

Date elements	Facility type	Data items checked (Sample size)	Data Items matched	Percent data accuracy
Penta3	HP	62	20	32.26%
	HC	61	31	50.82%
	Hospitals	6	4	66.67%
	All HFs	129	55	42.64%
OPD Attendance	HP	61	37	60.66%
	HC	62	10	16.13%
	Hospitals	6	4	66.67%
	All HFs	129	51	39.53%
All 3 data elements	HP	182	79	43.41%
	HC	185	67	36.22%
	Hospitals	18	12	66.67%
	All HFs	385	158	41.04%

7.1.2 Data Completeness

7.1.2.1 Monthly Report Completeness

The completeness of the monthly report is measured by number of HF reports with over 90% of the data elements filled against the total number of data elements that the facility was supposed to fill. The result showed less than 7% of the facilities did not complete the monthly form before reporting. It was found that all the three zones/special woreda met the 90% acceptable completeness standard (Table 4).

Table 4: Monthly report data completeness

Facility Type	Sample size	# of HF reports meeting 90% completeness criteria	% of HF reports meeting 90% completeness criteria
HP	36	32	88.9%
HC	31	30	96.8%
Hospitals	3	3	100%
Total	70	65	92.9%

7.1.2.2 Monthly Health Facility Reporting Completeness

In addition, the completeness of the report at woreda level is assessed by how many facilities in the whole woreda were supposed to report are actually reporting to the respective WorHO. In the nineteen woredas, over 99% of the facilities were observed to be reporting (Table 5).

Table 5: Monthly HF Reporting Completeness

Zone	Month/2011	# of expected monthly reports	# of monthly reports available at WorHO	% of HF reports available at WorHO
Hadiya	March	350	348	99.43%
	July	350	349	99.71%
	Total	700	697	99.57%
Kembata Tembaro	March	155	151	97.42%
	July	155	152	98.06%
	Total	310	303	97.74%
Halaba	March	86	86	100%
	July	86	86	100%
	Total	172	172	100%
Total	March	591	585	98.98%
	July	591	587	99.32%
	Total	1182	1172	99.15%

7.1.3 Timeliness

Another dimension of data quality is timeliness. Timeliness is measured by the WoHOs and ZHDs receiving facilities' reports by the predetermined deadlines. Five out of eight WoHOs in Kembata Tembaro zone did not have records to measure timeliness. The 14 WoHOs had records of report receipt and showed 77% of the health facilities met the reporting deadline.

7.1.4 Data quality check

Table 6 shows that in over 60% of the Health Posts and Health Centers, the supervisors visited the health facility for supervision and 75% of the supervised HFs received feedback on the supervisory visits. However, no hospital was visited by the supervisors in the last 3 months.

In 64% of the supervised Health Facilities (primarily HCs and HPs) i.e. 49% of all the HCs and HPs, the supervisors had carried out data quality check.

Table 6: Data Quality Assurance at Health Facilities

Facility Type	HF's receiving 1 or more supervisory visits in last 3 months	Supervised HF's reporting data quality check during supervision	Supervised HF's reporting receiving feedback after supervisory visits
Health Posts (n = 36)	25 (69%)	16 (64%)	16 (64%)
Health centers (n = 31)	19 (61%)	12 (63%)	17 (89%)
Hospitals (n = 3)	0	0	0
Total (n = 70)	44 (63%)	28 (64%)	33 (75%)

7.1.5 Use of HMIS Information

The use of information was assessed by observing feedback provided on facility performance and through records of performance review meetings to collect documentary evidences of whether or not HMIS findings were discussed and decisions were eventually made based on those discussions.

7.1.5.1 Data Display

Availability of tables, charts and/or maps on (1) maternal health indicators, (2) child health indicators, (3) facility utilization, and /or disease surveillance indicators were assessed for understanding the level of data display in the health facilities, zonal health departments and woreda health offices. Table 7 shows that 62 (89%) health facilities were displaying data; of them 35 (56%) HFs had all the indicators updated over the last 3 months period.

