Health Systems Strengthening Component of USAID's MCH Program

Report DRAFT
Assessment of the
District Health Information System (DHIS)
PRISM Framework

November 2016

Table of Contents

Figures:

Executive Summary

The goal of the District Health Information System (DHIS) Cell of the Sindh Department of Health (DOH) is to implement DHIS in all the districts of Sindh for producing quality information that can be used to make informed decisions. The objective of this assessment is to evaluate the implementation of DHIS at the facility and district levels, and the use of information for decision-making at facility, district, and provincial levels. The assessment also looked at the level of DHIS resources available at the facility and district levels. The findings of the assessment will be helpful in prioritizing interventions to improve DHIS and resultantly, the performance of the health system. Similar assessment was conducted in September 2013, to identify gaps and weaknesses in the implementation of DHIS so that the technical assistance can be provided to improve the implementation of DHIS at all levels. Based on the 2013 assessment, an intervention was designed to improve the implementation of DHIS at all levels at all of the DOH facilities. HSS component provided technical assistance according to the set procedures defined in the DHIS manual.

Findings from District Health Offices

In the 2016 Assessment, Incharges of district DHIS of all the districts of Sindh except Karachi were interviewed. Overall DHIS is being implemented in all districts of Sindh. The findings of the assessment show that more than 99% of the health facilities are reporting under DHIS compared to 83% reported their monthly performance reports under the DHIS for August 2013.

More than 78% of the managers, medics and paramedics were trained in DHIS. There was at least one functional computer and printer available in all the DHIS cells, while generator was available at 61%, landline at 39%, internet connection at 74%, and air conditioner at 48% Offices. None of the offices reported adequate number of tools for next 6 months.

Data Accuracy was verified through the monthly performance reports submitted by the health facilities with the online reported numbers by the district teams. The findings show that out of indicators checked, 97% figures matched the monthly report and the online DHIS. All District Health Offices kept copies of DHIS monthly report sent by health facilities. Most personnel found the DHIS online system user friendly, with 87% knowing about facility comparison reports.

Data elements from the DHIS monthly reports were randomly selected and their reported numbers were cross checked against program specific MISs. For the 6 items selected, 65% of the reported numbers did not match, while 1 item matched in 22% District Health Offices

The 2016 assessment shows that 96% of the districts were offered provincial feedback which was also verifiable from the records available at the districts compared to no feedback was found in the 2013 assessment. Ninety-one percent districts reported holding routine meetings for reviewing managerial or administrative matters, with 66% districts reporting meetings that were held more than 3 times in the last 6 months. Official record of management meetings was maintained by 61% of the districts.

In the 2013 assessment, no information was being utilized for annual planning, while in the 2016 assessment reporting use of DHIS data as an advocacy tool for resource allocation for 83% of the districts and 78% using it for annual planning. Seventy percent District Health Offices reported sharing analyzed data with PPHI offices with 57% reporting on a monthly basis. In the 2016 assessment, 61% of all districts reported having a monitoring mechanism and having checklists, while no such information for visits was found in the 2013 assessment.

Training was highlighted as a major need for DHIS, from all Offices, specifically for managers, medics, paramedics, IT person, in areas of data collection, reporting, data quality and use of information.

For Organizational and Behavioral Assessment, responses were ranked on a Likert scale. The first aspect related to decision making, for which all the districts agreed that the decision making based on superiors' directives and decisions are based on the costs, evidence and health needs. The second aspect related to superiors' behavior. The lowest means were reported for superiors seeking feedback from concerned persons, followed by superiors discussing conflicts openly, providing feedback and reporting data accuracy. The third was about staff's sense of responsibility, for which the lowest means were reported for staff getting rewarded for good work, refusing superiors' directives, and staff not empowered to take decisions. The fourth aspect pertained to the perception of information collection. The highest reported means were for information collection being meaningful, information needed for performance monitoring; while lowest were reported for information collection being boring and/or forced.

Findings from Health Facilities

The respondents at the facilities mostly included medical and senior medical officers, and management staff that included the Medical Superintendent (MS), and MIS related officers. Facilities are either being managed by DOH, or are contracted out to the People's Primary Health Initiative (PPHI). Of the 145 BHUs in the sample, 127 were with PPHI, while amongst the 73 RHCs, 12 were with PPHI.

Availability of around 70% of the personal at the health facilities were trained in DHIS: among those who were trained more than 60% were incharges and 40% other staff were trained in DHIS.

More than 90% of all facilities had electrical power, while generators or UPS for backup power were not available at most BHUs, while these were available at more than 60% RHCs and 90% THQHs and DHQHs. Designated computer and printers were available at less than 35% of all HFs, while about half the THQHs and DHQHs had computers. Printers were available at less than 30% BHUs and RHCs, while these were available at 43% THQHs and 23% DHQHs.

Most DHIS tools were available at 50% of the RHCs and THQHs. at least 50% of all tools were reported, while the lowest item was the Medicine Requisition Slip (50%). Tools reported at DHQHs showed an almost similar trend. Use of tools at BHUs ranged from 58% to 100%. At RHCs, less than 50% use of tools included the Indoor Abstract Form, Operating Theatre Register, Daily Bed Statement, Catchment Area Population Chart, Medicine Requisition Slip, and the Radiology Register. At THQHs, the Catchment Area Population Chart, Medicine Requisition Slip, Community Meeting and Facility Staff Meetings Register showed less than 60% use. Catchment Area Population Chart, Facility Staff and Community Meeting Registers, Medicine Requisition Slip, Family Planning (FP) Card, and Indoor Abstract Form showed less than 60% use at DHQHs.

Overall filled tools at DHQHs were reported to be the lowest when compared to other HF types. Tools that were reported to be filled by less than 70% facilities included FP, OPD, CRP and Facility Staff Meeting Registers, Community Meeting, Medicine Requisition Slip, Indoor and OPD Abstract Forms, OPD Ticket and Catchment Area Population Chart. Less than 70% completely filled tools at BHUs included Radiology, OT, CRP, Daily Bed Statement and Indoor Patient Registers, and the Indoor Abstract Form. At RHCs, less than 70% completely filled forms were reported for CRP, Indoor Patient, Facility Staff Meeting, Radiology, Daily Bed Statement and OT Registers, Catchment Area Population Chart, Medicine Requisition Slip and the Indoor Abstract Form. For THQHs, the tools reported less than 70% filled included the OPD, CRP, Community Meeting and Facility Staff Meeting Registers, Indoor Abstract Form, Medicine Requisition Slip, OPD Ticket and Catchment Area Population Chart.

At BHUs, tools that ran out in the last year included at more than 70% facilities included the OT, CRP and Daily Bed Statement Register and the Indoor Abstract Form. RHCs, THQHs and DHQHs were relatively better stocked in the last one year, with less than 50% items being reported to have run out. Medicine requisition slip was reported to have run out at 58% DHQHs. None of the facilities reported having 100% tools available for the period for the next 3 months. About 70% HFs reported availability of the DHIS manual, with the least proportions reported from DHQHs (62%) and THQHs (66%), from which 90% were verifiable.

Data accuracy implies that information recorded on different instruments is consistent with the reported information. To assess data accuracy last (previous) month's report using 19 data elements were randomly selected. Compared to the 2013 assessment, the overall data accuracy reported in 2016 assessment rose from 64% to 78%, with the most marked improvement at RHCs. DHQHs and THQHs also showed dramatic improvement, while it dropped slightly for BHUs from the 2013 assessment.

Data accuracy from the 2013 assessment was 82% for BHU, 47% at RHCs, and 50% for THQHs and DHQHs. Amongst all facilities, RHCs reported better accuracy ranging from 51% to 97%. Less than 70% accuracy was reported for 3 items that included monthly report, children under 18 months received 1st measles vaccine and daily OPD attendance. The least accurate item reported was monthly report accuracy (51%). At THQHs, accuracy for the items ranged from 36% to 95%, with less than 70% accuracy reported for the same items as the RHCs, in addition to diarrhea/dysentery cases of children under 5 years. The accuracy results for DHQH varied from other facilities, ranging from 54% to 93% for all items. However, less than 70% accuracy was reported for a much greater number of items that included bed occupancy rate, ANC-1 coverage, operation under local anesthesia, total pneumonia admissions of children under 5 years, monthly report, children under 18 months received 1st Measles vaccine, daily OPD attendance, Woman Medical Officer (WMO) duty, diarrhea/dysentery and malnutrition cases children under 5 years, financial report and total expenses on medicine. The lowest reported accuracy was for financial report, malnutrition and diarrhea/dysentery cases. Data accuracy at PPHI-managed BHUs was better for most items. At DOH managed BHUs, items for which data accuracy was reported below 70% included Diarrhea/Dysentery cases in under 5 children, community meetings, TT-2 vaccine, children received 1st Measles vaccine, daily OPD attendance, Modern FP method users, monthly report data accuracy and antenatal care (ANC) of women with anemia. PPHI managed facilities with less than 70% accuracy reported matched the items with DOH managed ones. These included modern FP method users, TT-2 vaccine, monthly report data accuracy, Children less than 18 months received 1st Measles vaccine and ANC of women with anemia.

The 2016 assessment showed that there was a significant improvement in overall Data Completeness at all facilities, from 16% in the 2013 assessment to 57%. Whilst improvements were noted at all facilities, both THQH and DHQHs showed improvement above 40% from a 2013 of 0%, while BHUs and RHCs showed improvements of over 30% from the 2013. In the 2016 assessment, most facilities showed considerable improvement in timely submission, but more importantly, a much higher proportion of the reports could be verified from the DHOs, an improvement of 28% to 48% amongst all facilities, when compared to the 2013 Assessment.

The 2016 assessment showed an overall increase in data display from 69% to 72%, with the most improvement observed at RHCs and DHQHs. Level of display at BHUs dropped to 79% from 91% in the 2013 assessment.

In comparison to the 2013 assessment, BHUs reported lower proportions in the 2016 assessment for updated information display. At RHCs, updated information for Mothers' Health dropped slightly from 35% to 31%, while Child Health improved from 21% to 53%. Facility utilization at RHCs showed marked increase from 7% to 36%, while Disease Surveillance dropped from 28% to 12%. At THQHs, Mother and Child Health updated information showed marked increase, while it dropped for Facility Utilization and Disease Surveillance. At DHQHs, all except Disease Surveillance showed an improvement over the 2013 assessment.

About three fourths of all facilities reported having staff meetings, while these were reported to be highest from THQHs. The highest proportion was reported for at least one meeting per month. More than 3 meetings in the last 3 months were also reported.

Overall, 50% of the sample facilities reported that the facility in-charges participated in district level meetings to discuss DHIS performance at least once every quarter. None of the facility records in the last three months showed that district management issued any directives concerning the use of information. more than 60% of all facilities in the 2016 assessment reported receiving Annual/monthly targets, while at least 75% staff participated in meetings compared to only 4% of the facilities have seen any documentation showing the use of information for advocacy purposes, e.g., for resource allocation and budgetary preparation. In comparison,. Feedback in the form of receiving newsletter or report, and advocacy for resources for found to be lower (23% or lower).

In the 2013 Assessment, feedback from District Health Offices was found to be one of the weakest areas. Only one quarter of the BHUs reported having received feedback regarding the completeness of the monthly reports and two-fifth of BHUs reported they received the feedback on the accuracy of the data and the submission of the monthly reports within the due date. None of the RHCs received any feedback on the accuracy of the data, whereas only 7% RHCs reported receiving feedback on the completeness of reports. It was the same for THQHs and DHQHs. In comparison, the 2016 Assessment showed considerable improvements at DHQHs and THQHs, while feedback at BHUs lowered in all aspects. RHCs showed improvement as well. Regarding actions in response to feedback received, these mostly related to verbal instructions to staff for improving quality of DHIS data quality and accuracy. Corrective actions for improving data quality, low proportions were reported: 21% or lower for improving timely submission, 11% or lower for improving completeness, and 18% or lower for improving accuracy.

Up to 3 supervisory visits were reported by 32% BHUs, 55% RHCs, 77% THQHs and 69% DHQHs, over the last 3 months. About 20% facilities also reported no supervisory visits in the last 3 months. Supervisor feedback was reported in less than one-third of the visits, while supervisor helped in decision making in about 70% of the visits at BHUs, RHCs and THQHs, while this was about 50% for DHQHs. Sharing of feedback was the lowest reported, with less than 31% responses or lower at all facilities. Supervisor discussed HF performance about 70% at all HF levels, while checklist for data quality ranged from 29% at DHQHs to 70% at BHUs.

Facility records of technical assistance visits in the last 3 months by development partners showed most visits at THQHs (77%), followed by DHQHs (69%) and RHCs (69%), and BHUs (15%).

More than 90% visits were by HSS Component staff for checking for data quality, accuracy and completeness, discussing HF performance, and analysis and reporting at RHCs, THQHs and DHQHs. Other development partner visits were by MCHIP, WHO and Save the Children Federation (SCF) regarding information on deliveries, FP and MCH related activities.

Findings from the 2016 Assessment show that there have been considerable improvements in the DHIS management, implementation and quality assurance at both the District Health Offices and Health Facility level in the province of Sindh. The DHIS has been a focus of HSS for improved service delivery and decision making. The Assessment also points to specific areas needing improvement and continued support.

Assessment of the
District Health Information System (DHIS)

A. Background

The importance of district health information system (DHIS) cannot be ignored because health policies and planning depends on the correct and timely information on various health issues. The DHIS provides the underpinnings for decision-making and has following key functions:

- Data generation,
- Compilation,
- Analysis and synthesis, and
- Communication and use.

The DHIS collects data from health sector, analyzes the data, and ensures their overall quality, relevance, and timeliness, and converts the data into information for health-related decision-making. Currently the District Health Information System (DHIS) is implemented in all public health facilities except tertiary hospitals, across all districts of Sindh province. Data is collected from DHQs, THQs, RHCs and BHUs. The DHIS and MIS of other vertical Programs are in place and the information generated through these sources is being used to develop the performance monitoring system for district managers and health service delivery institutions.

Improving the quality of DHIS data is the top priority of the DOH. Health Systems Strengthening (HSS) Component of USAID's MCH Program has been providing technical assistance to improve the implementation of the DHIS at all of the DOH facilities according to the set procedures defined in the DHIS manual.

