

Evaluation of Performance Monitoring Team (PMT) Functionality and the Level of Health Information System (HIS) Implementation in selected public health facilities in Addis Ababa: A *Baseline Study*

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Abstract

Background: Health Information Systems (HIS) have the potential to increase efficiency and substantially reduce health expenditure. Insufficient information use poses a major challenge to improving healthcare outcomes at the grassroots level. To improve a culture of information-use among health workers, capacity building through different modalities is considered effective. This study aimed to assess the levels of data quality, the culture of information use, and the functionality of performance monitoring teams (PMTs) at selected public health facilities in Addis Ababa providing baseline information.

Methods: This research was conducted at selected health facilities within the Addis Ababa City administration using quantitative research methods among healthcare professionals. Both Primary and secondary data were collected to assess the information-use practices of health professionals. The EPI-7 software was used for data entry, while STATA software was employed for the analysis of quantitative data. Composite scores and Logistic regression were applied for data analysis.

Results: One hundred eighty respondents participated in the study. Of this total, 101(56.1%) had received formal HIS training, and 111(63%) scored above the mean for knowledge, indicating that respondents are knowledgeable about routine health information utilization. Regarding competency in performing Routine HIS (RHIS) tasks, 93(51.71%) demonstrated good RHI utilization competency. Of the respondents, 102(56.7%) scored above the mean in information use culture and were categorized as having good practices. Only three Health Centers (HCs) (50%) prepared data visuals. All six selected HCs had non-functional PMTs.

Conclusions and Recommendations: In general, few HCs have reported their experiences with information use for decision-making. In addition, the availability of formally trained staff in HIS-related activities, the functionality of PMT, data quality, and the actual use of information for decision-making were all very low. It is recommended that all health facility staff receive comprehensive HIS training; mentorship program be strengthened; PMTs be well-founded; follow-up actions be implemented and Ministry of Health regulations be enforced. Moreover, data use and data quality issues should remain high on the priority list; as intervention in this area is critical. [*Ethiop. J. Health Dev.* 2024; 38(4): 00-00]

Keywords: Healthcare Professionals, Health Information System, Health Information Use, Performance Monitoring Team

Introduction

One of the four transformation goals of Ethiopia's current Health Sector Transformation Plan (HSTP) is the Health Information Revolution. This initiative is structured around two main pillars: reforming and improving the health sector information system through cultural changes in HIS, and digitalization and scaling up of information systems (1). According to the study's findings, poor data quality and low information usage practices continue to be major challenges at the primary health care unit (PHCU) and district health office levels(2). Ensuring data quality, analysis, and meaningful interpretation, as well as developing an information-use culture at all levels, remain significant problems within Ethiopia's health system(3). The Ministry of Health (MOH) has attempted to address these issues by identifying and implementing various strategies and initiatives. One of

these endeavors is the establishment of Performance Monitoring Teams (PMTs)(3).

In May 2017, the MOH launched the Capacity Building and Mentorship Program (CBMP) with the participation and collaboration of local universities. The program's primary goal is to help the MOH's ambition to create model health facilities and wordably improving data quality and the utilization of health information.

The PMT ideally consists of a diverse health workforce team primarily responsible for improving data quality and information use to enhance performance at all levels(3, 4). However, a huge implementation gap exists for PMTs in most health facilities. According to the findings of the Health Management Information System (HMIS) implementation assessment, PMTs are not-functional in more than one-third of health

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facilities (4). The main obstacles within these health institutions include inadequate PMT activities related to data quality verification and issues with information usage practices. Additionally, capacity-building processes are not problem-solving or practically oriented. Poor mentorship and a lack of timely feedback have also been highlighted as significant constraints(5). It is envisaged that this innovative method will improve the effectiveness of PMTs by promoting changes in professional conduct.

The findings of this baseline study will help policymakers in modifying data quality and information use policies, as well as guiding principles. Additionally, it will serve as a baseline for future comparisons to determine the state of HMIS performance improvement. Research on PMT functionality will assist decision-makers in making informed decisions and taking appropriate measures. Furthermore, the study will serve as a valuable learning document for future implementation studies.

Methods and Materials

Study Design and Area

A facility-based cross-sectional study design was conducted from May to June 2020 to assess the PMT functionality and the level of HIS implementation among public health centers of Addis Ababa. The city has 11 sub-cities, 117 Woreda, and 98 functional public health centers.

The research was carried out in three capacity building and mentorship programs (CBMP)-supported sub-cities in Addis Ababa: Akaki/Kality, Lideta, and Yeka. Six public HCs (Lideta and Hidassie Fire HCs from Lideta, Woreda-12, and Korea Zemach HCs from Yeka, and Saris and Gelan HCs from Akaki/Kality Sub-cities) were included.

Study population

Staff with more than one year of experience were included in selected health facilities.

Sample size and sampling procedure

The following information was used to calculate the sample size;

$Z=2$, $p=0.56$, and $e=0.07$ using the formula for simple random sampling $[(Z^2 p (1-p))/e^2]$, the formula yielded a sample size of 201. Using finite population correction, the sample size becomes 180. The samples were equally divided among the six health facilities, as they are expected to be of similar size.

180 Health workers were selected from the selected health facilities, with individual employees chosen from each stratum using simple random sampling and a pre-determined sample size. Health workers were stratified by workplace and profession. Quantitative data were gathered using the PRISM assessment tool and the MOH Connected Woreda assessment tool (6).

