COLLEGE OF HEALTH SCIENCES

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ASSESSMENT OF QUALITY OF DATA AND ASSOCIATED FACTORS IN THE HEALTH MANAGEMENT INFORMATION SYSTEM AMONG HEALTH CENTERS OF HADIYA ZONE, SOUTHERN ETHIOPIA

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Assessment of quality of data and associated factors in the Health Management Information System among health centers of Hadiya zone, southern Ethiopia

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A thesis submitted to the school of graduate studies of Addis Ababa University in partial fulfilment of the requirements for the degree of masters in Public Health

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Declaration

I, the undersigned, declare that this paper is my original work and has not been presented for degree or master's degree in this or another university and that all sources used for this the paper has been fully acknowledged. This paper is submitted in partial fulfilment of the requirements for the Master of Science degree from school of graduate studies at Addis Ababa University.

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Abstract

Background: *A well designed Health management information system is necessary for improving health service effectiveness and efficiency. It helps to produce quality information and conduct evidence based monitoring, adjusting policy implementation and resource use. However, evidences show that data quality is poor and is not utilized for program decisions in Ethiopia especially at lower levels of the health care and it remains as a major challenge.*

Objective: *To assess the level of quality of data and associated factors in the routine health management information system among Health Centers of Hadiya Zone in 2018.*

Method: *Facility based cross sectional study design was conducted using quantitative method. A total of 18 health centers and 302 health professionals were selected using simple random sampling procedure. Data was collected by health professionals who were experienced and had training on HMIS tasks after the tools were pretested. Data quality was assessed using accuracy completeness and timeliness dimensions. Seven indicators from national priority area were selected to assess data accuracy and monthly reports were used to assess completeness and timeliness. Statistical software SPSS version 20 for descriptive statistics and binary logistic regression was used for quantitative data analysis to identify candidate variable. Variables with p-value of less than 0.25 entered in to multi-variable analysis. Then p-value of less than 0.05 at 95% CI was taken as significant.*

Result; *A total of 291 respondents were participated in the study with response rate of 96%. Accuracy, completeness and timeliness dimensions were 76 %, 83.3 and 88.4 respectively which was lower than the national target. Over reporting was observed in all facilities and on all indicators. About 52.2% respondents were trained on HMIS, 62.5% had supervisory visits as per standard and only 55.3% got written feedback. Only 11% of facilities assigned health information technicians. Level of confidence [AOR=1.75, 95% CI (1.29, 3.11)], data quality check, supervision AOR=1.71 95% CI (1.00, 2.95) and training [AOR=1.89 95% CI (1.03, 3.45)] were significantly associated with data quality.*

Conclusion: *Data quality for the three dimensions was scored below 90% acceptable level of data tolerance. Over reporting of all indicators were observed in all facilities. It needs major improvement on supervision quality and training status to increase confidence of individuals to do HMIS activities.*

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Abbreviations

ANC	Ante Natal Care
ANC4	Ante Natal Care fourth visit
DTP3	Diphtheria-Pertussis-Tetanus third dose
FMOH	Federal Ministry of Health
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GAVI	Global Alliance on Vaccines Initiative
HC	Health center
HIS	Health Information System
HIT	Health Information Technician
HMIS	Health Management Information System
LQAS	Lot Quality Assurances System
OPD	Outpatient Department
PEPFAR	President's Emergency Plan for AIDS Relief
PRISM	Performance of Routine Data Quality Assessment
RDQA	Routine Data Quality Assessment
RHIS	Routine Health Information System
SNNPR	South Nation Nationality People Region
WHO	World Health Organization

1. Introduction

1.1 Background

Health management information system (HMIS) is one of the six building blocks of health system that integrate data collection, processing, reporting, and use of the information. It is necessary for improving health service effectiveness and efficiency through better management at all levels of health services. It is also the foundation of decision-making across all health system building blocks, and 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 (1–3).

Globally, the restructuring of health information systems has been an important trend since its declaration in Alma-Ata conference of primary health care as an essential health care strategy in 1978 (1,4).

Developing countries also launched reforms to improve and expand health information systems as a component of health system reform (5).

The Ethiopian HMIS has been implemented since 2008 and provide core indicators used to improve the provision of health services, and ultimately, to improve health status of the population. It is a major source of information for monitoring and adjusting policy implementation and resource use (6).

The routine health information system implemented since 2009 and after the scale up the reformed HMIS was implemented in 2011 in the zone (7).

The need for organized, accessible, timely, and accurate data for health decision making has become a growing concern. In response to this, the Ethiopian FMoH has undertaken an extensive reform and redesign of the national HMIS. The reform has taken major steps to respond to the deficiency of routine health data that limited the quality of care, planning, and management systems, as well as decision making by managers at all levels in the health care system (8). Therefore the health sector transformation plan (HSTP) considered a need for information revolution as one of the four transformation agendas which involves advancement on the

methods starting from data collection to the use of information for decision. The focus of information revolution is not only on the method of advancement but also on the changes of culture and attitude toward information use. Improving health system efficiency and effectiveness through the guiding principles of standardizing, recording and reporting forms, integration, simplification, human resource development and ICT applications(8,9).

Data that are accurate, complete and delivered on time to users is an important aspect in healthcare planning, management and decision making but quality of data is frequently assessed as a component of the effectiveness or performance of the HIS; however data quality assessment is hidden within these scopes. This may lead to ignorance of data management and thereby the unawareness of data quality problem (10). Therefore this study aims in assessing the current status of the routine health information system data quality and associated factors in Hadiya Zone health centers.

1.2 Statement of the problem

A health information system is expected to produce quality information in support of health system performance.

In Ethiopia, data quality and reliability issues are not well guiding program decisions in all aspects. Poor data quality at the lower administrative level or peripheral levels of woreda and health facilities, which are the source for majority of data used for decision making in the health sector remains a challenge as reported in 2016 annual reports of health sector transformation plan(11).

Lack of accuracy, timeliness and completeness of HIS reporting remains a weakness, and such delays contribute to the challenge to use data as the basis for informed decision-making in health care planning and management (12–14). According to the assessment conducted on HMIS data quality and information use showed content completeness, reporting timeliness and accuracy were 39% and 73% respectively76% (14).

Existing evidences shows in Ethiopia including SNNPR low level of data quality was reported as a gap which was below the national standard. data accuracy level for health centers was 36.22% which was much lower than the national target .This is due to many factors like lack of

training, lack of decision based on supervision, lack of feedback, data quality assurances are done less frequently, limited skills of the health professionals (7,8,12).

Even though, as reported on the 2008 EC annual HSTP performance report of SNNPR, improvements have been seen in HMIS performance in the region, there is still a challenge in data quality especially on indicators related with HIV/AIDS, TB and ANC. However, limited researches are done that can show specifically on the level of HMIS data quality and factors affecting data quality in the region(15).

The annual report of Hadiya Zone in 2009 EC also showed there was a gap in completeness and timeliness of reports. The LQAS assessment result also showed discrepancy of the reports for accuracy of data(16). This indicates that the need to assess the level of data quality and factors associated with data quality in the area to improve the quality and its use in decision making in the zone.

1.3 Significance of the study

Data quality is a prerequisite for ensuring HMIS information use. Therefore, the health management information system needs to be responsive to the demands of changing health service delivery and management(1). To ensure high quality data in routine health information systems the main causes of poor data quality and the factors that affect data quality has to be identified. So this assessment will helps to determine the current status of the data quality of routine health information system according to accuracy, completeness and timeliness and shows areas that needs special attention and further follow up. It will contribute to identify factors associated with data quality for policy and program managers to take necessary intervention and revise the existing HMIS reporting and data collection tools based on the identified problems. It also informs for Hadiya zone health department and facility managers on area of improvement and enhances evidence based decision making. It will also help to improve the quality of health care delivery by enhancing decision making in Hadiya zone. Furthermore, it will be base line for other studies conducted in the area.

2. Literature review

2.1 Definition and development concept of HMIS

WHO defines health management information(HMIS) system as, a six building block that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status (3).

The Alma-Ata conference in 1978 declared to develop and implement primary health care particularly in developing countries. The focus on primary care encouraged decentralization and the creation of health districts in developing countries. This set a way leading to the development of the health information systems. (5).

The rationale for HMIS has been that the availability of operational, effective and efficient health management information systems as an essential component of the district management capacity. It provides district health managers with the information required to make effective decisions that supports district performance (17).

After the health sector reform and decentralization many countries have generated new information needs with changing requirements for data collection, processing, analysis and dissemination. It also magnified the need for standardization and quality of information (2).

Paper based data collection systems raised intended to provide comprehensive data on the performance of the country's public health system and its disease burden(5). Development assistances and global health initiatives such as the Global Alliance on Vaccines Initiative (GAVI), Global Fund to Fight AIDS and others enhances the need for performance and result based monitoring. The increased pressure of development assistances on governments and organizations to improve their performance and the need to demonstrate tangible results to their stakeholders, set the importance on the existence of health information system data quality (1,2).

2.2 Data quality

WHO describes data quality as a vital component of health information systems and the importance of the availability of health information is central to the use of the information for planning and decision making. Information must be reliable, up-to-date, independent and trustworthy (2,18). Quality of data refers to the degree to which the data or statistics measure

what was intended to be measured when the data collection system was designed .Data quality is a condition which results from the effectiveness of the data collection, data transmission, and data processing components(1).

The idea with data quality is to ensure not that the data are perfect, but that they are accurate enough, timely enough, and consistent enough for the organisation to make appropriate and reliable decisions (19).

2.3 Data quality dimensions and measuring methods

The idea of data quality issue has been a concern of different literatures. Debates on the data quality issues have been approached from different perspectives. In recent years different literatures approve that data quality is a multi-dimensional concept (10,20,21). Several data quality dimensions are identified. The three most-frequently used dimensions of data quality by different literatures were completeness, timeliness, and accuracy(21,22).

In various literatures there are different methods of data quality dimensions assessments methods used which consists one or more dimensions mentioned above. The methods identify poor data quality such as data inconsistencies, data accuracy errors and misrepresentations .Some tools focus on assessing the status of the system that is producing the data (10).

The PRISM framework is Developed by WHO Measure Evaluation and John Snow and used in developed and developing countries including Ethiopia. It concerns different components of HIS and their linkages to produce better quality data and continuous use of information. It measures data quality by accuracy, completeness and timeliness dimensions. It includes three key categories of determinants behavioural, technical and Organizational determinants-information culture, structure, resources, and responsibilities of key contributors at each level of the health system(23).

2.4 HMIS data quality in developing countries

In many developing countries data quality has been a big problem in data use for health services delivery. Some of the reasons mentioned by Lippeveld are, the health information systems operate in a state of inadequate human, physical, and financial resources. Care providers receiving little, if any, training, rarely being given standardized instructions on how to collect data, and data collected being irrelevant for their own information needs. Health care providers at

the lower levels are required to report vast amounts of data to higher levels, and get little or no feedback. This results them with little incentive to ensure quality of the collected data and to comply with reporting requirements(1).

In most of developing countries HMIS data is not well validated and analyzed therefore, leading to poor data quality, which makes data incomplete, inconsistent, and inaccurate which results the HMIS do not provide the necessary information support for decision-making A survey conducted in Nigeria showed poor data quality was one of the main challenge which is insufficient to support decision making (24).