The objective of 2016 assessment is to evaluate the implementation of DHIS at the facility and district levels, and the use of information for decision-making at facility, district, and provincial levels. The assessment also looked at the level of DHIS resources available at the facility and district levels. The findings of the assessment will be helpful in prioritizing interventions to improve DHIS and resultantly, the performance of the health system. Similar assessment was conducted in September 2013, to identify gaps and weaknesses in the implementation of DHIS so that the technical assistance can be provided to improve the implementation of DHIS at all levels.

Based on the 2013 assessment, an intervention was designed to improve the implementation of DHIS at all levels of the DOH facilities. HSS component provided technical according to the set procedures defined in the DHIS manual. HSS has designed a methodology of providing hands-on support in the form of hands-on support the facility staff, district managers and provincial M&E Cell managers for more than one year.

This assessment was conducted from March to May 2016 in all the districts of Sindh except Karachi, to assess improvements in DHIS as a result of interventions undertaken in the previous years, and lessons learnt. Both assessments had employed the Performance of Routine Information System Management (PRISM) framework developed by the MEASURE USAID Project. PRISM acknowledges the broader context in which the Routine Health Information System operates, views the knowledge and skills of staff who are responsible for the collection and use of data, and takes into account the information culture, resources, and responsibilities of the health systems at each level.

1. Study methodology

1.1. Study design and tools

The study design was quantitative, with data collection on indicators on the availability and functioning of various DHIS variables. In both the 2013 and 2016 assessments, a modified version of PRISM Performance Diagnostic Tool was used to assess levels of DHIS resources, accuracy of data transfer from records to reports, completeness of reports, display of data, and use of information at facility, district, and provincial levels. Assessment included observations on feedback from district to health facilities and from provincial office to districts.[1]

1.2. Data collection and management

The HSS Component Team in collaboration with the DGHS team trained the data collection team members on the use of assessment tools, in ensuring data integrity and quality.

Data was collected by the Field Officers, who had the requisite skills and experience of working on DHIS, and who were familiar with the geographic areas. Data was entered in CS Pro, while analysis was carried out using SPSS and MS Excel. Data was collected during March to May 2016, and was kept confidential and secure at the JSI office.

1.3. Sample size

A representative of facilities at 4 levels, Basic Health Unit (BHU), Rural Health Center (RHC), Tehsil Headquarter Hospital (THQH) and District Headquarter Hospital (DHQH) were selected from the Sindh province. In total, 276 facilities were selected for the assessment. In the 2013 assessment a sample of 50 health facilities was taken in five districts of Sindh. The sample frame of this assessment is given in Annex-1.

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[1] PRISM Tools 3.1. MEASURE Evaluation and USAID, 2010.

B. FINDINGS

Results of the assessment are presented in 2 sections: Findings from the District Health Offices, followed by Findings from the Health Facilities (HFs).

1. Findings of District DHIS Cells

1.1. District Health Office sites and personnel characteristics

In the 2016 Assessment, personnel at District Health Offices of all the districts of Sindh except Karachi were interviewed for this part of the PRISM Assessment. Interviews of the District Health Office personnel were conducted from April to end of June 2016. The respondents included DHIS Coordinators and other relevant staff. Their experience varied from 6 to 29 years, with at least 50% having about 20 years of experience in the health sector. This meant that all of them were senior officials having considerable amount of experience.

1.2. Monthly performance report compliance

Overall DHIS is being implemented in all districts of Sindh. Out of the 1,649 HFs, 1,375 (83%) reported their monthly performance reports under the DHIS reported in 2013 Assessment. In 2016 Assessment, 1801 out of 1820 (99%) HFs reported their monthly reports during the month of April 2016. District-wise details are given in Annex B.

Table 1 provides details on the total number of health facilities, numbers under management of the DOH and PPHI, and distribution of these reporting through DHIS. In the 2016 Assessment, as of May 2016, 99% of the total HFs reported through the DHIS, with 97% under DOH management and 100% facilities under PPHI.

Status	All Health Facilities Total/range/mean	Under DOH Total/range/mean	Under PPHI Total/range/mean
Number of health facilities	1828	721	1107
HFs reporting through DHIS	1807 (99%)	700 (97%)	1107 (100%)

Table 1: Number and proportion reporting through DHI:S Health facilities in the district under DOH and PPH.

1.3. Human Resource for DHIS

In 2013, at the provincial level, there is a functional DHIS administrative unit in the Department of Health (DOH), comprising Director General Health Services, Provincial Coordinator DHIS, Software Operator, and Master Trainers. The unit had the capacity to support collection of information with pre-designed analysis but lacks the capacity of its dissemination and uses it for planning and management. It had no capacity to design and develop a system. At the district level, there were no sanctioned human resource positions for DHIS but officials are assigned to perform DHIS responsibilities.

In 2016, one significant improvement is that the online DHIS is operational all over the province. Instead of DHIS cell, M&E cell has been established with trained team of health managers in the Directorate General of Health services, Hyderabad. At the district level, trained data entry operators are employed under the district DHIS coordinators.

1.3.1. Availability of trained personnel in DHIS

The findings of the assessment shows more than three-forth (78%) of the health facilities staff is trained in DHIS, while more than 43% had been trained in the last year.

The findings also show not more than 40% health care managers, medics and paramedics were trained in data collection and reporting, while there were 85% trained DHIS data entry operators in this aspect. Even fewer proportions were reported trained in data quality assurance and use of information skills. Consolidated numbers from the 2016 Assessment are presented in the table below.
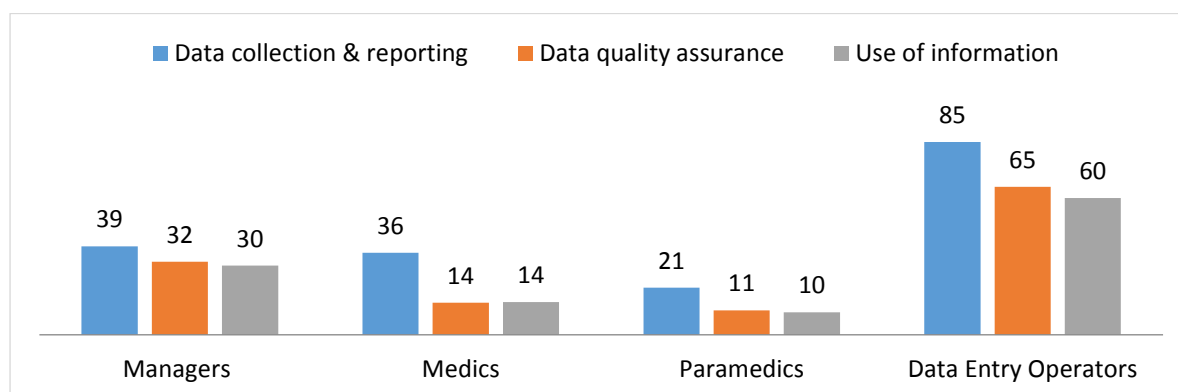
Figure 1: Proportion of DHIS trained staff in various aspects.

Type of training	No. of managers		No. of medics		No. of Para medics		DHIS data entry operator	
	Total	Trained	Total	Trained	Total	Trained	Total	Trained
Data collection & reporting	502	195	2994	1080	7950	1643	26	22
Data quality assurance	418	134	2910	410	7739	834	20	13
Use of information	418	127	2470	354	7739	759	15	9

Table 2: Consolidated numbers of trained and not trained staff in the province from the 2016 Assessment

1.3.2. Training needs in DHIS

During the 2013 Assessment, there was a general recognition for DHIS training for managers, medics and paramedics, initially in data recording and data quality. In the 2016 Assessment, from the staff working at M&E cells, 45% were found to be trained, while others were not trained in DHIS. Most respondents (78.3%) mentioned that there was need for more staff positions at District DHIS level, with most specifying the position of a 'DHIS Assistant' for the purpose.

1.4. Resources: Policy & planning

Respondents at the District Health Offices were inquired about resources needed for policy and planning that included written policies and documents. These included written policies for:

- Data quality and use of information for decision making
- Use of information for planning purpose
- Regular meetings at facility, district level to review DHIS information for decision making for improving health services

For all the categories mentioned, written policies were available at 31% or lower, at District Health Offices (figure below).
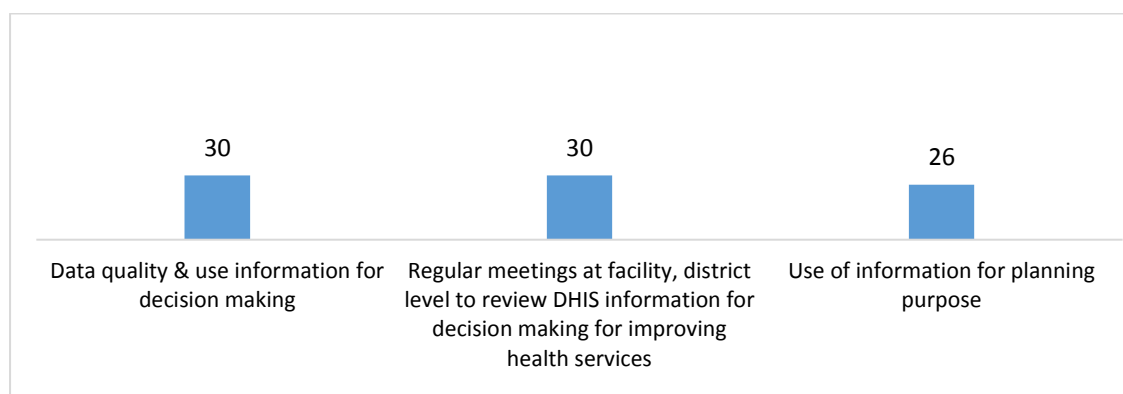
Figure 2: Proportion of written policies available at District Health Offices

1.4.1. IT Resources (exclusive for DHIS)

In the 2016 Assessment, all the DHIS cells have at least one functional computer and printer available, while 22% of the districts have Scanners and 17% districts have Multimedia and only 13% reported having UPS. Generator was available at 61% District Health Offices.
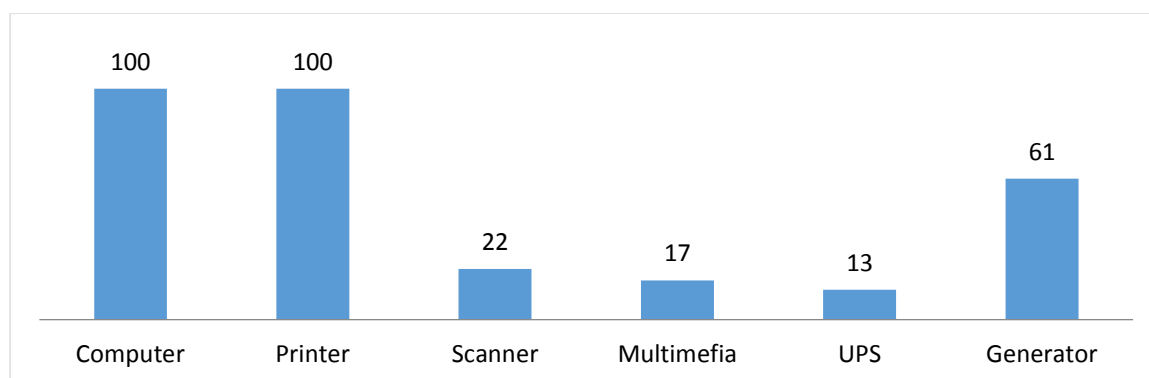
Figure 3: Distribution of numbers of IT related equipment available for DHIS functions

1.4.2. Data collection tools availability

In the 2016 Assessment, stock of DHIS tools available for at least 6 months was ascertained. None of the district offices reported adequate stocks (see figure below). Less than 50% districts reported stocks for: Daily Medicine Expense and Stock Registers, FP card, Medicine Requisition Slip and OPD Ticket.
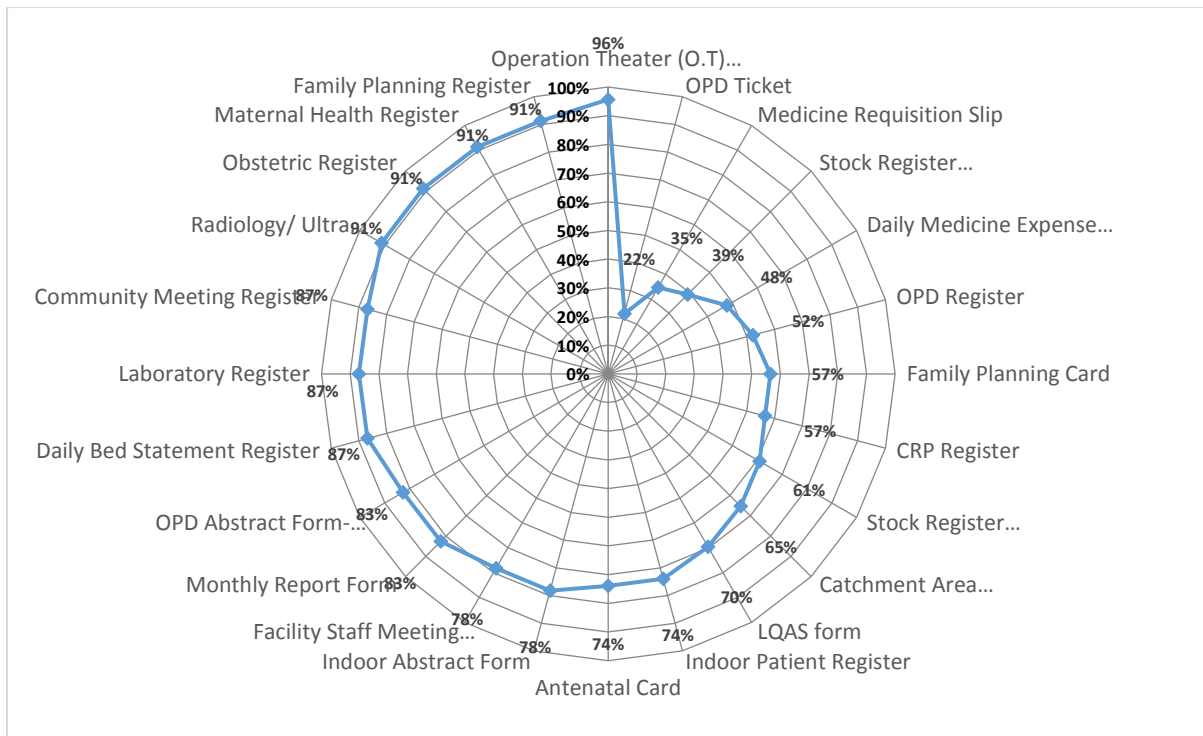
Figure 4: Distribution of stock of DHIS tools for next 6 months.

