper registration of household information and not continually updating data, mismatches of data between registers and reports
  - Eight (50.0%) of HPs reported due to being busy with other activates (shortage of time to register what they did appropriately, report all activates and to update family folder timely)

At health facility level (HC and hospitals) reason for not using information for decisions were

- Three (12.5%) of HFs reported due to poor coordination among managers,
- Six (25.0%) of HFs reported due to no supportive supervision on HMIS, no monthly report based feedback and supportive supervision feedback.
- Seven (29.2%) of HFs reported due to inadequate trained professional(HIT) on the market, no separate room for HMIS and shortage of supplies like of reporting /registration formats;
- Five (20.8%) of HFs reported due to functional computer to generate data that can be used for decision
- Seven (29.2%) of HFs reported due to HMIS software out off function frequently and lack of budget for maintenance of computer and printer;
- Five (20.8%) of HFs reported due to shortage of electric power supply for rural HC
- Seventeen (70.8%) of HFs reported due to low attention is given to data and decision-making from health professionals as well as from managers: HMIS is considered as only HMIS unit duty due to this health professionals doesn't give emphasis to the quality and use of information.
- Nineteen (79.17%) of HFs reported due to skill gap on computer using, eHMIS database, indicters reporting and generated information utilization,
- Six (25.0%) of HFs reported due to lack of training for newly employed health professional
- Four (16.7%) of HFs reported due to only focusing on high performance, poor attitude toward data and no information use culture
- Five (20.8%) of HFs reported due to poor quality of data (false report), reports from health post is not complete
- Seventeen (70.8%) of HFs reported due to poor record keeping (organized information not easily available)
- Six (25.0%) of HFs reported due to lack of commitment and were not accountable for poor reporting

At administrative level reason for not using information for decisions

- Thirteen (100%) of HIs reported due to low level of understanding on analyzing, interpreting and utilization HMIS/CHIS information at all levels including top-level managers

- Three (23.1%) of HIs reported due to health professional turnover and those individuals who are recruited on HMIS position are nontechnical (no health professionals) so they do not clearly understand all indicators

- Four (30.8%) of HIs reported due to there is no budget allocated for HMIS,

- Three (23.1%) of HIs reported due to failure of eHMIS software,

- Three (23.1%) of HIs reported due to managers are not playing there leading role in HMIS/CHIS implementation and information use

- Five (38.5%) of HIs reported due to busy with different activities including non health work

- Four (30.8%) of HIs reported due to lack of commitment,

- Six (46.2%) of HIs reported due to there is no regular supportive supervision and feedback on HMIS from supervising health institutions

- Four (30.8%) of HIs reported due to false report to get recognition (promotion)

- Four (30.8%) of HIs reported due to no monitoring and evaluation on HMIS and no information use culture

Based on the pre set judgment criteria for Data utilization dimensions is 61.23% that is under the fair category (table 5).

Table 5 Information utilization dimensions judgment matrix for evaluation of health information system at selected public health institution in Oromiya region, 2017

s. no	Dimensions with indicators Data utilization (100%)	Weight given	Observed value	Percentage achieved	Judgment parameter
1	Proportion of health posts that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators	6	4.2	69.2%	. (85-100%)-V.Good
2	Proportion of health facility (HCs and hospitals) that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators	6	4.1	68.2%	• (70 – 84%) - Good • (55-69%) - Fair
3	Proportion of administrative unit (WorHO, ZHO and RHB) that displayed up to data on Related to maternal health , child health, facility utilization or disease surveillance main indicators	6	3.8	63.6%	• (< = 54%)-

4	Proportion of health posts that have annual/monthly planned targets that were prepared based on HMIS information	12	2.2	18.7%	Critical
5	Proportion of health facility (HCs and hospitals) that have annual/monthly planned targets that were prepared based on HMIS information	12	4.0	33.3%	
6	Proportion of administrative unit (WorHO, ZHO and RHB) that have annual/monthly planned targets that were prepared based on HMIS information	12	7.4	61.5%	
7	Proportion of health posts utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review Appreciation/ acknowledgment) in the last 3 months	15	10.7	71.4%	
8	Proportion of health facility (HCs and hospitals) utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review Appreciation/ acknowledgment) in the last 3 months	15	15.0	100.0%	
9	Proportion of administrative (WorHO, ZHO and RHB) utilized HMIS data for decision making (mobilizing resources, advocacy, strategy review or Appreciation/ acknowledgment) in the last 3 months	16	9.8	61.5%	
Average score of information utilization		100	61.2	61.23%	
subtotal out of 50		50	30.62	61.23%	

6.3 HMIS process

Monthly Health Facility Report Feedback

Feedback on the monthly reports must reach the recipients before the deadline for submitting the next report. During the last three months 22(41.5%) of health institution reported receiving any feedback report from supervising institution on their performance. According to each health institution level, among Administrative unit 4(30.8%), among Health facility (HC & hospitals) 14(58.33%) and among Health Post 4 (25.0%) received any feedback report during the last three month (Table 6). Mean while totally 10(76.9%) administrative unit send a feedback report using HMIS information to the facility.

Table 6 proportion of HIs received any feedback report from December to February 2016 in selected public health institution of Oromiya region, March 2017

institution type	sample size(n=51)	# & % of HIs received any feedback report During the last three month, (December to February 2016)
Administrative unit	13	4(30.8%)
Health facility (HC & hospitals)	24	14(58.33%)
Health Post	16	4(25.0%)
Total	53	22(41.5%)

HMIS Data Processing and Analysis

The data analysis process was measured by reviewing reports that demonstrate facilities calculating indicators, comparing performance with targets, among services provided and over time using HMIS data. Overall 49(92.45%) HIs had data processing procedures/ electronic database (eHMIS) or a tally sheet for the simple addition of numbers, or a method for calculating indicators. Overall 44(83.02%) HIs calculated indicators for its catchment population/each facility using numerators and denominators, which showed the level of coverage for a particular service. Overall 22(41.51%) HIs processed data in such a way that the facility summary report compared various indicators against the district or national targets. Similarly, Overall 28(52.83%) HIs compared data among types of services covered. Overall 24(45.28%) HIs compared data over time (monitoring over time) which helps to determine whether a certain service is improving, static or declining over time. (Figure 8)

   At health post reasons stated from respondent for not doing above listed analysis were knowledge gap (do not know how to do) by three (23.1%) HPs, there was no tally sheet by ten (76.9%) HPs, there was no intention to produce those summaries by seven (53.8%) HPs and work overload by three (23.1%) HPs.

At health facility (HC and hospitals) level reasons stated from respondent includes knowledge gap by 13(68.4%) HFs, rather than using eHMIS database are better solutions (eg. Ms Excel) by four (21.1%) HFs, lack of training and database needs update by nine (47.4%) HFs, being busy due to extra duty other than HMIS by five (26.3%) HFs, there was no intention to produce those

summaries by seven (36.8%) HFs, lack of supply by two (10.5%) HFs, not common to do this activity by two (10.5%) HFs and no one asked for those results by four (21.1%) HFs.

As stated by administrative respondent Reason for not using eHMIS database for data analysis was not having enough time by two (40%) HIs, there was no teamwork by two (40%) HIs, there were no intention to produce those summaries by three (60.0%) HIs, not common to do this by three (60.0%) HIs and Staff did not know how to use the database by three (60.0%) HIs.
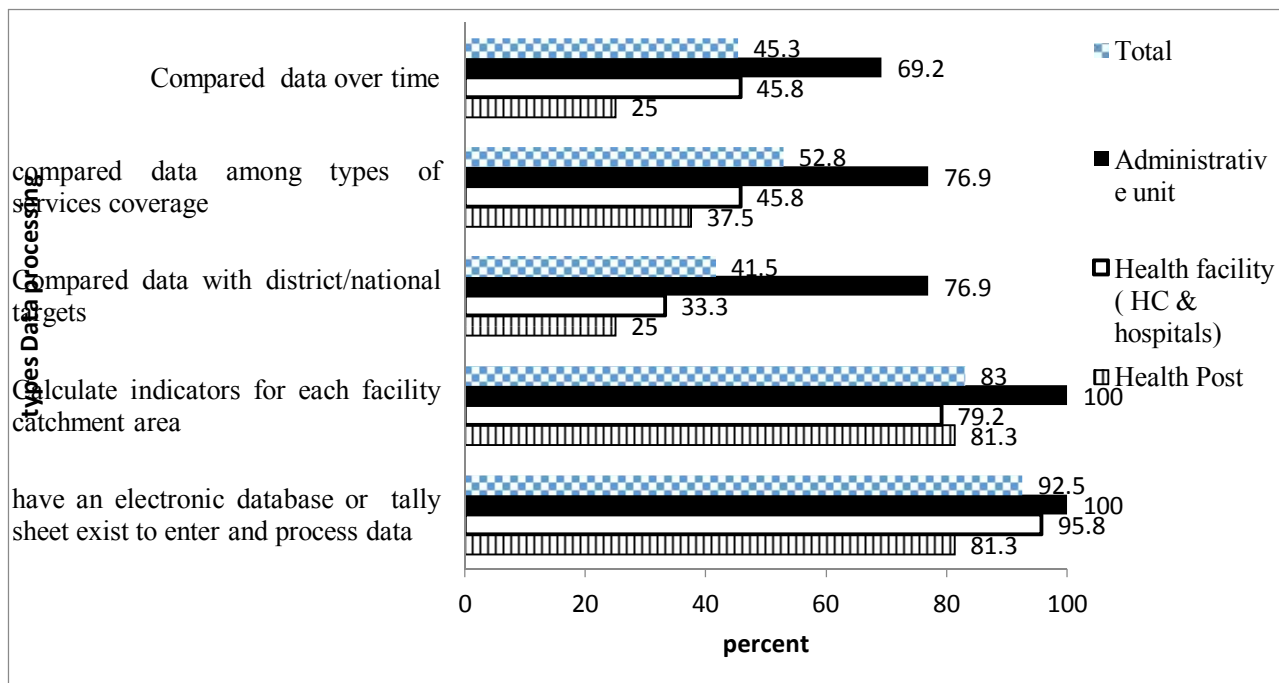
Figure 8: Data processing in selected public health institution of Oromiya region, March 2017

Displayed demographic information and catchment area map

Regarding map of the catchment area, overall 32(60.4%) of HIs displayed map of the catchment area. Among Administrative unit 9(69.2%), among Health facility (HC & hospitals) 12(50.0%) and among health post 11(68.7%) were map of the catchment area available. which is essential for calculating service indicators for the target population. (Figure 9)

In addition, overall 42(79.2%) of HIs displayed a summary of demographic information such as the population by target groups for the 2009 EFY which is crucial for calculating targets and indicators. Among Administrative unit 7(53.8%), among Health facility (HC & hospitals) 20(83.3%) and among health post 15(93.7%) displayed a breakdown of the population by the target group. (Figure 9)

43
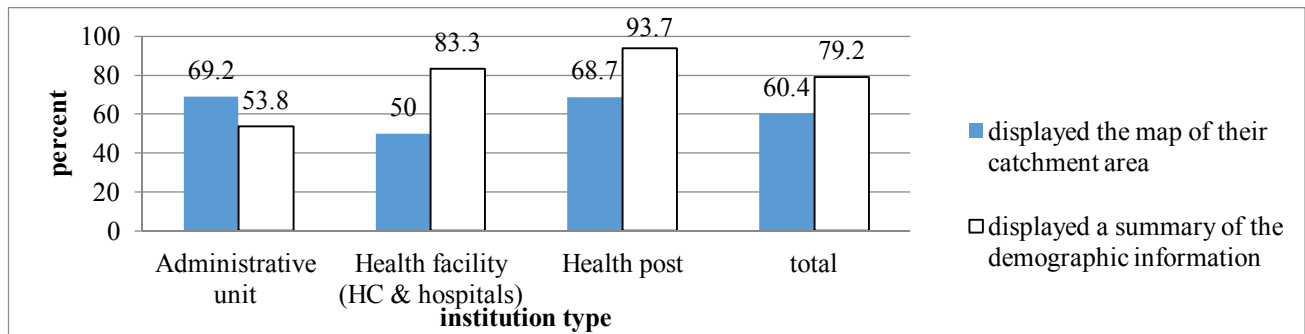
Figure 9 Proportion of HIs displayed map of catchment area and summary of demographic information in selected public health institution of Oromiya region, March 2017

Discussion conducted on PRM

Forty-six (86.7%) of health institutions had routine meetings for reviewing performance, managerial or administrative matters. (Figure 10)
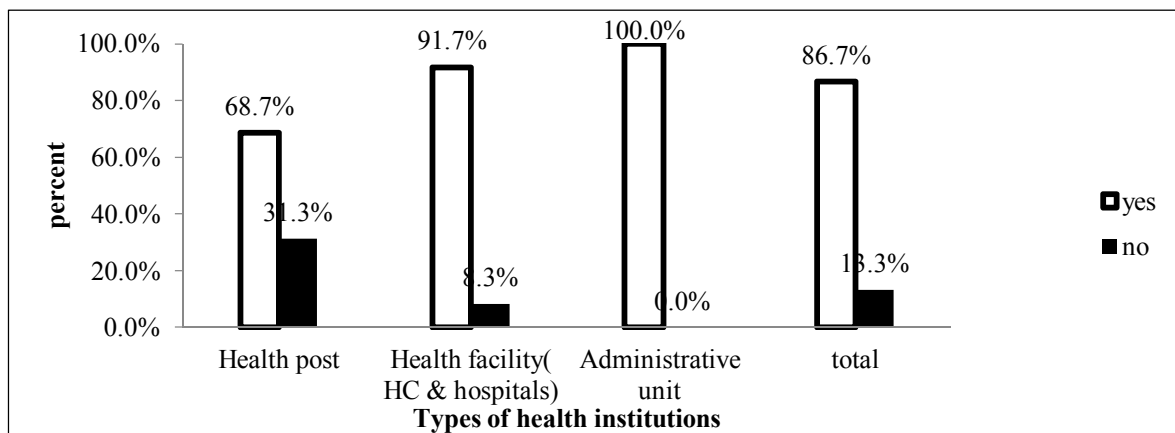
Figure 10 Proportion of health institutions that have routine meetings for reviewing performance, managerial or administrative matters in selected public health institution in Oromiya region, March 2017

Overall, 40(75.5%) health institutions conducted meeting at least ones during the last three months. Twelve (92.3%) administrative unit, 18(75.0%) Health facility (HC & hospitals) and 10 (62.5%) health posts conducted meeting at least one time for reviewing performance, managerial or administrative matters.