Table 7: Display of Data at Health Facilities

Data Display (n=70)	No. of HFs displaying data	Displaying HFs with all displayed data updated	Displaying HFs with at least 1 displayed data item updated
All 4 indicators	42 (60%)	22 (52%)	30 (71%)
3 indicators	15 (21%)	11 (73%)	15 (100%)
2 indicators	5 (7%)	2 (40%)	5 (100%)
Total (1-4 indicators)	62 (89%)	35 (56%)	50 (81%)

Among those HFs displaying data (n=62), the most common indicators displayed were maternal health indicators (100% HFs) and child health indicators (100% HFs); disease data were displayed in 85% and facility utilization data were displayed in 74% HFs.

Fifty two (74%) HFs displayed the map of their catchment area and 55 (79%) HFs displayed a summary of the demographic information.

At zonal/woreda level 100% of the ZHDs and 86% of the WorHOs displayed map of the catchment area, service delivery data and demographic data.

7.1.5.2 Data Analysis

Figure 2: Data Analysis at HF level

Fig. 2 shows that most HFs (73%) calculated indicators for their catchment area, but fewer HFs were carrying out comparisons with woreda/zonal targets (13%) or comparisons among types of service coverage (31%) or comparison over time (40%). In terms of maintaining records of “lost to follow-up” for immunization, only 23% HF were maintaining such records.

Table 8: Data Analysis at WorHOs

Types of Data Analysis	No. of WorHOs performing the analysis	%
Calculate indicators for each facility catchment area	16	84%
Summary report for woreda	19	100%
Comparisons among HFs	11	58%
Comparison with woreda/zone target	14	74%
Comparison among types service coverage	9	47%
Comparison of data over time	16	84%

At woreda level, the health offices were carrying out various data analysis as depicted in Table 8.

7.1.5.3 Use of Information at HF level

The use of information was assessed by observing evidences of feedback provided to the facility on their performance and the records of Performance Review Meetings (PRM) for examining the evidences of use of HMIS information for performance monitoring and decision making.

Only about 33% of the HFs (mostly health centers and health posts) reported receiving any feedback on their performances from their higher level. None of the hospitals reported receiving any feedback (Table 6).

In terms of establishing Performance Review Teams at HFs, 70% of the health facilities have PRTs and of them 73% were maintaining the meeting records. In fact all the Health Centers had established PRT and almost all (over 93%) of them were maintaining meeting records (Table 6). At HP⁷ level, only 44% had Performance Review Teams and only 31% among them had records.

Table 9: Performance Review Teams at Health Facilities

Facility Type	Sample size	# & % HFs receiving feedback	# & % of HFs with Performance Review Teams (PRT)	# & % of HFs with PRT maintaining meeting records
HP	36	12 (33.3%)	16 (44.4%)	5 (31.3%)
HC	31	10 (32.3%)	31 (100.0%)	29 (93.5%)
Hospitals	3	0	2 (66.7%)	2 (100.0%)
Total	70	22 (31.4%)	49 (70.0%)	36 (73.5%)

⁷ It may be noted that there are on an average only 2 (1-3) staff at HP level. Usually, the performance review of HPs takes place at health center level during a monthly meeting of the HEWs with their supervisor. Thus, for HPs, performance review meetings at HC level with their supervisors are more relevant.

Since most HCs and Hospitals had well established PRTs, Table 7 below shows the level of HMIS information use for performance review and decision making at these health facilities. In 44.8% of the HCs who were maintaining PRM records, HMIS was discussed in the last 3 months and among these over 69% had evidence of making decisions using HMIS data.