1.5. Data Management

The DHIS Instructions manual for data management explains data collection/recording and reporting procedures, data analysis, data quality, and use of information was available at more than 82% of the facilities reported having the DHIS procedure manual available in sufficient quantity.

1.5.1. Data Accuracy

In the 2013 Assessment, provincial DHIS Cell reported that it had a mechanism to check data accuracy such as application of the LQAS technique. However, no evidence was found that the provincial office had applied data quality check during the three months prior to it.

In the 2016 Assessment, Data Accuracy for indicators being used at HFs was verified through checking the LQAS forms from the previous month. From each office, one indicator was randomly selected, which was checked for 12 HFs at each office. This amounted to 12 facilities at each of 23 facilities, amounting to 276 responses to be checked for accuracy. Out of the 276 items, 267 (97%) items' figures matched between monthly report and online DHIS. Hence, the reporting accuracy of data entry of health facility reports to online DHIS is 97%.

1.5.2. Data Transmission

For aspects of data transmission, all District Health Offices kept copies of DHIS monthly report sent by health facilities. Most offices (78%) mentioned 5th of each month as the deadline for submission of the reports, while 7th, 8th and even 10th were mentioned by 5 respondents.

Except for one District Health Office, all HFs under PPHI sent reports through the PPHI office, while 5th as the submission date for these facilities was mentioned by 65% respondents. Fifteenth of every month as the data entry deadline was mentioned by 83% respondents.

1.5.3. Dissemination & Use of Information

In the 2016 Assessment, 96% of the managers reported that the online system produces district summary reports, produces comparison of data over time and service type coverage while most personnel found that the online system is user friendly (95%), while most (87%) knew about facility comparisons that it produces (see figure below). About one-fifth of the respondents found the monthly report form to be complex and difficult to follow. Trained DHIS Coordinators and data entry persons were inquired for the ease of use about the online DHIS system, and its benefits.

In the 2013 Assessment, DHIS procedure manual, data collection tools, monthly report form, and data software were found to be user-friendly and easy to manage by the provincial level managers with the support of software person.. The database helped in calculating indicators for each district catchment area, preparing data summary reports for the province, and drawing comparisons among districts against provincial targets, data over time, and types of coverage of various services.
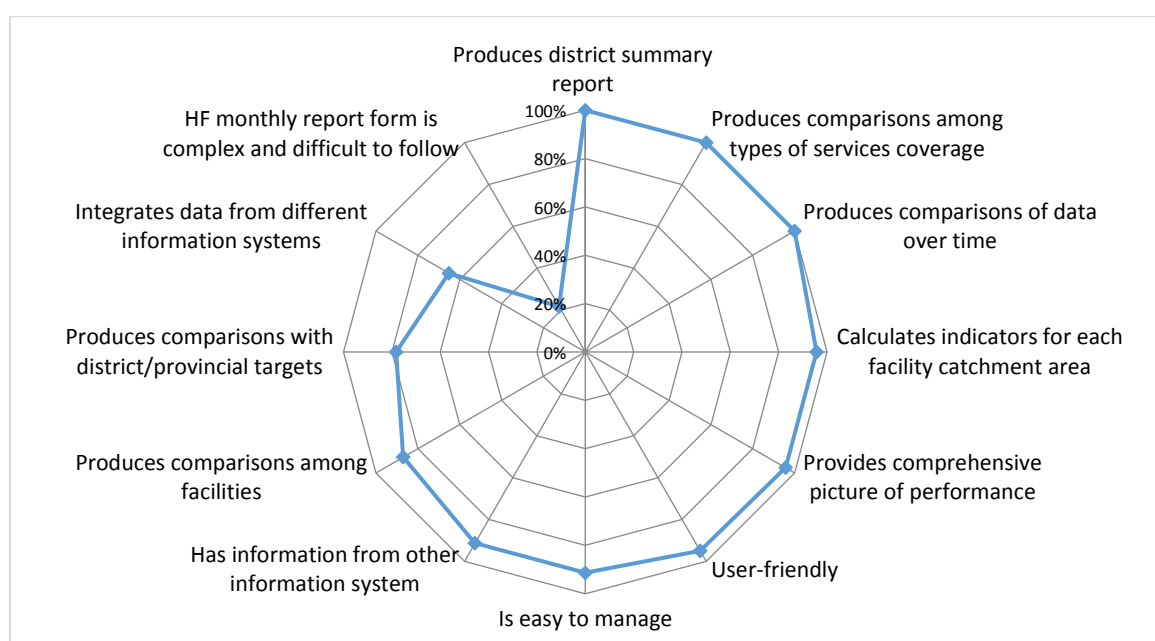
Figure 5: Distribution of responses for use of online DHIS

1.5.4. Data analysis and use of information

1.5.4.1. Analytical Report Production

The 2013 Assessment showed that the information provided by DHIS was not included in any other health information system and the software did not integrate data from different information systems. Moreover, the information technology (Land Area Network [LAN] or wireless network), which can provide access to information to all district managers and senior management at provincial level, did not exist. Although, there is a written policy to generate reports after analyzing DHIS, such reports are not routinely produced and no report was issued during the past 12 months. In view of Provincial Coordinator DHIS, DOH can make better health management plans by learning about the "burden of disease" and epidemics and can prioritize the Annual Development Plan and budget accordingly.

In the 2016 Assessment, regarding data analysis and use of information, records over last 3 months at the District Health Offices were checked for directives issued on use of information by the district and provincial offices. Other aspects related to use of information included whether:

- There was continual demand for good quality & timely information from higher authorities;
- There was any written policy to generate reports after analyzing DHIS with schedule/frequency;
- District Health Offices sent feedback report using DHIS information to facilities; and
- Annual integrated summary report containing core indicators from various HISs including DHIS is produced.

About 40% District Health Offices produced annual integrated summary report of core indicators, while 48% mentioned that there was a written policy to generate reports analyzing DHIS against a schedule. Sixty-five percent reported that management issues directives based on the analysis, while 78% had sent feedback report using DHIS information to facilities. The demand from higher authorities for quality and timely information was reported by 96% respondents.
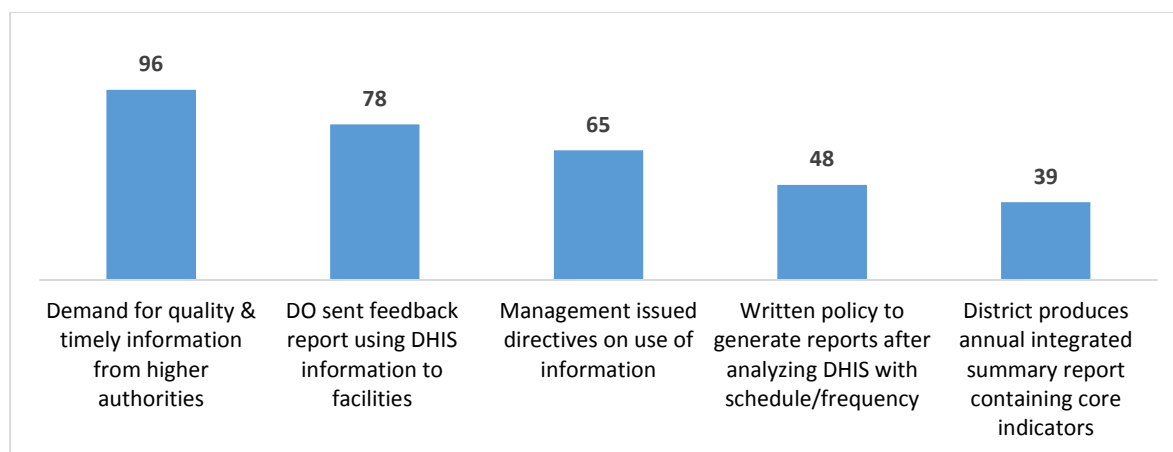
Figure 6: Data analysis and use of information from the DHIS.

1.5.4.2. Display of information

There is a written policy to display DHIS data in the form of tables, graphs, and maps at district and health facility level. During the 2013 Assessment, it was found that the district DHIS Cells did not display any information such as DHIS mission statement, DHIS data, maps of the catchment areas, and summary of demographic information such as population by target group(s). The findings of this assessment show that 57% of the Districts displayed DHIS data. Those who displayed, most of the information displays were in the form of tables and graphics as shown in the figure below. Only the diseases surveillance information was presented in the form of maps.
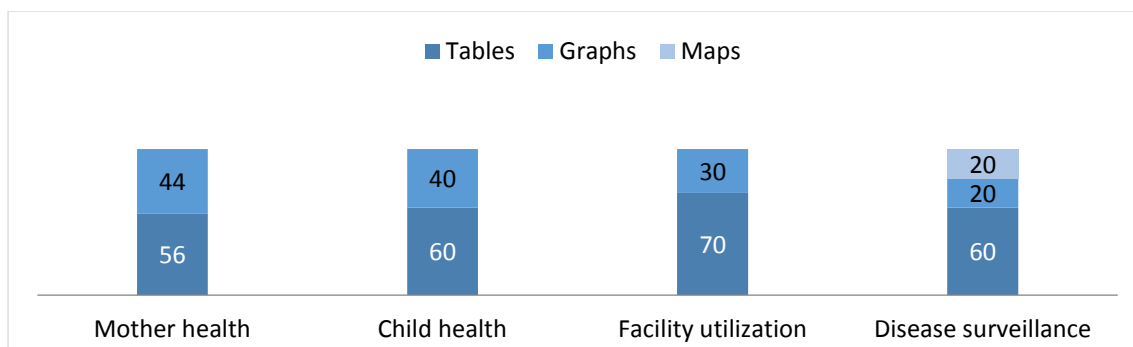
Figure 7: Distribution of updated display tables.

1.6. Provincial feedback

Regarding feedback mechanisms, findings from the 2013 Assessment showed that no provincial feedback (monthly, quarterly, yearly, etc.), or any other report providing guidelines or recommendations based on DHIS information. The Provincial DHIS Cell did not share feedback reports with districts using DHIS information in the last three months preceding the 2013.

The findings of this assessment show that 96% of the District Health Offices reported that they receive provincial feedback which was verified from their records, or a report available on DHIS data that provided guideline/ recommendations for actions, based on information generated through DHIS.

1.6.1. Discussion and decisions by using DHIS information

The District Health Office staff was inquired about DHIS review meetings, their frequency, records, and the topics discussed. Findings from the 2013 Assessment showed that under the DHIS cell, meetings were held to review managerial or administrative matters at the provincial level. These were usually attended by District Health Officers, District DHIS Coordinators, and data entry operators. However, no record of such meetings was available in the provincial DHIS cell.

The findings of 2016 Assessment show that 91% District Health Offices reported holding routine meetings for reviewing managerial or administrative matters, an equal proportion of which were reported to be attended by District level officers and Health facility in-charge. Two-third of the District Health Offices (66%) reported that meetings were held more than 3 times in the last 6 months.

Fourteen District Health Offices (61%) reported that an official record of management meetings is maintained. From the 14 District Health Offices that had official records of meetings, last 3 months reports were examined. Of these, 88% had discussed management of DHIS, such as data quality, reporting, or timeliness of reporting; DHIS information such as patient utilization, disease data, or service coverage, or medicine stock out; and also reported decisions being made based on these meetings. Follow-up actions on the decisions made during the previous meetings were reported from 63%, while DHIS related issues were referred to divisional /provincial level for actions from 75% of the District Health Offices.
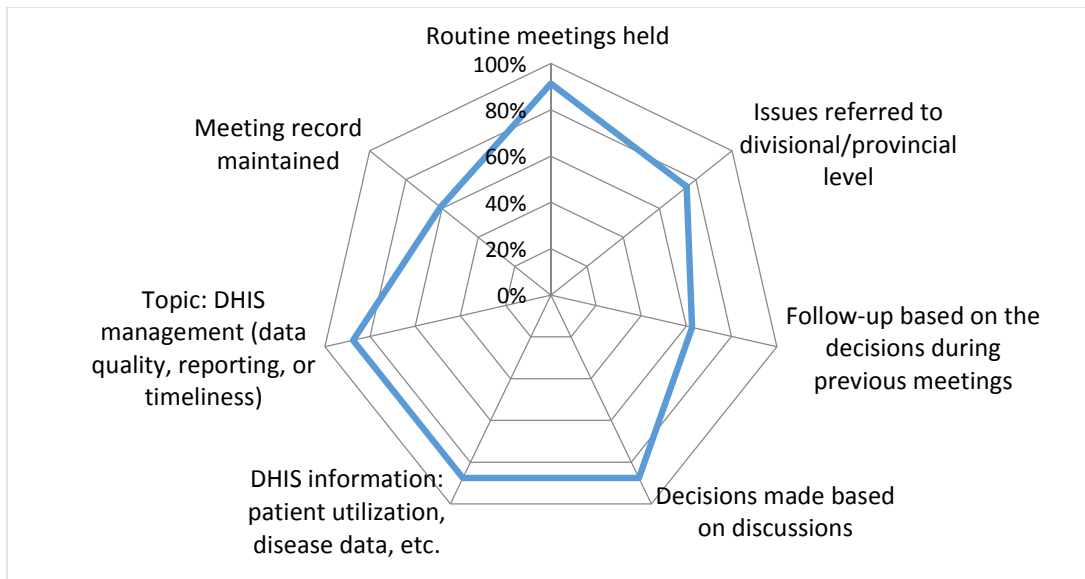
Figure 8: Distribution of responses for meetings and decisions by using DHIS information