Figure 11 shows, overall 34(64.2%) HIs maintained an official record of PRM. Among them, meeting records shows 25(73.5%) HIs conducted discussion on the topic about management of HMIS, such as availability of HMIS registers and forms; improving or maintaining high data quality, completeness and timeliness of data. Twenty-five (73.5%) HIs conducted discussion on

44

the topic about HMIS findings such as; patient utilization, disease data or service coverage or medicine stock out. Similarly, 28(82.3%) HIs made decisions based on HMIS data at PRM in the last 3 months. However, only eight (23.5%) HIs follow-up action took place on the decisions made during the previous meeting. In eight (23.5%) of HIs HMIS related issues or problems were referred to the WorHO/ZHO /regional/national level for actions.
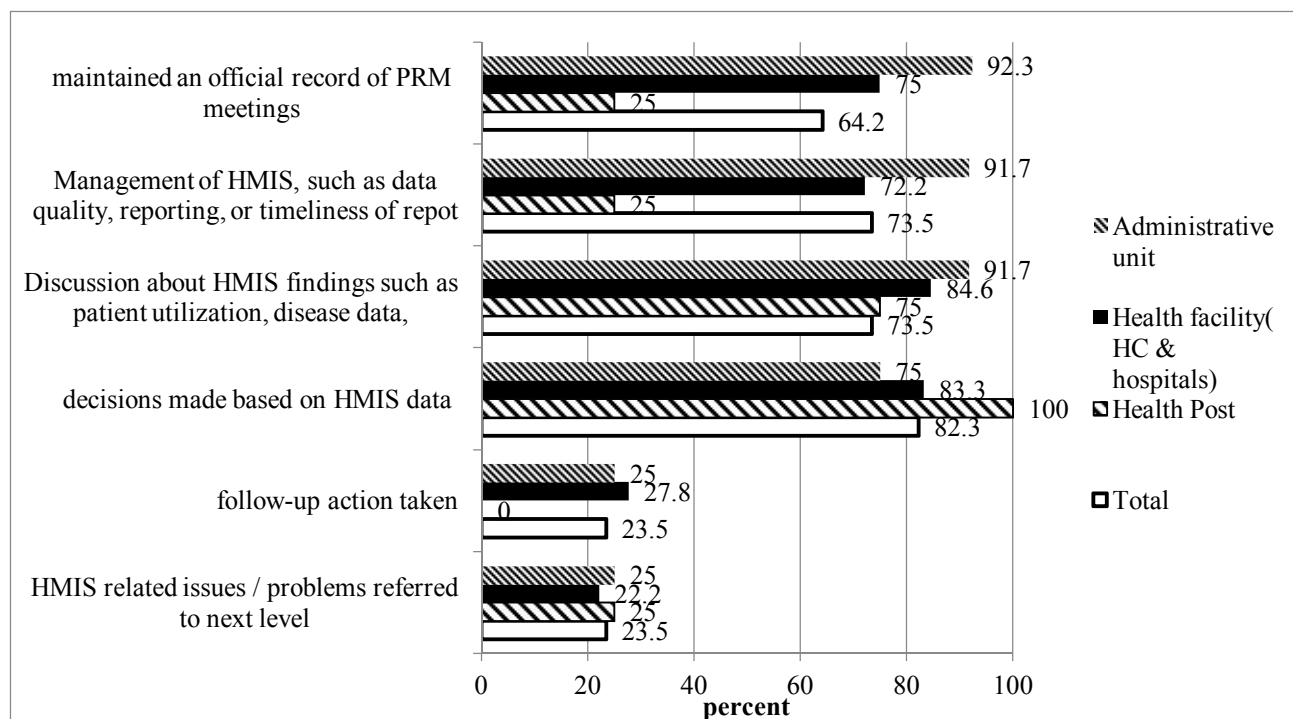
Figure 11 Proportion of health institutions data use process in selected public health institution in Oromiya region, March 2017

Based on the pre set judgment criteria for Compliance dimensions is 65.72% that is under the fair category (table 7).

Table 7 Compliance dimensions judgment matrix for evaluation of health information system at selected public health institution in Oromiya region, 2017

s.no	Dimensions with indicators Compliance (100%)	Weight given	Observed value	Percentage achieved	Judgment parameter
1	Proportion of health posts received any feedback report During the last three month, (December to February 2016)	4	1	25.0%	. (85-100%)- V.Good
2	Proportion of health facility (HCs and hospitals) received any feedback report During the last three month, (December to February 2016)	4	2.5	63.6%	• (70 – 84%) - Good

45

3	Proportion of administrative (WorHO, ZHO and RHB) received any feedback report During the last three month, (December to February 2016)	2	0.5	25.0%	• (55-69%) - Fair
4	Proportion of health posts displayed a map of the catchment area	2	1.4	68.7%	• (< = 54%)-Critical
5	Proportion of health facility (HCs and hospitals) displayed a map of the catchment area	2	1.0	50.0%	
6	Proportion of administrative unit (WorHO, ZHO and RHB) displayed a map of the catchment area	2	1.4	69.2%	
7	Proportion of health posts displayed a summary of 2009 E.C demographic information	2	1.9	93.7%	
8	Proportion of health facility (HCs and hospitals) displayed a summary of 2009 E.C demographic information	2	1.7	83.3%	
9	Proportion of administrative unit ((WorHO, ZHO and RHB) displayed a summary of 2009 E.C demographic information	2	1.1	53.8%	
10	Proportion of health posts with PRTs maintaining PRM records	2	0.5	25.0%	
11	Proportion of health facility (HCs and hospitals)with PRTs maintaining PRM records	2	1.5	75.0%	
12	Proportion of administrative unit (WorHO, ZHO and RHB) with PRTs maintaining PRM records	2	1.8	92.3%	
13	Proportion of health posts which review their monthly institutions activates performance in last three month as per the standard	6	3.0	50.0%	
14	Proportion of health facility (HCs and hospitals) which review their monthly institutions activates performance in last three month as per the standard	6	2.7	45.8%	
15	Proportion of administrative unit (WorHO, ZHO and RHB) which review their monthly institutions activates performance in last three month as per the standard	6	3.7	61.5%	
16	Proportion of health facilities which sent reports to administrative unit (WorHO, ZHO and RHB) before deadlines on sene and tikimt month 2017	6	3.9	64.3%	
17	Proportion of health facilities which sent reports to administrative unit (WorHO, ZHO and RHB)out of those supposed to report as per standard on sene and tikimt month 2017	6	4.5	74.9%	
18	Proportion of health post reports meeting over 90% completeness criteria(monthly form data elements filled) in HMIS service delivery monthly report for Tikimt 2009 EC	6	6.0	100.0%	
19	Proportion of health facility (HCs and hospitals) reports meeting over 90% completeness criteria (monthly form data elements filled) in HMIS service delivery monthly	6	5.5	91.7%	

	report for Tikimt 2009 EC				
20	Proportion of health posts that supportive supervision conducted by next higher level in last three month per national standard guideline	5	3.1	62.5%	
21	Proportion of health facility (HCs and hospitals) that supportive supervision conducted by next higher level in last three month per national standard guideline	5	3.1	62.5%	
22	Proportion of administrative unit (WorHO, ZHO and RHB) that supportive supervision conducted by next higher level in last three month per national standard guideline	5	1.2	23.1%	
23	Proportion of health posts that got supportive supervision feedback as per the standard from their next higher level in last three month	5	2.0	40.0%	
24	Proportion of health facility (HCs and hospitals) that got supportive supervision feedback as per the standard from their next higher level in last three month	5	5.0	100.0%	
25	Proportion of administrative unit (WorHO, ZHO and RHB) that got supportive supervision feedback as per the standard from their next higher level in last three month	5	5.0	100.0%	
Average score of Compliance dimensions		100	64.96	64.96%	
subtotal out of 50		50	32.48	64.96%	

6.4 Factors of HMIS data utilization

6.4.1 Behavioral Determinants

Regarding HMIS training, from total respondents, 156(63.7%) of respondents ever received in-service training on HMIS/M&E and 29(11.8%) of respondents received pre-service training on HMIS/M&E. (figure 12)
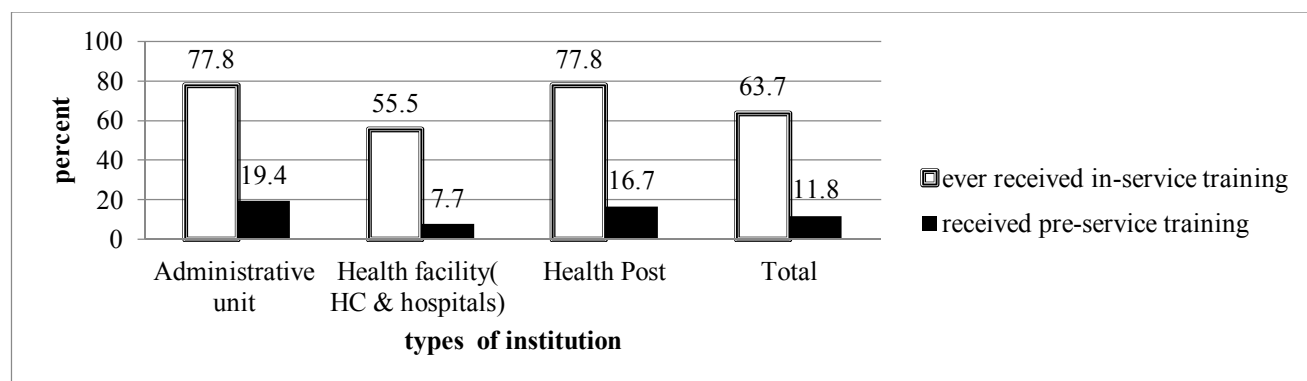
Figure 12 Proportion of respondents who took pre-service and in-service training on HMIS in selected public health institution in Oromiya region, March 2017

47

Confidence Level for HMIS Tasks

Confidence levels were assessed on the scale of 0 to 100 from no confidence to full confidence in performing a particular HMIS task. The results showed that the average confidence level for checking data accuracy, calculating percentage and data plotting was 82.5%, 86.3% and 84.8% respectively. In addition, the average confidence level for computing the trend, explaining the finding, identifying the gap and making varies decisions were 80.3%, 85.07%, 86.16% and 85.88% respectively. (Figure 13)
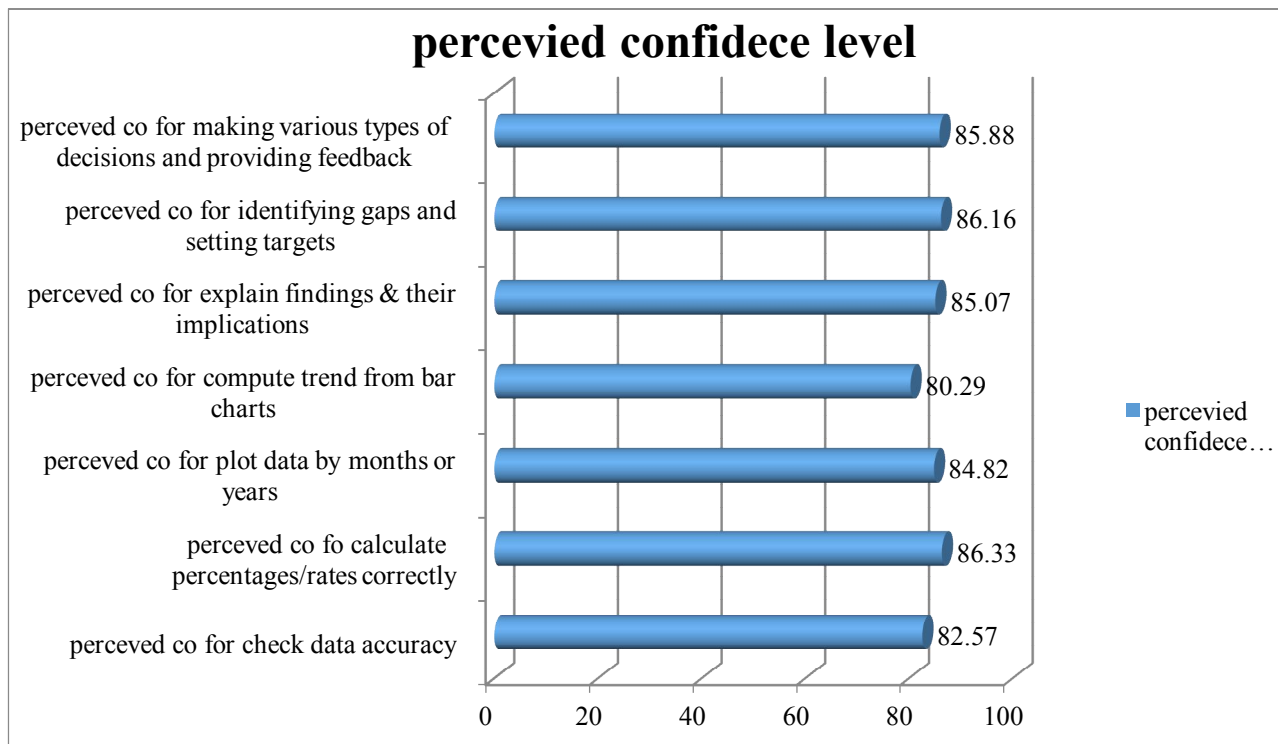
Figure 13 Respondent perceived confidence level in Oromiya region march 2017.