Most routine data are collected for immediate action. HMIS requires daily compilation of data on key elements which should be complete and immediate reporting of notifiable cases. The study done in Malawi revealed that a number of facilities were not sending reports at all and some other facilities were not sending reports regularly. The facilities that were regularly sending reports were not reporting data on each element every month, and those sending reports regularly on each data element were still failing to capture all the records and completeness of routine data was a big problem (4).

A cross sectional mixed study which was done in Kenya showed the level of quality of data based on data availability, completeness accuracy and timeliness dimensions. The study revealed that the completeness of overall reported data was 44% which was below the average, some of the reporting summaries were missed and 56% of data are available on time for a report. As the study description the state of data quality in the study area was healing state of data quality with limited culture of information use (25).

On contrary to that a study conducted in Rwanda showed good quality of data. Majority of the health facilities in all the districts accurately transmitted data from registers to health facility monthly reports and electronic data bases (73.3%). Complete reporting was seen with average percentage of 98% and 93.8% of timeliness(26).

Study conducted in India stated that proportion of facilities which were not in acceptable limits of accuracy and content completeness 63% and 71% respectively. Only 37 percent of the institutions were within acceptable limits with 10 percent tolerance in all the items All the institutions were 26 within the set limits for antenatal registration, while only 71percent, 63

percent and 58 percent of institutions were within the set limits for pentavalent-1 vaccine, measles and DPT booster vaccinations respectively (27).

2.5 Factors associated with data quality

Data quality is influenced by technical, organizational, behavioural(individual) and factors(10).

A cross sectional study conducted in Tanzania identified factors related with the quality of HMIS data. Relationship between knowledge of HMIS concepts and Quality of data was assessed by comparing with and without the knowledge. It was revealed that knowledge of HMIS concept and presence of focal persons associated with improved data quality, where as training is not. As the study description understanding the basic HMIS concepts might not be related to the basic training on HMIS. It was reported that often training is not the problem; instead it is probably manifestation of unwillingness to fill in the forms and lack of commitment and accountability of the poorly supervised health workers (28).

Study conducted in Tanzania revealed that about 81% of respondents had never been trained on HMIS. Even if the outlook towards the system was positive among 91% respondents, the reviewed HMIS booklets were never completed in 55% of the facilities. From all documents reviewed single delivery register from only one health facility was complete 100% (29).

A study done in Kenya which was done mainly on factors related with process of HMIS revealed that there were strong relationship between quality of data and process factors such as lack of technique for carrying data quality check and lack of data quality protocol place (30).

A study in Benin showed management and planning capacity as well as the state of infrastructure was also factors that influence quality of HMIS. Human resource plays a major role in determining the quality of data and health workers competence within the scope of their training. Health Facilities with well trained staff and management capacity were found to have better quality health information systems. Large amount of data required in tools, format of data collection forms, demotivation of staff in HMIS activities and poor capacity (31).

Lack of financial support, lack of support from authorities in the production and reproduction of data collection tools leading donors or partners to strengthen their area of support are also reported in Kenya(25).

Another study in Kenya on Organizational factors affecting data quality revealed data verification gaps were seen on completeness and consistency of data in the health facility. The study showed the presence of strong organization protocols for data quality as a major factor in determining the quality of data in routine health information systems (32).

A comparative observational study conducted in South Africa identified human (behavioural) factors affecting the quality of routinely collected Data. The study showed 64% of the respondents had poor numerical skills and limited statistical and data quality checking skills, the average confidence levels at performing RHIS tasks was 69%, 22% actually displayed competence above 50%. Personnel appear to be reasonably motivated but there is considerable deficiency in their competency to interpret and use data (33).

2.6 HMIS data quality in Ethiopia

A cross sectional Study conducted in Ethiopia on level of data quality from Health Management Information Systems and its associated factors in 2013 showed the Overall data quality was found to be below the national expectation level which is 75.3% and the health centers data quality was 77%. 57.7% of feedback reports were available, 77.4% of department heads submitted HIS reports on time and 68.6% also reported that they received directives to check data accuracy, to fill formats completely (12).

An assessment of utilization of health information system at district level in jimma zone Ethiopia showed 38.3% inconsistency of reports and 26.0% ambiguity of the report formats and the reasons were knowledge gap on the tools/formats due to non understandability, ambiguity and they didn't have any training supports, lack of supportive supervisions and timely feedback (34).

Assessment conducted on HMIS data quality and information use showed content completeness and reporting timeliness remained below the national target (85%) which is 39% and 73% respectively. Accuracy of reported data was 76%.Over reporting was observed finding. The identified findings in the study were inadequate provision of the required resources or inputs, including lack of trained focal persons(14).

Similarly, Study done in Bahir Dar city showed that there were no local quality control mechanisms as well as up to date quality assurance trainings. Lack of appropriate technology in the system, Lack of HIS manipulations skill human resource, lack of incentives, feedback,

technical support, low attitude of health workers, management commitment and awareness and non-participation of HMIS staffs in the planning process were the determinant for the low quality of the data(35).

About 70% percent of the ANC data reported not matched with source document in government facilities. From all facilities that report delivery services, 8 percent showed substantial over reporting (> 10%) and 11 % had substantial under reporting (> 10%). Proportions of public facilities made greater than 10 percent over (20%) or under (15 %) reporting of Penta3 data. PMTCT data was the best-matched data among all indicators (88 %) followed by TB data (76%). Seventy percent of health facilities have documented routine external supervision report within six months. Health centres (86 percent) are more likely than other facility types to have documented routine external supervision in the last 6 months. Staff trained on data collection and compilation, Having a written guideline on reporting, Having routine process for checking quality of reports and Having clear instructions on completing reporting forms were 17% ,37% ,38% and 54% respectively(36)

According to base line assessment conducted in SNNPR completeness met standard of national guideline but accuracy and timeliness didn't. All health institution under study established functional performance monitoring teams. Data were not analyzed about 6% ZHDs and 25%WoHOs and 61% health facilities. Sixty five percent (65%) of HFs had one or more supervisory visits in the past 3 months. The levels of confidence among respondents in WoHO and HC were 73% and 66% respectively(7).

Evaluation study conducted in Mekelle Zone revealed that 100% of content completeness timeliness of reports. The overall data quality result was 76%. The accuracy of data between registers and report compiled were not consistent. In majority of the health facility had observed. Antenatal care at least first visit (50.0%) and the accuracy of Skilled Delivery, Clients receiving HIV test result at VCT and Mothers who start ART Based on Option B+ report were found that 83.3%, 83.3% and 83.3% respectively within the standard with 10 percent data tolerance(37).

HMIS procedure manual and information use guideline was available in 83.3% of facilities. About 90% respondents register health data on a daily activity of patient care after each clinical visit. Supportive supervision and feedback mechanism was 57.7% and in service training 67.7% of the respondents, had received HMIS training.

Generally the reviewed literatures suggest data quality is low in developing countries and affected by different factors**.** The studies identified the level of data quality which results from the process of data collection, data transmission and data processing and that result in low utilization in decision making. The studies also identified associated factors that affect the quality of HMIS data. Therefore Data quality is vital in facilitating evidence based decision making and promotion of culture of information use.

2.7 Conceptual framework

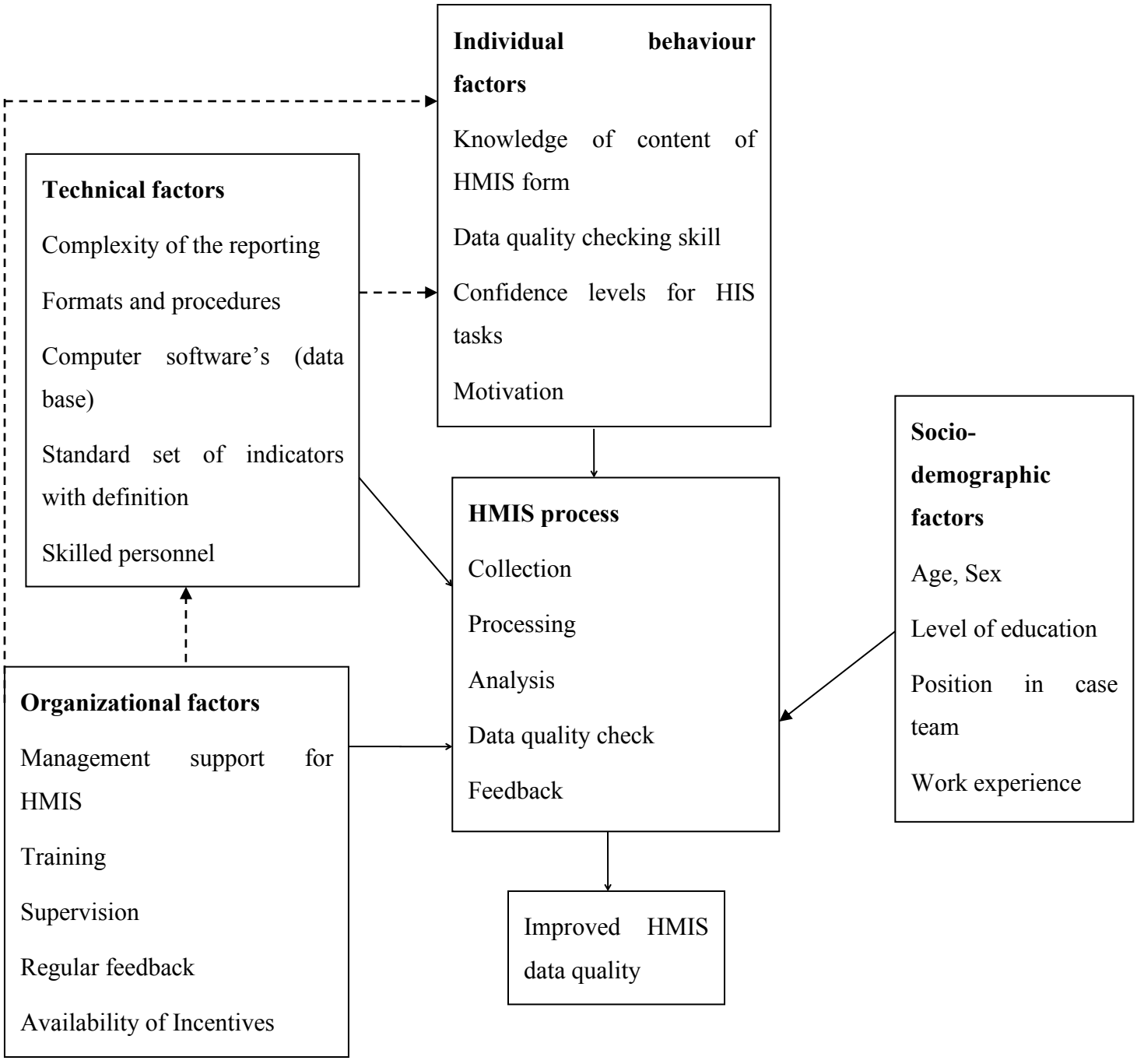


Figure 1 Performance of routine Information System Management conceptual framework for HMIS data quality 2018 adopted from WHO PRISM framework.

3. Objectives

3.1 General objective

- To assess the level of quality of data and associated factors in the routine health management information system among health centers of Hadiya Zone in 2018.

3.2 Specific objectives

- To assess the level of quality of data in terms of accuracy, completeness and timeliness of reports among health centers of Hadiya Zone in 2018.
- To identify associated factors affecting quality of data in the routine health information system in health centers of Hadiya zone, 2018.