1.6.2. Resource allocation by using DHIS information

District Health Offices were inquired about the use of DHIS information for mobilizing resources. In the 2013 Assessment, no information was being utilized for annual planning. However, the findings of the 2016 assessment show that District Health Offices reporting using of DHIS data as an advocacy tool for resource allocation was 83%, while 78% used it for annual planning as well.
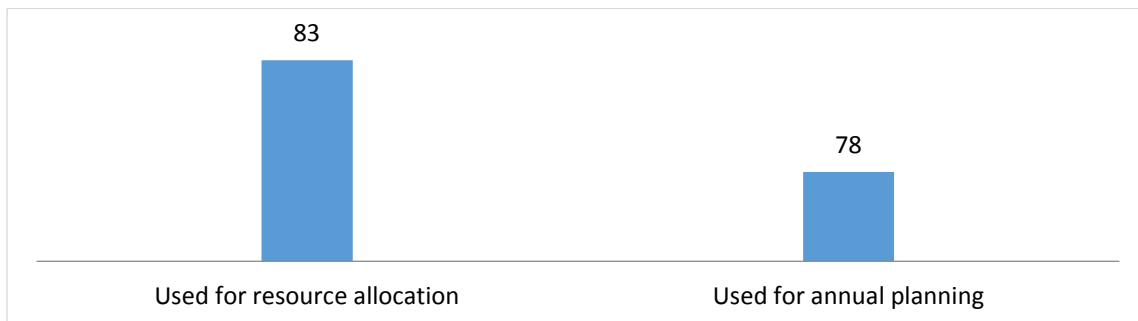
Figure 9: Percent of Districts reporting use of DHIS information for resource allocation

1.7. Coordination between District Health Offices & PPHI office

For coordination between DOH and PPHI office, sharing of analyzed data with each other is an important aspect to improve the coordination. Seventy percent District Health Offices reported sharing analyzed data with PPHI offices, while 57% of the District Health Offices reported sharing the reports regularly on a monthly basis. Further, 70% reported inviting the DSM at District Health Offices for meetings, while 83% reported being called for meetings at the PPHI offices. These meetings mostly attended by DHIS Coordinator /Focal person, while other staff included: ADHO, DHIS Coordinator, ADHO, FSMO, DHO.

1.8. Supervision & Monitoring of DHIS

For supervision and monitoring mechanisms, it was inquired whether there was a regular mechanism, if there was a checklist available, and whether records were maintained. Findings from the 2013 Assessment showed that DHIS supervision and monitoring mechanism existed and there was a supervisory checklist for this purpose as part of the DHIS manual. No DHIS data validation exercise was organized during the last one year before the 2013 Assessment. The findings of this assessment show that 61% of the DHOs reported having a monitoring visit with checklists. However, copies of filled checklists could only be verified at 36% offices.

Further, suggestions were sought for improving the supervision and monitoring mechanisms for DHIS. Most respondents suggested that a vehicle with fuel was needed most. The other major issue was having dedicated and trained staff that worked full time for the purpose. Training was highlighted as an important need, while quarterly review meetings and leadership from the provincial level, particularly for budgetary allocations were also suggested. All 23 District Health Offices suggested the training of the managers, medics, paramedics, IT person and statistician is needed to smoothly implement the DHIS. Data collection, reporting, data quality and use of information were suggested as the major areas needing improvement through training, as well.

1.9. Data quality of program specific MIS indicators

Data elements from the DHIS monthly reports were randomly selected and their reported numbers were cross checked against program specific MISs. For the 6 items selected, 65% of the reported numbers did not match, while 1 item matched in 22% District Health Offices (see figure below).
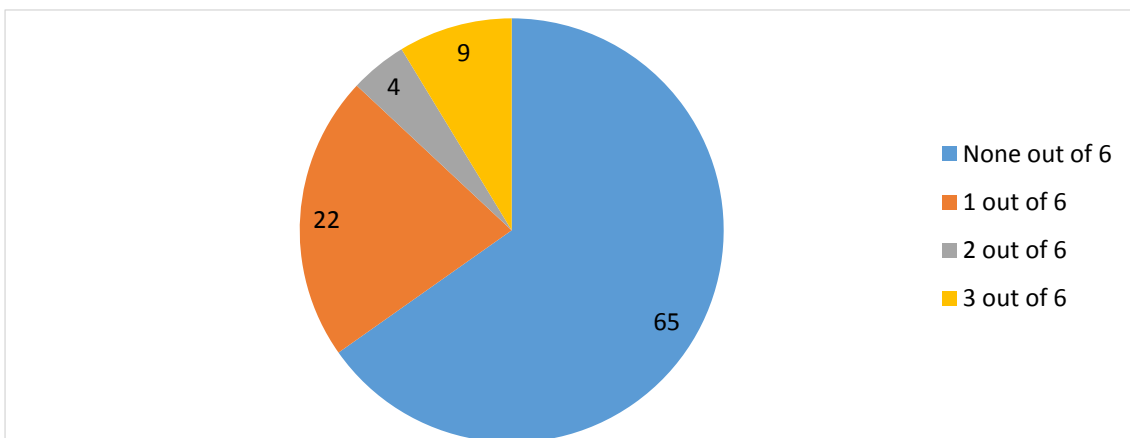
Figure 10: Distribution of matched figures between DHIS and other MISs.

1.10. DHIS Management

For specific queries related to DHIS management, less than 10% District Health Offices reported DHIS Mission being displayed at prominent position, and having job descriptions for DHIS management staff. Less than 20% reported having an organizational structure for dealing with DHIS related strategic and policy decisions at district level and distribution list of recipients of DHIS analyzed reports. Seventy-eight percent perceived that DHIS as producing sufficient information required for decision making at the district level.
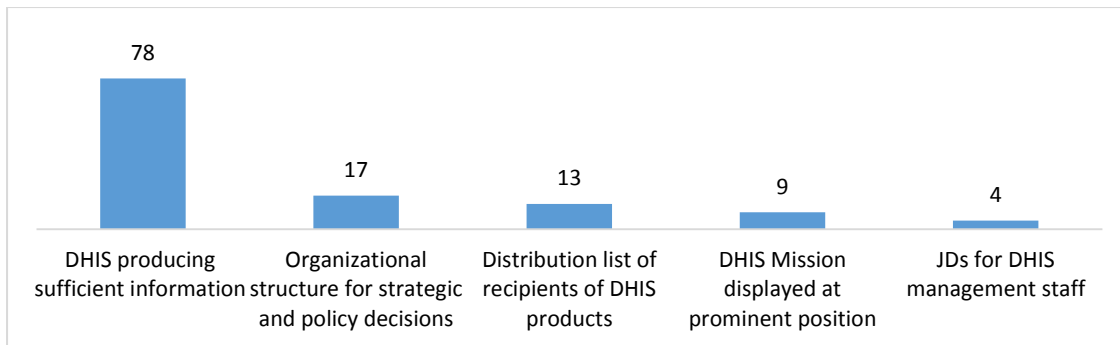
Figure 11: Distribution of responses for aspects related to DHIS Management

1.11. Organizational and Behavioral Assessment

1.11.1. Evidence-based decision-making

Promotion of culture of information was operationally defined as, the capacity and control to promote values and beliefs among members of a DOH for collection, analysis and use of information to accomplish its goals and mission. To assess whether a health department promotes culture of information, the construct was operationalized under seven dimensions: 1) data quality; 2) use of information; 3) evidence based decision making; 4) feedback from staff and community; 6) sense of responsibility; and 7) accountability & empowerment of staff.

For the process of evidence-based decision-making, the behavior of the organization shows the extent to which health department uses evidence from various resources and other objective criteria for decision-making. Responses were ranked on a Likert scale used with categories on a scale of 1 to 5, with 5 the highest level of agreement. Starting from disagree to somewhat disagree to neither disagree nor agree and somewhat agree to agree with the statement. Respondents were asked to rank decision making at the DOH. The specific statement was "in health department, decisions are based on…" followed by a series of 7 statements. The mean scores are presented in the figure below. The managers agreed that the decisions are made on the bases of supervisors directions and do not agree that the decisions are made on someone's personal likings. Most of the managers reported that the decision making is also based on the evidence and heath needs. Managers were neither disagree nor agree that the decisions are made on the bases of political interference. The average score reported by the Districts shows that the decisions are not made on personal likings.
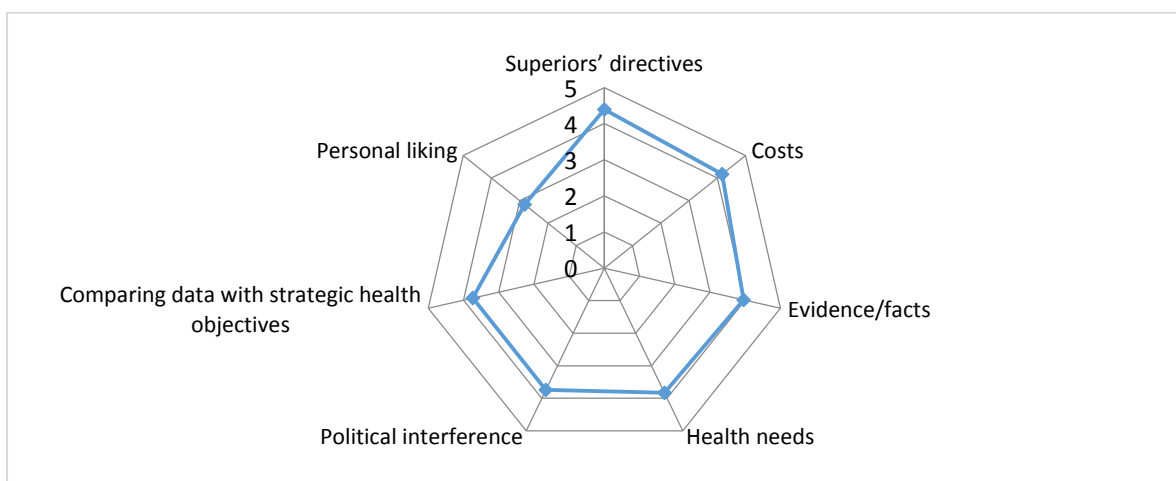

Figure 12: Mean responses for decision making at DHOs, ranked on a 1-5 Likert Scale.

1.11.2.   Motivation of staff for data collection

In the assessment, to gauge the motivation level of those who collect and use data by asking six questions. All the district managers were agreed to the statements that collecting information is meaningful for them, collecting information is needed for performance monitoring, while they do not agree that collected information is forces on them and collected information makes them feel bored. On average, the districts managers were somewhat agree that the information is not used for decision making which discourage them.
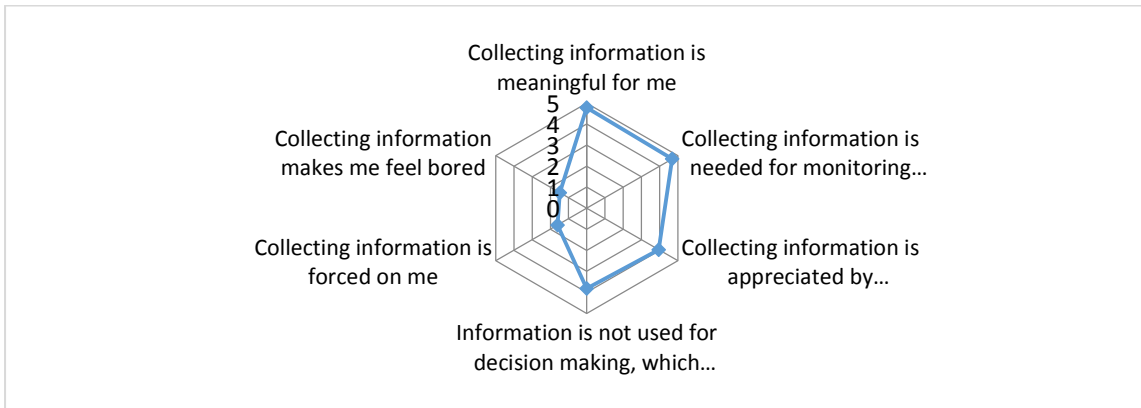
Figure 13: Mean responses for information collection at DHOs, ranked on a 1-5 Likert Scale

1.11.3. Behavior of staff on improving data quality

Next, how the decisions are made to improve the management of DHIS data and provision of feedback, a series of questions were asked: "In health department, superiors…" followed by 8 statements shown in the figure below. The managers do not agree that the decisions are made by seeking feedback from concerned communities. On all other aspects, the health managers agreed that the decisions are made by seeking feedback from concerned persons; Emphasizing data quality in monthly report; discussing conflicts openly to resolve them; Using DHIS data for setting targets and monitoring; Checking data quality at the facility and higher level regularly; Providing regular feedback to their staff through regular report based on evidence; and Reporting on data accuracy regularly.
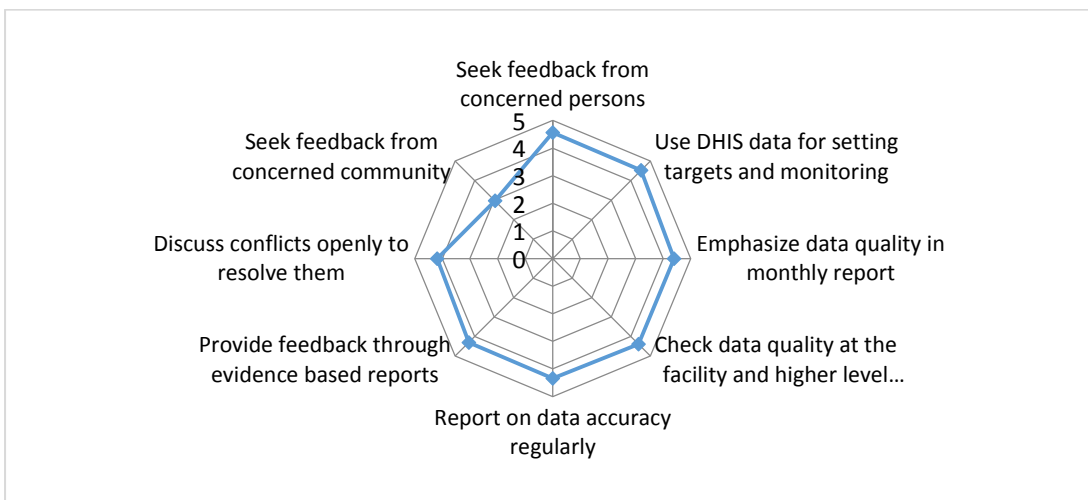
Figure 14: Mean responses for behavior of management at DHOs, ranked on a 1-5 Likert Scale