Table 8 shows 185(75.5%) of respondents agreed on the statement, Collecting information that is not used for decision-making discourages them and 228(93.1%) of respondents agreed on the statement, Collecting information is meaningful for them. In addition, 237(96.7%) and 197(80.4%) of respondents agreed on the statement Collecting information gives them the feeling that data is needed for monitoring facility performance and collecting information is appreciated by Co-workers and supervisors respectively. However, 194(79.5%) and 199(81.2%) respondents disagreed that collecting information made them feel bored and Collecting information give them the Feeling that it is forced on them respectively.

48

Table 8 Associated behavioral factor in Oromiya region March 2017

Personal	disagree	neutral	agree
Collecting information which is not used for decision making discourages me	51(20.8%)	9(3.7%)	185(75.5%)
Collecting information makes me feel bored	194(79.5%)	8(3.3%)	42(17.2%)
Collecting information is meaningful for me	15(6.1%)	2(0.8%)	228(93.1%)
Collecting information gives me the feeling that data is needed for monitoring facility performance	6(2.4%)	2(0.8%)	237(96.7%)
Collecting information give me the Feeling that it is forced on me	199(81.2%)	13(5.3%)	33(13.5%)
Collecting information is appreciated by Co-workers and supervisors	28(11.4%)	20(8.2%)	197(80.4%)

Bivariate logistic regression analysis was done to identify behavioral and socio demographic variables having association with use of HMIS data for day to day management of the facility and Health Institution. In this analysis variable included were socio-demographic characteristics (sex, occupation, age, level of education, field of education, received training) and Motivation (Collecting information which is not used for decision making discourages me, Collecting information makes me feel bored, Collecting information is meaningful for me, Collecting information gives me the feeling that data is needed for monitoring facility performance, Collecting information give me the Feeling that it is forced on me and Collecting information is appreciated by Co-workers and supervisors). However, in this analysis collecting information which is not used for decision making discourages me, collecting information makes me feel bored, collecting information give me the feeling that it is forced on me and collecting information is appreciated by co-workers , pre-service training on HMIS/M&E, sex and Field of study were found significant association with Use of HMIS data for day to day management of the facility and Health Institution (p<0.25). (Table 9)

Table 9 Binary logistic regression analysis result of Use of HMIS data for day to day management of the facility and Health Institution, Oromiya region March 2017

Possible determinant		HIS utilization		COR	P-value	CI 95%
		No	yes			
Age	20 or younger	0	1			
	21-30 years old	48	131	1.36	0.801	0.121-15.39
	31 to 40 years old	18	25	0.694	0.773	0.058-8.26
	41 to 50 years old	7	12	0.857	0.907	0.065-11.26

	Above 50 years old	1	2	-		
Sex	Male	62	118			
	Female	12	53	2.32	0.018*	1.15-4.66
Level of education	Level 3/Diploma	1	2			
	Level 4/Diploma	31	84	1.35	0.807	0.119-15.47
	Bachelor Degree	35	68	0.97	0.981	0.085-11.09
	Master Degree	6	13	1.08	0.952	0.085-14.41
	Other (specify)	1	4	1.99	0.676	0.077-51.59
Field of study	HEW	3	15			
	Nurse	30	65	0.43	0.212*	0.117-1.611
	Midwife	10	10	0.20	0.038*	0.044-0.913
	Health Officer	6	17	0.56	0.473	0.120-2.670
	Medical Doctor	1	2	0.40	0.506	0.027-5.962
	Public Health (MPH)	6	12	0.40	0.256	0.082-1.942
	Health Information Technology	2	18	1.80	0.548	0.265-12.23
	Laboratory Technology	4	12	0.60	0.551	0.112-3.214
	Other (Specify)	11	20	0.36	0.269	0.086-1.54
Receives in-service training on HMIS/M&E	No	29	60			
	Yes	45	111	1.19	0.540	0.679-2.09
Receives pre-service training on HMIS/M&E	No	68	148			
	Yes	6	23	1.76	0.240*	0.686-4.523
Collecting information which is not used for decision making discourages me	Disagree	22	29			
	Neutral	1	8	6.06	0.100	0.706-52.18
	Agree	51	134	1.99	0.035*	1.05-3.78
Collecting information makes me feel bored	Disagree	63	131			
	Neutral	2	6	1.44	0.659	0.283-7.35
	Agree	9	33	1.76	0.162*	0.795-3.91
Collecting information is meaningful for me	Disagree	6	9			
	Neutral	2	0	1	-	-
	Agree	66	162	1.64	0.368	0.56-4.77
Collecting information gives me the feeling that data is needed for monitoring facility performance	Disagree	2	4			
	Neutral	1	1	0.5	0.676	0.019-12.89
	Agree	71	166	1.16	0.859	0.209-6.528
Collecting information give me the Feeling that it is forced on me	Disagree	65	134			
	Neutral	4	9	1.09	0.888	0.324-3.68
	Agree	5	28	2.72	0.049*	1.01-7.36
Collecting information is appreciated by Co-workers and supervisors	Disagree	14	14			
	Neutral	14	6	0.43	0.170	0.128-1.437
	Agree	46	151	3.28	0.004*	1.459-7.386

* Significant <0.25

6.4.2 Organizational factors

6.4.2.1 Perceived Promotion of a Culture of Information

Table 9 shows, the survey found that respondent agreed to a statement that staffs were punctual 196(80%); staffs were documented their activities and keep records 213(86.9%). In addition, respondent agreed to a statement that the staff feel committed to improving the health status of the target population 219(89.4%); staffs were Set appropriate and doable target of their performance 209(85.3%). and staff were Feel guilty for not accomplishing the set target/performance 165(67.3%). However, 115(46.9%) of respondents disagreed with the statement staff were rewarded for good work.

In addition, 171 (69.8%) respondent agreed with the statement staff used HMIS data for the day-to-day management of the health facility and health institution. Similarly, statement staff display data for monitoring their set target, can gather data to find the root cause(s) of the problem and can develop appropriate criteria for selecting interventions for a given problem were agreed by 207 (84.5%), 172 (70.2%) and 174 (71%) respondent respectively. (Table 9)

Also respondent agreed with the statement staff can develop appropriate outcomes for a particular intervention 160 (65.3%), can evaluate whether the targets or outcomes have been achieved 193 (78.8%) and are empowered to make decisions 172 (70.2%). In addition, respondent agreed with the statement staff able to say no to supervisors and colleagues for demands/decisions not supported by evidence 150 (61.2%) and are made accountable for poor performance 179 (73.1%). However, 195(80.9%) disagree with the statement staff are encouraged to over-report (false reporting) their performance. (Table 9)

Table 10 Associated organizational and behavioral factor staff related in Oromiya region March 2017

In your health institution, staff	disagree	neutral	agree
Are punctual	26(10.6%)	23(9.4%)	196(80%)
Document their activities and keep records	11(4.5%)	21(8.6%)	213(86.9%)
Feel committed to improving health status of the target population	11(4.5%)	15(6.1%)	219(89.4%)
Set appropriate and doable target of their performance	16(6.5%)	20(8.2%)	209(85.3%)
Feel guilty for not accomplishing the set target/performance	39(15.9%)	41(16.7%)	165(67.3%)
Are rewarded for good work	115(46.9%)	30(12.2%)	100(40.8%)

Use HMIS data for day to day management of the facility and Health Institution	49(20%)	25(10.2%)	171(69.8%)
Display data for monitoring their set target	20(8.2%)	18(7.3%)	207(84.5%)
Can gather data to find the root cause(s) of the problem	40(16.3%)	33(13.5%)	172(70.2%)
Can develop appropriate criteria for selecting interventions for a given problem	41(16.7%)	30(12.2%)	174(71%)
Can develop appropriate outcomes for a particular intervention	38(15.5%)	47(19.2%)	160(65.3%)
Can evaluate whether the targets or outcomes have been achieved	28(11.4%)	24(9.8%)	193(78.8%)
Are empowered to make decisions	42(17.1%)	31(12.7%)	172(70.2%)
Able to say no to supervisors and colleagues for demands/ decisions not supported by evidence	45(18.4%)	50(20.4%)	150(61.2%)
Are made accountable for poor performance	31(12.7%)	35(14.3%)	179(73.1%)
use HMIS data for community education and mobilization	48(19.6%)	39(15.9%)	158(64.5%)
Admit mistakes for taking corrective actions	15(6.1%)	17(7.0%)	212(86.9%)
Are encouraged to over-report (false reporting) their performance	195(80.9%)	16(6.6%)	30(12.4%)

The assessment found that majority 164(66.9%) and 100(40.8%) surveyed respondent disagreed with the statement that decisions were based on personal liking and political interest respectively. However 126(51.6%), 200(82%), 212(86.5%) and 170(69.4%) agreed decisions were based on Superiors' directives, evidence and facts, Health needs and considering costs respectively. Two hundred four (83.6%) also agreed that decisions were made by comparing data with strategic health objectives. (Table 10)

Table 11 Associated organizational and behavioral factor in Oromiya region march 2017

In your health institution, decisions are based on:	disagree	neutral	agree
Personal liking	164(66.9%)	22(9.0%)	59(24.1%)
Superiors' directives	91(37.3%)	27(11.1%)	126(51.6%)
Evidence/facts	24(9.8%)	20(8.2%)	200(82%)
Political interest	100(40.8%)	63(25.7%)	82(33.5%)
Comparing data with strategic health objectives	26(10.7%)	14(5.7%)	204(83.6%)
Health needs	21(8.6%)	12(4.9%)	212(86.5%)
Considering costs	43(17.6%)	32(13.1%)	170(69.4%)

Table 11 shows in study health institution, overall organizational processes and policies were Support the use of data for decision-making agreed by 218(89%) respondents, Encourage

reporting accurate data for well-performed activities agreed by 222(90.6%) respondent and also overall organizational processes and policies encourage reporting accurate data for underperformed activities agreed by 168(68.6%) respondent.

Table 12 Associated organizational and behavioral factors related to processes and police in Oromiya region March 2017

In your health institution, overall organizational processes and policies:	disagree	neutral	agree
Support the use of data for decision-making	15(6.1%)	12(4.9%)	218(89%)
Encourage reporting accurate data for well-performed activities	16(6.5%)	7(2.9%)	222(90.6%)
Encourage reporting accurate data for underperformed activities	59(24.1%)	18(7.3%)	168(68.6%)

Majority of respondents 199(81.2%) indicated that superiors seek feedback from concerned persons and 174(71%) respondents indicated that superiors seek feedback from the concerned community. In addition 202(82.4%) respondents agreed supervisors emphasize data quality in monthly reports and 187(76.3%) of respondents agreed supervisors discuss conflicts openly to resolve them. Also 201(82%), 164(66.9%), 163(66.5%) and 169(70.7%) of respondents agreed with the statement supervisors use HMIS data for setting targets and monitoring, check data quality regularly, provide regular feedback to their staff through regular report based on evidence and report on data accuracy regularly respectively. However, 187(77%) of respondents disagreed with the statement supervisors encourage their supervisees to over-report (false report) their performance. (Table 12)

Table 13 Associated organizational and behavioral factor supervisor related in Oromiya region March 2017

In Your Health Institution, Supervisors	Disagree	Neutral	Agree
Seek feedback from concerned persons	32(13.1%)	14(5.7%)	199(81.2%)
Emphasize data quality in monthly reports	27(11%)	16(6.5%)	202(82.4%)
Discuss conflicts openly to resolve them	30(12.2%)	28(11.4%)	187(76.3%)
Seek feedback from concerned community	37(15.1%)	34(13.9%)	174(71%)
Use HMIS data for setting targets and monitoring	25(10.2%)	19(7.8%)	201(82%)
Check data quality regularly	46(18.8%)	35(14.3%)	164(66.9%)
Provide regular feedback to their staff through regular report based on evidence	59(24.1%)	23(9.4%)	163(66.5%)
Report on data accuracy regularly	48(20.1%)	22(9.2%)	169(70.7%)
Encourage their supervisees to over-report (false report) their performance	187(77%)	21(8.6%)	35(14.4%)

Bivariate logistic regression analysis was done to identify organizational variables having association with use of HMIS data for day to day management of the facility and Health Institution. In this analysis variables Staffs are punctual, document their activities and keep records, feel committed to improving health status of the target population, set appropriate and doable target of their performance, feel guilty for not accomplishing the set target/performance, are rewarded for good work, display data for monitoring their set target, can gather data to find the root cause(s) of the problem, can develop appropriate criteria for selecting interventions for a given problem, can develop appropriate outcomes for a particular intervention, can evaluate whether the targets or outcomes have been achieved, are empowered to make decisions, are made accountable for poor performance, admit mistakes for taking corrective actions and are encouraged to over-report (false reporting) their performance were found significant association with Use of HMIS data for day to day management of the facility and Health Institution (p<0.25). (table 14)

Table 14 Binary logistic regression analysis result of Use of HMIS data for day to day management of the facility and Health Institution, Oromiya region March 2017

Possible determinant		HIS utilization		COR	P-value	CI 95%
		No	yes			
Staffs are punctual	Disagree	15	11			
	Neutral	9	14	2.12	0.197	0.676-6.652
	Agree	50	146	3.98	0.001*	1.716-9.239
Staffs document their activities and keep records	Disagree	6	5			
	Neutral	11	10	1.09	0.907	0.252-4.714
	Agree	57	156	3.28	0.057*	0.964-11.17
Staffs feel committed to improving health status of the target population	Disagree	6	5			
	Neutral	10	5	0.60	0.532	0.121-2.972
	Agree	58	161	3.33	0.054*	0.979-11.33
Staffs set appropriate and doable target of their performance	Disagree	13	3			
	Neutral	14	6	1.85	0.442	0.383-8.999
	Agree	47	162	14.94	<0.001*	4.084-54.62
Staffs feel guilty for not accomplishing the set target/performance	Disagree	15	24			
	Neutral	19	22	0.72	0.477	0.297-1.763
	Agree	40	125	1.95	0.075*	0.934-4.08
Staffs are rewarded for good work	Disagree	52	63			
	Neutral	10	20	1.65	0.244*	0.710-3.836