Table 10: HMIS Information Use at HF

HF type	# of HFs maintaining PRM records	# & % of HFs with HMIS data discussed during PRM in the last 3 months	# & % of HFs with decisions made based on HMIS data at PRM in the last 3 months
HC	29	13 (44.8%)	9 (69.23%)
Hospitals	2	1 (50.0%)	0 (0.0%)
Total	31	14 (45.2%)	9 (64.29%)

In terms of zonal distribution, only the HCs and Hospitals in Hadiya and Kambata Temaro had records that showed HMIS data use for performance monitoring and decision making.

7.1.5.4 Use of HMIS at ZHDs/WorHOs

Table 8 below shows the performance of administrative health institutions, i.e. Zonal Health Departments and Woreda Health Offices in the cluster in terms of information use.

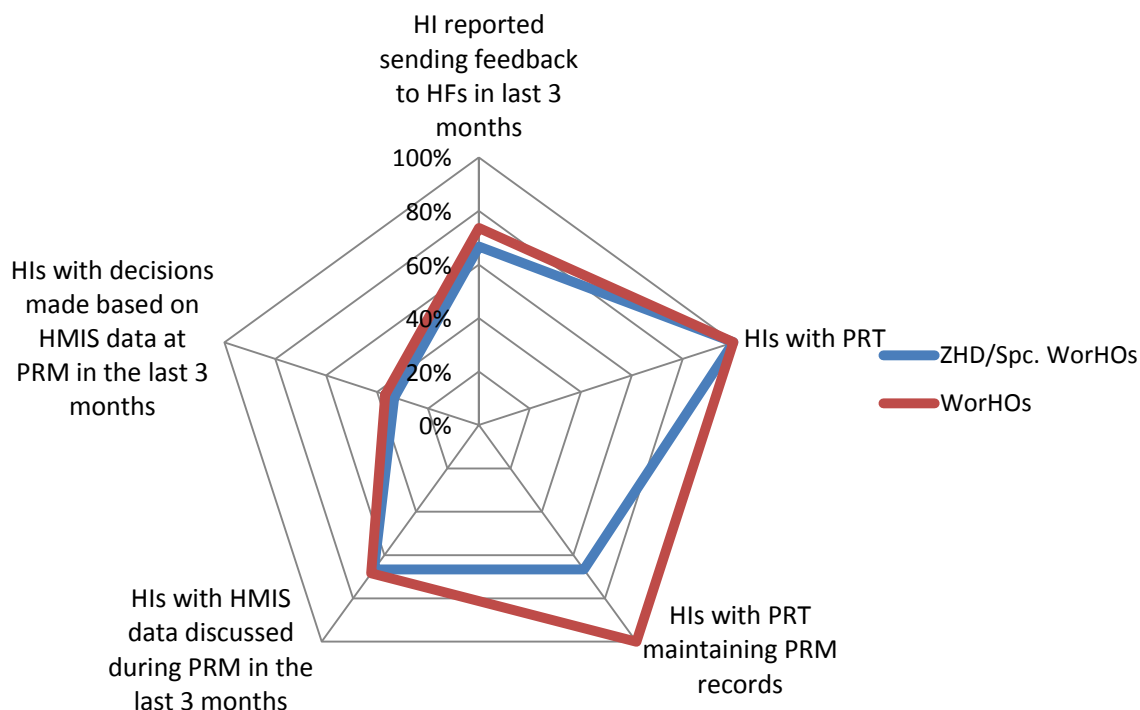
Table 11: Performance Review Teams and HMIS Information Use in Administrative Health Institutions (HI)

HI Type	Total in the cluster	# & % HI sending feedback to HFs in last 3 months	# & % of HIs with Performance Review Teams (PRT)	# & % of HIs with PRTs maintaining PRM records	# & % of HIs with HMIS data discussed during PRM in the last 3 months	# & % of HIs with decisions made based on HMIS data at PRM in the last 3 months
ZHD/Spc. WorHOs	3	2 (67%)	3 (100%)	2 (67%)	2 (67%)	1 (33%)
WorHOs	19	14 (74%)	19 (100%)	19 (100%)	13 (68%)	7 (37%)
Total	22	16 (73%)	22 (100%)	21 (95%)	15 (68%)	8 (36%)