Variables of the study

Dependent variables

Data quality and information use culture in selected health facilities.

Independent variables

Independent variables include behavioral, technical, and organizational factors which include the availability of guidelines, motivation, prioritization of data quality and use, attitudes, knowledge, skills, motivation, staff and leadership commitment, a standard PMT meeting format, PMT monitoring tools, the number of departments in the health facility and other related factors within the health system.

Data Collection Techniques

Quantitative data were gathered using the PRISM assessment tool and the MOH connected Woreda assessment tool. While in the facility, data collectors observed the HIT office, examined how data were being input into the system, and assessed activities and infrastructure using a connected Woreda assessment tool in addition to a prepared checklist. The Open Data Kit (ODK) was used to collect data electronically. Baseline data on all aspects of HIS were collected and documented for future reference.

Operational Definitions and Study Variables

Information use practice: The assessment of information use comprises 22 questions. A health worker is deemed to have "good information use" if their composite score is above the mean value, or "poor information use" if it is below the mean value.

Data Processing and Analysis

STATA version 14.1 was used to analyze the data. Descriptive statistics, such as proportions, measures of central tendency, and measures of dispersion were used. To assess health workers' knowledge, attitudes, and skills regarding data quality and information use, composite scores were used. Logistic regression was employed to identify factors associated with data quality and information use. The odds ratio (OR) and its confidence interval were computed to demonstrate the strength of the relationship with the outcome of interest, and statistical significance was declared at a p-value of 0.05.

Ethical consideration

Ethical clearance was secured from the Institutional Review Board (IRB) of the College of Health Sciences College, Addis Ababa University. Approval letters were obtained from the Addis Ababa City Administration Health Bureau in the respective health facilities included in this study.

Results

Social-demographic Characteristics

A total of 180 health professionals from six selected health centers participated, of which 104 (57.8 %) were female; 71 (39.4%) were diploma holders, and 98 (54.4%) BSc-level health care professionals. The majority, 99(55%), had five or fewer years of experience; 101(56.1%), have received formal RHIS/HMIS training. (Table 1).

Table 1: **Socio-demographic Characteristics of Respondents in Health Centers of Addis Ababa, Ethiopia, 2020[n=180]**

Variables	Category	Response	
		Frequency	Percentage
Respondent's Responsibility	Health facility head	5	2.8
	HMIS focal person	10	5.6
	Health care provider	150	83.3
	Health Extension Workers	15	8.3
Sex of respondents	Male	76	42.2
	Female	104	57.8
Educational status	Diploma	71	39.4
	Degree	98	54.4
	Master's and above	11	6.1
Type of Profession	Health Officer	28	15.6
	Nurse	84	46.7
	Midwife	18	10.0
	Laboratory technician	10	5.6
	Pharmacist	10	5.6
	Health information technicians	10	5.6
	Others (HEW, Physician, and PH)	20	11.1
Work experience	1-5 years	99	55.0
	6-10 years	58	32.2
	11-15 years	12	6.7
	16-20 years	5	2.8
	21-25 years	6	3.3
HIS training	Trained	101	56.1
	Not trained	79	43.9

Structure and Implementation of RHIS

Six HCs were assessed for their performance status on HIS. Three of them had standard medical record units (MRUs), and two had shelves. In four (67%) HCs, the medical record unit was assisted by an Electronic Medical Record (EMR) system. Three HCs had a well-organized HMIS unit, four HMIS rooms contained computers dedicated to r DHIS2 that were currently functioning.

Manuals of HMIS procedure/data recording and reporting, HMIS disease classification (NCoD), and the HMIS indicator reference guide, which facilitate the implementation of HIS, were available in only two HCs. However, data quality and use manuals were found in only four HCs. All six HCs maintained properly filed and easily accessible individual medical cards and implemented DHIS2, while four of them had a functional local area network (LAN) and two had a functional health net.

Knowledge of the routine health information system (RHIS)

This study assessed knowledge of routine RHIS through questions related to

aggregated data utilization. The findings indicated that the reasons for collecting or using aggregated disease data include knowing changes in the magnitude/burden of selected diseases, triage patients, identify disease outbreaks, and take actions to address epidemics and planning preventive and promotional activities with 69.4%, 87.2%, 73.3%, 73.3%, and 66.7%, respectively.

The majority of the respondents know the purpose of aggregate immunization data. A total of 124(68.9%) said that immunization data were collected to know the coverage of effective intervention and immunization for improving maternal or child health. Additionally, 132(72.2%) claimed that immunization data were collected to improve the diagnosis and treatment of under-five children; 132(73.3%) reported that the immunization data was useful to taking action to provide necessary resources, and 145(80.6%) of the participants claimed that the immunization data was important to plan for immunization activities developing targets for immunization (Table 2).