	Agree	12	88	6.05	<0.001*	2.987-12.26
Staffs display data for monitoring their set target	Disagree	15	5			
	Neutral	9	9	3.0	0.116*	0.762-11.81
	Agree	50	157	9.42	<0.001*	3.26-27.22
Staffs can gather data to find the root cause(s) of the problem	Disagree	24	16			
	Neutral	11	22	3.0	0.025*	1.147-7.845
	Agree	39	133	5.11	<0.001*	2.474-10.57
Staffs can develop appropriate criteria for selecting interventions for a given problem	Disagree	20	21			
	Neutral	10	20	1.9	0.195*	0.718-5.051
	Agree	44	130	2.813	0.004*	1.395-5.673
Staffs can develop appropriate outcomes for a particular intervention	Disagree	18	20			
	Neutral	20	27	1.21	0.657	0.514-2.87
	Agree	36	124	3.10	0.003*	1.483-6.48
Staffs can evaluate whether the targets or outcomes have been achieved	Disagree	15	13			
	Neutral	12	12	1.15	0.797	0.387-3.43
	Agree	47	146	3.58	0.002*	1.59-8.07
Staffs are empowered to make decisions	Disagree	23	19			
	Neutral	10	21	2.54	0.059*	0.966-6.689
	Agree	41	131	3.86	<0.001*	1.917-7.801
Staffs able to say no to supervisors and colleagues for demands/ decisions not supported by evidence	Disagree	16	29			
	Neutral	17	33	1.07	0.874	0.459-2.49
	Agree	41	109	1.46	0.289	0.722-2.98
Staffs are made accountable for poor performance	Disagree	21	10			
	Neutral	8	27	7.08	<0.001*	2.38-21.09
	Agree	45	134	6.25	<0.001*	2.739-14.27
Staffs admit mistakes for taking corrective actions	Disagree	10	5			
	Neutral	6	11	3.67	0.082*	0.848-15.84
	Agree	57	155	5.44	0.003*	1.78-16.59
Staffs are encouraged to over-report (false reporting) their performance	Disagree	53	142			
	Neutral	7	9	0.47	0.165*	0.17-1.35
	Agree	12	18	0.56	0.153*	0.25-1.24

Similarly, Table 15 shows bivariate logistic regression analysis result. In this analysis variables decisions are based on Personal liking, based on Evidence/facts, based on Political interest, based on comparing data with strategic health objectives, based on health needs and based on considering costs were found significant association with use of HMIS data for day to day management of the facility and Health Institution (p<0.25). In addition overall organizational

processes and policies support the use of data for decision-making , encourage reporting accurate data for well-performed activities and encourage reporting accurate data for underperformed activities were found significant association with use of HMIS data for day to day management of the facility and Health Institution (p<0.25).

Table 15 Binary logistic regression analysis result of Use of HMIS data for day to day management of the facility and Health   Institution, Oromiya region March 2017

Possible determinant		HIS utilization		COR	P-value	CI 95%
		No	yes			
Decisions are based on Personal liking	Disagree	46	118			
	Neutral	9	13	0.56	0.219*	0.23-1.41
	Agree	19	40	0.82	0.547	0.43-1.56
Decisions are based on Superiors' directives	Disagree	30	61			
	Neutral	11	16	0.715	0.457	0.29-1.73
	Agree	33	93	1.38	0.279	0.76-2.50
Decisions are based on Evidence/facts	Disagree	15	9			
	Neutral	11	9	1.36	0.615	0.407-4.563
	Agree	48	152	5.28	<0.001*	2.172-12.824
Decisions are based on Political interest	Disagree	23	77			
	Neutral	23	40	0.52	0.064*	0.26-1.04
	Agree	28	54	0.58	0.097*	0.30-1.11
Decisions are based on comparing data with strategic health objectives	Disagree	16	10			
	Neutral	8	6	1.2	0.787	0.320-4.495
	Agree	50	154	4.928	<0.001*	2.101-11.55
Decisions are based on health needs	Disagree	13	8			
	Neutral	8	4	0.813	0.785	0.183-3.60
	Agree	53	159	4.875	0.001*	1.916-12.405
Decisions are based on considering costs	Disagree	17	26			
	Neutral	15	17	0.741	0.525	0.294-1.869
	Agree	42	171	1.992	0.055*	0.986-4.028
overall organizational processes and policies support the use of data for decision-making	Disagree	10	5			
	Neutral	7	5	1.428	0.656	0.296-6.876
	Agree	57	161	5.49	0.002*	1.852-17.23
overall organizational processes and policies encourage reporting accurate data for well-performed activities	Disagree	11	5			
	Neutral	5	2	0.88	0.898	0.125-6.191
	Agree	58	164	6.22	0.001*	2.073-18.66

overall organizational processes and policies encourage reporting accurate data for underperformed activities	Disagree	23	36			
	Neutral	7	11	1.004	0.994	0.340-2.963
	Agree	44	124	1.80	0.066*	0.962-3.367

In addition Bivariate logistic regression analysis variables such as supervisors seek feedback from concerned persons, emphasize data quality in monthly reports, discuss conflicts openly to resolve them, seek feedback from concerned community, check data quality regularly, provide regular feedback to their staff through regular report based on evidence, report on data accuracy regularly and encourage their supervisees to over-report (false report) their performance were found significant association with use of HMIS data for day to day management of the facility and Health Institution ($p<0.25$). (Table 16)

Table 16 Binary logistic regression analysis result of Use of HMIS data for day to day management of the facility and Health Institution, Oromiya region, March 2017.

Possible determinant		HMIS utilization		COR	P-value	CI 95%
		No	yes			
Supervisors seek feedback from concerned persons	Disagree	15	17			
	Neutral	9	5	0.490	0.281	0.134-1.789
	Agree	50	149	2.629	0.013*	1.224-5.648
Supervisors emphasize data quality in monthly reports	Disagree	12	15			
	Neutral	6	10	1.333	0.656	0.376-4.725
	Agree	56	146	2.086	0.079*	0.919-4.732
Supervisors discuss conflicts openly to resolve them	Disagree	13	17			
	Neutral	11	17	1.182	0.755	0.415-3.368
	Agree	50	137	2.095	0.067*	0.949-4.623
Supervisors seek feedback from concerned community	Disagree	20	17			
	Neutral	12	22	2.157	0.115*	0.929-5.607
	Agree	42	132	3.697	<0.001*	1.775-7.703
Supervisors check data quality regularly	Disagree	20	26			
	Neutral	17	18	0.814	0.649	0.337-1.968
	Agree	37	127	2.64	0.006*	1.326-5.256
Supervisors provide regular feedback to their staff through regular report based on evidence	Disagree	31	28			
	Neutral	9	14	1.722	0.277	0.645-4.593
	Agree	34	129	4.201	<0.001*	2.223-7.931

Supervisors report on data accuracy regularly	Disagree	23	25			
	Neutral	14	8	0.526	0.224	0.186-1.483
	Agree	34	135	3.653	<0.001*	1.851-7.211
Supervisors encourage their supervisees to over-report (false report) their performance	Disagree	51	136			
	Neutral	8	13	0.609	0.301	0.238-1.556
	Agree	14	21	0.563	0.132*	0.265-1.189

overall those variables significant (p<0.25) for bivariate analysis, their association with use of HMIS data for day to day management of the facility and Health institution were tested and analyzed for multiple logistic regression analysis. The multiple logistic regression analysis result shows that Staffs admit mistakes for taking corrective actions were 3069 times more likely to Use of HMIS data for day to day management of the facility and Health Institution than staff don't admit mistakes(AOR =3069.3, CI 95% (3.9,2413264)). Staffs rewarded for good works were 41 times more likely to use of HMIS data for day to day management of the facility and Health Institution than staff don't rewarded for good works (AOR =40.62, CI 95% (1.431,1152)). Staffs display data for monitoring their set target were 4677 times more likely to use of HMIS data for day to day management of the facility and Health Institution than staff didn't display data for monitoring their set target (AOR =4677, CI 95% (17.49-12505)). Supervisors provide regular feedback to their staff through regular report based on evidence were 310 times more likely to use of HMIS data for day to day management of the facility and Health Institution than supervisors didn't provide regular feedback to their staff through regular report based on evidence (AOR =310, CI 95% (2.60,37142)). Decisions based on Political interest were 96% less likely to use of HMIS data for day to day management of the facility and Health Institution than decisions not based on Political interest (AOR =0.04, CI 95% (0.002,0.952)).

Table 17 multiple logistic regression analysis result of use of HMIS data for day to day management of the facility and Health Institution, Oromiya region, March 2017.

Possible determinant		HIS utilization		AOR	P-value	CI 95%
		No	yes			
Staffs admit mistakes for taking corrective actions	Disagree	10	5			
	Neutral	6	11	189.5	0.261	0.02-177
	Agree	57	155	3069	0.018*	3.9-24132
Staffs are rewarded for good work	Disagree	52	63			
	Neutral	10	20	2.94	0.689	0.0147-588.2
	Agree	12	88	40.62	0.030*	1.431-1152
Staffs display data for monitoring their set target	Disagree	15	5			
	Neutral	9	9	3687	0.004*	56.7-19447
	Agree	50	157	4677	0.003*	17.49-12505
Supervisors provide regular feedback to their staff through regular report based on evidence	Disagree	31	28			
	Neutral	9	14	45	0.199	0.134-1558
	Agree	34	129	310	0.019*	2.60-37142
Decisions are based on Political interest	Disagree	23	77			
	Neutral	23	40	0.21	0.529	0.002-27.11
	Agree	28	54	0.04	0.047*	0.002-0.952

6.4.2.2 Activities for Promotion of Culture of Information USE

The activities for promotion of a culture of information are an important organizational determinant. In the last three months health institutions records showed nine (17%) issued directives concerning the use of information, 37(69.8%) conducted a review meeting on its performance. (Figure 14)

In addition 14(58.3%) health facility (HC & hospitals) and seven (43.7%) Health Posts person in charge of the facility participate in meetings at the district level to discuss HMIS performance. The facility head attendance not only shows the importance of their involvement but also that facility heads could replicate the messages and values at the facility level for promoting a culture of information.

One (4.1%) health facility (HC & hospitals) and one (6.3%) Health Posts received a district or national HMIS office newsletter or report in last three months giving examples of the use of

information (show success stories related to use of HMIS information). However, there were no administrative units were produced newsletter/report in last three months showing examples of the use of information.
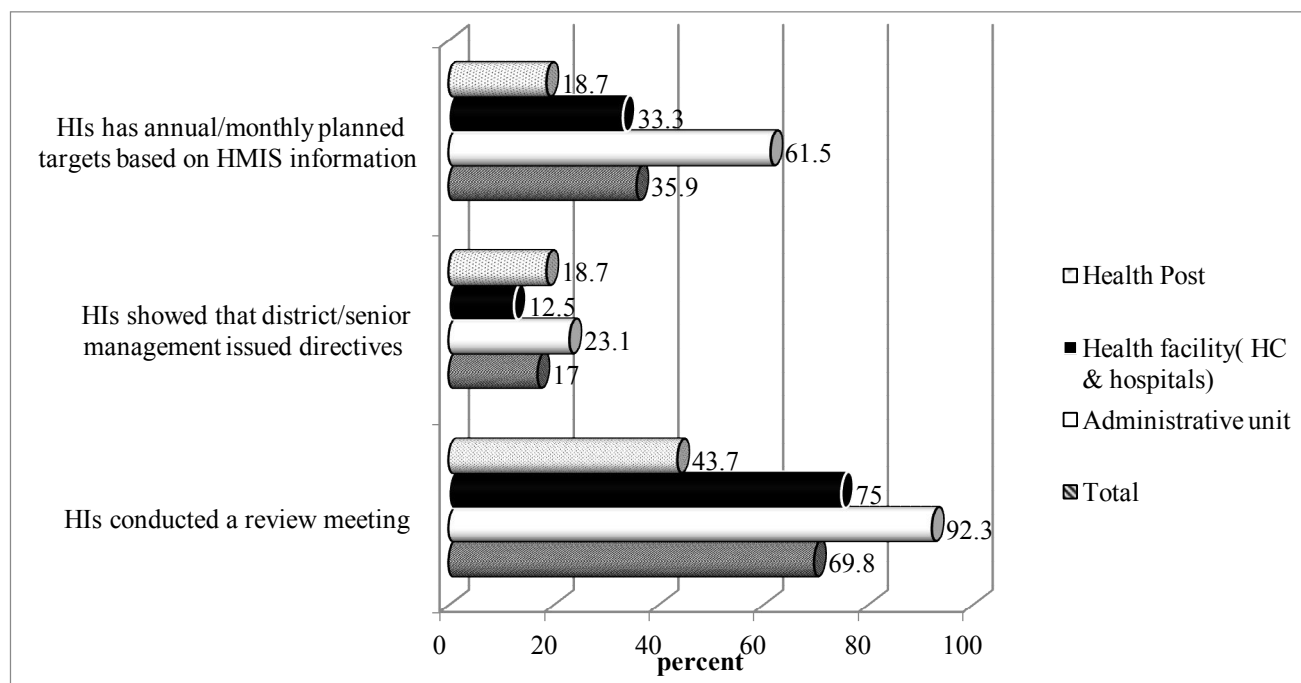
Figure 14 data use process in selected public health institution in Oromiya region, March 2017

6.4.2.3 Supervision conducted by the Supervising Health Institution

Close follow-up with feedback could contribute to better data quality and improve the use of information for decision-making. Supportive supervision provides opportunities that could be used to improve the understanding of data and skill level in interpreting results.