1.11.4. Behavior of staff on information use

Next, a series of seventeen questions were asked to quantify the promotion of a culture of information and related behavioral determinants such as motivation and DHIS tasks competence levels, and DHIS performance. The highest mean scores were reported for staff documenting activities, followed by staff settings performance targets and admitting mistakes for corrective actions. The lowest reported means were for staff getting rewarded for good work, refusing superiors' directives, and staff not empowered to take decisions.
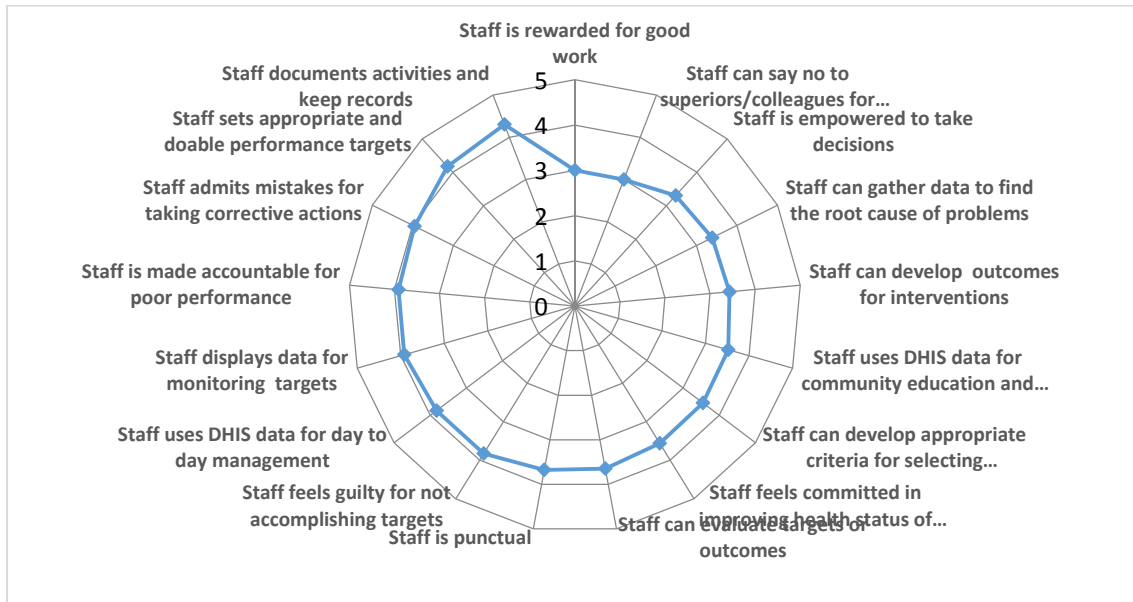
Figure 15: Mean responses for staff behavior at DHOs, ranked on a 1-5 Likert Scale

2. Findings from Health Facilities

1. Respondent characteristics

The respondents at the facilities mostly included medical and senior medical officers, and management staff that included the Medical Superintendent (MS), and MIS related officers.

1.1. Management responsibility of the facilities

Facilities of the DOH are either being managed by DOH itself, or are contracted out to the People's Primary Health Initiative (PPHI). From the random sample, the numbers of contracted out facilities at BHU and RHC levels are shown in the table below.

| Management Responsibility	Type of health facility				Total
	BHU	RHC	THQH	DHQH	
DOH	18	61	45	13	136
PPHI	127	12	0	0	139
Total	145	73	45	13	276

Table 3: Distribution of Health Facilities under the management of the DOH and PPHI.

1.2. Availability of trained personnel

To ascertain the availability of relevant human resource (HR), it was inquired, whether the respondent or any other staff member was trained in the last 12 months. The overall human resource (HR) capacity of trained personnel was low (42%), with the lowest proportion reported at DHQHs and RHCs. Figure 16 shows the facility type wise availability of trained staff on DHIS obtained in the 2016 Assessment. Similarly, the staff other than HF in-charge that was trained in DHIS over the last year was even lower, with only 27% of them, while they were lowest at THQHs at 16%.
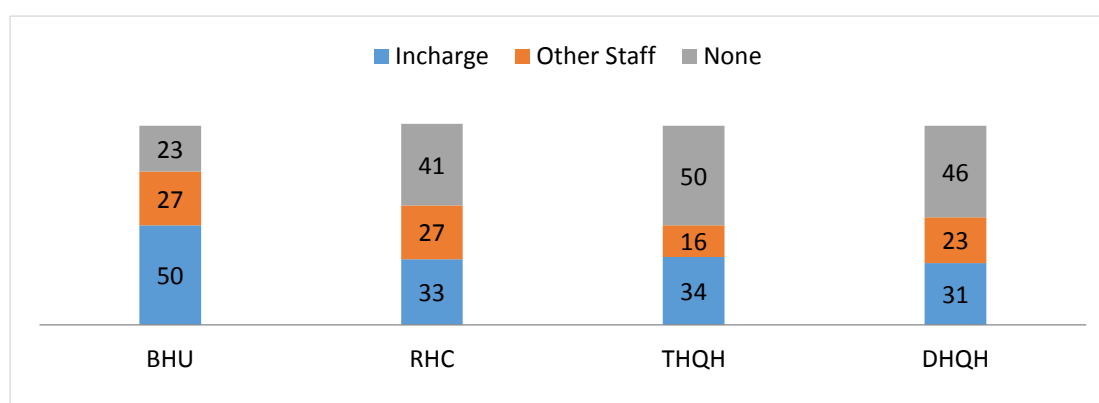

Figure 16: Health Facility In-charges and other staff trained in DHIS over the last 12 months

1.3. Availability of requisite equipment

Figure 17 shows that none of the facilities were fully equipped with all equipment needed. UPS and generators were available at less than 30% BHUs, while land line telephone and internet showed a similar trend. Designated computer and printers were available at less than 35% of all facilities, while about half the THQHs and DHQHs had computers. Printers were available at less than 30% BHUs and RHCs, while these were available at 43% THQHs and 23% DHQHs.
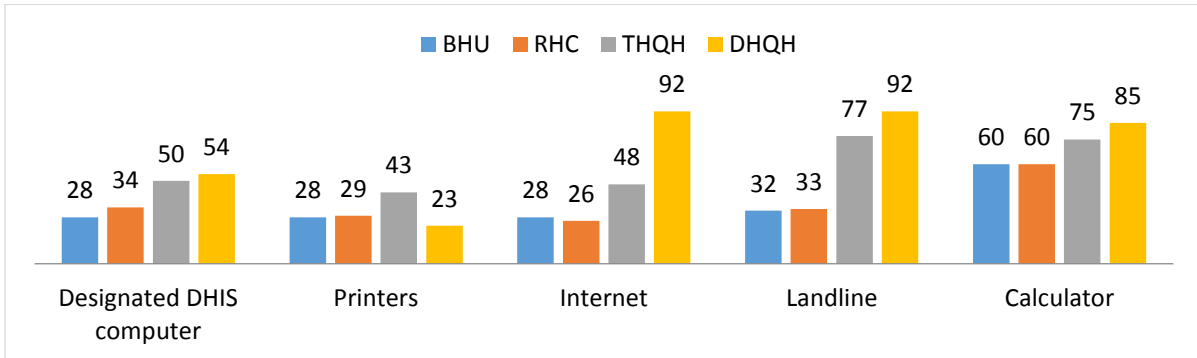
Figure 17: Distribution of facilities with DHIS related equipment

1.4. Availability of utilities

All the DHQH and THQH had electrical power while 97% of RHCs and 92% of BHU had electrical power available. Generators or UPS for backup power were not available at most BHUs, while these were available at more than 60% RHCs and 90% THQHs and DHQHs (Figure 18). Separate computer room is available at 30% DHQHs, with lower proportions reported at other facilities. Air-conditioned computer rooms were mostly not available.
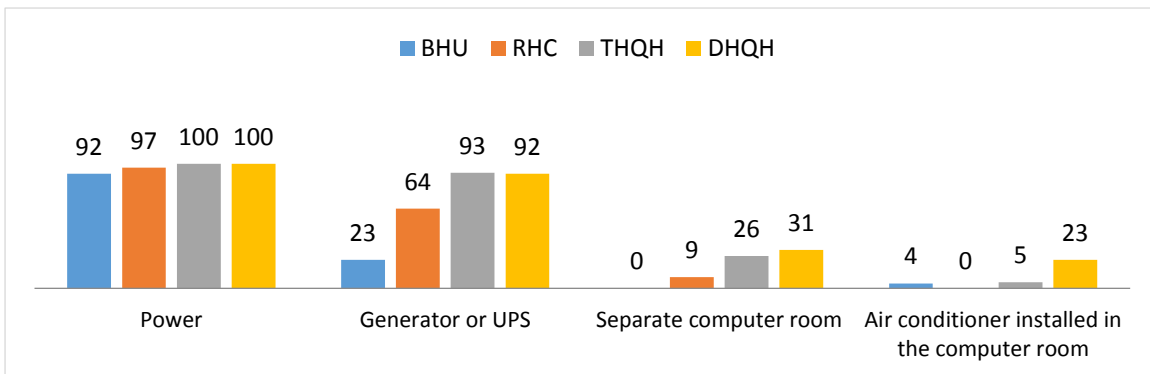
Figure 18: Proportion of facilities having basic utilities for DHIS functions

2. Status of DHIS tools

2.1. Availability of DHIS tools

The majority of DHIS tools were reported to be available at most BHUs (Figure 19). The lowest reported tools included OT register (8.1%), Daily Bed Statement Register (18%), Indoor Abstract Form (26%), CRP Register (40%, and Indoor Patient Register (45%). Some of these were justified as BHUs usually do not offer inpatient facilities.

Most tools were available at 50% of the RHCs (Figure 20), while the lowest proportions of tools reported included the Indoor Abstract Form (53%), Medicine Requisition Slip (58%) and Catchment Area Population Chart (69%).

At THQHs, at least 50% of all tools were reported, while the lowest item was the Medicine Requisition Slip (50%). Catchment Area Population Chart was reported at 61% sites (Figure 21).

Tools reported at DHQHs showed an almost similar trend, with Catchment Area Population Chart at 46%, and LQAS forms at 54% facilities (Figure 22).

2.2. Use of available DHIS tools

Use of available DHIS tools at BHUs ranged from 58% to 100% (Figure 19). At RHCs, items that were reported to be used less than 50% included the Indoor Abstract Form, Operating Theatre Register, Daily Bed Statement, Catchment Area Population Chart, Medicine Requisition Slip, and the Radiology Register (Figure 20). At THQHs, the Catchment Area Population Chart, Medicine Requisition Slip, LQAS form, Community Meeting and Facility Staff Meetings Register showed less than 60% use (Figure 21). Catchment Area Population Chart, Facility Staff and Community Meeting Registers, Medicine Requisition Slip, Family Planning (FP) Card, and Indoor Abstract Form showed less than 60% use at DHQHs (Figure 22).

2.3. DHIS tools being filled by concerned staff

The proportion of concerned staff filling the DHIS tools varied across facilities. At BHUs, less than 70% tools filled included the OT, Daily Bed Statement, Indoor Patient and CRP registers and the Indoor Abstract Form (Figure 19). For RHCs, the Indoor Abstract Form was being filled at less than 50% facilities, while Medicine Requisition and OT Registers were filled at less than 70% facilities (Figure 20). Filling of DHIS tools by concerned staff was highest at THQHs amongst all facilities. Less than 70% filled tools were reported for Medicine Requisition Slip and Catchment Area Population Chart (Figure 21). At DHQHs, most tools were being filled by concerned staff, with less than 75% filled tools reported for Medicine Requisition Slip, Indoor and OPD Abstract Forms, Community Meeting and Facility Staff Meeting Registers, and Catchment Area Population Chart (Figure 22).

2.4. DHIS tools completely filled

Less than 70% completely filled tools at BHUs included Radiology, OT, CRP, Daily Bed Statement and Indoor Patient Registers, and the Indoor Abstract Form (Figure 19). At RHCs, less than 70% completely filled forms were reported for CRP, Indoor Patient, Facility Staff Meeting, Radiology, Daily Bed Statement and OT Registers, Catchment Area Population Chart, Medicine Requisition Slip and the Indoor Abstract Form (Figure 20). For THQHs, the tools reported less than 70% filled included the OPD, CRP, Community Meeting and Facility Staff Meeting Registers, Indoor Abstract Form, Medicine Requisition Slip, OPD Ticket and Catchment Area Population Chart (Figure 21).

Overall filled tools at DHQHs were reported to be the lowest across facilities. Tools that were reported to be filled by less than 70% facilities included FP, OPD, CRP and Facility Staff Meeting Registers, Community Meeting, Medicine Requisition Slip, Indoor and OPD Abstract Forms, OPD Ticket and Catchment Area Population Chart (Figure 22).