Table 2: RHIS Knowledge of Respondents in the Health Centers of Addis Ababa, Ethiopia, 2020[n=180]

Aggregated Monthly data	No		Yes	
	N	%	n	%
Using aggregated disease data				
To provide individual-level care	55	30.6%	125	69.4%
To know changes in magnitude/ burden of selected disease	23	12.8%	157	87.2%
To triage patients who need urgent care and those who can wait for some time	48	26.7%	132	73.3%
To identify disease outbreaks and take actions to address epidemics	48	26.7%	132	73.3%
To plan preventive and promotional activities	60	33.3%	120	66.7%
Using aggregated immunization data				
To know the coverage of effective immunization for improving MCH	56	31.1%	124	68.9%
To improve the diagnosis and treatment of under-five children	50	27.8%	130	72.2%
To take action to provide necessary resources	48	26.7%	132	73.3%
To plan for immunization activities	35	19.4%	145	80.6%
Using aggregated age/sex of patients/clients				
To ensure equitable service coverage across people of all groups	65	36.1%	115	63.9%
To know which group is affected by certain disease	53	29.4%	127	70.6%
To get more funding	73	40.6%	107	59.4%
To calculate the workload of OPD and under-five clinics	70	38.9%	110	61.1%
To know if the appropriate group is getting relevant service	50	27.8%	130	72.2%
Using geographical data or the residence of patients				
To plan preventive, promotive activities aimed at certain geographic areas	48	26.7%	132	73.3%
To improve access and utilization of health services	50	27.8%	130	72.2%
To determine the behavior of clients/population group	74	41.1%	106	58.9%
For disease surveillance (to control epidemics)	34	18.9%	146	81.1%
Population data needed				
To use as a denominator for calculating indicators	48	26.7%	132	73.3%
To plan the provision of various health services	28	15.6%	152	84.4%
To calculate the workload of health facilities	33	18.3%	147	81.7%
To know the knowledge and skills of health professionals	58	32.2%	122	67.8%

The 111 (63%) participants scored larger than the mean indicating they are knowledgeable about routine health information utilization (Figure 1).

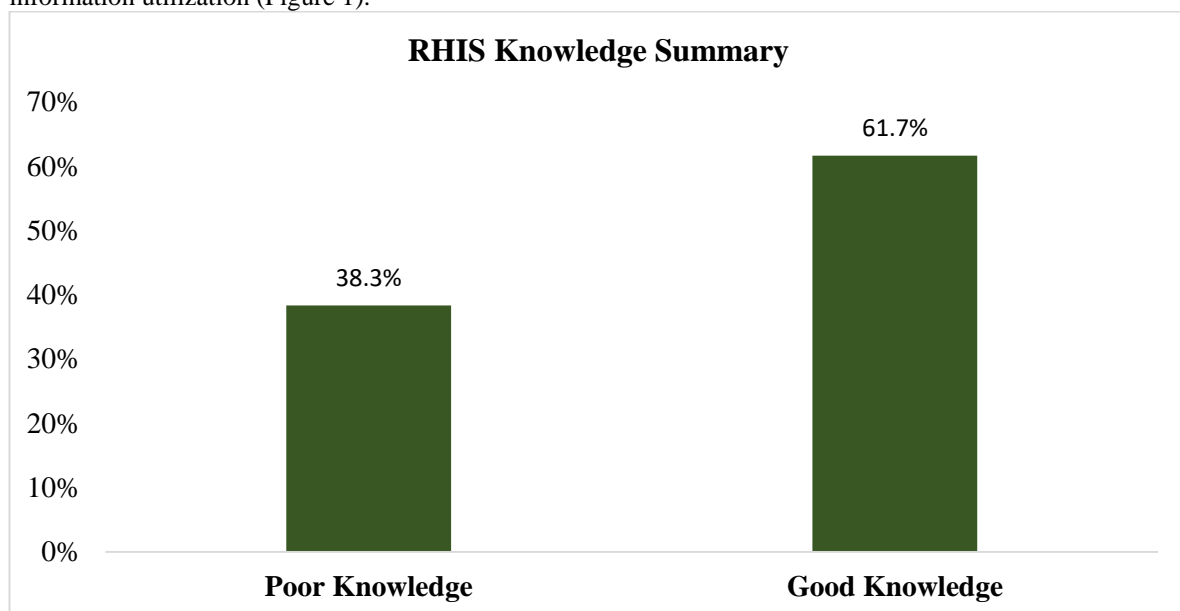


Figure 1. Overall knowledge regarding routine health information utilization among respondents in Addis Ababa, Ethiopia, 2020.

Competency to perform RHIS tasks

Participants' self-perception of competency in performing tasks related to HIS was assessed using six questions. Half of the respondents demonstrated the required competency to check data accuracy. This study also found that 95 respondents (52.8%) could not use data to identify performance gaps. On the other hand, 53.3% of the respondents exhibited low competency in using data for making operational/ management decisions, for example, service delivery, setting performance targets, budget allocation, distribution of roles and responsibilities, staff assignment, and logistics distribution (Figure 2).