The result showed that during the last three months, 28(52.8%) HIs received one or more supervisory visits from higher level over the three-month period. Among visited health institution, 25(89.3%) HIs supervisor had a checklist to assess the data quality, 22(78.6%) HIs supervisor performed data quality check during supervision and 25(89.3%) supervisor discuss the performance of health facilities based on HMIS information. In addition in 18(64.3%) HIs supervisor helped the institution to make a decision based on information from the HIS and 22(78.6%) of HIs supervisor send a report/feedback/note at least on one of the last two supervisory visits. (Figure 15)
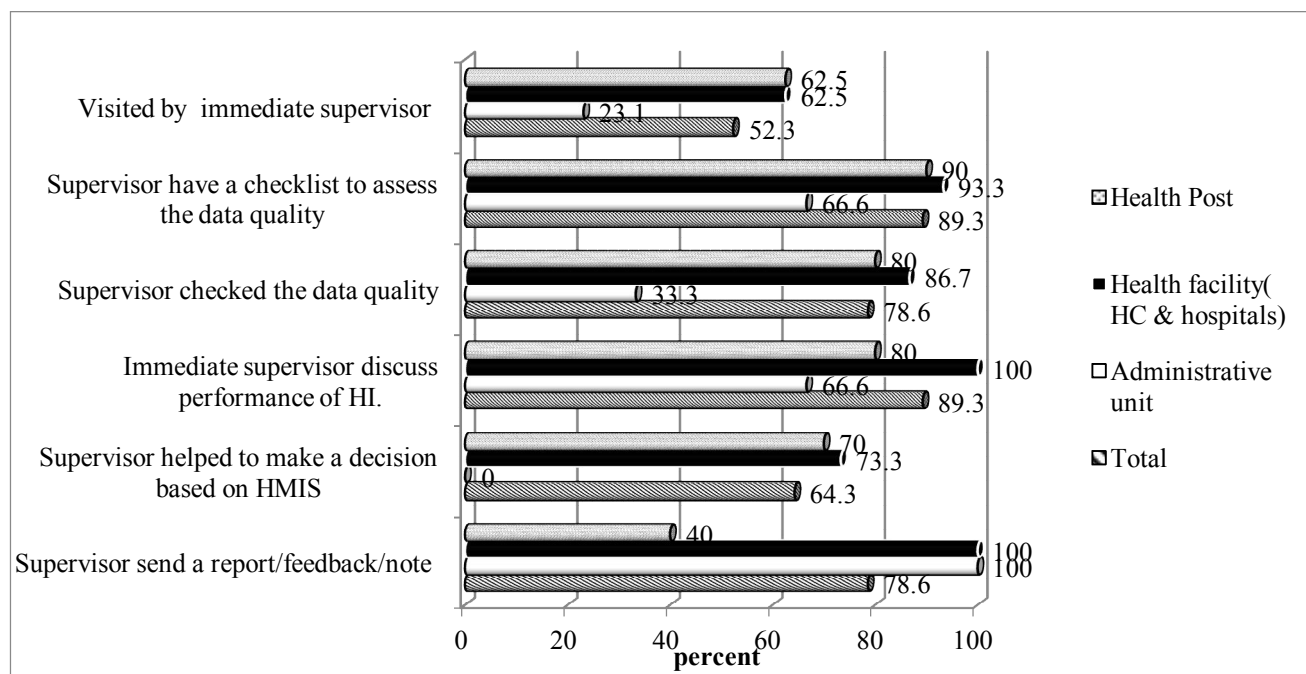
Figure 15 Proportion of HIs supportive supervision conducted, selected public health institution in Oromiya region, March 2017

Table 13 shows, sixteen (30.2%) of HIs received supervision related to HMIS/data quality/data use from non-government organizations during the last three months.

Table 18 Proportion of health institution that supportive supervision conducted by NGO in selected public health institution in Oromiya region, March 2017

institution type	Sample size	#&% of HIs received supervision related to HMIS/data quality/data use from NGO	
		yes	%
Health Post	16	5	31.3%
Health facility(HC & hospitals)	24	7	29.2%
Administrative unit	13	4	30.8%
Total	53	16	30.2%

6.4.2.4 Availability of HMIS input

Availability of trained manpower and budget

Monitoring and Evaluation units of health institutions were staffed with 70(88.6%) appropriate professionals (Figure 16). However, none of the institutions allocated budget for M&E unit from the government fund.
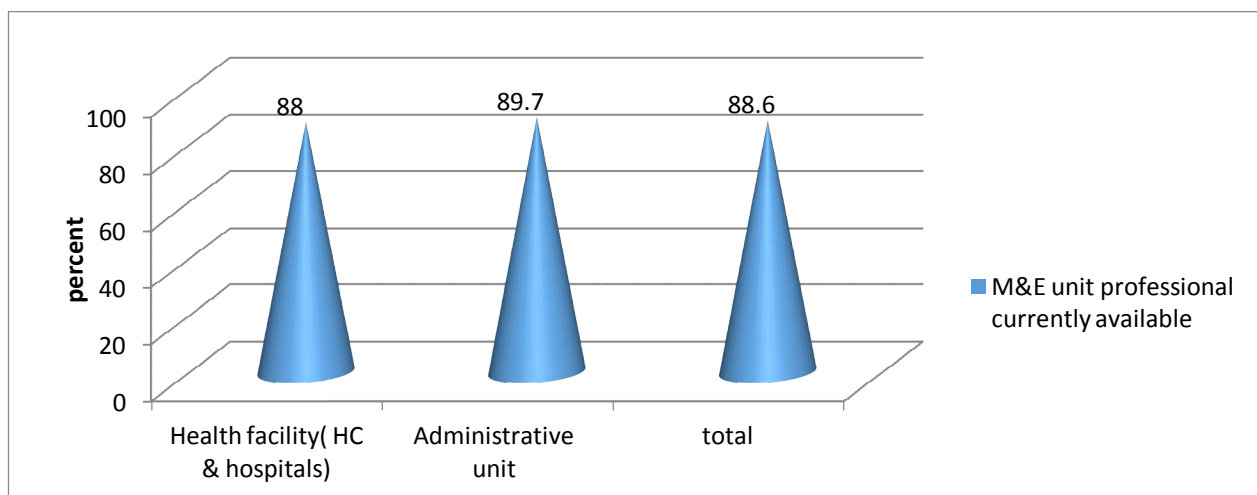
Figure 16 Proportion of M&E unit professional available in selected public health institution in Oromiya region, March 2017.

Availability of performance monitoring team

Thirty-five (94.6%) of health institution in the study area have committee/team which is responsible for a review of the performance of the health institution. Out of 35 HIs that had the team, Performance monitoring team accounts 28(82.4%), HMIS committee accounts four (11.7%) and Management committee accounts three (8.1%). (Table 14)

Table 19 Proportion of health institutions that have committee/team responsible for review of performance in selected public health institution in Oromiya region, March 2017

institution type	# &% of Health institution that have committee/ team	#&% of committee/team were responsible for a review of the performance of the health		
		Performance monitoring team	HMIS committee	Management committee
Health facility (HC & hospital)	22(91.7%)	16(76.2%)	3(14.3%)	3(13.6%)
Administrative unit	13(100%)	12(92.3%)	1(7.7%)	0
total	35(94.6%)	28(82.4%)	4(11.7%)	3(8.1%)

Availability of procedure manual for collection, analysis and data utilization

Overall, 17(42.5%) health facility had a procedure manual for data collection. Fifteen (62.50%) Health facility (HC & hospitals) and two (12.50%) health posts had a procedure manual for data collections, analysis and data utilization (with definitions) exist.

Availability and functionality of electronic M&E database

Twenty-nine (78.4%) health institutions had electronic M&E database. All 13(100%) administrative unit and 16(66.7%) Health facility (HC & hospitals) had electronic M&E database. Regarding functionality of database, out of those eHMIS computers, Overall 27(93.1%) health institution had functional eHMIS database. Among them 13(100%) Administrative unit and 14(87.5%) Health facilities (HC & hospitals) electronic M&E database were functional. (Figure 17)
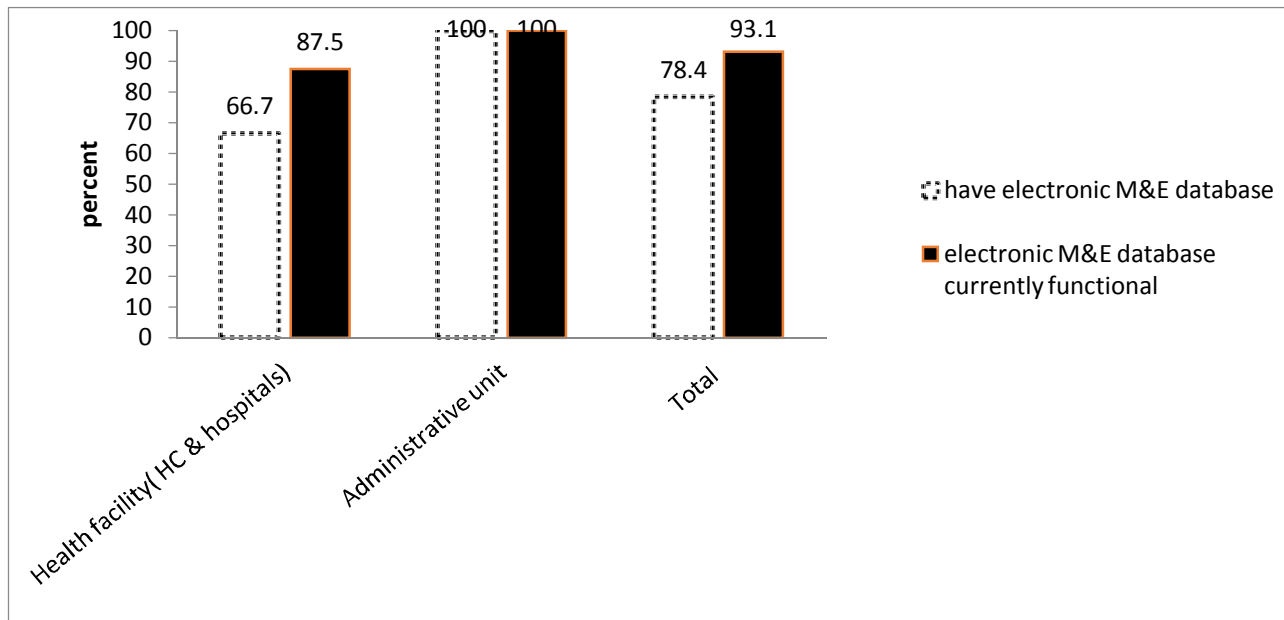
Figure 17 Proportion of institution, which has an electronic M&E database, electronic M&E database currently functional and have procedure manual in selected public health institution in Oromiya region, March 2017.

Availability of monthly and weekly HMIS Report

All institutions in the study area compile reports, which contain HMIS and CHIS. In health post, reports that contain data/information generated through CHIS were service delivery reports, disease reports and PHEM reports. In health centers, hospitals, WorHO, ZHO and regional health bureau reports that contain data/information generated through the HMIS were Service delivery reports, disease reports, IPD reports and PHEM reports. The number of times this report is supposed to be issued per year from each health institutions was Service delivery reports 12

times, disease reports 12 times, IPD reports 12 times and PHEM reports 52 times. Similarly, from health post service delivery reports 12 times, disease reports 12 times and PHEM reports 52 times. Overall 613(96.4%) Service delivery reports, 598(94.0%) disease reports, 350(78.8%) IPD reports and 2271(82.4%) PHEM reports actually were issued during the last 12 months of the year 2016 (table 15).

Table 20 proportion of monthly and weekly report cope available at selected public health institution in Oromiya region, March 2017.

Types health institution	# of expected HIs reports	# of HIs reports available	% of HIs reports available
Administrative unit			
Service delivery report	156	156	100.0%
Disease report	156	156	100.0%
IPD report	156	144	92.3%
PHEM report	676	640	94.7%
Health facility(HC & hospitals)			
Service delivery report	288	283	98.3%
Disease report	288	283	98.3%
IPD report	288	206	71.5%
PHEM report	1248	1006	80.6%
Health Post			
Service delivery report	192	174	90.6%
Disease report	192	159	82.8%
IPD report	0	0	0.0%
PHEM report	832	625	75.1%
total by types of report			
Service delivery report	636	613	96.4%
Disease report	636	598	94.0%
IPD report	444	350	78.8%
PHEM report	2756	2271	82.4%
total	4472	3832	85.7%

Based on the preset judgment criteria Availability dimensions is 65.85% that categorized under fair judgment category (Table 16). Overall evaluation of health information system at Oromiya regional state public health institution shows 62.30% that is under fair judgment category. (Table 17)

Table 21 Availability dimensions judgment matrix for evaluation of health information system in selected public health institution in Oromiya region, March 2017.

s.no	Dimensions with indicators Availability (100%)	Weight given	Observed value	Percentage achieved	Judgment parameter
1	Proportion of health facility (HCs and hospitals) identified positions which are filled by appropriate professionals as per the national standard guideline	8	7.0	88.0%	. (85-100%)-V.Good
2	Proportion of administrative unit (WorHO, ZHO and RHB) identified positions which are filled by appropriate professionals as per the national standard guideline	8	7.2	89.7%	• (70 – 84%) - Good
3	Proportion of health posts having CHIS guidelines	4	0.5	12.5%	• (55-69%) - Fair
4	Proportion of health facility (HCs and hospitals) having HMIS and eHMIS guidelines	4	2.5	62.5%	• (< = 54%)-Critical
5	Proportion of health facility (HCs and hospitals) with a budget line for HMIS activities (printing, supportive supervision, HMIS review meeting,)	9	0.0	0.0%	
6	Proportion of administrative unit (WorHO, ZHO and RHB) with a budget line for HMIS activities (printing, supportive supervision, HMIS review meeting,)	9	0.0	0.0%	
7	Proportion of health post with functional performance monitoring team	8	4.5	56.3%	
8	Proportion of health facility (HCs and hospitals) with functional performance monitoring team	8	6.7	83.3%	
9	Proportion of administrative unit (WorHO, ZHO and RHB) with functional performance monitoring team	8	7.4	92.3%	
10	Proportion of health facility (HCs and hospitals)with functional electronic M&E database	5	4.4	87.5%	
11	Proportion of administrative unit (WorHO, ZHO and RHB) with functional electronic M&E database	5	5.0	100.0%	
12	Proportion of 2016 all monthly & weekly PHEM reports copy available at health posts	8	6.3	78.8%	
13	Proportion of 2016 all monthly & weekly PHEM reports copy available at health facility (HCs and hospitals)	8	6.7	84.2%	
14	Proportion of 2016 all monthly & weekly PHEM reports copy available at administrative unit (WorHO, ZHO and RHB)	8	7.7	95.8%	
	Average score of Availability	100	65.85	65.85%	
	subtotal out of 50	50	32.92	65.85%	