4. Methodology

4.1 Study area

The study was conducted in Hadiya Zone, which is found in the Southern, Nations, Nationalities and Peoples` Regional State of Ethiopia, comprises of 10 woredas, 2 town administration and 333 kebeles (305 rural kebeles and 28 urban kebeles). Its capital is Hosanna town, which is located 205 KM away from Addis Ababa. It is bordered by Gurage Zone in the North, Kembata Zone & Halaba special woreda in the South, Silte Zone in the East and Yem Special Woreda & Omo River in the west. Total population of the zones was about 1.6 million, of which, 817,265 were males and 826,201 were females. The zone has one general hospital, 2 primary hospitals, 61 health centers and 309 health posts. The zone has 2716 health professionals from different disciplines (38).

4.2 Study design and period

Facility based cross sectional study was conducted using quantitative method from March 15/2018 – April 15/2018 to assess the level of data quality in Hadiya zone health centers.

4.3 Population

4.3.1 Source population

The source populations were all functional health centers available in Hadiya Zone and all health workers involved in RHIS activities.

4.3.2 Study Population

- Randomly selected functional health centers of Hadiya zone
- Randomly selected health workers involved in RHIS activities.

4.4 Sample size determination

For Accuracy dimensions

Samples of 18 Health centers were selected to assess data quality. Based on the national HMIS information use and data quality manual, seven to nine data elements from each health center is

satisfactory to assess data accuracy(39). Data elements were selected randomly from top priority indicators at national level. Therefore, seven data elements from the 18 selected health centers were verified. 2 month documents were reviewed to see consistence of selected data elements of by random selection of the months September and November. The accuracy of data elements was determined by Accuracy Ratio (recounted data from the source document or registrations over reported data to the next level) for the respective data element. Lower than 0.90 or 90% accuracy ratio indicates over-reporting and higher than 1.10 or 110% accuracy ratio indicates under-reporting.

Seven data elements, Antenatal care fourth visit, institutional deliveries, Pentavalent third doses, PMTCT coverage, Tuberculosis cure rate, confirmed malaria cases, and Contraceptive accepters rate were selected.

For completeness and timeliness

Content completeness was assessed by proportion of filled data elements of reporting formats pertaining to selected months. A tolerance level of 90 percent was used in grading health centers, which meant that each health center expected to complete at least 90 percent of data elements on report formats. All data elements of two months HMIS reports were reviewed to assess content completeness of reports.

Timeliness also assessed by proportion of facilities with number of reports delivered up to deadline come for the selected two months. A tolerance of 90% was used in grading health centers.

Sample size for the respondents self-administered questionnaires

Sample size was calculated using single population proportion formula based on the following assumption ,75% of peoples capable of performing HIS tasks in Eastern Ethiopia (10), desired degree of precision was 5% , 95% of confidence interval. These results the sample size of 288 and using a contingency of 5 % for non-respondents the final sample size will be 302. Sample size determination was as follows;-

$n= Z^2\alpha/2\ p(1-p)/d^2$

Z= the standard score corresponding 95% confidence level

P= proportion of trained and skilled individuals in a study done at Dire Dawa city administration.

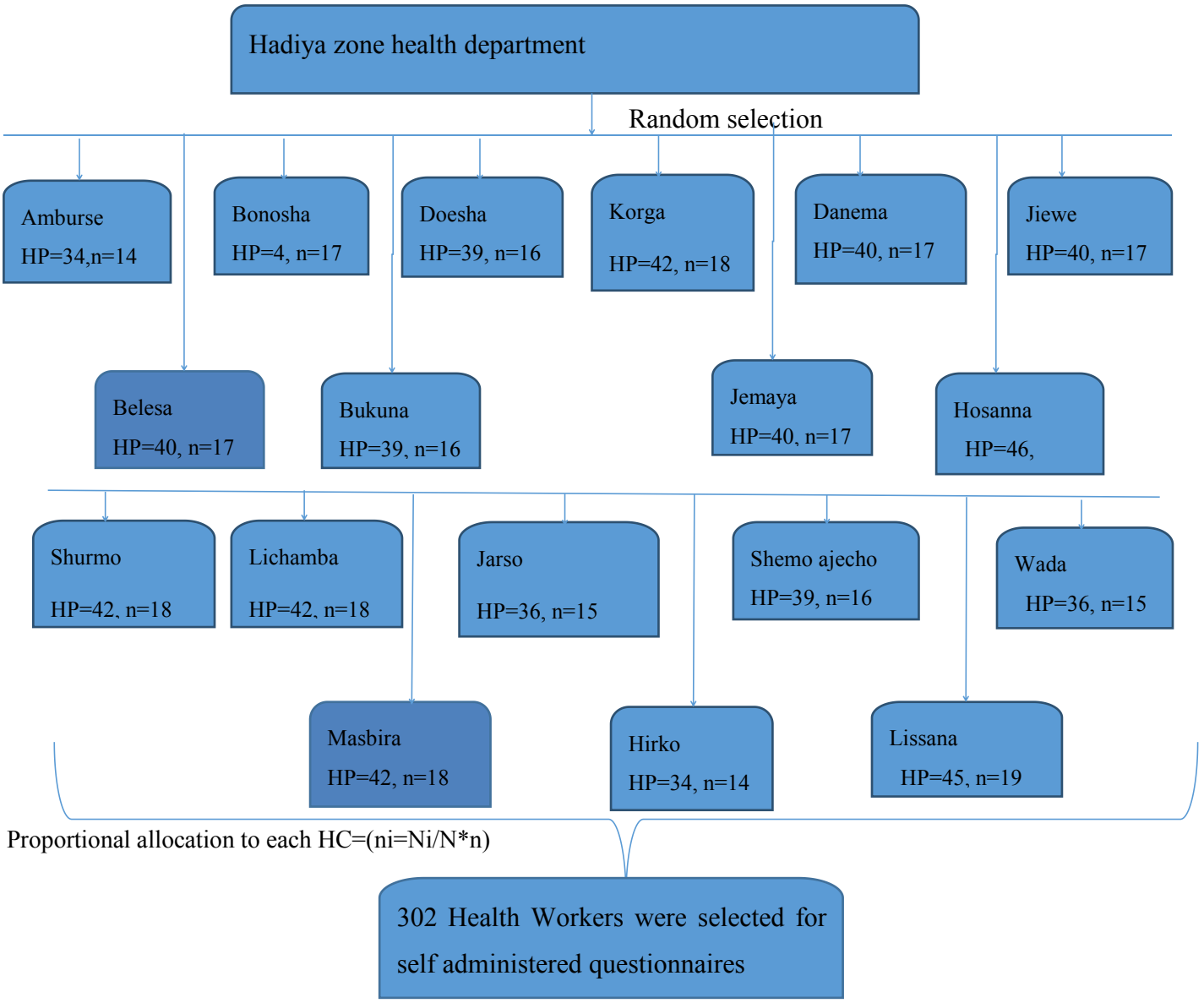
D= margin of sampling error

N= number of sample

4.5 Sampling procedures

Health professionals for self administered questionnaire were selected by using simple random sampling technique.

WHO recommended for assessment of health facilities by considering the available funds and human resources, selecting 10%-50% facilities to have representative sample. Among the total 61 health centers in the zone 30% of health centers were selected based on the suggestion (40). A total of 18 health centers were selected randomly. The calculated sample size for respondents self administered questionnaire was proportionally allocated to each health center, then health professionals were selected randomly who are involved in HMIS activities starting from daily register of the source document to the final report were included. Figure 2 below shows the sampling procedure of the health centers.



Where:-ni=number of health professionals who are needed for the study in each HC

Ni=total number of health professionals in each health centers

N=total no of health professionals in all (18) HC

n=calculated sample size

Figure 2: Schematic presentation of sampling for assessment of data quality in Hadiya zone, 2018.

4.6 Exclusion and inclusion criteria

Inclusion criteria

- Health professionals working in all case teams
- Health centers that are functional for more than one year

Exclusion criteria

- Health professionals from new health centers for less than one year
- Health workers who had less than six month experience

4.7 Data collection instrument and procedures

Data collection tools were adapted from the PRISM assessment tools version 3.1 and HMIS user's guideline. The tool is prepared to fit with local context and it mainly contains questions to assess accuracy, completeness and timeliness HMIS data. Self-administered structured questionnaire containing back ground information of the respondents organizational , behavioural and technical determinants of data quality in health centers (39,41).

The tool was pretested prior to actual data collection period on 5% of the sampled health professionals and they weren't included in the actual data collection to check understandability. After the pre test further adjustments were done to improve understandability of the questionnaire.

4.7.1 Data collectors and data quality management

Four Bsc nurses' health professionals were recruited for data collection, who were experienced and had training on HMIS related tasks. Training was given for the data collectors on the questionnaires, data collection method and procedures by the principal investigator for two days.
To maintain data quality the following activities were done: adapting questionnaires from Standard tools, then translated in to Amharic. During data collection period supervision of data collection procedures was conducted by principal investigator and onsite technical assistance was give to data collectors. The data were checked for completeness and consistency on daily base. Appropriate correction was given by principal evaluator at any time during data collection field work.

4.8 Study variables

Dependent variables

- HMIS data quality

Independent variables

Technical factors;-

- ✓ Complexity of the reporting formats and procedures,
- ✓ Availability of computer software's (data base),
- ✓ Standard set of indicators with definition.

Individual behavioural factors:-

- ✓ Knowledge of content of HMIS form
- ✓ Confidence levels for HIS tasks
- ✓ Data quality checking skill
- ✓ Motivation

Organizational factors;-

- ✓ Management support for HMIS
- ✓ Training
- ✓ Supervision
- ✓ Regular feedback
- ✓ Availability of incentives

Socio-demographic factors

- ✓ Age
- ✓ Sex
- ✓ Education level
- ✓ Position of respondents
- ✓ Work experience

4.9 Operational definition

HMIS data quality: refers to the degree of data completeness, accuracy and timeliness that helps data intended to use for decision making in order to improve service delivery.

Data accuracy refers to consistency of the data between that is in reporting forms and in registers.

Content completeness: all the required data elements in a report form are filled or data are complete

Report timeliness: refers that data is collected, transmitted and processed according to the time table and available for making timely decisions.

Data element: - all necessary information that are to be filled in each cells of the HMIS data base or report form

Data item: –an HMIS indicator that is selected to assess the data accuracy.

Service providers: any health professionals (health officers, nurses, Lab technician, Pharmacist...) involved in recording and reporting of health information

Confidence level or self-efficacy: of the health workers to perform a specific activity related to HMIS.

4.10 Data analysis and procedures

The data were checked for completeness after data collection, then coded and entered to EPI data version 3.1, finally exported to SPSS version 20 for processing and analysis through descriptive statistics. Incomplete, inconsistent and invalid data were refined properly to get maximum quality of data. Corrections were made according to the original data. Percentage, Frequency distribution tables and figures were used to describe the study variable for assessment of HMIS.

Binary logistic regression was used to identify the association between data quality and the factors. Bivariable analysis was conducted and variables with $p < 0.25$ selected as candidate variables for multivariate analysis. Finally variables with $p<0.05$, during multivariable analysis was considered as significant.

The overall data quality was calculated by taking the sum of completeness, timeliness and accuracy scores.