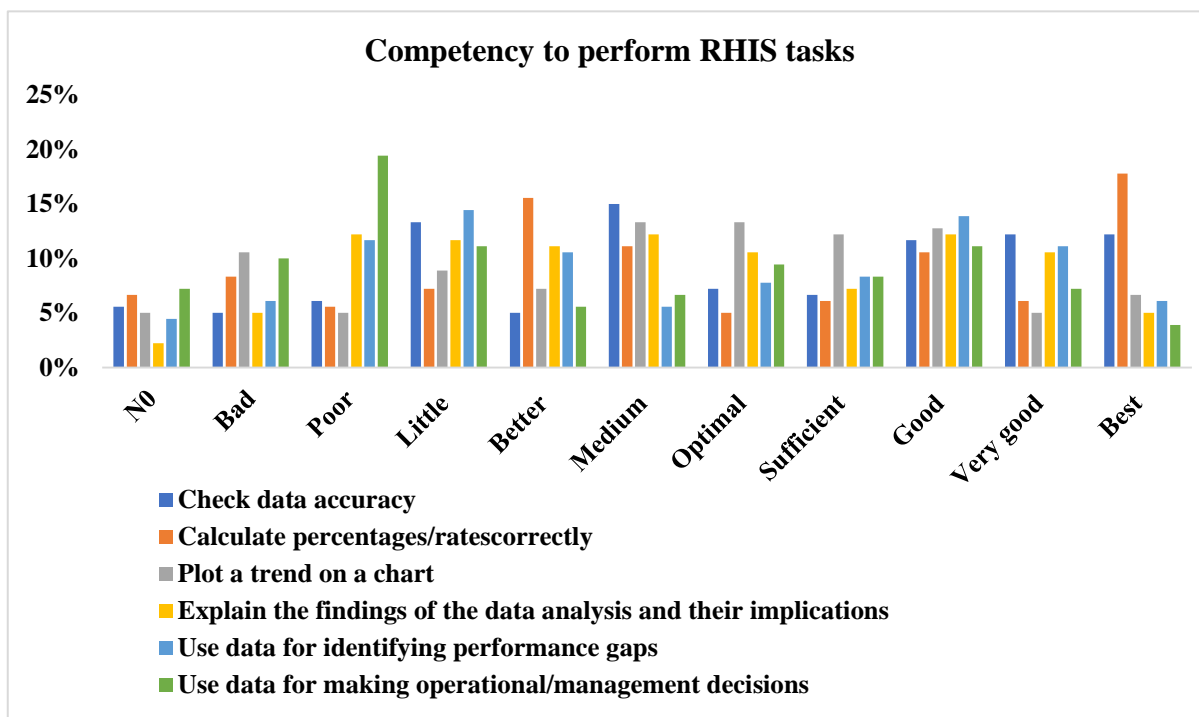


Figure 2. Self-perception of competency in performing tasks related to health information systems among respondents in Addis Ababa, Ethiopia, 2020.

Regarding competency to perform RHIS tasks, 48.3 % of them had below-average competencies to perform RHIS and were categorized as poor. (Figure 3)

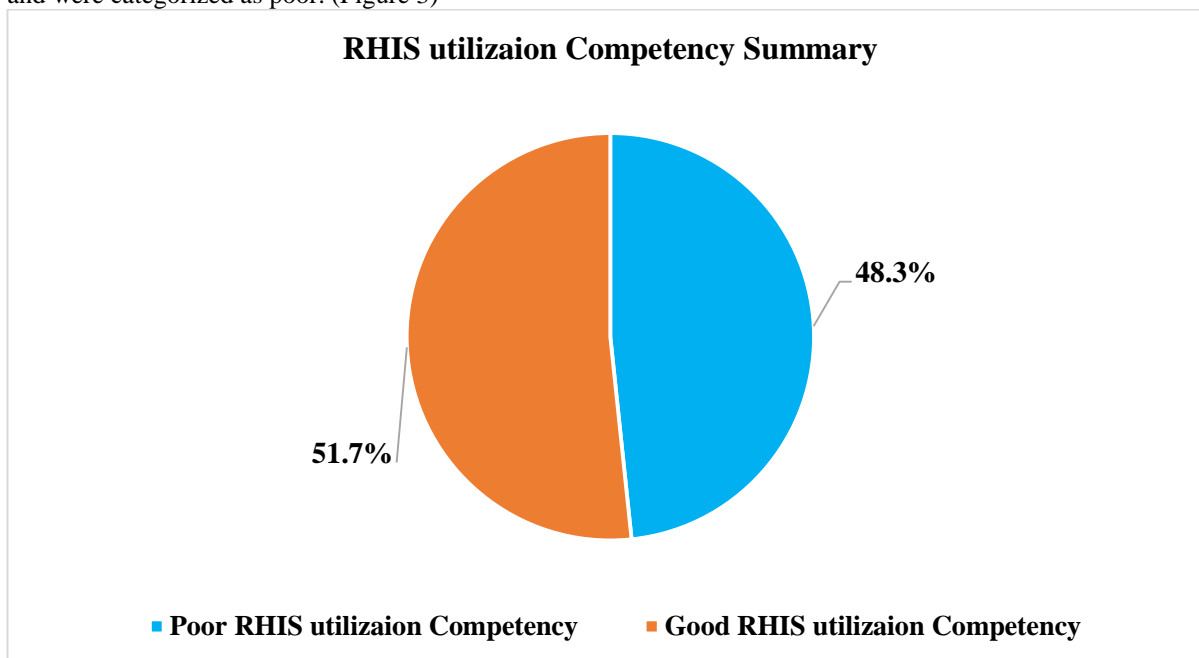


Figure 3. Overall RHIS competency in performing tasks related to health information systems among respondents in Addis Ababa, Ethiopia, 2020.

Routine health information use culture

This study identified organization-level decision-making within the facilities. A total of 86 (47.8%) think that facility decisions are made based on personal preference, 73 (40.6%) disagree with the idea, and the remaining are neutral. On the other side, 109 (60.6 %) of respondents agreed that decisions are made based on superiors' orders, while 58 (32.2 %) disagreed, leaving the remaining neutral.