Table 22 Overall analysis and judgment matrix for evaluation of health information system at Oromiya region public health institution, 2017

Dimensions	Agreed score	Weighted value	Observed %	Judgment parameter
Availability	30	19.76	65.86%	. (85-100%)-V.Good
Compliance	30	19.49	64.96%	• (70 – 84%) -Good
HIS data utilization	40	24.49	61.23%	• (55-69%) - Fair
				• (< = 54%)- Critical
Total score	100	63.74	63.74%	

6.4.3 Data quality

Monthly Report Data Completeness

The completeness of the monthly reports is measured by the number of health facility reports with over 90% of the data elements filled against the total number of data elements that the facility was supposed to fill. The result showed that 38(95.0%) of the health facilities did complete the monthly form before reporting to the next health office. It was found that all health post and 91.7% Health facility (HC & hospitals) met the 90% acceptable completeness standard (figure 18).
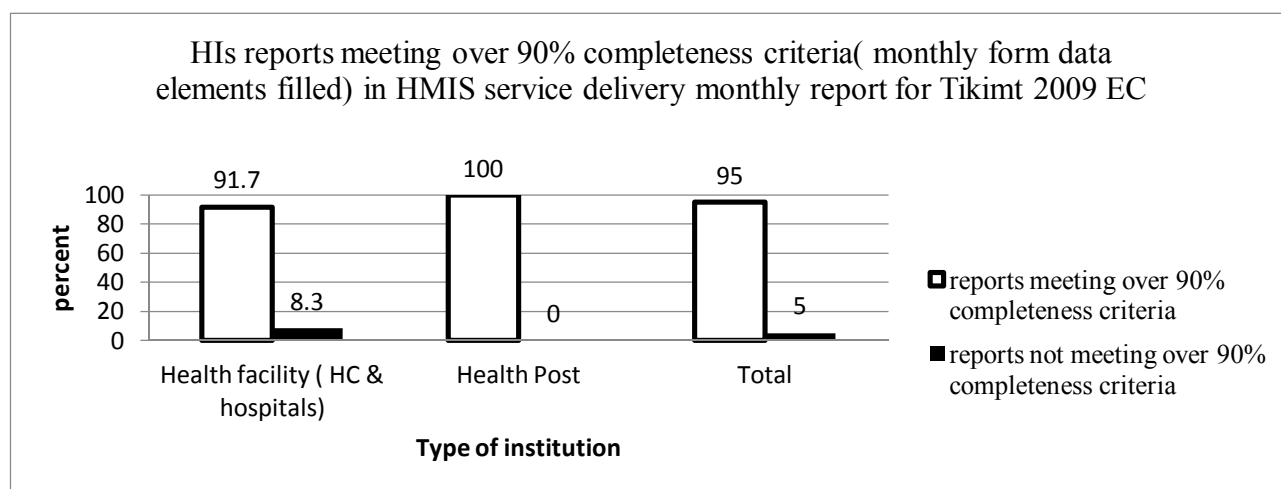
Figure 18 Monthly report data completeness in selected public health institution in Oromiya region, March 2017

Monthly Health Facility Report Completeness

In addition, the completeness of the report at the Administrative unit (WorHO and ZHO) were assessed by how many facilities in the whole Administrative unit were supposed to report are

66

actually reporting to the respective health institution. In average 1137 (74.90%) of the facilities were observed to be reporting. (Figure 19)

Monthly Health Facility Report Timeliness

The accurate and timely collection and transmission of data by health facilities are crucial for making informed decisions. Timeliness is measured by the WorHO, ZHO and RHB receiving facilities' reports by the predetermined deadline. However, Three out of 13 administrative units did not keep records of monthly report receipt dates. The 10 Administrative units (WorHO and ZHO) had records of report receipt and showed overall 64.3% of the health facilities met the reporting deadline. (Figure 19)
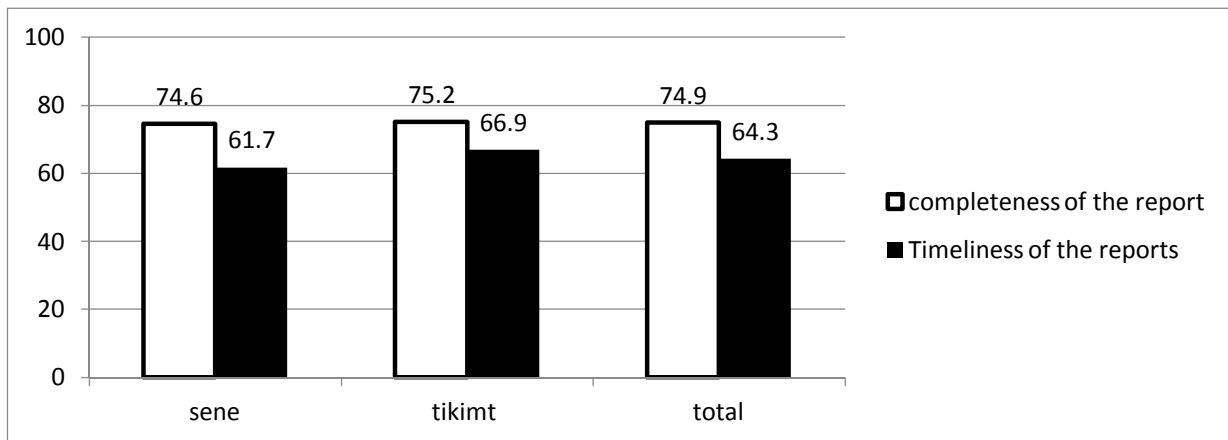
Figure 19 Monthly report timeliness and completeness at administrative unit level in selected public health institution in Oromiya region, March 2017

CHAPTER SEVEN DISCUSSION

Based on the set criteria for HIS utilization, overall utilization rate was found to be 49.1%. it is comparable with national plan set on second health sector transformation plan which is 50%(20) and with study done in Dire Dawa that was 53.1%(35). However it is lower than study done in Mexico which was 86.1% (33). Utilization of HMIS was also compared based on health facility type and from the analysis; the highest utilization rate was 62.5% at Health facility (HC & hospitals) followed by 61.5% Administrative unit and the list 18.8% in health posts.

Production of summary tables, charts, graphs and maps with clear "take-home" messages is an important process creating a visual image of the work, demonstrating progress made to comparisons against targets, strengthening transparency, and others.. Majority 86.8% health institutions were displaying data in table or chart or map. Out of those displaying HIs, 95.7% HIs was at least one indicator updated. Our study result is higher than study done in Dire Dawa and Mexico which shows Display of key indicators was 60.7% (35) and 71% (33) respectively. This may be duo to continuously supportive supervision from next supervising health institution and nongovernmental organization.

Use of information is affected by the limited information feedback to health institution (41.5%) of health institution reported receiving any feedback report from supervising institution on their performance. There is also inadequate in comparing HMIS performance among the facilities within a district or comparing existing performance against targets. Overall 83.02% HIs calculated indicators for its catchment population/each facility, 41.51% HIs compared various indicators against the district or national targets, 52.83% HIs compared data among types of services covered, 45.28% HIs compared data over time.

The availability of reports cope were comparably better at service delivery reports (96.4%) and disease reports (94.0%). However availability of IPD reports (78.8%) and PHEM reports (82.4%) were inadequate this is due to in the case of IPD report some health center they never used even if the report is zero. In the case of PHEM report, many health institutions they send reports on phone/ on mobile then they can't keep copes of report they send to next level.

In addition, the completeness of the report at Administrative units (WorHO and ZHO) were on average 74.90% of the facilities were observed to be reporting. Which is less than national plan

set on second health sector transformation plan which is 80%(20). This difference might be duo to reports from privet health institutions were not sending continuously with in time schedule.

Likewise 64.3% of the health facilities met the reporting deadline. Which is less than national plan set on second health sector transformation plan which is 80%(20) . Major reasons identified in Ethiopia for report dalliance were poor infrastructure in remote areas (rural agrarian and pastoralist), frequent interruption of electricity particularly for those using software and HMIS focal persons turn over. In addition few facilities and administrative units started practice of data quality assurance and review before transmitting report to the next higher level that takes additional time to get organized.(13)

Supportive supervision provides opportunities that could be used to improve the understanding of data and skill level in interpreting results. Moreover, Close follow up with feedback could contribute to better data quality and improve use of information for decision-making. The assessment found that limited supportive supervisions were done. In the last three month, only 52.8% of HIs visited by immediate supervisor, among them 89.3% of HIs supervisor have a checklist to assess the data quality, 78.6% of HIs supervisor checked the data quality, and 89.3% of HIs supervisor discuss performance of health facilities based on HMIS information. In addition, in 64.3% of HIs supervisor helped the institution to make a decision based on information from the HMIS. Also 78.6% of HIs supervisors send a feedback at least on one of the last two supervisory visits. Comparatively it better than study conducted in SNNPR Hp 33.3%, HFs 29.4% received feedback report (36).

In addition, 30.2% of HIs received supervision related to HMIS/data quality/data use from non-government organizations during the last three months. Among health post 31.3%, health facility (HC & hospitals) 29.2% and administrative unit 30.8% received supervision from non-government organizations during the last three months. This studies result is lower than study conducted in Ethiopia which was nationally 57.9% facilities received HMIS focused supportive supervision from outside organ (13) in this study it is low it might be no NGO working on HMIS strengthening covering all zones of the region.

An acute shortage of technical and administrative staff means that staff are overburdened, and technical staff are often required to carry out tasks originally planned for those with more

training (task shifting)(19). The HMIS requires trained technicians for manual and electronic data processing. The assessment found that out of number of M&E unit professional required per standard 88.6% were currently available. Among health facility (HC & hospitals) 88.0% and among administrative unit 89.7% M&E unit professional were available. In study conducted in Ethiopia on average fulltime HMIS focal person was assigned in 61.7% of facilities (13). The difference may be due to continues training given for HIT professionals at college level that increase number of HIT professionals in the market that give them an opportunity to employ.

Using Computers databases will greatly facilitate the ability of health information systems to produce timely, relevant and high quality information(43). However, 78.4% have electronic M&E database. All 100% administrative unit and 66.7% health facility (HC & hospitals) have electronic M&E database. This study result shows at rural health center some health facility did not have electric power supply this might affect computer distribution for health facility from the region health bureau.

Regarding functionality database, overall 93.1% HIs electronic M&E database were functional among them 100% administrative unit and 87.5% health facilities (HC & hospitals) electronic M&E database were functional. In study done in Ethiopia shows on average functional computer was available in three fourth of facilities.(13) In our study comparatively at health facility level was low this might be no budget for maintenance of computer and printer, HIS software out off function frequently and electronic M&E database maintenances training was not given to HIT professionals.

However, in this study none of the institution allocated budget for M&E unit from government fund which is lower than regular budget allocation for HMIS running costs that of study conducted in Ethiopia which were found 22% at facilities, 29.4% at districts and 33.3% region level offices (15). In our study it may related to less concern given to the unit. This affects to conduct supportive supervision, to give refreshment training on HMIS, to provide stationery supply, registration and recording logistics.

Forty two percent of HIs with procedure manual for data collection (with definitions) exist. Among health facility (HC & hospitals) 62.5% and among health post 12.5% have procedure manual for data collection (with definitions) exist. it is comparable to national level study On

average 57% facilities (53.3% HC and 78.1% hospital) had HMIS recording, reporting, indicator and information use guidelines(13). The result of this study indicated that, lack of refreshment training were one main problem identified. In this case, procedure manual for data collection (with definitions) expected to use as a reference. However, very low spatially at health post level this might affect to reference which in case some clarity issue rise.

Overall 91.9% of health institutions in the study area have committee/team, which were responsible for review of performance of the health institution. Among them All administrative unit (100%), and majority of health facility (HC & hospitals) 87.5% have committee/team. It is comparable to study done in SNNPR 2013 which was 97.1% HFs with performance review teams (36).

Based on the pre set judgment; information utilization dimensions, Availability dimensions and Compliance dimensions were 61.23%, 65.85% and 64.96% respectively that is grouped under fair category. Over all evaluation of health information system at Oromiya regional state public health institution shows 63.74% which grouped under fair judgment category.

7.5 limitations of evaluation

❋ As any cross-sectional survey, this study will not explain cause effect relationship.
❋ The incompleteness of data and documents from some units/ departments may under estimate the findings in this study.

CHAPTER EIGHT CONCLUSIONS

The assessment revealed that the required inputs were not received by the health facilities as desired and expected. The human resources required by health facilities HIT were not available to the standards. Availability of electronic M&E database/ computer was found not sufficient. In addition, in terms of on job training, budget allocation and HMIS procedure manual for data collection (with definitions) were found inadequate.

Availability of copy of at least one-year report submitted to next higher level was inadequate. Displaying data, updating all displayed indicator, displayed map of the catchment area, displayed a summary of demographic information were inadequate.

Data analysis is very poor at health post and health facility level especially comparisons with district or national targets, comparing data among types of services coverage, compared data overtime (monitoring over time). However, calculating indicators for facility catchment area were adequate at all institution level.

The assessment found that health facility visited by immediate supervisors was not adequate. Even though there was limited supervision, supervisors have a checklist to assess the data quality, supervisor checked the data quality, supervisors discuss performance of health facilities based on HMIS information considerably high improvements. In addition, supervisor helped the institution to make a decision based on information from the HMIS and supervisors send a report/feedback/note were achieved considerably high improvements.