Overall, all the administrative health institutions in the cluster have established Performance Review Teams. Almost all (95%) of them were maintaining the meeting records. Review of the

meeting records indicate about 68% of these institutions used HMIS for their performance review in the last 3 months and in 36% of the institutions decisions were made base on HMIS data in the last 3 months. (Fig 1)

Figure 3: HMIS Information Use at Administrative Health Institutions



7.2 Determinants of HMIS Performance

The PRISM framework looks beyond the relationship between HMIS processes and performance, and incorporates behavioral and organizational factors that determine HMIS performance. The new HMIS is geared towards supporting and strengthening local action-oriented performance monitoring. In accomplishing this objective, a paradigm shift is required from simple reporting data and responding to the situation as instructed by higher authorities, to actually analyzing and interpreting the information on hand, and providing self-assessment and problem-solving. This requires reorienting and redirecting health workers at all levels of the system to change attitudes towards their own capacities, their jobs, and their roles in the organization; and requires organizational interventions to change the organizational values and practices to actually value and practice evidence-based decision making.

7.2.1 Behavioral Determinants

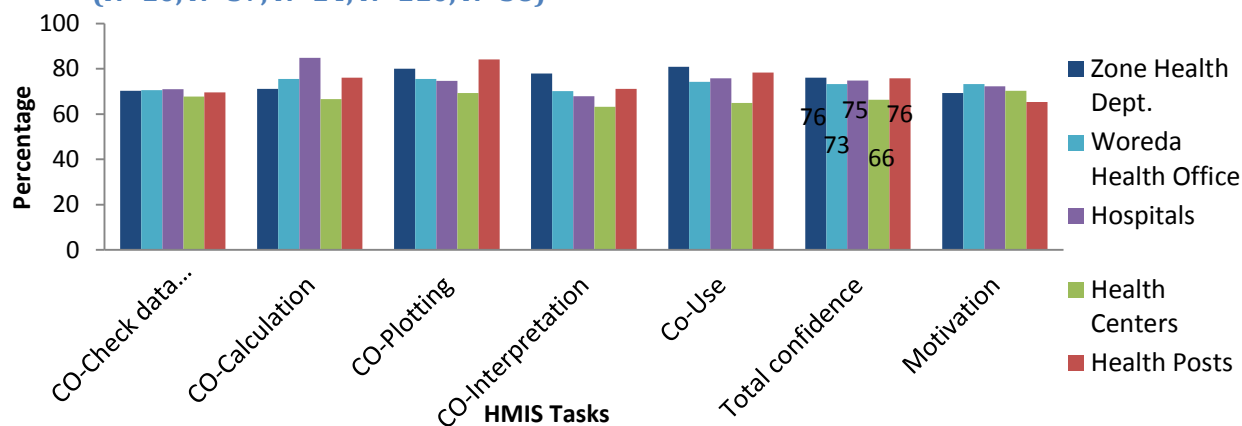
The PRISM framework postulates if people understand the usefulness of HMIS tasks, have high self-efficacy or confidence and competency in performing given task, and then they will complete the task diligently. The level and role of behavioral factors such as motivation, confidence, demand for data, task competency and problem solving skills were assessed in the Hadiya and Kembata

Tembaro zones and Halaba special woreda using self-administered questionnaires. The health staffs understanding of the rationale for including certain types of information on data collection were also measured to illustrate the level of demand for HMIS information. Problem solving is another skill that is necessary to using data for identifying and solving the problems.