4.11 variables measurement

- **Data accuracy;-**was measured by calculating the number from source document over the number from report submitted to the next level. Based on 10% tolerance for data accuracy was classified as follows;-
  Over reporting (<0.90 or 90%),
  Acceptable limit (0.90-1.10 or 90%-110%)
  Under reporting (>1.10 or 110%)
- **Content completeness** was measured by the number of cells of report form which are left blank without indicating "zero". If greater than or equal to 90% of cells of the report filled was considered as complete.
- **Report timeliness** was measured by the number of reports delivered up to deadline for facility head over the number of reports expected to come
- **Level of knowledge:** A health professional said to be knowledgeable if they responds knowledge questions above respondent mean score**.**
- **Confidence level or self-efficacy;-**was measured in a scale of 0-100 that means from no confidence (zero) to full confidence (100) to perform HMIS tasks.

4.12 Ethical consideration

The ethical approval for this study was obtained from the research ethical committee of school of public health, Addis Ababa university; permission letter was written for Hadiya zone health office, woreda health office and health centers. Then informed written consent was obtained from the participants, after the necessary explanation about the purpose, procedures, benefits, risks of the study is explained and also their right on decision of participating in the study. After getting informed consent from the respondents the right of the respondents to refuse answer for few of all of the questions was respected.

4.13 Dissemination of results

The final report of this study will be submitted to Addis Ababa University College of health sciences school of public health. It will also be sent to Hadiya zone health bureau. Efforts will be made to disseminate results through publication and presentation in conferences.

5. Result

5.1 Characteristics of respondents

A total of 291 respondents were participated in study with response rate of 96%. Eleven health centers head (3.8%), 137 department heads (47%), 15 HMIS focals (5.2%) and 128 service providers (44%) were participated in the study. Most of the respondent's age was within the range of 21-30(71.1%). Among the respondents 62.5% were male. Regarding distribution of level of education 190 (65.3%) were level four diploma holders and 101 (34.7%) bachelor degree holders. About 56.7% the respondents were nurses with the maximum experience of 10 years and average experiences of 5 years.

Table 1: Socio demographic characteristics of respondents in health centers of Hadiya zone, Southern Ethiopia, 2018 [n=291].

Variables	Category	Frequency	Percent (%)
Sex of respondents	Male	182	62.5
	Female	109	37.5
Age of respondents	20-24	35	12.1
	25-29	139	47.9
	30-34	71	24.4
	35-39	25	8.6
	40-44	21	7
Educational status	Diploma	190	65.3
	Bachelor degree	101	34.7
Years of experience	1-5	182	62.5
	6-10	109	37.5
Position of respondents	head of health centers	11	3.8
	department heads	137	47
	HMIS focals	15	5.2
	Service providers	128	44
Field of study	Midwife	45	15.5
	Health officer	46	15.8
	Laboratory technician	20	6.9
	Pharmacy	13	4.5
	HIT	2	0.7

5.2 General structure of HMIS

All health centers assigned HMIS focal persons who are responsible for reviewing and aggregating numbers prior to submission to the next level. About 11 health centers assigned HMIS focals who are engaged on other responsibility like service provision. Only 11% of facilities assigned HIT professionals.

Based on the finding only 4 health centers were using functional computer software and all have Rules to prevent unauthorized changes to data (password). All 18 health centers were established performance monitoring team.

Table 2: General structure of HMIS in health centers of Hadiya Zone, southern, Ethiopia 2018.

Variables	**Expected No- of items**	**Observed No- of items**	**%**
HMIS focal person	18	18	100
have written job descriptions	**18**	0	0
Electronic data base (computer software)	18	5	28
currently functional computer software	18	4	22
Rules to prevent unauthorized changes to data	18	4	22
Establish performance monitoring team	18	18	100

5.3 Record keeping

All health centers kept copies of reports. The count for one year period of copies of reports shows that the monthly report kept ranges from 10-12. From all health centers assessed 96% kept copy of monthly reports that are sent to the next level.

5.4 Accuracy of data

A total of 18 health centers were studied for data quality by accuracy, completeness and timeliness dimensions. Seven data items or indicators were assessed for data accuracy. Service delivery reports and registration books were checked for the month September and November by random selection of the months. Seven indicators verified were Antenatal care fourth visit(ANC

4), Contraceptive acceptance rate (CAR), Institutional delivery, Pentavalent third doses (Penta 3), PMTCT, TB cure rate and confirmed malaria cases from top priority indicators at national level.

From 18 facilities observed 44% of facilities were within acceptable level of accuracy. Data were over reported in all facilities. ANC4 and PMTCT data was over reported by 14 health centers (78%). About 11% health centers under reported TB cure rate and confirmed malaria cases. 14 health centers over reported. Only three out of seven (42.8%) indicators were within 10% acceptable level. About 19% of ANC4 data, over reported (>10% tolerance level) followed by 16%, 15% and 14% CAR, Penta3 and PMTCT data were over reported (>10%). The overall accuracy of data was 76%.

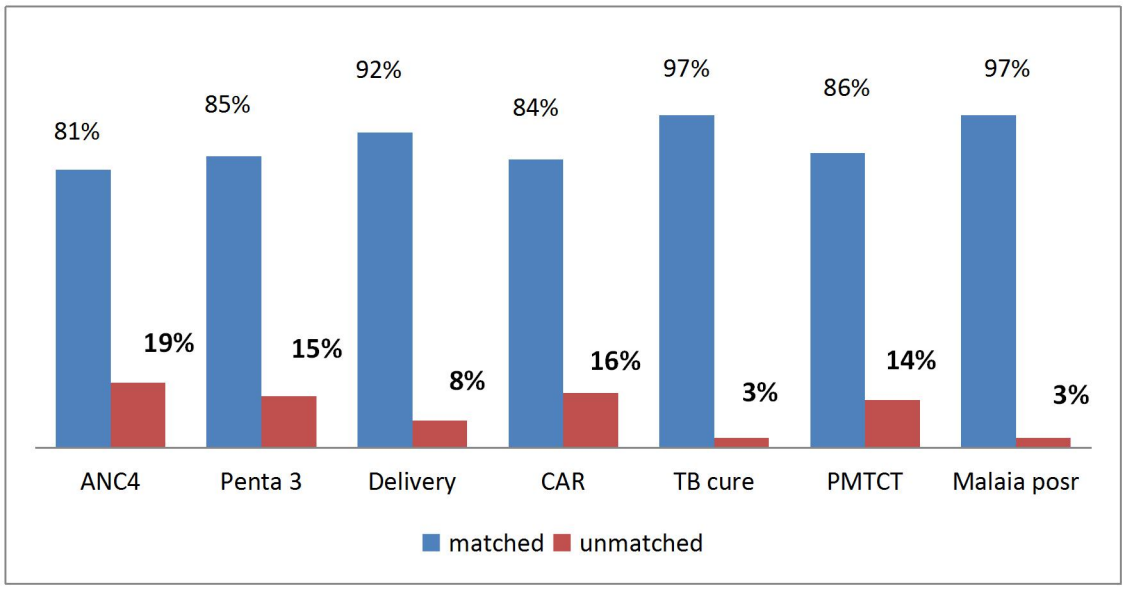


Figure 3: Accuracy of data based on indicator type in health centers of Hadiya zone, Southern Ethiopia, 2018.

5.5 Completeness of data

Content completeness was assessed by checking two months service delivery report whether the required data elements in a report form are filled or data are complete. Based on this the overall content completeness was scored 83.3%.

5.6 Timeliness reports

Timeliness of the HMIS reports were assessed by checking whether HMIS data reporting by the health centers met the predetermined deadline of reporting period received by the facility head.

The records of report receipt showed that 88.42% of the HMIS reports sent were met the reporting deadline. Among 18 health centers, about 55.5% health centers found within 90% of tolerance level based on the proportion of health centers.

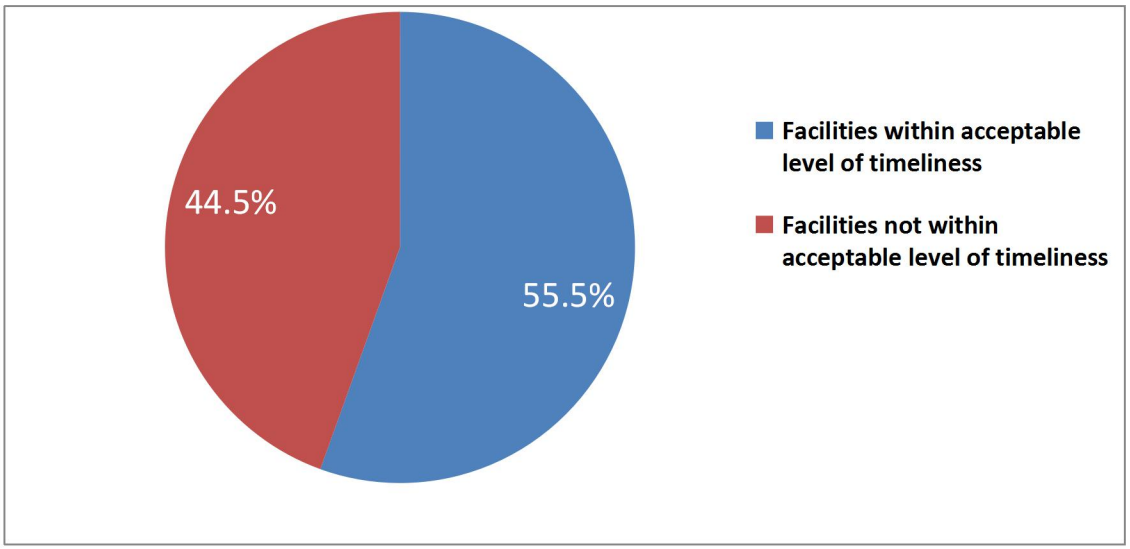


Figure 4: Timeliness of reports in health centers of Hadiya zone, Southern Ethiopia 2018.

Based on the three dimensions of data quality which are accuracy, completeness and timeliness the overall data quality of the health centers was 82.5%.

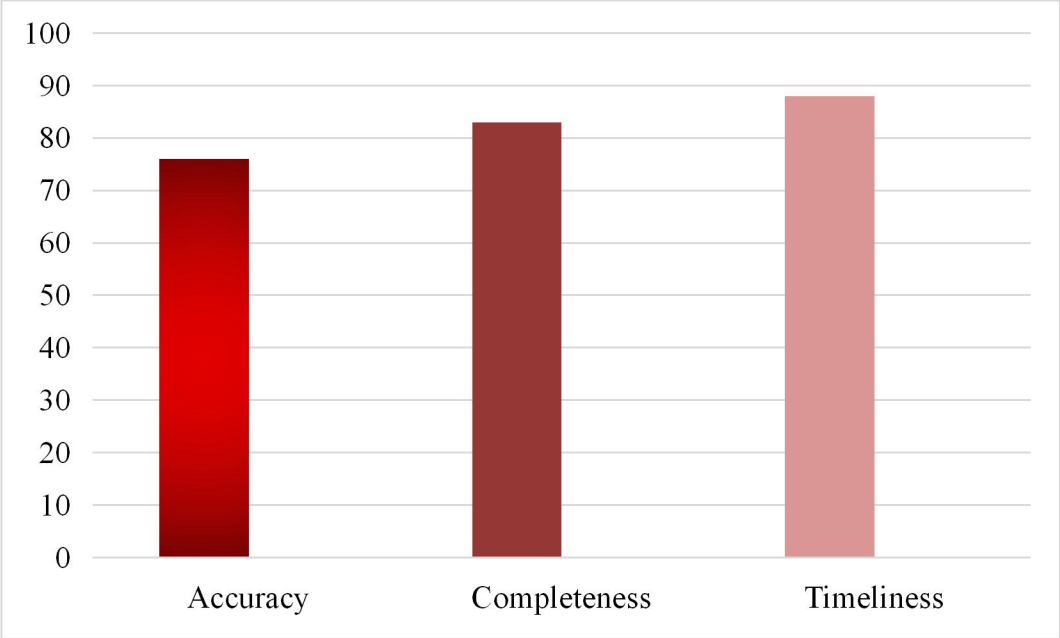


Figure 5: Quality of data in health centers of Hadiya zone southern Ethiopia, 2018.