Figure 19: Percentage of BHUs by availability, in use, filled by concerned & completely filled DHIS tools
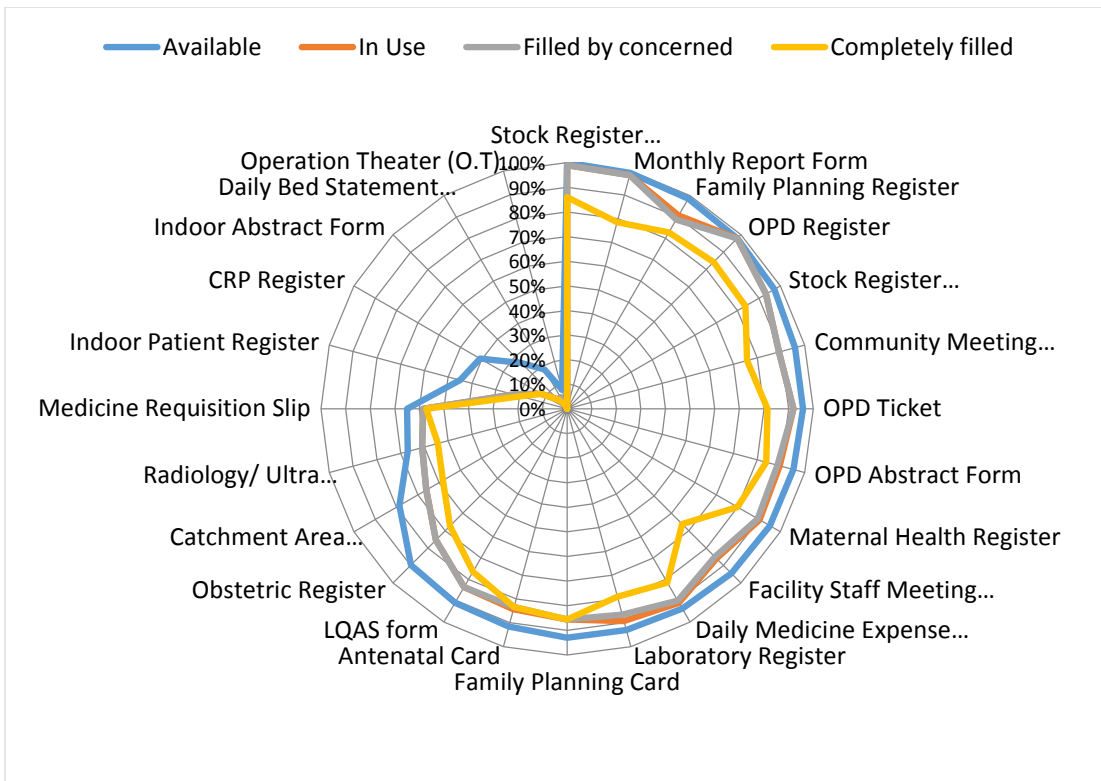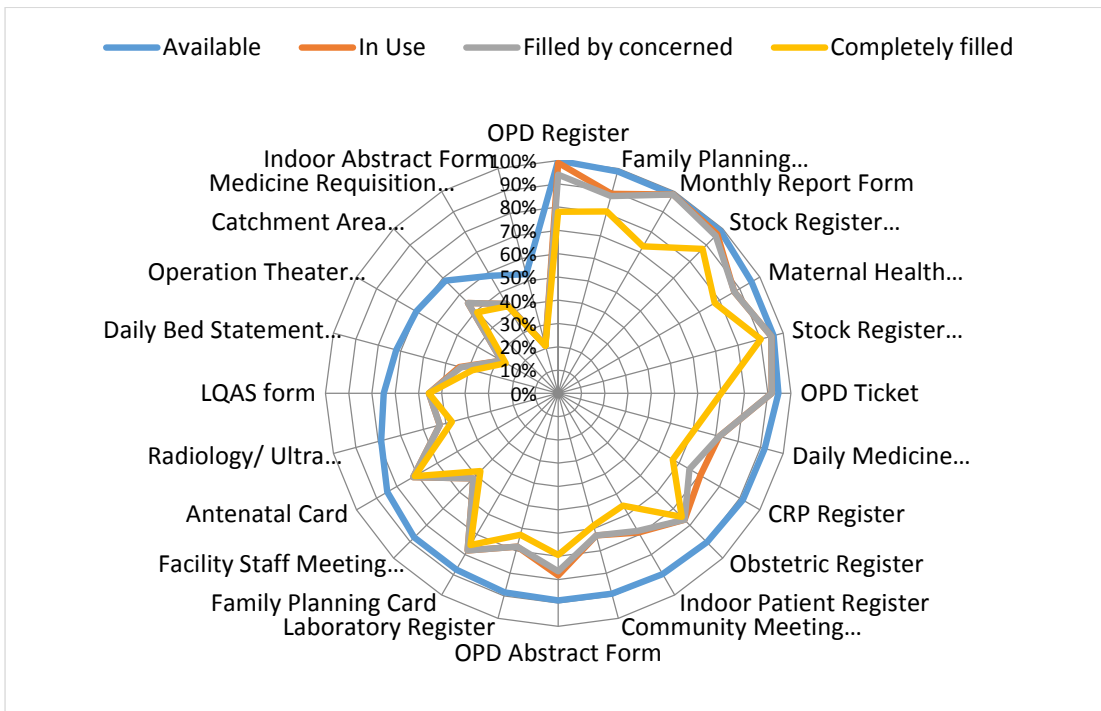

Figure 20: Percentage of RHCs by availability, in use, filled by concerned & completely filled DHIS tools
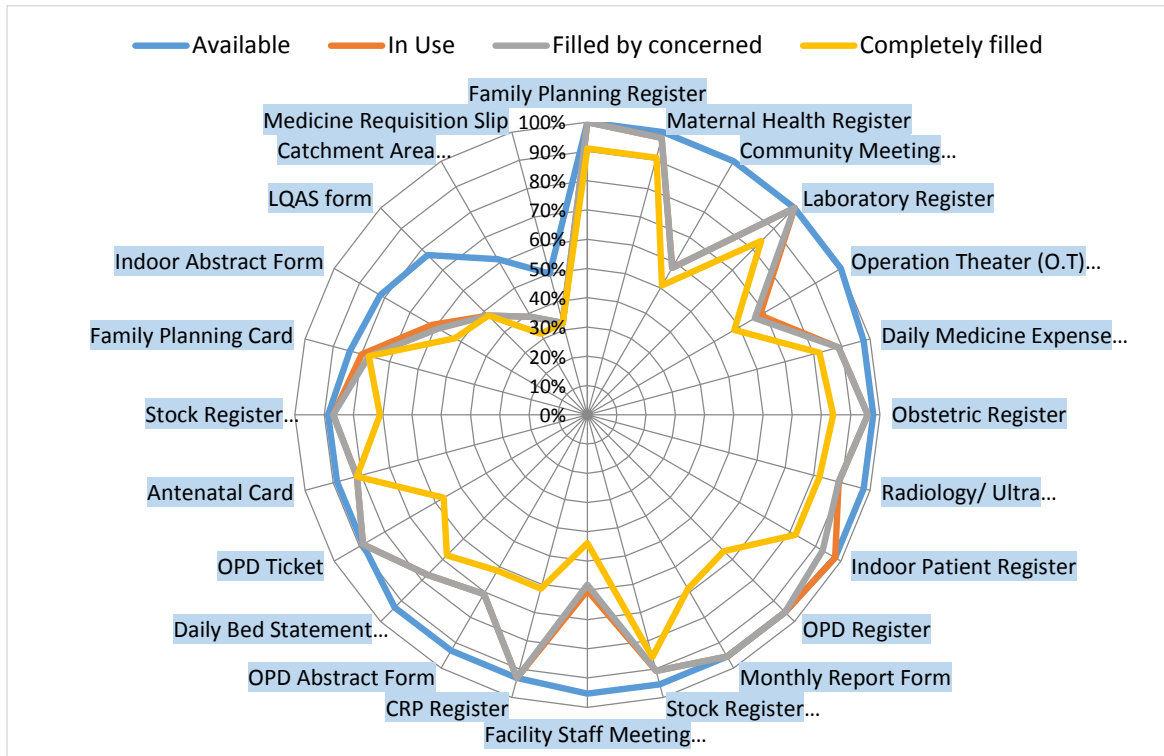
Figure 21: Percentage of THQHs by availability, in use, filled by concerned & completely filled DHIS tools
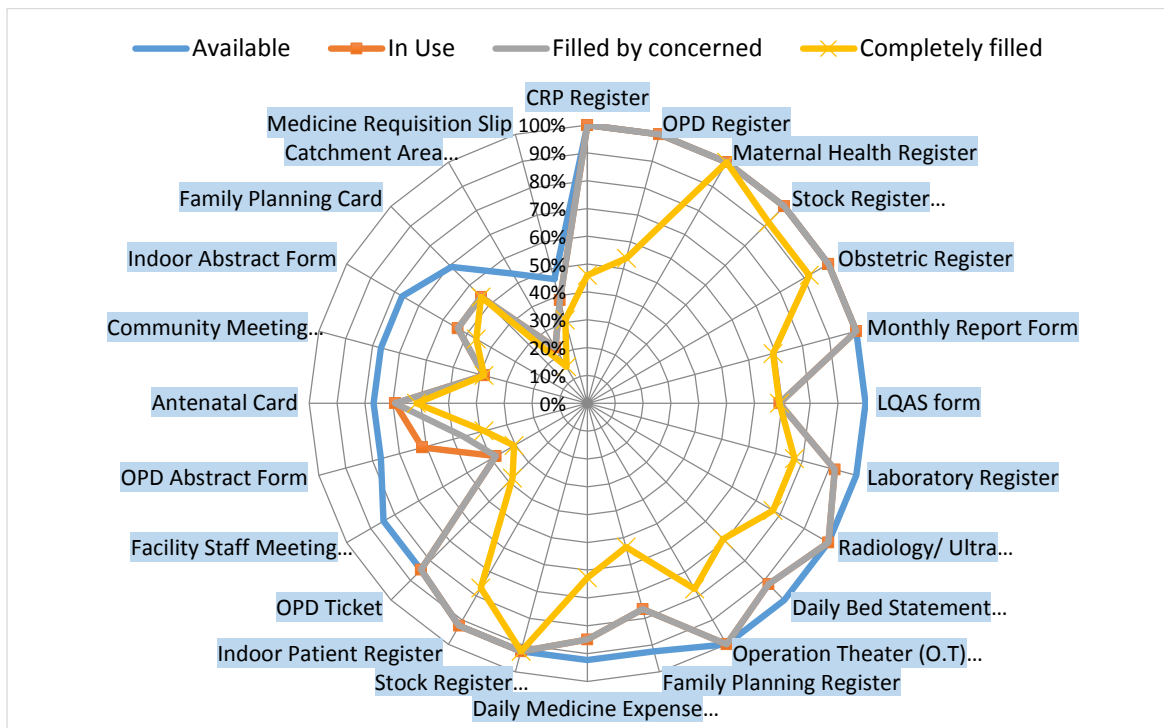
Figure 22: Percentage of DHQHs by availability, in use, filled by concerned & completely filled DHIS tools

1.1. DHIS tools stock-outs during the last year

To assess availability of tools, HF personnel were inquired about whether tools ran out in the last one year, and which these were. At BHUs, tools that ran out included at more than 70% facilities included the OT, CRP and Daily Bed Statement Register and the Indoor Abstract Form. Medicine requisition slip was reported to have run out at 58% DHQHs. Medicine requisition slip was reported to have run out at 58% DHQHs (Figure 23).
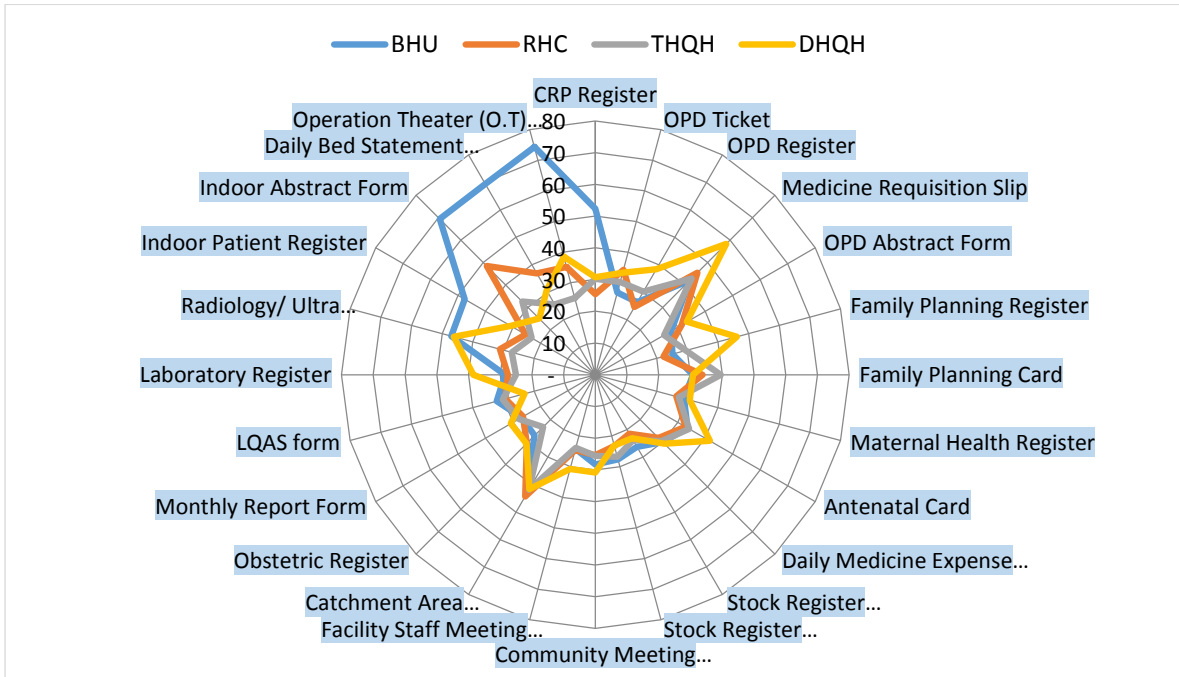
Figure 23: Percentage of facilities ran out of DHIS tools during the last year by facility type
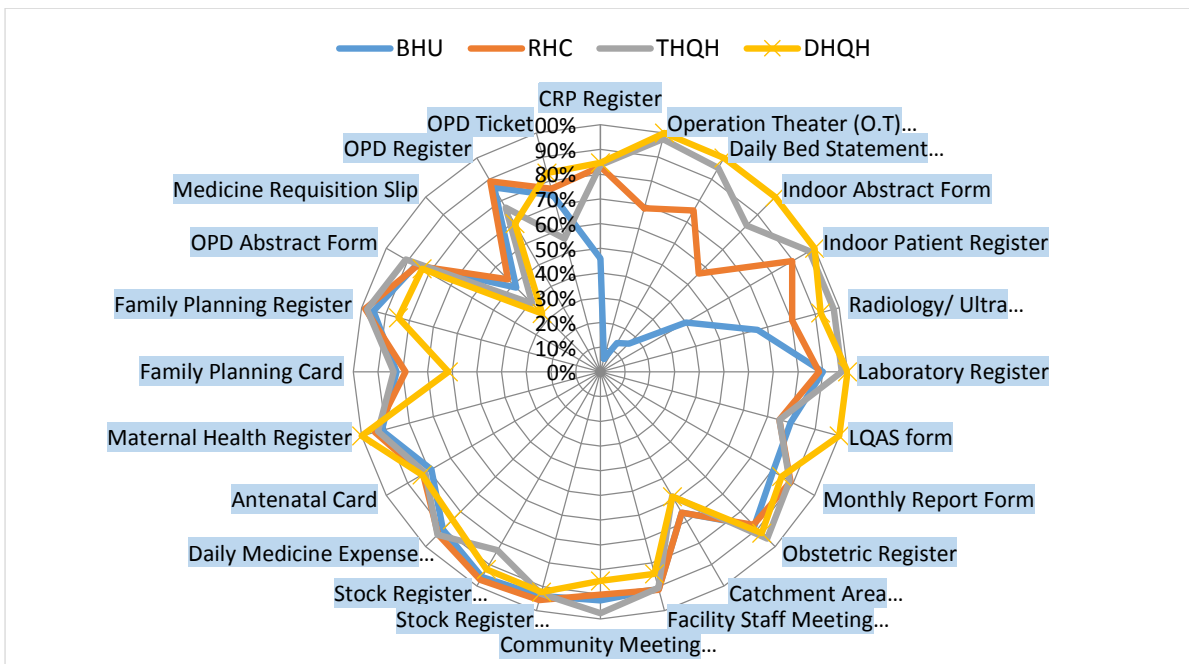
Figure 24: Percentage of facilities having DHIS tools for at least 3 months by facility type