7.2.1.1 Self-efficacy or Confidence Level for HMIS Tasks

Health workers confidence levels were assessed on scale of 0 to 100 from no confidence to full confidence in performing a particular HMIS task. The results showed that on average confidence levels of respondents for calculation, plotting, and use of data were above 75%, but confidence levels were around 70% for checking data quality and interpretation of data. This indicates that respondents felt more confident in collecting data than interpreting data. A similar pattern of confidence levels for various tasks observed between health extension workers, ZHD, WoHOs and hospital staff. The lowest average confidence level (66%) was observed among health workers in the health centers. Overall, respondents in all levels (mean score of 70%) believed that performing HMIS tasks bring about positive outcomes.

Figure 4: Comparison among Perceived Confidence Level for HMIS
(N=10, N=57, N=14, N=110, N=38)



7.2.1.2 HMIS Task Competence

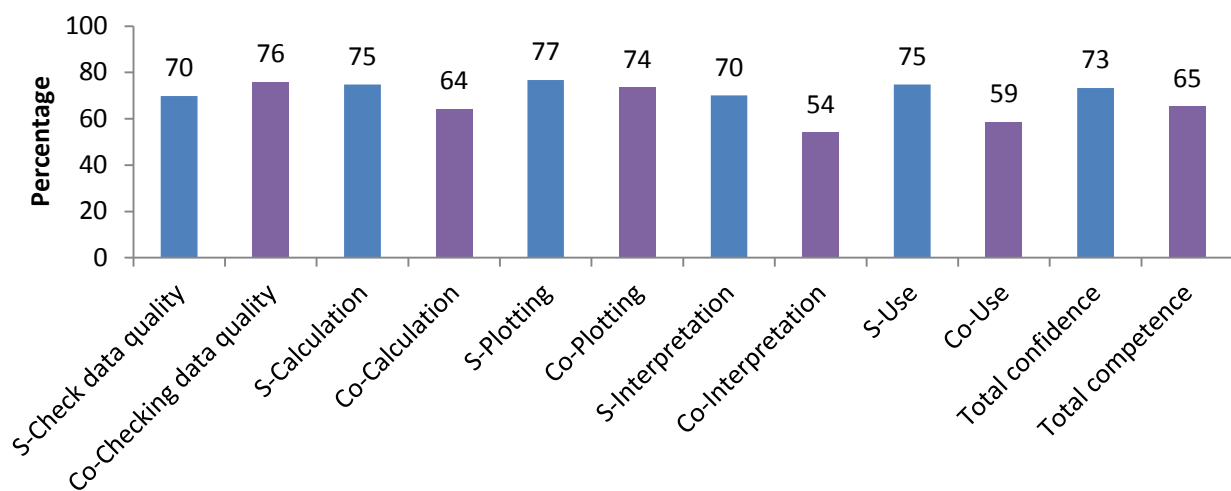
HMIS task competency was measured by asking respondents to solve problems with a pencil and paper test. On average, 65% of the respondents demonstrated the ability to check data quality, do basic calculations, do basic plotting, complete data interpretation, and use of information skills. Sixty four percent of respondents were able to calculate percentage rates of indicators and seventy four were able to plot the given data. The respondents scored lower in interpreting (54%) and using information (59%) for decision making. These findings indicate that data are mostly collected for reporting purposes rather than for local use of information to decide actions to be taken to improve performance. As expected, the HMIS task competency level decreases as one goes down to the lower level of the health system- from zone (88%) to health posts (43%). However, in all levels except ZHDs respondents scored slightly higher in use of information compared to interpretation skills. They were not able to properly interpret/analyze the data but had relatively better knowledge of how to use the data.

Figure 5: Comparisons among Observed HMIS Task Competence
(N=10, N=57, N=14, N=110, N=38)



A high confidence level for performing HMIS tasks is theoretically associated with high levels of competency in HMIS tasks. When the average confidence levels for performing HMIS tasks are compared with the average competency levels for performing HMIS tasks the results demonstrated consistency between confidence and competency for checking data quality and data plotting tasks (Figure 6). However, there were gaps between perceived confidence and observed competency levels for calculation, interpretation, and use of information. These discrepancies indicate overestimation in confidence levels for certain HMIS tasks when actual competencies for those tasks were low.