5.7 HMIS process

Concerning participation of respondents in HMIS activities among the respondents 87.3% participate in aggregation or compilation of data from registration. More than half the of respondents (57.7%) reported that they conduct data quality check but frequency of conducting data quality varied among respondents that about 51.8% conduct data quality test on monthly basis. Overall 86.9% of the respondents reported that they fill registration or tally sheet completely. Regarding feedback, 55.3% of respondents received feedback from next higher official's among those 60.2% get feedback reports monthly. From total respondents 62.5% of respondents supervised one times in last three months from higher officials regarding data quality

Table 3: Summary of HMIS process data quality assessment in health centers Hadiya zone, southern Ethiopia 2018.

HMIS process		Yes (%)	No (%)
Participation in aggregation or compilation of data		254(87.3)	37(12.7)
filling registration or tally completely		253(86.9)	38(13.1)
Conduct accuracy check		168(57.7)	123(42.3)
Accuracy check			
Monthly		87(51.8)	
Quarterly		42 (76.8)	
Annually		39 (23.2)	
Supervision		182(62.5)	
Feedback		161(55.3)	130(44.7)
	Feedback Monthly	97 (60.2)	
	Feedback Quarterly	64(39.8)	

5.8 Technical factors

From total respondents 59.8 % of respondents were reported that they had standard set of indicators including case definitions in their departments. Among the respondents 40.5 % reported that there are skilled staff able to aggregate data and to fill out formats and 77.7% reported that HMIS is user friendly format.

5.9 Behavioural factors

Individual behaviour factors were assessed through individual perception (motivation) towards HMIS use, knowledge of respondents regarding HMIS, confidence level of respondents to do HMIS tasks and availability of incentives for HMIS for HMIS activities. About 28% of respondents reported that availability of incentives for HMIS activity which is training opportunity. About 60.8% of respondents had knowledge towards HMIS. About 66% reported on data quality checking skill and average confidence level of respondents was 63%. Average perception (motivation) of individuals towards HMIS use and meaning was 49.1%.

Table 4 summary of behavioural factors of HMIS in health centers of Hadiya zone, southern Ethiopia 2018.

Behavioural factors	Yes (%)	No (%)
Incentives	82 (28)	209 (72)
Knowledge on HMIS	177(60.8)	114(39.2)
Data quality checking skill	192(66)	99 (34)
Individual perception(motivation)	143 (49.1)	148 (50.9)
Self efficacy(confidence level)	183(63)	108(37)

Self efficacy

Confidence level to perform HMIS tasks for health professionals were assessed on a scale of 0 to 100. The average score obtained for the seven questions expressed as a percentage. Higher confidence was observed in checking data accuracy and calculating percentages (66%) and lower confidence was observed in explaining findings from bar charts (56%) relatively. The average confidence level to perform HMIS activities of respondents were 63%.

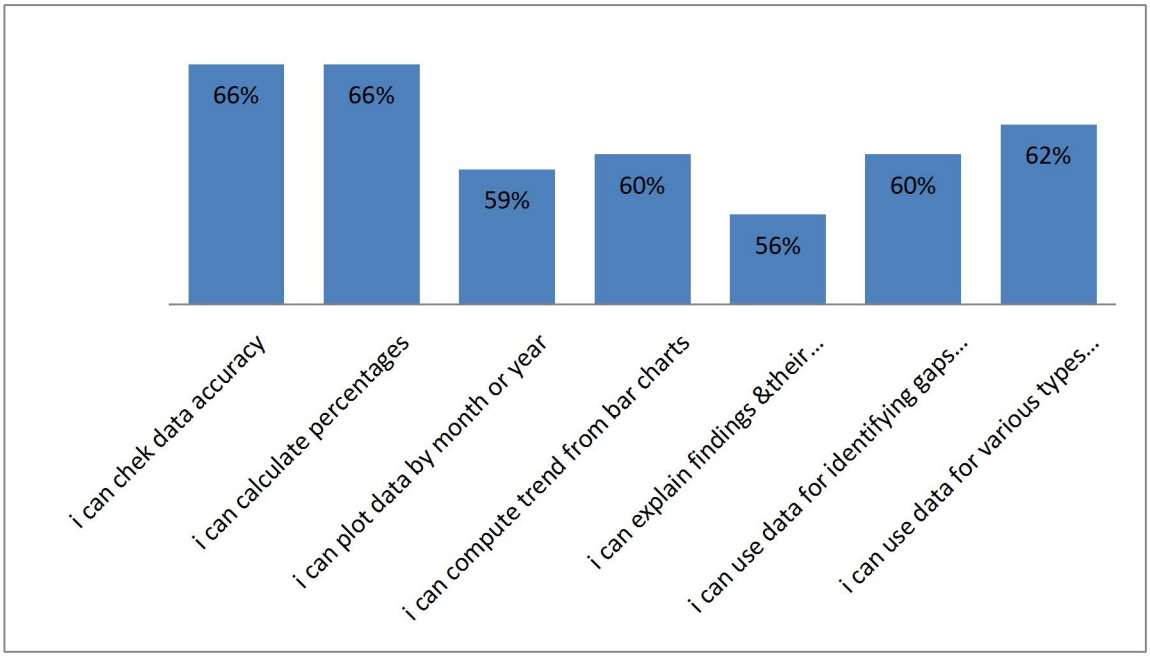


Figure 6 Self-reported level of confidence to perform specific HMIS tasks

5.10 Organizational factors

Regarding training status, from the total respondents 52.2% reported that they had received training on HMIS activities. Among those 35.1% took in-service training related with HMIS tasks. About 60.8% of respondents agreed on extent of management support regarding HMIS activities.

Table 5:Summary of organizational factors, in health centers of Hadiya zone, southern Ethiopia 2018.

Organizational factors	Yes (%)	No (%)
Training	152(52.2)	139(47.8)
In-service training	102(35.1)	189(64.9)
Pre-service training	50(17.2)	241(82.8)
A procedure manual for data collection with definitions	146(50.2)	145(49.8)
Evidence based decision	147(50.5)	144(49.5)
Sense of ownership	175(60.1)	116(39.9)
Extent management support for HMIS	177(60.8)	114(39.2)

Among the respondents 61.9% of respondents agreed on, their supervisors give emphasis for data in monthly reports and 55% agreed that supervisors provide regular feedback to their staff. About 63.2% the respondents agreed on, their supervisors check data quality regularly. About 44.3% of respondents agreed on their supervisors encourage over reporting of data for underperformed reports

Table 6: Responses of health workers for the organizational factors assessment of health center of Hadiya zone southern Ethiopia, 2018

Organizational factors	Disagree		Agree	
	No	%	N0	%
Supervisors seek feedback from concerned persons	101	34.7	190	65.3
Supervisors give Emphasize data quality in monthly reports	111	38.1	180	61.9
Use HMIS data for setting targets and monitoring	104	35.7	187	64.3
Check data quality regularly	107	36.8	184	63.2
Provide regular feedback to their staff	131	45.0	160	55.0
Report on data accuracy regularly	116	39.9	175	60.1
Encourage their supervisees to over data for under performance	162	55.7	129	44.3

5.11 Bi variable and multi-variable analysis

5.11.1 Bi variable analysis

Variables with p<0.25 were participation on aggregation or compilation of data, educational status, experience, complexity of HMIS formats, knowledge on HMIS, filling registration or tally completely, data quality check, supportive supervision, having standard indicators, availability of procedural manuals for data collection, self efficacy and management support for HMIS.

5.11.2 Multi-variable analysis

Variables with p<0.05 taken as predictor of HMIS data quality Candidate variables during bi-variable logistic regression were subjected to multi-variable logistic regression analysis.

. Training has shown significant relationship (P<0.05) with data quality **[AOR=1.89, 95% CI (1.03, 3.45)].**Those who were trained 1.89 times more likely to report quality data than who were

not trained. Filling registration or formats completely also show significant relationship with data quality **[(AOR=3.4 95% CI (1.3, 8.7)].** Those who fill the registration or formats were 3.4 times more likely report quality data than those who were not fill completely. Self efficacy (perceived level of confidence) has significant relationship with data quality **[AOR=1.75 95% CI (1.29, 3.11)].** Those who have high level of confidence were 1.75 times more likely to report quality data than those who have low confidence level. Supervision has significant relationship with data quality **[AOR= 1.7 95% CI (1.00, 2.95)].** Those supervised health workers were 1.7 times more likely to report quality data compared to who were not supervised. Checking data quality also has significant relationship with data quality **[AOR=1.8 95% CI (1.49, 3.09)]**. Those health workers who conduct data quality check were 1.8 times more likely to report quality data compared to who were not.

Table 7:Multi variable logistic regression result on data quality for health centers of Hadiya Zone southern Ethiopia 2018.

Variables		data quality	COR (95% CI)	AOR (95% CI)	P-value
Knowledge on HMIS	Yes	177(60.8%)	1.99(1.18,3.35)	1.209(0.29,2.72)	0.84
	No	114(39.2%)			
filling registration or tally completely	Yes	253(87%)	4.42(2.2,8.9)	3.41*(1.3,8.7)	0.043
	No	38(13%)			
Supervision	Yes	182(62.5%)	1.56(0.92,2.63)	1.71*(1.00,2.95)	0.037
	No	109(37.5%)			
Training	Yes	152(52.2%)	1.59(0.95,2.67)	1.89*(1.03,3.45)	0.014
	No	139(47.8%)			
Confidence level	Confident	183(63%)	1.71(1.01,2.9)	1.75*(1.29,3.11)	0.047
	Not Confident	108(37%)			
Data quality check	Yes	168(57.7%)	1.78(1.06,2.9)	1.8*(1.49,3.09	0.032
	No	123(42.3%)			
Complexity of the formats	Yes	226(77.7%)	1.69(0.94,3.04)	0.70(0.32,1.50)	0.36
	No	65(22.3%)			
Management support	Yes	177(60.8%)	1.99(1.18,3.35)	0.89(0.29,2.71)	0.84
	No	114(39.2%)			
Availability of procedural manual	Yes	146(50.2%)	1.52(0.908,2.54)	1.41(0.82,2.44)	0.22
	No	145(49.8%)			
Sense of responsibility	Yes	175(60.2%)	2.05(1.22,3.44)	1.33(0.43,4.13)	0.62

	No	116(39.8%)			
Standard set of indicator	Yes	174(59.8%)	1.87(1.69,4.84)	2.10(0.77,5.73)	0.144
	No	117(40.2%)			
	Diploma	190 (65.3%)			
Educational status	Degree	101(34.7%)	1.65(0.94,2.90)	1.52(0.84,2.74)	0.16

* shows predictor variables for information utilization at $p<0.05$

6. Discussion

This study tried to assess the quality of reported data by reviewing documents based on accuracy, completeness and timeliness dimensions measured by selected data elements and its associated factors affecting data quality.