In general, the findings of the study showed that, utilization rate was found to be adequate compared with HSTP 2 plan. However, health posts level information utilization was very low which need more attention. Based on the pre set judgment criteria availability and Compliance dimensions are under fair category. Over all evaluation of health information system at Oromiya regional state public health institution shows 59.8% which categorized under fair judgment category.

CHAPTER NINE RECOMMENDATION

Based on the finding of the study, to improve the utilization of the reformed HMIS at facility level and administrative health office the following additional recommendations are forwarded:

Health facility (HP, HC & hospitals)

- Motivation/incentives should be given to all individual working in the health institution and woreda health offices system for better utilization of information in the new HMIS.
- Health facilities must be given frequent on job training to use the data generated for decision making at facility level, and the use of HMIS for their facility (local use) must be underlined in all the trainings;
- It should be given an emphasis to strengthening commitment for ownership.
- Performance team evaluation was encouraging but this team should have regular schedule that strongly lined with the plan of HMIS.
- HMIS unit should have their own budget and strategy like any other health facility units

Administrative level (WorHO, ZHO & RHB)

- Motivation/incentives should be given to all individual working in the health institution and administrative health offices system for better utilization of information in the new HMIS.
- Management has to assign adequate human resource for data management unit and should be equipped with basic ICT infrastructures
- Health facilities must be given frequent on job training to use the data generated for decision making at facility level, and the use of HMIS for their facility (local use) must be underlined in all the trainings;
- Supportive supervision and technical assistants with periodic feedback should be delivered to monitor their progress towards the reformed HMIS
- Technical guidelines should be avail at all levels accordingly and necessary to follow its implementation.
- It should be given an emphasis to strengthening commitment for ownership.

- Performance team evaluation was encouraging but this team should have regular schedule that strongly lined with the plan of HMIS.
- Standardized and user-friendly data collection, analysis and reporting format should be distributed to health post.
- HMIS unit should have their own budget and strategy like any other health facility units.

CHAPTER TEN META-EVALUATION

Meta evaluation standards such as utility, feasibility, propriety, and accuracy will be used to determine the effectiveness of evaluation(43). The quality of this study was evaluated using formative meta-evaluation approach. Throughout the process the quality of the study were checked based on the Meta evaluation standards by using program evaluation models Meta evaluation checklist set by Daniel L(43).

10.1. Utility:

The researcher was checked the evaluation protocol considers the information needs of major intended users by involving them throughout the implementation of evaluation. The evaluation questions were the needs of the stakeholders about the program. Thus, there is a high likelihood of addressing information needs and values of stakeholders that ensure utilization of the evaluation findings for program improvement.

10.2. Propriety:

The researcher was checked there is no procedure that affects the privacy, dignity, confidentiality and rights of participants. In order to fulfill the propriety standards Ethical clearance was received from Jimma University, Interviewers were trained on how to handle sensitive issues; collectors were trained on how to handle emotional feeling and confidentiality.

10.3. Feasibility

The researcher were checked the availability of adequate data for the evaluation. The cost considered the presence of limited resources and the resources that were used are justifiable for benefits of program improvement.

10.4. Accuracy:

The researcher was checked all the data collection, analysis and presentation techniques carried out based on scientific methods. Quality control strategies were formulated well. Data was collected from multiple sources using multiple methods and triangulation was employed to strengthen the decision.

Reference

1. World Health Organization . Monitoring The Building Blocks Of Health Systems : A Handbook Of Indicators And Their Measurement Strategies. WHO Document Production Services, Geneva, Switzerland; 2010. 110 p.

2. Health Metrics Network. Framework and standards for country health information systems. Geneva, World Health Organization. 2008;

3. World Health Organization. Design and implementation of health information systems. 1st ed. Lippeveld T, Sauerborn R, Bodart C, editors. 2000. 280 p.

4. Bossert T. Analyzing The Decentralization Of Health Systems In Developing Countries : Decision Space , Innovation And Performance. 1998;47(10):1513–27.

5. MEASURE Evaluation. PRISM Case Studies : Strengthening and Evaluating RHIS Mexico HMIS : Promoting a Culture of Information. 2008;(July):1–8.

6. Liberia's Ministry of Health. Performance of Routine Health Information System Management in Liberia : 2012;

7. Abouzahr C, Boerma T. Policy and Practice Health information systems : the foundations of public health. 2005;14951(4).

8. World Health Organization. Framework and Standards for Country Health Information Systems. Second Edi. World Health Organization; 2008. 72 p.

9. Seitio-kgokgwe O, Gauld RDC, Hill PC, Barnett P. Development of the National Health Information Systems in Botswana : Pitfalls , Prospects and Lessons. 2015;7(2):1–19.

10. Kihuba E, Gathara D, Mwinga S, Mulaku M, Kosgei R, Mogoa W, et al. Assessing the ability of health information systems in hospitals to support evidence-informed decisions in Kenya. 2014;1:1–9.

11. FMOH. Health Management Information System (HMIS) / Monitoring and Evaluation (M & E) Strategic Plan for Ethiopian Health Sector. HMIS Reform Team. Federal Ministry of Health, Addis Ababa.; 2008.

12. FMOH. National Health Information System Road Map - 2005 - 2012 E.c. (2012/13 - 2019/20 G.c.). 2012.

13. Elias N, Mohammed M, Belayneh A, Dawo H, Tesfaye H. Special bulletin 16 th Annual Review Meeting 2014 Oct 2014 Editor in Chief. 2014;

14. FMOH.. Health Sector Development Program IV: 2010/11 -2014/15. 2010;(October

2010):1–131.

15. Mesfin G. Data quality and information use : A systematic review to improve evidence ,. :53–60.

16. Tadesse K, Gebeye E, Tadesse G. Assessment of health management information system implementation in Ayder referral hospital , Mekelle , Ethiopia. 2014;3(4):34–9.

17. Bhattacharyya S, Berhanu D, Taddesse N, Srivastava A, Wickremasinghe D, Schellenberg J, et al. District decision-making for health in low-income settings : a case study of the potential of public and private sector data in India and Ethiopia. 2016;

18. FMOH.. Health sector transformation plan-i annual performance report efy 2008 (2015/2016) 1. 2016;2008.

19. Avan BI, Berhanu D, Umar N, Wickremasinghe D, Schellenberg J. District decision-making for health in low- income settings : a feasibility study of a data-informed platform for health in India , Nigeria and Ethiopia. 2016;3–11.

20. FMOH. Health Sector Transformation Plan 2015/16 - 2019/20 (2008-2012 EFY). 2015. 184 p.

21. Edwards M. Routine Health Information Systems : Concepts and Methods. 2006;

22. Wholey JS. Hand Book of Practical Program Evaluation. 3rd ed. Wholey Sj, Atry P. H, Newcomer Ek, editors. John Wiley & Sons, Inc; 2010.

23. Taylor-Powell, E., Jones, L., & Henert E. Enhancing Program Performance with Logic Models. Retrieved december 3, 2016, from the University of Wisconsin-Extension web site: http://www.uwex.edu/ces/lmcourse/. 2003;

24. Implemented HSP. HMIS Scale-up Project HMIS Scale-Up in Ethiopia.

25. FMOH. Federal Ministry of Health Quarterly Health Bulletin. 3 No.

26. John Snow, Inc. Making HMIS Reform Scale up a Success: 2009;

27. FMOH. Community Health Information System Data Recording and Reporting User ' s Manual. 2011;

28. FMOH. Training of Health Extension Workers (HEW) On Family Folder and HIS Procedures Facilitators ' Guide. 2011;

29. SNNPR HB. Electronic Health Management Information System User Guide. 2011.

30. SNNPR HB. HMIS Information Use Training Manual. 2013.

31. FMOH. HMIS Information Use Guide. 2013;(May).

32. FMOH. Federal Democratic Republic of Ethiopia Ministry of Health POLICY AND PRACTICE. 2014;6(1).

33. Aqil A, Ávila JEH, Mejía LSP, Parbul AS, Beatriz Plaza M, Norma Wilson, et al. Guanajuato SINAIS Assessment. Meas Eval. 2010;

34. Abajebel S, Jira C, BeyeneW. Original Article Utilization Of Health Information System At District Level In Jimma Zone Oromia Regional State , South West Ethiopia. Ethiop J Health Sci. Vol. 21, Special Issue August, 2011

35. Teklegiorgis K, Tadesse K, Mirutse G, Terefe W. Factors associated with low level of health information utilization in resources limited setting , Eastern Ethiopia. 2014;3(6):69–75.

36. Belay H, Azim T, Kassahun H. Assessment of Health Management Information System (HMIS) Performance in SNNPR , Ethiopia. 2013;(April).

37. Aqil A, Lippeveld T, Hozumi D. PRISM framework : a paradigm shift for designing , strengthening and evaluating routine health information systems. 2009;217–28.

38. Panerai RB. HEALTH INFORMATION SYSTEMS. In: Encyclopedia of Life Support Systems (EOLSS). 2010.

39. Bureau ORSGCA. Oromiya National Regional State In Brief [Internet]. [cited 2017 Jan 1]. Available from: http://www.oromiacom.com/Oromia.html

40. FMOH. Health Sector Transformation Plan I Annual Performance Report Efy 2008 (2015/16) Version 1.2016 42

41. Rossi Ph, Lipsey He, W. Fm, editors. Evaluation a systematic approach. sixth. Sage Publications, Inc.; 1998. 439 p.

42. FMOH. Assessment of the Ethiopian National Health Information System. 2007;(October).

43. Stufflebeam DL. Program Evaluations Metaevaluation Checklist (Based on The Program Evaluation Standards). 1999;1–11.

ANNEX
The Status of M&E in the Oromiya region Health Sector

Information Use Assessment Tool

Instruction

Jimma University, institute of health science Public Health faculty, Department of Health Service Management health monitoring and evaluation is conducting this study on utilization of health information system in Oromiya regional state. The survey is aimed at better understanding states and factor that affect information utilization in Oromya regional state.

Please be patient while the interviewer read the following statement to you and ask any unclear question before you agree to participate.

1) The information you provide will be crucial in determining assessment of utilization of Health information system at your units/departments, your facility and the overall assessment of the study area. The questions are simple and ask you about background information and the way you generate data or information and how you utilize Health information system for decision making in your institution or specific Unit / Department.

2). Participation Procedures and Guidelines

a. The information you provide will be keep completely anonymous, that is, your name will not be on any of the form
b. your information will be kept confidentially
c. The interview will take about 20-30 minutes to complete.

3) Rights to Participate.

Your participation is voluntary and there is no penalty for you not wanting to participate.
   Agree to participate
Yes _____ Date_____

NOTE TO THE INTERVIEWER: EXPLAIN THE TOOL TO THE HEAD OF THE INSTITUTION/INTERVIEWEE.

01	Date (GC)	_____/_____/_____ DD / MM / YYYY

HEALTH INSTITUTION IDENTIFICATION

Name of Health Institution	_____
Institution Type (circle category):	1. Health post 2. Health Center 3. Hospital 4. Woreda Health Office 5. Zonal Health Department 6. Regional Health Bureau
Zone	
Woreda	
Kebele	
Telephone Number (Office)	
Distance from supervisory health institution in KM	
Name of person interviewed	
Position of person interviewed	

		HMIS Report Production			
1		Does the district issue any report containing HMIS information?	1.Yes	0.No	If no , go to 3
2		If yes, please list reports that contain data/information generated through the HMIS. Please indicate the frequency of these reports and the number of times the reports actually were issued during the last 12 months. Please confirm the issuance of the report by counting them and putting the number in column 3.			

	1. Title of the report	2.No. of times this report is supposed to be issued per year	3. No. of times that report are actually issued for the last 12 months (Please verify copies)	
2 a	Service delivery report			
2 b	Disease report			
2 c	IPD report			Skip for HP
2 d	PHEM report			

3	Did the institution send a feedback report using HMIS information to facilities during the last three months?		1.Yes	0.No	Only for administrative unit
4	Number of institutions that were sent feedback report based on HMIS information during the last three months		_____		Only for administrative unit
5	During the last three month, did the facility receive any feedback report from supervising institution on their performance?		1.Yes	0.No	

		Display of Information			
6		Does the institution display the following data? Please indicate the types of data displayed and whether the data are updated for the last reporting period.			If no go to Q 7

	1.Indicator	2.Type of display (Please tick)		3. Updated		
6 a	Related to mother health	Table		1.Yes	0.No	
		Graph/Chart				
		Map				
6 b	Related to child health	Table		1.Yes	0.No	
		Graph/Chart				
		Map				
6 c	Facility Utilization	Table		1.Yes	0.No	
		Graph/Chart				
		Map				
6 d	Disease surveillance	Table		1.Yes	0.No	
		Graph/Chart				
		Map				
7	Does the office have a map of the catchment area?			1.Yes	0.No	
8	Does the office display a summary of demographic information such as population by target group for the EFY 2009			1.Yes	0.No	

9	Is self-assessment and feedback (in the form of report, minutes…) on HMIS data available, which provides guidelines/recommendations for actions?	1.Yes	0.No	If no, go to 11