Important decisions require conscious thinking, information gathering, some level of knowledge about the facility, and careful consideration of alternatives. However, 102 respondents (56.7%) felt the facility's decision was made without taking into account what was done in the previous year, while 61 (33.9 %) disagreed. The findings also revealed that 53 respondents (29.4%) decisions within their organization/department are based on funding directives from higher levels, whereas 94 (52.2%)

disagreed. The notion that “organization-level decision-making involves political considerations” was accepted by 86 respondents (47.8%) but rejected by 76 (42.2%).

A total of 95 (52.8%) respondents believe that organization managers or supervisors do not seek input from relevant staff, while 46 (37.8 %) disagree. About 66% generally disagreed with the notion that “managers/supervisors conduct routine data quality checks at points where data are captured and processed”. The majority, 98 respondents (54.5%), disagree with the notion that “organization managers/supervisors ensure decisions are made and

follow-up actions identified in PMT meetings”, while 65 (37.9%) agreed.

The health facility staff's practical experiences with the RHIS were also assessed. Of the total, 69% generally believe that RHIS tasks (recording, reporting, aggregation, analysis) are not promptly completed at facilities. About 54.5% believe there is no commitment to ensure data quality and evidence-based decision-making in their institutions. About 63% do not take personal responsibility for failing to reach performance targets in their facilities. A majority, 117 respondents (65%), believed they did not prepare data visuals (graphs, tables, maps, etc.) at their health facilities. (Tables 3, 4, and 5).

Table 3: Routine health information use practice at the organization/department level in Health Centers of Addis Ababa, Ethiopia, 2020[n=180]

Organization/department, decisions are based on:	Organization/department level in Health Centers									
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	n	%	N	%	N	%	n	%	N	%
Personal preference of decision-makers	16	8.9	57	31.7	21	11.7	59	32.8	27	15.0
Superiors' directives	14	7.8	44	24.4	13	7.2	86	47.8	23	12.8
Evidence/facts/data	40	22.2	66	36.7	10	5.6	32	17.8	32	17.8
History, what was done last year	23	12.8	79	43.9	17	9.4	42	23.3	19	10.6
Funding directives from higher levels	49	27.2	45	25.0	33	18.3	40	22.2	13	7.2
Political considerations	35	19.4	41	22.8	18	10.0	54	30.0	32	17.8
Official health sector strategic objectives	37	20.6	68	37.8	16	8.9	36	20.0	23	12.8
Health needs of the catchment population as identified locally	32	17.8	73	40.6	14	7.8	35	19.4	26	14.4
The relative cost of interventions	45	25.0	77	42.8	13	7.2	30	16.7	15	8.3
Participatory by taking inputs from relevant staff	36	20.0	79	43.9	15	8.3	26	14.4	24	13.3

Table 4: Routine health information use practice at managers/supervisors level in Health Centers of Addis Ababa, Ethiopia, 2020[n=180]

Your organization managers or supervisors:	Organizational managers or supervisors' level									
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	n	%	N	%	n	%	n	%	n	%
Seek input from relevant staff	28	15.6	67	37.2	17	9.4	46	25.6	22	12.2
Emphasize that data quality procedures be followed in the compilation and submission of periodic reports	34	18.9	71	39.4	5	2.8	53	29.4	17	9.4
Promote feedback mechanisms to share/present information within the team, and to lower and upper levels of the health system	29	16.1	78	43.3	11	6.1	32	17.8	30	16.7
Use RHIS data for service performance monitoring and target setting	15	8.3	89	49.4	17	9.4	31	17.2	28	15.6
Emphasize the need to use RHIS data to identify potential disparities in service delivery or use	27	15.1	82	45.8	15	8.4	39	21.8	16	8.9
Conduct routine data quality checks at points where data are captured, processed	32	17.8	72	40.0	15	8.3	35	19.4	26	14.4
Ensure that performance data are reviewed and discussed in the regular meetings	37	20.6	67	37.2	22	12.2	35	19.4	19	10.6
Ensure that decisions are made and follow-up actions identified in PMT meetings	28	15.6	70	38.9	17	9.4	42	23.3	23	12.8
Provide regular feedback on reported data to the staff responsible for compiling and reporting	30	16.7	85	47.2	15	8.3	44	24.4	6	3.3
Recognize or reward staff for good work performance	47	26.1	79	43.9	14	7.8	23	12.8	17	9.4

Table 5: Routine health information use practice at the Staff level in Health Centers of Addis Ababa, Ethiopia, 2020[n=180]