6.1 Data quality

Quality of data is a key factor in generating reliable health information that enables monitoring progress and making decisions for continuous improvement(8). However the quality of data in the zone based on accuracy, completeness and timeliness showed 76%, 83.3% and 88.4% respectively. Overall data quality of the zone scored 82.5% which was below the national target 85% (6).

All decision of the health system depends on the availability of timely, accurate, and complete information. However the study found 76% of data accuracy. The finding was comparable with the assessment done in Ethiopia, 76% of data accuracy level reported (14). However According to the baseline assessment done in SNNPR, 36.22% of data accuracy was observed at health centers which was lower than the current study (7). This may be due to the time gap, 7 years between the studies

Out of 18 health centers 8(44%) health centers were in acceptable level of data tolerance. This finding was supported by the study done in India, 63% facilities were not in acceptable limit of data accuracy (27).

Discrepancy of data was observed in all facilities, what is on register and on report formats. Tendencies of over reporting in all indicators and under reporting of some indicators were observed. The finding was similar with an evaluation done in Tigray region (37). This may be due to incompleteness of data, not understanding the definition of cases or data elements, or data may not fall within the reporting period (39).

Data were over reported in all facilities. ANC4 and PMTCT data was over reported by 14 health centers (78%). This is supported by a national assessment done by EPHI. From the indicators assessed over reporting was observed in ANC and FP services. The study showed only 30 percent of ANC data reported was matched with source document but in this study about 88% of ANC4 data was matched. The improvement may be due to the study was nationwide so that

including many institutions probably increase inclusion of those facilities with low data quality. Delivery data were over reported about 8% which was similar with EPHI data over reporting >10% (42).

About 11% of health centers under reported TB service data and confirmed malaria cases. PMTCT and ANC data was over reported by 14 health centers. From the indicators assessed, only three out of seven (42.8%) indicators were within 10% acceptable level. About 19% of ANC4 data, over reported (>10% tolerance level) followed by 16%, 15% and 14% CAR, Penta3 and PMTCT data were over reported (>10%). About 39 %of health centers over reported delivery data. This was also comparable with EPHI national assessment where Proportions of public facilities made greater than 10 percent over (20%) of Penta3 data, 88% PMTCT data was the best-matched data among all indicators (42). This may be due to the fact that the indicators are from the top priority indicators at national level and needed to be performed well which might lead the facilities to over report and it may also be due to manual entry of data. According to the new information revolution every facility expected to use electronic HMIS but in the studied facilities only four facilities use functional electronic HMIS software (data base).

Regarding content completeness the result found 83.3% of completeness based on 90% tolerance, which was slightly higher than a study conducted in Ayder referral hospital 78.6% and a systematic review conducted in Ethiopia (14,43). Whereas the result was comparable with a study conducted previously in the same setting on HMIS utilization 82.8%(44).

Another dimension of data quality was timeliness which is measured by, facilities receiving case teams' reports by the predetermined deadlines. Overall timeliness scored 88.4% based on 90% tolerance of timeliness which was higher result from study done in SNNPR 77% (7,14). The result also revealed better achievement when compared to study conducted previously in the same setting, only 59.6% reports submitted on recommended time period (16).

Content completeness and timeliness dimensions showed less achievement from a study done in Tigray region and Rwanda where 100 percent facilities met 90% data tolerance (26,37). Possible reasons may be due to lack of knowledge of respondents about the implications of an incomplete data on a report formats and to send reports on timely manner among the health workers and it may also be less emphasis was given for data quality during supervision.

Generally Low level of training, supervision with written feedback availability of procedural manual to perform HMIS activities and paper based or manual entry of data among the health workers could be a possible reason for the low data quality observed in the study below the national standard. This can be improved by working on capacity of health workers continuously and emphasis should be given for data quality during supervision.

6.2 Factors associated with data quality

Odds of data quality on those health workers who were filling the source document (registration or tally), higher than those who were not filled [AOR **3.4, 95% CI (1.3, 8.7**)]. Similar finding was found on a studies done in Jimma and Bahir Dar town (34,35). This may be due to non understandability (complexity) of the tools/formats, using of untrained workers or shortage of training supports on the forms and registers. So that it is difficult to register all relevant information in correct manner and retrieval of these data will be trouble full.

Concerning supervision, regular Supportive supervision with feedback is a key in addressing quality issues by helping to improve overall performance of HMIS especially for better achievement of data quality (45).More than half (62.5%), health centers participated in this study supervised by their respective higher level as per standard in the last two quarters. The result was supported by studies conducted previously in Dire Dawa and SNNPR (7,12). Even though the result was comparable with other studies conducted earlier, about 37.2% health centers were not supervised regularly. One of the most important mechanisms to improve quality of data is regular supervision. . Lack of regular systems on supportive supervision affects the importance and quality of data collection. Therefore without regular and program specific supportive supervision it is difficult to achieve information transformation.

Regarding training, continuous training on HIS activity is important to create awareness and to have trained staff and skilled human resources that are confident and motivated to perform HIS tasks (34). This study found about 52% of health workers trained regarding HMIS activities. This finding was comparable with other studies done in Dire Dawa 52.7% and South Africa 58% were not trained related with HMIS activities (33,46). All health workers who participate in the collection at various sections of healthcare, need continuous capacity building to conduct quality review of RHIS at every stage for in-depth understanding of the stages where quality of data can occur (30,45). In this study all focal persons and department heads trained regarding HMIS

activities but others, service providers who were not trained were involved in the process of HMIS. This may affect the quality of data.

Odds of health information data quality among Health workers those who were confident enough to perform HMIS activities were higher than those who were not confident [AOR=1.75, 95% CI (0.99, 3.11)]. The result was supported by studies conducted in SNNPR and South Africa (7,33). This factor also suggested by WHO measure evaluation as one determinant of data quality (41). This is may be due to complexity of the formats/tools. If data collection forms are complex to fill in, it affects confidence levels and motivation of data collector(41)**.**

Concerning data quality check, good data management require data quality check at all stages. The checking of data quality is the responsibility of all health workers participating in the data management (30).In this study about 57.7% of health workers check data quality with a frequency of 51.8% on monthly basis. This is supported by different literatures in done by WHO measure evaluation and a study done in Kenya. From a study done in Kenya about 63% of respondents check data quality but the frequency of carrying out the checks was varying from one respondent to another with majority indicating every quarterly 22%(32,41,44).

Limitation of a study

- Content completeness was assessed only for reporting formats, so it couldn't represent completeness of registration and tally sheets.
- Using self administered questionnaires may affect the validity of the responses. To minimize this effect four HMIS trained data collectors were assigned in order to assist any confusion among respondents.
- Using secondary data may underestimate the finding. To minimize this effect data from recent months were used.
- Due to budget constraint this study didn't include health posts, this may overestimate the finding. To minimize these effect facilities were selected by lottery method.

7. Conclusion and recommendations

7.1 Conclusion

Data quality for the three dimensions was scored below 90% acceptable level of data tolerance. Data accuracy was 76%, lower than the minimum amount required nationally for data accuracy. Over reporting of data was observed at all facilities. About 39 % of health centers over reported delivery data. About 9% data of ANC4 over reported (>10% tolerance level) followed by 6%, 5% and 4% CAR, Penta3 and PMTCT data were over reported (>10%). Decisions made using inaccurate incomplete and reported not on timely manner can affect the health system performance. It was observed that there were inadequacy of supervision, training, HIT professionals, written feedback and procedural manuals. The major factors that affect quality of data were, filling registration or tally completely, training, supervision, data quality check and confidence level.

7.2 Recommendations

From the findings of the study the following recommendations are given below for concerning bodies.

Hadiya zone health department

- Decisions are based on reliable information so that ZHD should give emphasis on data quality (accuracy, completeness and timeliness) of reports.
- Should strengthen regular supportive supervision with written feedback, since overall performance of HMIS is important for decision making process, supportive supervision of HMIS activities should be performed separately from other supervisory activities in order to give emphasis.
- ZHD health bureau perform continues in service training to update health workers
- Distribute a procedure manual with definition of indicators for HMIS data collection
- should emphasis on recruiting HIT professionals and ensure that these professionals assigned in appropriate place

Woreda health offices

- Should emphasis on recruiting HIT professionals and ensure that these professionals are working in right place.
- Should strengthen regular supportive supervision and written feedback to the lower HIs
- Should prepare orientation session(training) for health professionals in order to have quality of data

Health facilities

- Should prepare orientation session for health professionals in order to improve capacity of professionals on HMIS tasks
- Should assign HIT professionals in appropriate place to their profession.

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9. Annexes

Annex 1: Subject information sheet

Addis Ababa University

School of public health

Information sheet

Hello, My name is ……I am here to have an interview with you on behalf of Mastewal Solomon. She is a student of Addis Ababa University School of public health conducting a research on health information system data quality and associated factors for partial fulfilment of masters of public health. She received permission from Addis Ababa university school of public health to conduct this study.

The information that you provide will be kept confidential by using only code numbers and locking the data. Only the principal investigator will have the access to the non coded data and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study. The results of the study will hopefully serve as an important input for intervention programs that aim at improving HMIS data quality at local level to understand major factors of the problems of HMIS data quality in your health center. If you will not be willing to participate in the study you will have the right to discontinue at any time in the process.

If you need any further information or explanation regarding to the study, you can have this address to contact.

Name – Mastewal Solomon

Tel no – 0926078254

E-mail – massfiker2012@gmail.com

Do you have any questions?

Based on the information provided are you willing to participate in the study?

Yes____ No_____

If Yes- read the consent form to the participant, sign it and continue the interview.

If No- Thank and skip to the next participant.

Annex 2: Informed consent

Informed consent Certified by:

Respondent's signature ----------Date----------

Interviewer: Name---------- Signature----------

Questionnaire number----------

Date of interview----------Time started----------Time completed----------

Result of interview:

1. Completed
2. Respondent not available
3. Refused
4. Partially completed

Checked by: Supervisor: Name _____ Signature_____

Annex 3 Part one Routine Data quality Assessment: Health Facility tool

NOTE TO THE INTERVIEWER: explain the tool to the person who will serve as a facilitator for record review and you will have to visit different departments within the health center	
01	_____/_____/_____ DD / MM / YYYY
Health center Identification	
Woreda	
Name of the Health center	
Telephone Number (Office)	
Position of person interviewed	

General structure of HMIS		
1. Is there designated staff (HMIS focal person) responsible For reviewing aggregated numbers prior to submission to the next level (e.g., to districts)	1. Yes	2.No
2. The responsibility for recording the delivery of services on source documents is clearly assigned (have written job descriptions)to the relevant staff	**1.** Yes	2.No
4. Does the health center have electronic data base (computer software)? (If no, skip to 7)	1. Yes	2.No
5. Is the electronic database (computer software) currently functional?	1. Yes	2.No
6. Is there any system in place to prevent unauthorized changes to data?	1. Yes	2.No

7.The service delivery point establish performance monitoring team	1.Yes	2.No

		Data Recording		
1	Does this Health center keep copies of the RHIS monthly reports which are sent to the district office?	1. Yes	2.No	If no go to Q5
2	Count the number of RHIS monthly reports that have been kept at the facility for the last twelve months			

		Record review tool to assess Data Accuracy				
9. Find the following information from registers for the selected two months. Compare the figures with the paper based data base submitted to next level						
If one or more of the following services are not provided in the institution, please include a replacement data element						
Item	Data elements	# from registers	# from report submitted	# from registers	# from report submitted	
9.1	Antenatal care fourth visits (ANC4)					
9.2	Total no of births attended by skilled personnel					

	(institutional deliveries)					
9.3	Under one yrs who take Pentavalent third doses (check EPI records)					
9.4	PMTCT					
9.5	Tuberculosis cure rate(PTB)					
9.6	Total Contraceptive accepters(repeat and new)					
9.7	Confirmed malaria cases					

Record review tool to assess content Completeness from 2 months report				
10	How many data items does the heath center need to report on in the RHIS monthly report? This number does not include data items for services not provided by this health center			
11	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.			