1.2. DHIS tools available for at least for 3 months

To check the stock of DHIS tools, HF staff was inquired about the availability of tools for the next 3 months or more. The status of tools is presented in Figure 24. None of the facilities reported having 100% tools available for the period. At BHUs, less than 70% facilities available tools included the CRP, Radiology, Indoor Patient, Daily Bed Statement and OT Registers, Catchment Area Population Chart, Medicine Requisition Slip and Indoor Abstract Form. Items that were not in stock at 70% RHCs included OT Register, Catchment Area Population Chart, Indoor Abstract Form and Medicine Requisition Slip. Amongst the hospitals, items reported at less than 70% at THQHs included Catchment Area Population Chart, OPD Ticket and Medicine Requisition Slip, while at DHQHs these were OPD Register, Family Planning Card, Catchment Area Population Chart and Medicine Requisition Slip.

2. Data Management

The HF staff was inquired about the availability of the procedure manual for data management, that including data collection & reporting procedure, data analysis, data quality and use of information. Overall less than 70% HFs reported availability of the manual, with the least proportions reported from DHQHs, 62% and THQHs, 66%. Further, the manual was physically verified. From the HFs reporting available manuals, about 90% was verified. Verification was reported the least from the BHUs. Figure 25 illustrates the consolidated proportions of sites where available manuals could be verified.
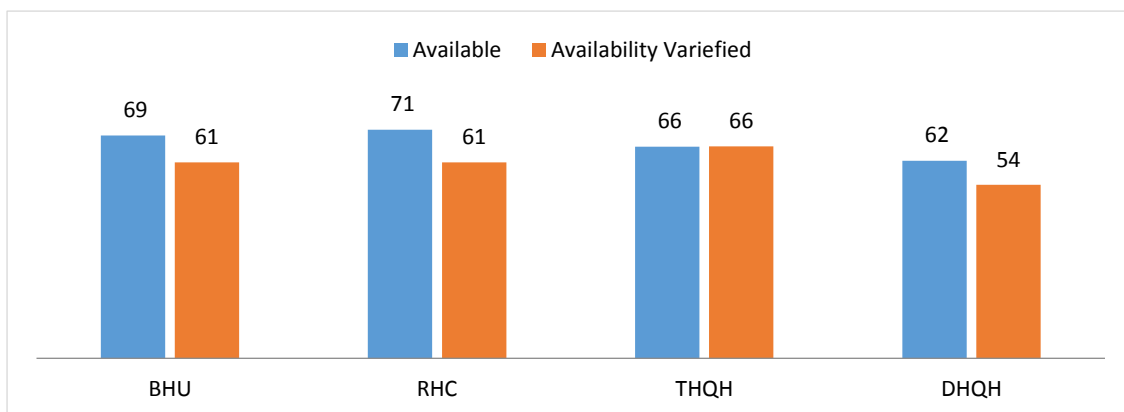
Figure 25: Percentage of facilities by availability of DHIS instructions manual and type of facility

2.1. Data recording & reporting

To ascertain recording and reporting of data, the HF staff was inquired whether the facility produced monthly DHIS report, maintain a copy of the report sent to the DHO, and whether the facility maintained OPD registers since the start of the DHIS system. Most primary and secondary care facilities reported keeping records and reporting them on all 3 aspects, while hospitals showed lesser recording of OPD registers (Figure 26).

The numbers of monthly reports over the last year were verified as the next step. Most facilities (86%) showed 12 monthly reports from the preceding year that included 86% BHUs, 82% RHCs, 89% THQHs and 100% DHQHs.
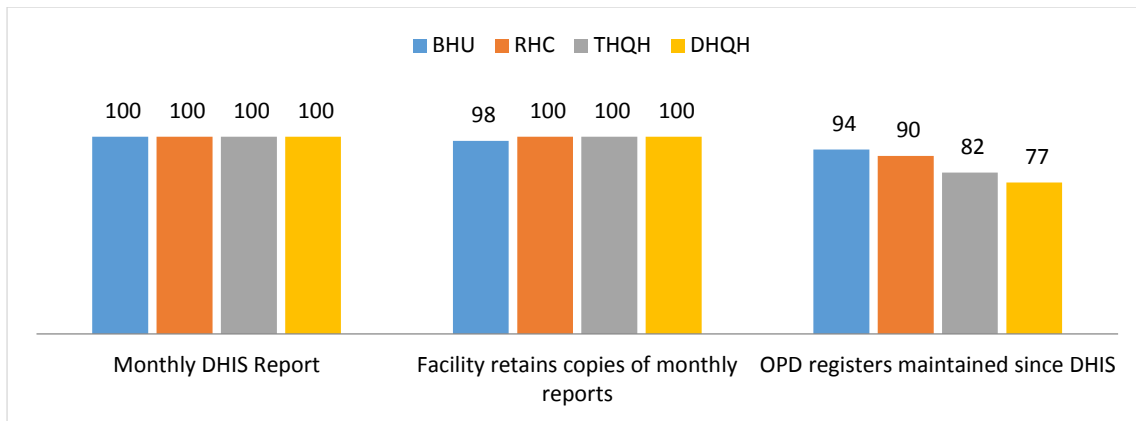
Figure 26: Percentage of facilities by status of data recording and reporting items at HFs

2.2. Data Accuracy

Data accuracy is the most important determinant of data quality. Accuracy implies that information recorded on different instruments is consistent throughout, which includes the monthly report and any other intermediate reports applicable. To prepare monthly reports at the facility level, data have to be transferred from the registers to the monthly reporting formats. Level of data accuracy was assessed by cross matching the data in reports with that in the registers (records).

To assess data accuracy and completeness, last (previous) month's report using 19 data elements were randomly selected. These included OPD attendance; pregnant women received TT-2 vaccine, Antenatal Care (ANC-1) coverage and others from the facility record. These were matched with the reported figures in the last month's report submitted at the district level.

Data accuracy from the 2013 assessment was 82% for BHU, 47% at RHCs, and 50% for THQHs and DHQHs. Overall, more than one-third (36%) of the data elements in reports could not be verified from the registers, while for the 2016 assessment, this overall discrepancy dropped to 25%. Compared to the 2013, the overall data accuracy rose from 64% to 78%, with the most marked improvement at RHCs. DHQHs and THQHs also showed dramatic improvement, while it dropped slightly for BHUs from the 2013 (Figure 27).

Figure 27: Data Accuracy (%) in the 2013 and 2016 Assessments by HFs

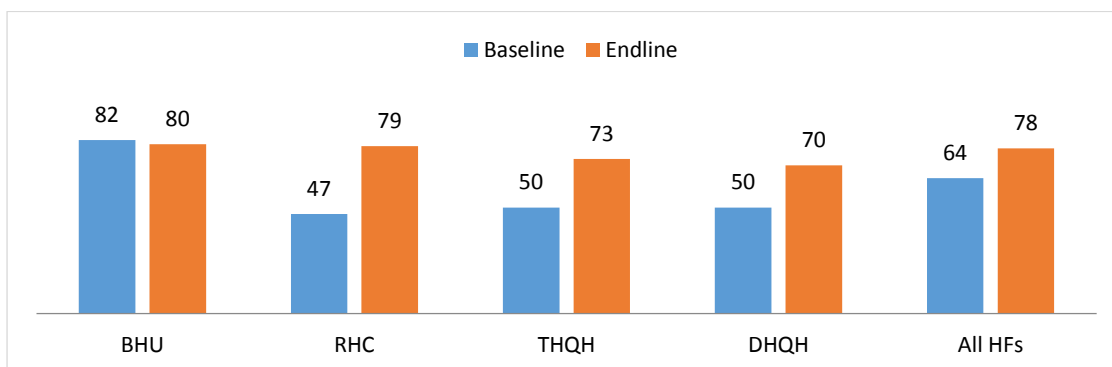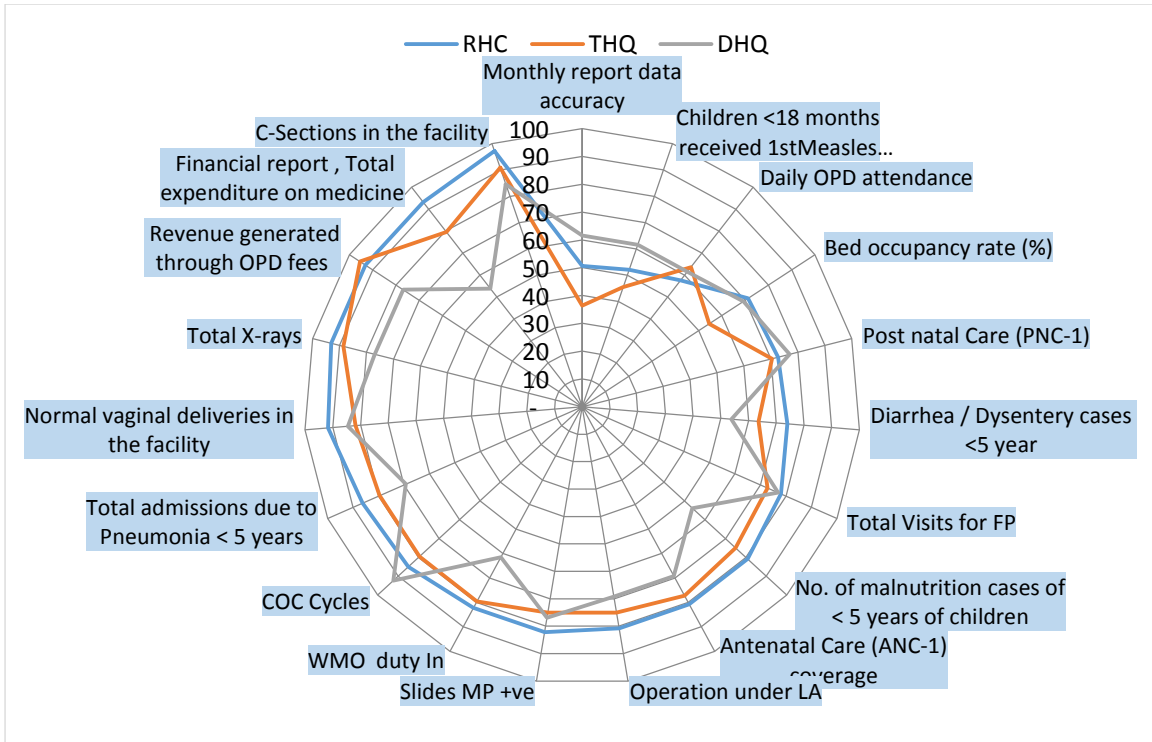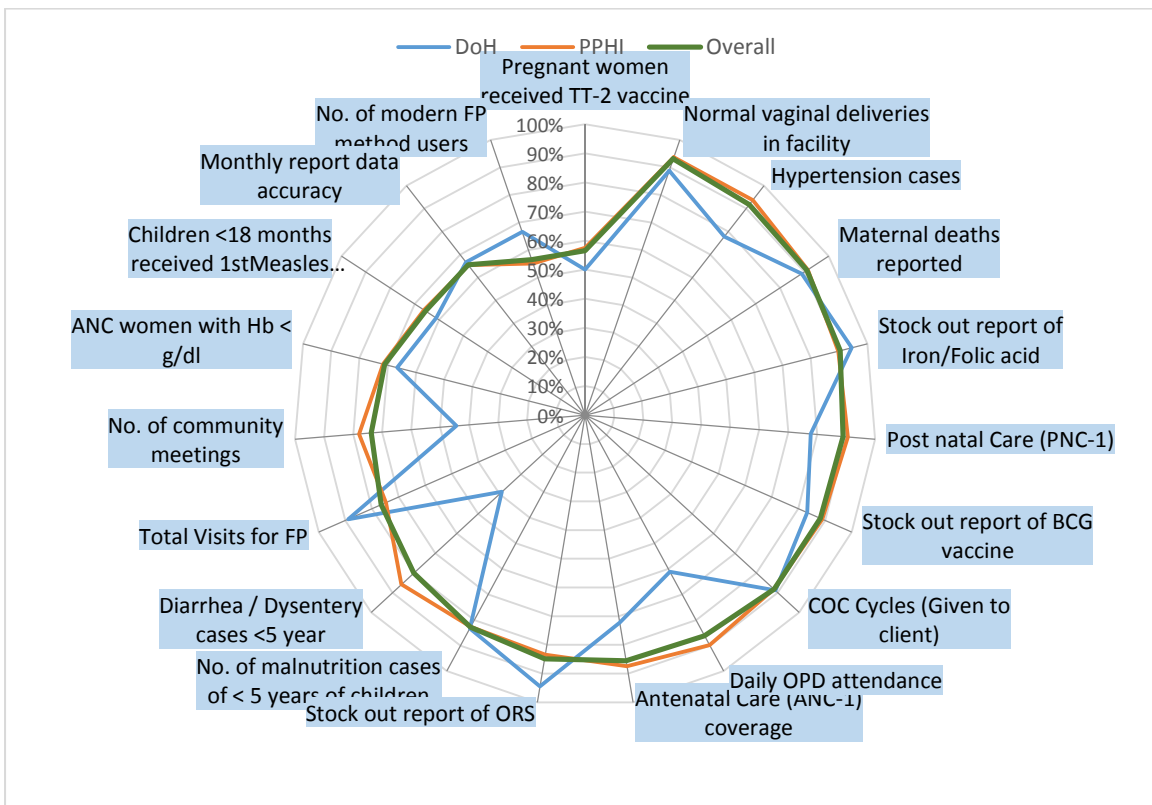*Figure 28: Data Accuracy (%) by Items checked at DHQHs, THQHs and RHCs*

Figure 29: Data Accuracy (%) by Items checked at DOH, PPHI and overall

The data elements at BHUs were different, with more primary care level data, while these were uniform at RHCs, DHQH and THQH hospitals. The breakdown for individual elements is presented in the Figure

Amongst all facilities, RHCs reported better accuracy for the 19 items ranging from 51% to 97%. Less than 70% accuracy was reported for 3 items that included monthly report, children under 18 months received 1st measles vaccine and daily OPD attendance. The least accurate item reported was monthly report (51%). At THQHs, accuracy for the items ranged from 36% to 95%, with less than 70% accuracy reported for the same items as the RHCs, in addition to diarrhea/dysentery cases of children under 5 years.