In the health department, staff:	The health department, staff level									
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	N	%	n	%	n	%	n	%	n	%
Complete RHIS tasks (recording, reporting, processing/aggregation, and/or analysis) promptly.	43	23.9	81	45.0	0	0.0	31	17.2	25	13.9
Display commitment to ensure data quality and evidence-based decision-making	37	20.6	84	46.7	8	4.4	37	20.6	14	7.8
Pursue indicative national targets and set feasible local targets for essential service performance	51	28.3	69	38.3	6	3.3	37	20.6	17	9.4
Feel “personal responsibility” for failing to reach performance targets	30	16.7	84	46.7	16	8.9	29	16.1	21	11.7
Use RHIS data for the day-to-day management of the facility	43	23.9	59	32.8	13	7.2	57	31.7	8	4.4
Use RHIS data to solve common problems in service delivery	20	11.1	82	45.6	12	6.7	43	23.9	23	12.8
Use disaggregated RHIS data to identify and/or solve health equity-related problems in service delivery	35	19.4	73	40.6	14	7.8	32	17.8	26	14.4
Prepare data visuals (graphs, tables, maps, etc.)	41	22.8	76	42.2	15	8.3	33	18.3	15	8.3
Can monitor whether an intervention achieved the targets	12	6.7	90	50.0	26	14.4	26	14.4	26	14.4
Can make decisions within their scope in response to the findings of data analysis	84	46.7	12	6.7%	19	10.6	35	19.4	30	16.7
Are held accountable for poor performance	52	28.9	53	29.4	15	8.3	35	19.4	25	13.9
Admit mistakes (related to data management) if/when they occur and take corrective action	45	25.0	70	38.9	9	5.0	35	19.4	21	11.7

Personal Feelings on the Use of RHIS

The study evaluated whether emotions and feelings impact the decision-making culture of health professionals. Although properly collecting and documenting health data is essential for providing high-quality care and ensuring continuity of care, the majority of respondents, 96 (53.3%), believe that collecting and recording HMIS/CHIS data is time-

consuming. Furthermore, 124 respondents (68.8%) said they are discouraged when the data they collect/record is not used to take action. Similarly, 102 respondents (56.7%) believe that the data collected are important for monitoring (facility) service performance. Unfortunately, 111 respondents (61.7%) believe that "data collection/recording are not the responsibility of health care providers." (Table 6).

Table 6: Personal Feelings on RHIS in Health Centers of Addis Ababa, Ethiopia, 2020[n=180]

Personal Feelings on RHIS	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	n	%	N	%	N	%	n	%	N	%
I feel discouraged when the data that I collect /record is not used for taking action	21	11.7	25	13.9	10	5.6	62	34.4	62	34.4
I find collecting /recording HMIS/CHIS data tedious	22	12.2	40	22.2	22	12.2	54	30.0	42	23.3
Collecting data is meaningful/useful for me	26	14.4	58	32.2	13	7.2	36	20.0	47	26.1
I feel that the data I collect or have been important for monitoring (facility) service performance	23	12.8	48	26.7	7	3.9	50	27.8	52	28.9
My work of collecting data is appreciated and valued by supervisors	34	18.9	62	34.4	13	7.2	35	19.4	36	20.0
I feel that data collection/recording is not the responsibility of healthcare providers	47	26.1	64	35.6	18	10.0	38	21.1	13	7.2

Most of the respondents, 102 (56.7%), had good information-use culture (Figure 4).

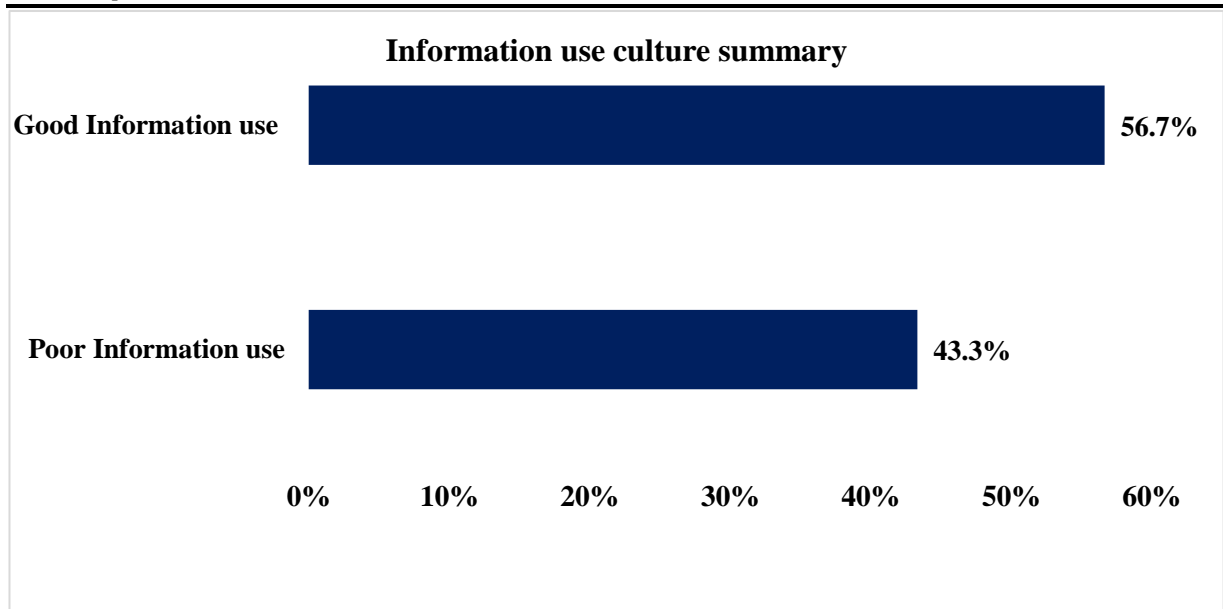


Figure 4. Overall healthcare information uses culture among respondents in Addis Ababa, Ethiopia, 2020.