Part two; - Organizational and behavioural Assessment Tool

Self -administered questionnaire for health workers

For the interviewer;-give information about the study and ask for consent to participate in the study	
01	_____/_____/_____ DD / MM / YYYY
Facility Identification	
woreda	
Name of Health center	
Department	
Telephone Number (Office)	

101. Sex 1. Male 2. Female

102. Age of the respondent in years ……

103. Position of person interviewed

1. Head of institution
2. Department Head
3. HMIS Focal Person
4. Other (specify) ----------

104. Highest Level of Education

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

105. Field of study for the highest level of education

1. Nurse
2. Midwife
3. Health Officer
4. Laboratory Technology
5.Health information& technology (HIT)
6. Pharmacist
7. Other (specify

106. Years of experience _____

107. Have you ever received in-service training on HMIS related activities in last six months?

1. Yes 2. No

108. Did you receive pre-service training on HMIS? 1. Yes 2. No

109. Have you been participated in aggregation or compilation of data from tally Sheet/registration? 1. Yes 2. No

110. Do you think that registrations and report formats are user friendly /easily understandable?

1. Yes 2. No.

111. Do you register all your activity on daily basis? 1. Yes 2. No

112. Do you fill the register /tally sheet completely? 1. Yes 2. No

113. Did you conduct data accuracy test? 1. Yes 2. No

114. If yes, How frequently? 1. Monthly 2. Quarterly 3. Semi-annually 4.annually

115. In the past 3 months did you get supervision from higher officials?

1. Yes 2. No

116. If yes for Q14, how many times the unit/department supervised.

1. One time 2. Two times 3. Three times

117. Did you get regular Feedback from top level organization through regular report based on evidence ? 1. Yes 2. No

118. If yes, how often? 1. Monthly 2. Quarterly 3. Semi-annually 4. Annually

119. Do you have standard set of indicators with their definition? 1. Yes 2. No

120. Do you have procedural manual in your department? 1. Yes 2. No

121. Are there any incentives for HMIS process? 1. Yes 2. No

122. If yes, what kind of incentives 1. Training 2. Money 3. Recognition 4. Other (specify)

123. Is there skilled human resource able to fill formats? 1. Yes 2. No

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. The scale is about assessing the intensity of your belief and ranges from strongly disagree (1) to strongly agree (5).

You have to determine first whether you agree or disagree with the statement. Second decide about the intensity of agreement or disagreement.

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. If you are not sure of your belief or think that you neither disagree nor agree, then circle 3.

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.

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

knowledge of HMIS	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1.HMIS Collects data from service and administrative records					
2.HMIS Provides signals that can be reviewed frequently to monitor program implementation					
3.HMIS is Used for decision making					
4.HMIS is important for policy Making and management decisions					
5.HMIS is important for Monitoring and Evaluation of performance					
6.HMIS data can be presented by using Charts, graphs and tables					
7.HMIS is an integral part of Health Information System					

Questions to assess supervision quality	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Seek feedback from concerned persons					

2. Emphasize data quality in monthly reports					
3. Discuss conflicts openly to resolve them					
4. Seek feedback from concerned community					
5.Use HMIS data for setting targets and Monitoring					
6. Check data quality regularly					
7. Provide regular feedback to their staff through regular report based on evidence					
8. Report on data accuracy regularly (Talk to higher level staff about accuracy of data)					
9. Encourage their supervisees to over report (false report) their performance					

In your health center, staffs	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Document their activities and keep records					
2. Feel committed in improving health status of the target population					
3. Set appropriate and double target of their performance					

4. Feel guilty for not accomplishing the set target/performance					
5. Are rewarded for good work					
6. staffs are empowered to make decisions					
7. Able to say no to supervisors and colleagues for demands/decisions not supported by evidence					
8. Are made accountable for poor performance					
9. Use HMIS data for community education and mobilization					
10. Admit mistakes for taking corrective actions					

Management support	Strongly disagree	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree
1.health department Use HMIS data for day to day management of the health center					
2. Health department encourages to display data for monitoring their set target					
3. Health department encourages to gather data to find the root cause(s) of the problem					
4. Health department encourages to develop					

appropriate criteria for selecting interventions for a given problem					
5. Health department encourages to develop appropriate outcomes for a particular intervention					
6. Health department encourages to evaluate whether the targets or outcomes have been achieved					

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

PART THREE;-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
1. I can check data accuracy											
2. I can calculate percentages/rates correctly											
3. I can plot data by months or years											
4. I can compute trend from bar charts											
5. I can explain findings & their implications											
6. I can use data for identifying gaps and setting targets											
7. I can use data for making various types of decisions and providing feedback											

Thank you for your response and time!

Annex 4 Translated Amharic Questionnaire

መረጃመጠየቂያቅፅ

ጤና ይስጥልኝ!

ስሜ.....ይባላል፡፡የመጣሁት የአዲስ አበባ ዩኒቨርስቲ ህብረተሰብ ጤና ሳይንስ ተማሪ የሆነችውን ማስተዋል ሰለሞንን ወክዬ ነው፡፡የሁለተኛ ድግሪ መመረቂያ ጥናቷን የምትሰራው የመረጃ አያያዝ ስረአት ጥራት እና ተያያዥ ጉዳዮችን በተመለከተ ነው፡፡ ይህንን ጥናት ለማድረግ ከአዲስ አበባ ዩኒቨርሲቲና ጤና ቢሮ ፈቃድ አግኝታለች፡፡

እርስዎ የተመረጡት በመረጃ ያያዝ ስርአት ላይ ስለሚሰሩ ነው፡፡በጥናቱ ላይ መሳተፍ ሙሉ በሙሉ በርሰዎ ፈቃድ ላይ የተመሰረተ ሲሆን በጥናቱ የመሳተፍ ወይም አለመሳተፍ ሙሉ መብት አለዎት አንዲሁም ለመሳተፍ ፈቃደኛ ከሆኑ በኃላ በፈለጉት ጊዜ ማቋረጥ ወይ ማቆም ይችላሉ፡፡በጥናቱ አለመሳተፍ የሚያደርስቦት ጉዳት የለም፡፡ከዚህ ጥናት የተሰበሰበው መረጃ ሙሉ ሚስጥራዊነቱ የተጠበቀ ይሆናል፡፡ ከጥናት ቡድኑ ውጪ ማንም የተሰበሰበውን መረጃ ማግኘት አይችልም፡፡እንዲሁም መረጃው ከጥናቱ አላማ ውጪ ለምንም አንጠቀምበትም፡፡

በጥናቱ በመሳተፍዎ ለሚሰሩበት ጤና ተቋም የመረጃ አያያዝ ስረዓት ጥራትን ለማማሻሻል ይረዳል፡፡የእርስዎ ፈቃደኝነትና የነቃ ተሳትፎ ለዚህ ጥናት ስኬታማነት አስፈላጊ ነው፡፡

ስለጥናቱ ጥያቄ ወይም ተጨማሪ መረጃ ከፈለጉ በዚህ አድራሻ መጠየቅ ይችላሉ፡፡

ስም፡- ማስተዋል ሰለሞን

ስልክ ቁጥር፡-0926078254

ኢሜል፡-massfiker2012@gmail.com

<u>የስምምነት መጠየቂያ/ማረጋገጫ ቅፅ</u>

ከላይ በተሰጡት መረጃ መሰረት በዚህ ጥናት ለመሳተፍ ፈቃደኛ ኖት

1 አዎ(ቃለመጠይቁ ይቀጥል)

2 አይደለሁም (አመስግነህ ወደሚቀጥለው ተሳታፊ እለፍ)

ቃለመጠይቅ አድራጊው ስም_____ፊርማ_____

ቁጥር_____

ቃለ መጠይቅ የተካሄደበት ቀን_____የተጀመረበት ሰዓት_____ያለቀበት ሰዓት_____

መጠይቁ ታይቷል/ ተፈትሾል_____

የቃለ መጠይቁ ውጤት፡ 1.ሙሉ በሙሉ የተሟላ

2. ያልተገኙ

3. ፍቃደኛ ያልሆኑ

4. በከፊል የተሟላ

በተቆጣጣሪዎችተረጋግጧል ስም_____ፊርማ_____

❖ **በአስተዳዳሪዎችና በሰራተኞች የሚሞላ**

01	_____/_____/_____ ቀን / ወር / አ.ም
የጤና ጣቢያው መገለጫ	
ወረዳ	
የጤና ጣቢያው ስም	
የስራ ክፍል	
ስልክ ቁጥር	

101. ጾታ 1.ወንድ 2.ሴት

102. የተጠየቂው እድሜ.....

103. ቃለ መጠይቁን የሚሞላው ሰው ማእረግ

1. የጤና ጣቢያው ሀላፊ
2. የክፍሉ ሀላፊ
3. የ HMIS ፎካል
4. አገልግሎት ሰጪ/ ባለሙያ

104. የትምህርት ደረጃ

1. ሌቨል 3/ሰርተፍኬት
2. ሌቨል4/ዲፕሎማ
3. የመጀመሪያ ዲግሪ
4. ሁለተኛ ዲግሪ
5. ሌላ(ይጠቀስ)___

105. የተማሩበት የትምህርት መስክ

1. ነርስ
2. አዋላጅ ነርስ
3. ጤና መኮንን
4. የላብራቶሪ ባለሙያ
5. የጤና መረጃ አያያዝ ባለሙያ
6. የፋርማሲ ባለሙያ
7. ሌላ(ይጠቀስ)----------

106. የስራ ልምድ _____

107. ባለፉት ስድስት ወራት ውስጥ ከ HMIS ጋ በተያያዘ ስልጠና ወስደው ያውቃሉ?

1. አዎ 2. አልወሰድኩም

108. ወደ ስራ ከመግባትዎ አስቀድመው በHMIS ላይ ስልጠና ወስደዋል?

1. አዎ 2. አልወሰድኩም

109. ከወርሃዊ/ከእለት መዝገብ ላይ መረጃን በመሰብሰብ ወይም በማጠናቀር ተሳትፈው ያውቃሉ?

1. አዎ 2. አላውቅም

110. የ HMIS መዝገቦችና የሪፖርት ፎርማቶች ቀላልና መረዳት የሚቻሉ ናቸው ?