10	If yes to Q 9, what kinds of decisions are made in reports of HMIS data/information for actions? Please check types of decision based on types of analysis present in reports.			
	Types of decisions based on types of analysis			
10 a	Review strategy by examining service performance target and actual performance from month to month	1.Yes	0.No	
10 b	Review facility personnel responsibilities by comparing service targets and actual performance from month to month	1.Yes	0.No	Skip administrative unit
10 c	Appreciation and acknowledgement based on number/percentage of facilities showing performance within control limits over time (month to month comparisons)	1.Yes	0.No	Only for administrative unit
10 d	Mobilization/shifting of resources based on comparison by facilities	1.Yes	0.No	
10 e	Advocacy for more resources by comparing performance by areas (sub-districts, cities, villages), human resources and logistics	1.Yes	0.No	
10 f	Development and revision of policies/guidelines/priorities by comparing types of services	1.Yes	0.No	Only for administra
	Discussion and decisions about use of information			
11	Does the institution have routine meetings for reviewing performance, managerial or administrative matters?	1.Yes	0.No	
12	What committee/team is responsible for review of performance of the health institution? 1. Performance monitoring team 2. HMIS committee 3. Management committee Other _____			Skip for HP
13	How frequently is the meeting supposed to take place? Circle appropriate answer 1. Every _____ weeks No regular schedule			
14	How many times did the meeting take place during the last three months? (input 0 if it didn't happen at all)		_____ times	
15	Is an official record of performance review/management meetings maintained?	1.Yes	0.No	If no, go to Q17
16	If yes, please check the meeting records for the last three months to see if the following topics were discussed:			
16 a	Management of HMIS/CHIS, such as data quality, reporting, or timeliness of reporting	1.Yes, observed	0. No	
16 b	Discussion about HMIS findings such as patient utilization, disease data, or service coverage, or medicine stock out	1.Yes, observed	0. No	
16 c	Have they made any decisions based on the above discussions?	1.Yes, observed	0. No	
16 d	Has any follow-up action taken place on the decisions made during the previous meetings?	1.Yes, observed	0. No	
16 e	Are there any HMIS related issues/problems referred to regional/national level for actions?	1.Yes, observed	0. No	
	Promotion and Use of HMIS information at district/higher level			
17	Did HI annual action plan show decisions based on HMIS information?	1.Yes	0.No	

18	Did records of institution of last three months show that district/senior management issued directives on use of information	1.Yes	0.No	
19	Did the health facility receive a district or national HMIS/ CHIS office newsletter or report in last three months giving examples of use of information	1.Yes	0.No	Skip administrative unit
20	Did the institution produce newsletter/report in last three months showing examples of use of information	1.Yes	0.No	Skip administrative unit
21	Does documentation exist showing the use information for advocacy purposes?	1.Yes	0.No	
22	Did the person in charge of the health facility participate in meetings at district/health center level to discuss HMIS/ CHIS performance for the last three months?	1.Yes	0.No	Skip administrative unit
23	Did the institution conduct a review meeting on its performance during the last three months?	1.Yes	0.No	
24: Please describe examples of how the institution uses HMIS information for health system management decisions. 0. No examples 1. Yes (details follows)				
Supervision by the Supervising Health Institution (Zonal/Regional Health Bureau)				
25	How many times did the immediate supervisor visit your facility during the last three months? (check the answer)	_____ times		If zero, go to 31
26	Did you observe a supervisor having a checklist to assess the data quality?	1.Yes	0.No	
27	Did the supervisor check the data quality?	1.Yes	0.No	
28	Did the immediate supervisor discuss performance of health facilities based on HMIS information when he/she visited your	1.Yes	0.No	
29	Did the supervisor help you make a decision based on information from the HMIS?	1.Yes	0.No	
30	Did the supervisor send a report/feedback/note at least on one of the last two supervisory visits?	1.Yes	0.No	
31	Did you receive supervision related to HMIS/data quality/data use from non-government organizations during the last three months?	1.Yes	0.No	

32	What is the number of M&E posts (required & filled) for the following professional categories that are primarily responsible for the functioning of the M&E system?			If HP , go to Q 33
	Professional category	# Required per standard	# Currently available	
	a) Health Information Technicians (HIT)			
	b) Health Informatics (HI)			
	c) Health M&E (HME)			
	d) Epidemiology/Public Health			
	e) Data clerk			
	f) Other, specify: _____			
	g) Other, specify: _____			
	h) Other, specify: _____			

33	Does the institution have electronic M&E database?	1) Yes (Name _____) 2) No	(If no, skip to Q33)
34	Is the electronic M&E database currently functional?	1) Yes 2) No	
35	What was the total budget allocated for the HMIS/M&E unit for EFY 2009 _____ birr		If HP , go to Q 35
36	What was the total budget allocated for the institution for EFY 2009 _____ birr		If HP , go to Q 35
	Does a procedure manual for data collection (with definitions) exist?	0. No 1. Yes	Only for HP, HC & hospital

	Data Recording and Transmission					
37	Does this facility keep copies of the HMIS monthly reports which are sent to the supervising health institution?	0. No	2. Yes			Skip for administrative unit
38	Count the number of HMIS monthly reports that have been kept at the facility for the twelve months (Tir 2008 to Tahisas 2009EC)					Skip for administrative unit
39	Does this facility keep outpatient and/or inpatient registers? (Electronic or paper-based)	0. No	1.Yes			Skip for administrative unit
40	Does the Region/Zone/Woreda keep copies of HMIS reports sent by reporting health institutions? (verify)	0. No	1.Yes			Only for administrative unit
41	What is the number of health facilities in the Region/Zone/Woreda that are supposed to be reporting to your institution?					Only for administrative unit
42	What is the number of facilities/institutions in the Region/Zone/Woreda that are actually reporting to the institution (Enrolled to the HMIS) by paper, electronically and total?					Only for administrative unit
	Ownership		2			
		Reporting by paper	Reporting electronically	Total reporting		
	Public					
	Private for profit					
	Other government					
	Private not-for profit					
43	Does the Zone/Woreda/RHB office record receipt dates of the HMIS monthly report?	0. No	1.Yes			Only for administrative unit
44: Completeness and timeliness of report receiving						Only for administrative unit

	Sene 2008			Tikimt 2009		
Type of facility	1. Before deadline	2. After deadline	3. Not at all	1. Before deadline	2. After deadline	3. Not at all

Public									
Private for profit									
Other government									
Private not-for profit									

45	How many data items does the facility need to report on in the HMIS service delivery monthly report for Tikimt 2009EC? This number does not include data items for services not provided by this health facility.			Skip for administrative unit
46	Count the number of data items that are supposed to be filled in by this facility but left blank without indicating "0" in the selected month's report.			Skip for administrative unit
	Data Processing/Analysis (for administrative unit only)			
47	Does an electronic database (DB) (eg. eHMIS, DHIS) exist to enter and process data?	0. No	1. Yes _____	If No skip 48 g
48	Have staffs ever used the DB to produce the following? (Check with all responsible for the DB)			
48 a	Calculate indicators for each facility catchment area	1. Yes	0. No	
48 b	Data summary report for the catchment	1. Yes	0. No	
48 c	Comparisons among reporting health institutions	1. Yes	0. No	
48 d	Comparisons with district/national targets	1. Yes	0. No	
48 e	Comparisons among types of services coverage	1. Yes	0. No	
48 f	Comparisons of data over time (monitoring over time)	1. Yes	0. No	
48 g: If no to anyone of the questions on 41, what are the reasons for not using the DB? (circle all that apply) 1. Staff do not know how to use the database 2. There are better solutions (eg. Ms Excel, other software) 3. There was no intention to produce those summaries 4. Other (specify _____				

Data Transmission/Data Processing/Analysis (for HP, HC & hospital)				
49	Do data processing procedures or a tally sheet exist?	1. Yes, Observed	0. No	If No skip 50 E
50	Does the facility produce the following?			
50 A	Calculate indicators for facility catchment area	1. Yes, Observed	0. No	
50 B	Comparisons with district or national targets	1. Yes, Observed	0. No	
50 C	Comparisons among types of services coverage	1. Yes, Observed	0. No	
50 D	Comparisons of data over time (monitoring over time)	1. Yes, Observed	0. No	
50 E: If no to anyone of the questions on FQ10, what are the reasons for not doing so? (circle all that apply) 1. Staff do not know how to use the database 2. There are better solutions (eg. Ms Excel, other software) 3. There was no intention to produce those summaries 4. Other (specify--------------------------				

42. Free listing

- Data collected through HMIS and other mechanisms is poorly utilized for decision making in some institutions in Oromiya and other regions. What do you think are the main reasons for low level of information use in these institutions?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Which three of the above listed factors are major determinants of information use in your health institution? (Circle the identified three factors)

The Status of M&E in the Oromiya region Health Sector

Organizational and Behavioral Assessment Tool

To be filled by management and staff at all levels

NOTE TO THE INTERVIEWER: PROVIDE INFORMATION ABOUT THE SURVEY AND ASK FOR CONSENT TO PARTICIPATE USING THE INFORMATION SHEET.		
01	Date (GC)	_____/_____/_____ DD / MM / YYYY

HEALTH INSTITUTION IDENTIFICATION

Name of Health Institution	
Department	
Institution Type (circle category):	1. Specialized Hospital 2. General Hospital 3. Primary Hospital 4. Health Center 5. Health Post 6. Woreda Health Office 7. Zonal Health Department 8. Regional Health Bureau
Zone	
Woreda	
Town	
Kebele	
Telephone Number (Office)	
Distance from supervisory health institution in KM	
Position of person interviewed	1. Head of institution 2. Department Head 3. HMIS Focal Person 4. Other (specify) _____

Organizational and Behavioral Assessment Tool

DD2. Age group of the respondent in years (Circle the one of the age groups)
1. 20 or younger
2. 21-30 years old
3. 31 to 40 years old
4. 41 to 50 years old
5. Above 50 years old

DD3. Sex   1. Male   2.Female

DD4.   Highest Level of Education
1. Level 3/Certificate
2. Level 4/Diploma
3. Bachelor Degree
4. Master Degree
5. Other (specify) _____
   _____

DD4_A. Field of study for the highest level of education
1. Health Extension Worker
2. Nurse
3. Midwife
4. Health Officer
5. Medical Doctor
6. Public Health (MPH)
7. Health Monitoring and Evaluation
8. Health Information Technology
9. Laboratory Technology
10. Other (Specify)
    _____
    _____

DD5.   Total years of experience in years _____

DD5_A. Total years of experience on current position in years _____

DD7. Have you ever received in-service training on HMIS/M&E?   0. No   1.Yes

DD7_1. Did you receive pre-service training on HMIS/M&E?   0. No   1.Yes

DD6. If yes to DD7, when was the last time you received training? _____ months back

INSTRUCTIONS

We would like to know your opinion about how strongly you agree with certain activities carried out by _____. There are no right or wrong answers, but only expression of your opinion on a scale.

1. The scale is about assessing the intensity of your belief and ranges from strongly disagree (1) to strongly agree (5).
2. You have to determine first whether you agree or disagree with the statement. Second decide about the intensity of agreement or disagreement.
3. If you **disagree** with statement then use left side of the scale and determine how much disagreement that is strongly disagree (1) or disagree (2) and circle the appropriate answer.
4. If you are not sure of your belief or think that you neither disagree nor agree, then circle 3.
5. If you **agree** with the statement, then use right side of the scale and determine how much agreement that is agree (4) or strongly agree (5) and circle the appropriate answer.
6. Please note that you might agree or disagree with all the statements and similarly you might not have the same intensity of agreement or disagreement and thus variations are expected in expressing your agreement or disagreement. We encourage you to express those variations.

This information will remain confidential and would not be shared with anyone, except presented as an aggregated data report. Please be frank and choose your answer honestly.

To what extent, do you agree with the following on a scale of 1-5?

In your health institution, decisions are based on:	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
D1. Personal liking					
D2. Superiors' directives					
D3. Evidence/facts					
D4. Political interest					
D5. Comparing data with strategic health objectives					
D6. Health needs					
D7. Considering costs					

In your health institution, overall organizational processes and policies:	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
O1. Support the use of data for decision making					
O2. Encourage reporting accurate data for well performed activities					
O3. Encourage reporting accurate data for underperformed activities					

In your health institution, supervisors	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
S1. Seek feedback from concerned persons					
S2. Emphasize data quality in monthly reports					
S3. Discuss conflicts openly to resolve them					
S4. Seek feedback from concerned community					
S5. Use HMIS data for setting targets and monitoring					
S6m. Check data quality regularly					
S7. Provide regular feedback to their staff through regular report based on evidence					
S8. Report on data accuracy regularly					
S9. Encourage their supervisees to over report (false report) their performance					

In your health institution, staff	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
P1. Are punctual					
P2. Document their activities and keep records					
P3. Feel committed in improving health status of the target population					

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
P4. Set appropriate and doable target of their performance					
P5. Feel guilty for not accomplishing the set target/performance					
P6. Are rewarded for good work					
P7. Use HMIS data for day to day management of the facility and Health Institution					
P8. Display data for monitoring their set target					
P9. Can gather data to find the root cause(s) of the problem					
P10. Can develop appropriate criteria for selecting interventions for a given problem					
P11. Can develop appropriate outcomes for a particular intervention					
P12. Can evaluate whether the targets or outcomes have been achieved					
P13. Are empowered to make decisions]					
P14. Able to say no to supervisors and colleagues for demands/decisions not supported by evidence					
P15. Are made accountable for poor performance					
P16. Use HMIS data for community education and mobilization					
P17. Admit mistakes for taking corrective actions					
P18. Are encouraged to over report (false reporting) their performance					

Personal	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
BC1. Collecting information which is not used for decision making discourages me					
BC2. Collecting information makes me feel bored					
BC3. Collecting information is meaningful for me					
BC4. Collecting information gives me the feeling that data is needed for monitoring facility performance					
BC5. Collecting information give me the Feeling that it is forced on me					
BC6. Collecting information is appreciated by Co-workers and supervisors					

SELF-EFFICACY

This part of the questionnaire is about your perceived confidence in performing tasks related to health information systems. High Confidence indicates that person could perform the task, while low confidence means room for improvement. We are interested in knowing how confident you feel in performing HMIS-related tasks. Please be frank and rate your confidence honestly.

Please rate your confidence in percentages that you can accomplish the HMIS activities.

Rate your confidence for each situation with a percentage from the following scale

0	10	20	30	40	50	60	70	80	90	100

Self-Efficacy	No						Yes				
	0	10	20	30	40	50	60	70	80	90	100
SE1. I can check data accuracy											
SE2. I can calculate percentages/rates correctly											
SE3. I can plot data by months or years											
SE4. I can compute trend from bar charts											
SE5. I can explain findings & their implications											
SE6. I can use data for identifying gaps and setting targets											
SE7. I can use data for making various types of decisions and providing feedback											

Thank you for your responses and time!