Data Visualization and HMIS Analytic Report Production

The study found that all HCs produce reports, but only few produce brochures based on HMIS data and only two of them analyzed electronic-based HMIS data. Data Visuals in the form of graphs, maps, or tables were displayed on paper and with electronic copies observed in only half of the health centers.

Of the three HCs that prepared data visuals, two included a map of the catchment area, presented data visuals of staffing, ANC coverage, Penta-3 immunization coverage, and displayed HIV/AIDS (PMTCT) data. However, only one HC prepared a catchment population profile, identified the top ten causes of morbidity for both males and females, listed the top ten causes of morbidity in children under-five, and reported on skilled attendant deliveries.

Performance Monitoring Team activities at the health facilities

All HCs had a PMT, but it is functional in only three of them. PMT meetings takes place monthly in four HCs and quarterly in the remaining two. PMT meetings were conducted two times during the first quarter (October-December) in two HCs; in the other two, PMT meetings took place only once during this quarter, and unfortunately, the remaining two health centers did not conduct PMT-related meetings during this quarter at all.

Only two of the HCs' PMTs use a standard PMT minute record/logbook. The Facility-in-charge/medical director of the health HC chaired the meetings in one of the months by one HC and Case team leaders/representatives chaired the meetings in the three HCs in the same month, and the remaining two HCs the meetings were chaired by HMIS focal person.

Discussion on HMIS management;- such as data quality, completeness, or timeliness of reporting was made and is available in only three HCs PMT minutes/records. Only two HCs identified and prioritized HMIS-related issues, but root cause analysis

was conducted for the prioritized item in just one HC. An action plan was developed to address the HMIS-related issues, and follow-up actions present based on decisions made during the previous PMT meetings were documented in two HCs. PMT discussions included HIS in four HCs. In two HC PMT meetings, discussions were held to review key performances targets. Only one HC discussion included maternal and child health. Three HCs used data display tools during the performance review meetings and performance review meeting minutes were circulated to all members in just one HC.

Regarding data dissemination, only two HCs submitted/presented health sector performance reports to the kebele/ woredacouncil using data from HMIS in the past three months to show the health facility's progress. Only one HC shared its performance data with the general public via printed materials such as brochures, and newsletters in the past three months. None of the HCs conducted an assessments or disseminated any findings in the last three months. Additionally, only one HC held performance review meetings with community representatives in the last three months.

Association between Information use practice and RHIS Knowledge, the title of the respondent, and formal RHIS/HMIS training experience.

RHIS Knowledge, the title of the respondent, and receipt formal RHIS/HMIS training were found to have a significant effect ($p < 0.05$) on information used at Lideta Sub-city. The results of this study also shows that individuals who have received RHIS/HMIS training have better information use than those who have not received training in the area. Specifically, those individuals who received formal RHIS/HMIS training are about 3.4 times more likely to have an Information use culture compared to those who did not receive training. Additionally, the findings indicate that individuals with good knowledge are about 4.2

times more likely to have an Information use culture than those with poor knowledge. (Table 7)

Table 7: Multivariable Analysis on RHIS in Health Centers of Addis Ababa, Ethiopia, 2020

Variables	Crude OR	AOR (95% CI)	P-value
RHIS Knowledge summary	6(2.13, 16.89)	4.146 (0.99, 17.2)	0.001
RHIS competency summary	1.05(0.42, 2.63)	0.66 (0.43, 0.91)	0.323
Health facility head			0.178
Responsibility of the respondents	HMIS focal person	0.4(0.15, 1.06)	0.21 (0.04, 0.98)
	Health care provider	0.1(0.03, 0.33))	0.14 (0.01, 1.01)
	HEWs	0.7(0.26, 1.88)	0.57 (0.33, 0.86)
Received formal RHIS/HMIS training	5 (1.78, 14.06)	3.42 (0.99, 11.72)	0.002

Discussion

This study examined the PMT formation and availability of PMTs; data quality in health facilities; health facility information use practices; knowledge, attitudes, and practices toward routine RHIS; and as well as factors influencing data collection, data quality, and information use at health centers. This was accomplished through document reviews and analysis of associated factors that may influence health system information use. There is a lack of sufficient information in the scientific literature at the local level that quantifies the utilization of information and the implementation of health information systems at the district level, which hinders the ability to compare the results of this study.

Formal RHIS/HMIS training

Training for healthcare workers at all levels is expected to improve knowledge, skills, and attitudes about health information, which in turn improves the quality of healthcare in health facilities. In this study, about 79 respondents (43.9%) reported never received any HIS-related training. A previous study of PHCUs in the East Wollega zone of the Oromia region found that 64% of respondents did not receive basic HMIS/CHIS training at the health center level(7).

On the contrary, 60% of HMIS focal persons in the Woreda health offices of Ethiopia's Southern Nations, Nationalities, and People's Region (SNNPR) reported having received HMIS training (8). Even though the training status of this study appears to be better, training in HMIS/HIS-related activities was significantly lower at healthcare delivery points compared to the Woreda and zonal health office levels.