1. አዎ 2. አይደሉም

111. ሁሉንም ስራዎችዎን በየለቱ ይመዘግባሉ ? 1. አዎ 2. አይደለም

112. ወርሃዊ/እለት መዝገቦችን ጨርሰው/አማልተው ይመዘግባሉ ?

1. አዎ 2. አይደለም

113. የመረጃን ትክክለኛነት አረጋግጠው(LQAS) ያውቃሉ?

1. አዎ 2. አይደለም

114. መልስዎ አዎ ከሆነ በምን ያህል ጊዜ ?

1. በየወሩ 2. በየሶስት ወር 3. በየስድስት ወር 4.በየአመቱ

115.ባለፉት ሶስት ወራት ውስጥ ከበላይ አለቆች ድጋፋዊ ክትትል አግኝተው ያውቃሉ ?

1. አዎ 2. አይደለም

116. መልስዎ አዎ ከሆነ በምን ያህል ጊዜ ?

1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ

117. ከበላይ አለቆች በጽሁፍ የተደገፈ ግብረ-መልስ አግኝተው ያውቃሉ ?

1. አዎ 2. አይደለም

118.መልስዎ አዎ ከሆነ በምን ያህል ጊዜ ?

1.በየወሩ 2. በየሶስት ወር 3. በየስድስት ወር 4.በየአመቱ

119. በሚሰሩበት ጤና ጣቢያ የ HMIS ጠቆሚዎችን የያዙ ስብስቦች አሉ ?

1. አዎ 2. አይደለም

120. በሚሰሩበት ጤና ጣቢያ የመረጃ አሰባሰብ ስርዓት ማኑዋሎች አሉ ?

1. አዎ 2. አይደለም

121 በሚሰሩበት ጤና ጣቢያ ከ ጋር በተያያዘ የሚሰጥ ማበረታቻ አለ?

1. አዎ 2. አይደለም

122. መልስዎ አዎ ከሆነ በምን አይነት?

1. ገንዘብ 2. ስልጠና 3. እውቅና 4. ሌላ(ይጠቀስ)---------

123. በሚሰሩበት ጤና ጣቢያ መዝገቦችንና ፎርማቶችን ለመሙላት የሚችሉ የሰለጠኑ ባለሙያዎች አሉ ?

1. አዎ 2. አይደለም

❖ በጤና ቋሙ ከተሰሩት ስራዎች ጋር ምን ያህል እንደሚስማሙ የርስዎን አመለካከት ማወቅ እንፈልጋለን፡፡ በመለኪያው የርስዎን አመለካከት ከመግለጽ በዘለለ ትክክልና ትክክል ያልሆኑ መልሶች የሉም፡፡መለኪያው የርስዎን የአመለካከት ጥንካሬ የሚመዝን ሲሆን ከፍፁም አልስማማም(1) እስከ ፍፁም እስማማለሁ(5) ምርጫዎች ይሰጣል፡፡ አመለካከትዎን በበለጠ ይገልፃል የሚሉትን ምርጫ በማክበብ እንዲያመለክቱ እንጠይቃለን፡ምንም እንከዋን ከሁሉም ሃሳቦች ጋር ሊስማሙ ወይም ላይስማሙ ቢችሉም ለሁሉም አንድ አይነት የመስማማትና ያለማስስማማት ጥንካሬ እንደማይኖርዎትና ልዩነቶች ሊኖሩ እንደሚችሉ ይጠበቃል፡፡እነዚህ ልዩነቶች ጎልተው እንዲወጡ እንፈለጋለን፡፡የሚሰጡንን መረጃዎች በሚስጥር የሚያዙና ለሶስተኛ ወገን ተላልፈው እንደማይሰጡ ልንገልፅልዎ እንወዳለን፡፡መልስዎን በሀቀኝነት እንደሚሰጡን እምነታችን ነው፡፡

ከሚከተሉት ነጥቦች ጋር ከ ነ-5 ባለው መለኪያ መሰረት ምን ያህል ይስማማሉ

የ HMIS ያሎትን እውቀት በተመለከተ	አልስማማም (1)	አልስማማም (2)	ከሁለቱም ያልሆነ (3)	እስማማለሁ (4)	ፍፁም እስማማለሁ (5)
1.HMIS ከአገልግሉትና አስተዳደራዊ መዛግብት መረጃዎችን ይሰበስባል					
2.HMIS ተግባራዊ የሆኑ ፕሮግራሞችን ለመከታተል ጥቆማ ይሰጣል					
3.HMIS ውሳኔዎችን ለመወሰን ይጠቅማል					
4.HMIS ፖሊሲዎችን ለማውጣትና ለአስተዳደራዊ ውሳኔዎች ይጠቅማል					
5.HMIS ለስራ ለክትትልና ምዘና ይጠቅማል					
6.የHMIS መረጃን በቻርቶች፤በግራፍ እና በሰንጠረዥ ማሳየት ይቻላል					
7.HMISየጤናመረጃስርዓትአካል ነው					

በጤና ጣቢያዎ ተቆጣጣሪዎች(የበላይ አለቆች)	አልስማማም (1)	አልስማማም (2)	ከሁለቱም ያልሆነ (3)	እስማማለሁ (4)	ፍፁም እስማማለሁ (5)
1. ከሚመለከታቸው ግለሰቦች ምላሽ ይጠይቃሉ					
2. በወርሀዊ ሪፖርቶች በመረጃ ጥራት ያተኩራሉ					

3. ግጭቶችን ለመፍታት በግልፅ ይወያያሉ					
4. ከሚመለከታቸው ማህበረሰቦች ምላሽ ይጠይቃሉ					
5.የ HMIS መረጃዎችን ግቦችን ለማቀመጥና ለቁጥጥር ይጠቀሙባቸዋል					
6. የመረጃዎችን ጥራት በየጊዜው ያረጋግጣሉ					
7. በሪፖርት አመካይነት ለሰራተኞቻቸው በመረጃ ላይ የተመሰረተ ግብረ መልስ በየጊዜው ይሰጣሉ					
8. የመረጃዎችን ትክክለኛነት በየጊዜው ሪፖርት ያደርጋሉ					
9 ከስራቸው ያሉትን ሰራተኞች ሪፖርቶችን ጨምረው(የውሸት ሪፖርት) እንዲያቀርቡ ያበረታታሉ					

የጤና ጣቢያው የስራ አመራር	(1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. ለቀን ተቀን የጤና ጣቢያው የስራ አመራር የ HMIS መረጃዎችን ይጠቀማሉ					
2. ያስቀመጡትን ግቦች ለመቆጣጠር መረጃዎችን በግልፅ ያሳያሉ					
3. የችግሮችን መነሻ ለማወቅ የሚያስችሉ መረጃዎችን እንዲሰበሰብ ያበረታታሉ					
4. የችግሮችን መፍትሄ ለመምረጥ የሚያስችሉ መለኪያ ነጥቦችን ማስቀመጥ ይችላሉ					
5. ከተቀመጡት መፍትሄዎች ሊገኙ የሚችሉትን ውጤቶች					

ይለያሉ					
6. የታቀዱት ግቦች(ውጤቶች) መሳካታቸውን መገምገም ይችላሉ					

በጤና ጣቢያዎ ሰራተኞች	አልስማማም (1)	አልስማማም (2)	ከሁለቱም ያልሆነ (3)	እስማማለሁ (4)	ፍፁም እስማማለሁ (5)
1. የሰሩትን ስራ ሁልጊዜ ይመዘግባሉ					
2.የተጠቃሚውን ህዝብ ጤና ለማረጋገጥ ቁርጠኞች ናቸው					
4.ተገቢና ሊሰሩ የሚችሉ ግቦችን አስቀምጠው ይሰራሉ					
5.የተቀመጡት ግቦች ሳይሳኩ ሲቀሩ የጥፋተኝነት ስሜት ይሰማቸዋል					
6. ለተሰሩት ጥሩ ስራዎች ይሸለማሉ					
7. ውሳኔዎችን መወሰን እንዲችሉ ተፈቀዶላቸዋል					
8. ከበላዮቻቸው ሆነ ከስራ ባልደረቦቻቸው ለሚመጡ ማናቸውም በመረጃ ያልተደገፉ ውሳኔዎችና ፍላጎቶች መቃወም ይችላሉ					
9. ለሚከሰቱት ደካማ የስራ አፈፃፀሞች ተጠያቂ ናቸው					
10. ህብረተሰብን ለማስተማርና ለማነቃቃት የHMIS መረጃዎችን ይጠቀማሉ					
11. ስህተቶችን በማረም የማስተካከያ እርምጃዎችን ይወስዳሉ					

የግል አመለካከት	(1)	(2)	(3)	(4)	(5)
1. ለውሳኔ የማይጠቅም መረጃ መሰብሰብ ይደብረኛል					
2. መረጃን መሰብሰብ ደስ አይለኝም					
3. መረጃን መሰብሰብ ለኔ ትርጉም ያለው ስራ ነው					
4. መረጃን ስሰበሰብ የአንድን ተቋም የስራ አፈፃፀም ለመከታተል መረጃው ጠቃሚ እንደሆነ ይሰማኛል፡፡					
5. መረጃን ስሰበሰብ በግዳጅ እየሰራሁ እንዳለ ይሰማኛል፡፡					
6. መረጃን መሰብሰብ በአለቆችና ሰራተኞቻቸው የተወደደ ነው፡፡					

ክፍል ሶስት ;-የራስን ብቃት መመዘኛ

የሚከተለው መጠይቅ እርስዎ የጤና ነክ መረጃዎችን በብቃት በመጠቀም ረገድ ያሎትን በራስ መተማመን ለመመዘን ይረዳል፡፡ከፍተኛ በራስ መተማመን አንድን ስራ በብቃት የመከወን ችሎታን ሲያሳይ ዝቅተኛ በራስ መተማመን ደግሞለመሻሻልና ለስልጠና እድል ይከፍታል፡፡ስለዚህ ከHMIS ጋር የተያያዙ ስራዎችን ለመከወን ያልዎትን በራስ መተማመን መወቅ እንፈልጋለን፡፡እባክዎትን በግልፅነትና በሀቀኝነት በራስ መተማመንዎን ይለኩልን፡፡

በራስ መተማመንዎን ለእያንዳንዱ ከታች ለተዘረዘሩት የጤና ነክ መረጃን የተመለከቱ ሁኔታዎች(መገለጫ) በሚከተለው መለኪያ በመቶኛ ይለኩልን፡፡

0 10 20 30 40 50 60 70 80 90 100

መገለጫ	0	10	20	30	40	50	60	70	80	90	100
1.የመረጃን ትክክለኛነት ማረጋገጥ እችላለሁ											
2. መቶኛዎችን ማስላት እችላለሁ											
3. መረጃዎችን በወራትና አመታት ማስቀመጥ እችላለሁ											
4. ከባር ግራፎች የአከሳሰት ሂደቶችን መገለፅ											

እችላለሁ											
5.ግኝቶችና ውጤቶቻቸውን መግለፅእችላለሁ											
6.መረጃን ከፍተቶችን ለመለየትና ግቦችን ለማስቀመጥ መጠቀም እችላለሁ											
7. መረጃን የተለያዩ ውሳኔዎችን ለመወሰንና ምላሽ ለመስጠት መጠቀም እችላለሁ											

ስለ ትብብርዎ እናመሰግናለን!