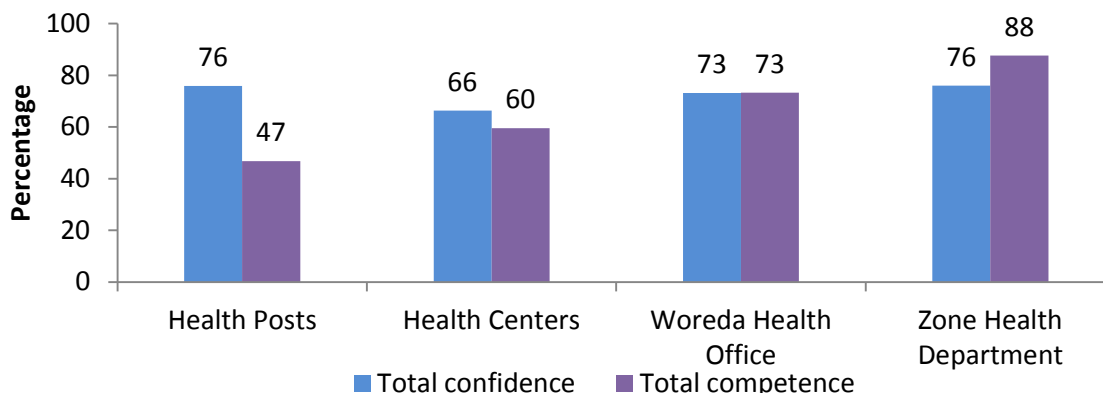
Figure 6: Comparison among Perceived Confidence and Observed HMIS Task Competence
(N=229)



The gap for confidence and competency was found to be wider at health post level where most of the health extension workers involved in the assessment perceived a high confidence level in most of the HMIS tasks but were not able to demonstrate the same skill level. Low capacity was mainly observed in calculating, plotting, interpreting and using data at health post level. This indicates that HEWs are mainly collecting data to report to higher levels and do not have the capacity to analyze the data and to take action or make decisions in the health posts.

The findings between perceived confidence and observed competence levels for HMIS tasks at the WoHO and ZHD level shows a different picture. The results from the WoHO and ZHD levels show a slightly higher level of competency compared to perceived confidence that observed in checking data quality, calculations and data plotting among respondents from WoHOs and ZHDs.

Figure 7: Perceived Confidence and Observed HMIS Task Competence by Levels (N=10, N=57, N=38)



7.2.2 Organizational Determinants

7.2.2.1 HMIS Management

Managing a health information system is about managing resources and functions to produce better outcomes. This assessment looked at the presence of mechanisms for managing HIS functions and resources for overall better HMIS performance in the woreda health offices and zonal health departments. HMIS management functions are comprised of HMIS governance, planning, training, supervision, finances, and use of quality/performance improvement tools. The management scores of different aspects are dependent on availability of records at WoHOs and ZHDs.