Routine health information use culture for decision-making

Regarding the use of health information for decision-making, only 59 respondents (32.8%) of health workers claim to make decisions based on data analysis findings. According to a study conducted in the East Wollega zone of the Oromia regional state PHCU.s, 106 respondents (59.9%) of health professionals used HMIS/CHIS-generated information in health centers for at least one decision-making purpose (7). In addition, a study conducted at Dire Dawa City Administration health facilities found that 156 respondents (65.3%) reported using information to make decisions (9). This study's findings show that practical use of health information for evidence-based decision-making is extremely low. The interventions

by various partners may explain why the outcomes in Dire Dawa are better than those of this study.

In this study, 102 respondents (56.7%) demonstrated a good information use culture. Our study findings on information use are lower compared to the studies done in eastern Ethiopia and SNNPR, where the information use culture was reported 65.3%(10) and 69%(5) respectively. The lower performance of facilities in Addis Ababa compared to others is likely linked to the size of the facilities, as health centers in Addis Ababa are large and nearly equivalent to rural regional hospitals.

Data Visualization and HMIS Analytical Report Production

In this study, only three HCs (50%) prepared data visuals for maternal and child health indicators. These findings differed from a study conducted in SNNPR, in which 62 (89 %) of health facilities displayed data analysis results. The most commonly indicators displayed in those health facilities were maternal and child health indicators. The difference may be attributed to several factors such as the active involvement of staff in the development of HIS, the burden of patient flow, and the status of orientation. Similarly, a study conducted in Dire Dawa Administration health facilities revealed that 145 (60.7%) of health facilities displayed key indicators (9). Our findings are consistent with a study conducted in Beghi District, West Wollega, Oromia; where, out of 19 health facilities, only 2 indicators were displayed in 16 (84%) of them, and only 6 (38%) had updated all the indicators(5).

Performance monitoring team performance at the health facilities

In this study, all HCs have PMT even though they were not formed per the standards, and the members were not representative of all departments/units. The presence of PMT in our study is better than that reported in the SNNPR study, which showed that only 70% of health facilities had PMTs(8).

PMT meetings are held monthly in four HCs (66.7%) and quarterly in the remaining two. In SNNPR, 73% of health institutions with PMT maintained meeting records (8). In this study, only three HCs' (50%) PMT minutes or records that contained a discussion about the HMIS. In a study conducted at SNNPR, HMIS was discussed in 69% of the facilities(8). This study also found that health facilities in Addis Ababa are less

consistent in holding meetings compared to those in SNNPR.

Factors Associated with Routine Health Information Use Culture

The findings of this study show that those who have received RHIS/HMIS training are about 3.418 times more likely than those who did not receive training to have an information-use culture. Similarly, a study at Dire Dawa City reveals that departments with trained staff are 3.52 times more likely to use health information than untrained staff(9). An SNNPR study also found that 60% of health professionals in facilities reported receiving HMIS training(8). In a similar study conducted in primary health care units in the East Wollega zone, 63.6% of respondents did not receive basic HMIS/CHIS training. On-the-job training and coaching are critical for improving competencies related to HIS/HMIS task.

The result also indicates that those individuals who have good knowledge are about 4.146 times more likely to have an Information use culture than those with poor knowledge. Similarly; a study done in Dire Dawa shows that units and/or departments with skilled human resources in HIS activities are 3.26 times more likely to use health information(9). A study in SNNPR reveals that, on average, 65% of the respondents have good knowledge and skills in HIS(8).The competency level for HMIS tasks and information use decreases as one goes down from the zonal level to the lower service delivery units and health facilities.

Byeong et al. found that Data analysis training enhanced trainees' use of tools compared to those who did not receiving such training, they thus singled out training as an important part of healthcare data analytics implementation(11). The WHO (in Europe) has set up a regular training course to improve country capacities in the use of big data in health care (12). This initiative has brought significant changes among service providers, enabling them to understand and utilize the “big” data currently generated in the health system worldwide.

There are several reasons for the low data use behavior among providers. A study done in Dire Dawa City classified the barriers to low utilization of information into four major categories: Organizational, behavioral, technical, and external(13). Several indicators are listed under each category, showing the complexity of the issue, although this paper concentrated primarily on training.

Another contributor to enhanced data use is the effectiveness of the Performance Monitoring Team (PMT). As the highest body regulating facility activities, the PMT plays a crucial role in influencing data use and other patient outcomes. A Study done in Dire Dawa City showed a significant positive correlation between the functioning of the PMT and the status of data utilization (14).

Conclusion

HIS/HMIS/PMT-related training and data visualizations at the HMIS office and departments are

very low Since they are related, a lack of comprehensive training will lead to weak data use. Most health professionals have no experience and exposure to using the information, and the actual information used for decision-making is primarily restricted to higher levels within the health system tier.

All HCs in this study have a PMT, but it is not fully functional. PMT meetings are inconsistent across all HCs. The availability of formally trained staff in HIS-related activities, the trend of internal supportive supervision, and feedback given to HCs in this study were very low. Therefore, to improve information use through PMT; comprehensive training on the HIS should be provided to all health facility staff. Additionally, a mentorship program should be strengthened, the PMT should be well-founded, follow-ups must be conducted, and decisions from the ministry should be enforced. Addressing data use and data quality issues remains a critical agenda and interventions in this regard are highly important.

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Competing interests

The authors declare that they have no competing interests. This statement underscores our commitment to maintaining integrity and transparency in the research. By disclosing the absence of any potential conflicts, the authors aim to bolster the credibility of the findings. We believe that such transparency is essential in fostering trust among readers and stakeholders in the scientific community.

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