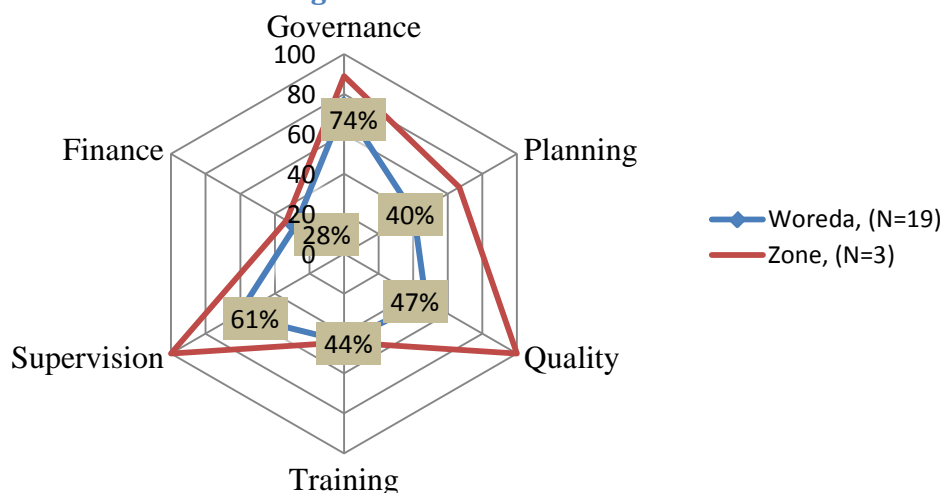
The governance dimension of HMIS management is measured by the presence of management structure, updated organizational chart and distribution list of information reports. The planning dimension is measured by availability of a recent HMIS situational analysis report, and HMIS annual plan and targets. The management of quality is assessed by availability of HMIS procedural guidelines/standards at WoHOs and ZHDs levels. The training component is assessed by the presence of training manuals, on-the-job training and schedule of planned trainings. The supervision management level was measured by the presence of supervisory checklist, schedule and supervisory reports. While the financial mechanisms were measured by the presence of general HMIS related budget, budget line for HMIS supplies and long term financial plans for supporting HMIS activities.

At the WoHOs level, the percentile score for HMIS management showed that on average, close to two-thirds of the criteria for HMIS governance and supervision were met. While those criteria were well managed, HMIS procedural guidelines for quality standards were not available in 53% of the WoHOs, indicating inadequate directives to improving quality and performance. On average, close to 45% of the planning and training criteria were met. This low score indicates that respondents feel that planning and training needs improvements, particularly in the areas of developing the HMIS plan and on-the-job training aids. Though HMIS training manuals are available in all the WoHOs there are no training schedules and on-the-job trainings are not being provided. Sixty

percent of HMIS focal persons in the WoHOs reported receiving an HMIS training (46% in Kembata Tembaro and 70% in Hadiya Zones). The staffs trained from WoHOs are supposed to cascade down the training within the WoHOs as well as to the health facilities. However, only 10% reported presence of on-the-job trainings at WoHOs. In a public health sector where there is frequent staff turnover establishing and solidifying job orientation and continuous on-the-job training and coaching mechanisms is very essential to improving HMIS task competencies.

The average HMIS management scores in different dimensions were higher in the two ZHDs and Halaba special woreda health office than scores were at the woreda level. At the ZHDs/Special woreda health office, HMIS management scores for governance, quality and supervision were on average in the 90% and above category indicating that the HMIS management is good. While HMIS planning scores were met by only two-thirds of WoHOs (Figure 8). Similar to WoHOs, the training score at ZHD/special woreda office was low, showing weakness in the ability to organize trainings, particularly in areas of on-the-job training and schedule for planned trainings. The financial management score was found to be low at both ZHDs and WoHOs. There are no budget line items for HMIS supplies or long term financial plans supporting HMIS. Respondents reported HMIS related budgets are found in the zone and woreda health offices only for personnel. Thus both WoHOs and ZHDs have a limited role in HMIS financial management as supplies are fully provided from regional or federal levels.

Figure 8: Mean Level of HMIS Management Functions



7.2.2.2 Promotion of a Culture of Information

Organizations create a culture for promoting and sustaining certain values around organizational functions to be performed at optimal levels. Operationally, the culture of information is defined as, “the capacity and control to promote values and beliefs among members of an organization for collection, analysis and use of information to accomplish its goals and mission.”⁸ Evidence-based decision making needs to become a practice throughout the organization, with senior officials becoming role models for others in how they use information. Sometimes this process is called building a culture of information use. It is neither an easy nor an overnight change, but once accomplished, can make an enormous change in the organization’s performance.

⁸ Aqil A, Lippeveld T, et.al. PRISM Tools Users Guide. MEASURE Evaluation, June 2009