The accuracy results for DHQH varied from other facilities, ranging from 54% to 93% for all items. However, less than 70% accuracy was reported for a much greater number of items that included bed occupancy rate, ANC-1 coverage, operation under local anesthesia, total pneumonia admissions of children under 5 years, monthly report, children under 18 months received 1st Measles vaccine, daily OPD attendance, Woman Medical Officer (WMO) duty, diarrhea/dysentery and malnutrition cases children under 5 years, financial report and total expenses on medicine. The lowest reported accuracy was for financial report, malnutrition and diarrhea/dysentery cases.

BHUs managed by PPHI showed better data accuracy reported for most items. At DOH managed BHUs, items for which data accuracy was reported below 70% included Diarrhea/ Dysentery cases in under 5 children, community meetings, TT-2 vaccine, children received 1st Measles vaccine, daily OPD attendance, Modern FP method users, monthly report data accuracy and antenatal care (ANC) of women with anemia. Interestingly, the PPHI managed facilities with less than 70% accuracy reported matched the items with DOH managed ones. These included modern FP method users, TT-2 vaccine, monthly report data accuracy, Children less than 18 months received 1st Measles vaccine and ANC of women with anemia.

2.3. Data completeness
Data completeness determines the value of aggregated reports. Incomplete monthly reports undermine data use produced at the facility level as it lowers its quality. Data completeness is also indicative of lack of training or motivation of staff.

For data completeness, the Instructional Manual on DHIS 2010 states the following:

- "Fill in all items of the report. Never leave blank a possible entry. If the number of the item is zero, fill in 0.
- For activities that are normally not performed in the health facility, the reporting section can be crossed out and overwritten by 'Not Applicable'."

In the 2013 2013 and the 2016 assessment, data completeness was assessed by examining the number of cells in the monthly reports that were left blank, i.e., neither even filled with "0" nor crossed-out as "Not Applicable (N/A)." The Figure below shows the level of completeness of facility-based monthly reports submitted by the facility to the DHO in the 2013 assessment.

In the 2013 assessment, none of the DHQH and THQH had submitted their monthly reports, while only one-fifth of the BHUs and RHCs submitted had done so. Overall, 16% of the facilities submitted completely filled monthly reports to the DHOs.
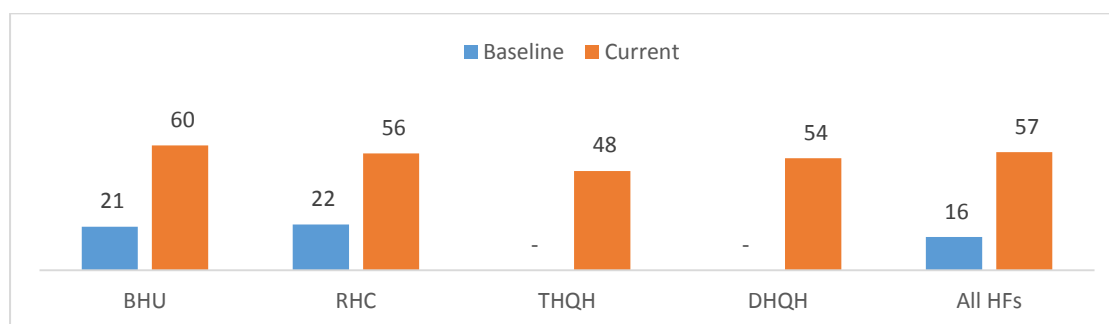
Figure 30: Data completeness (%) reported in the 2013 and 2016 Assessments

In comparison, the 2016 assessment showed that there was a significant improvement in overall Data Completeness at all facilities, from 16% to 57%. Whilst improvements were noted at all facilities, both THQH and DHQHs showed improvement above 40% from a 2013 of 0%, while BHUs and RHCs showed improvements of over 30% from the 2013 (Figure 30).

2.4. Data timeliness

The submission of monthly reports by the health facilities in the specified time frame is important for compiling district and provincial reports as well as for using information. The assessment studied the timing of the last month's progress reports submitted by the facility in-charges to the DHOs, and verification of the report from the DHO (**Error! Reference source not found.** 31).
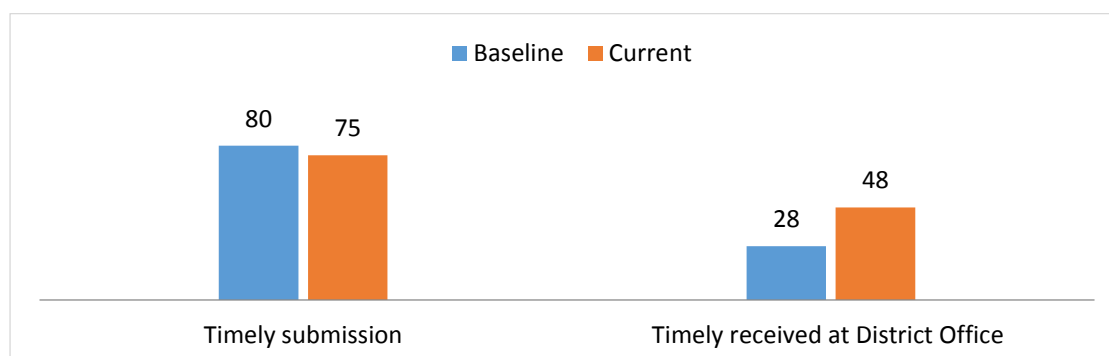
Figure 31: Percentage of facilities by timely reports submitted and verified from the DHO in the 2016 and 2013 Assessments.

In the 2016 assessment, most facilities showed considerable improvement in timely submission, but more importantly, a much higher proportion of the reports could be verified from the DHOs, an improvement of 28% to 48% amongst all facilities, when compared to the 2013 Assessment. Timely report submission dropped slightly (Figure 32).

All BHUs reported timely submission of the report, while lower proportions were reported by other HFs in the 2013 assessment. The lowest were the DHQHs with 33% timely submission, followed by 67% THQHs and 71% RHCs (Figure 32). There was improvement noted across facilities, with DHQHs showing marked increase (69%), while at RHCs it went up by 3% to 74%. At BHUs, this aspect dropped by 20%, while a slight drop was also noted at THQHs.

Of the timely reports submitted, the range of verified ones ranged from 60 to 80%. This marked a considerable improvement from the 2013.
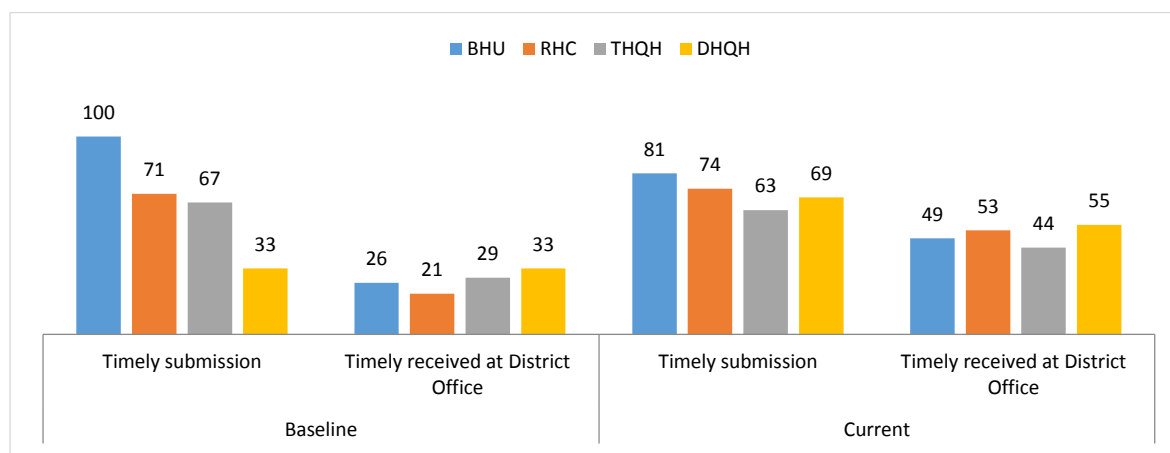
Figure 32: Percentage of facilities by timely submission and verified reports at DHO from both the 2013 and 2016 Assessments.

2.5. Display of information

Data display is important as it gives an immediate picture to the facility in-charge and supervisor of the population needs and performance, while increasing accountability. There are instructions on display of key indicator trends in the DHIS Instructional Manual.

Display of data in the form of numbers or graphs was observed, which included number/percentage coverage of fully immunized children, ante-natal care (ANC) visits, number of deliveries conducted by skilled persons, post-natal care visits, and number of OPD patients visiting the facility. Display of map and the population of the catchment area is one of the duties of the facility staff.

The 2013 Assessment showed that the majority of BHUs (91%) displayed relevant data, while more than one-third of the THQHs and a third of DHQHs had displayed the information. About 54% RHCs had displayed the required data (Figure 33). In comparison, the 2016 Assessment showed an overall increase in data display from 69% to 72%, with the most improvement observed at RHCs and DHQHs. Level of display at BHUs dropped to 79% from 91% in the 2013.
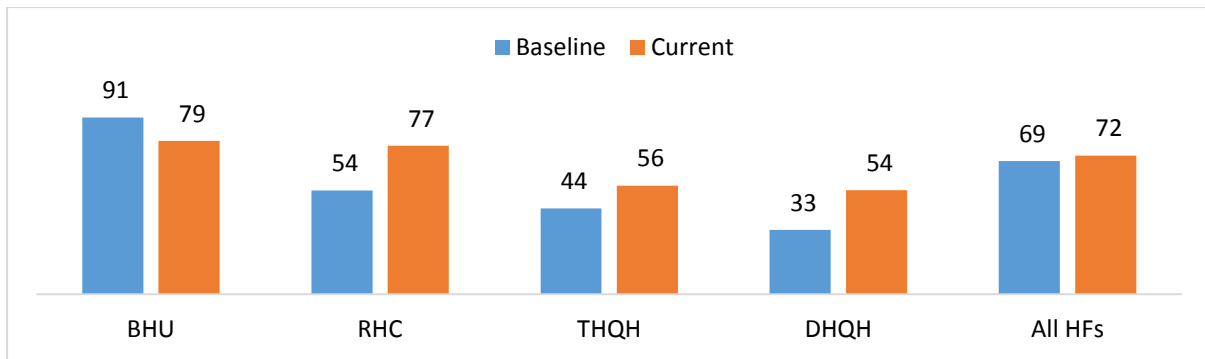
Figure 33: Percentage of facilities displaying data in 2013 and 2016 Assessments

2.6. Staff meetings

HF staff was inquired about routine meetings for reviewing managerial or administrative matters using DHIS data. About three fourths of all facilities reported having staff meetings, while these were reported to be highest from THQHs (Figure 34).
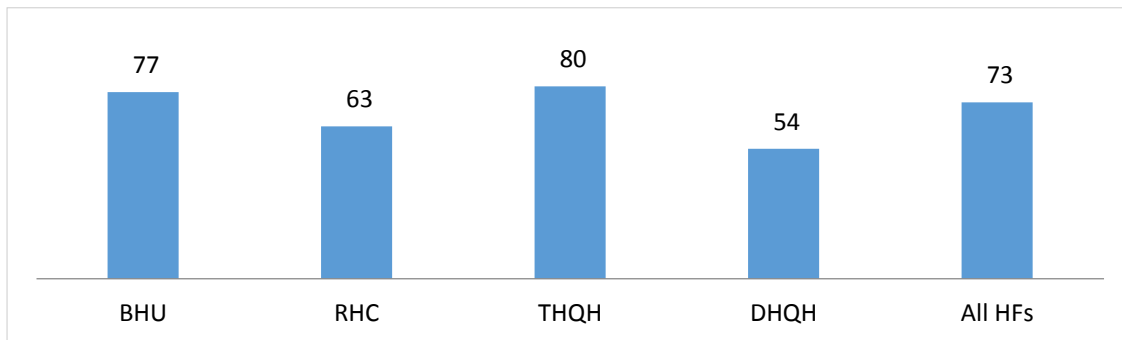
Figure 34: Percentage of HFs reporting routine staff meetings for management purposes

2.6.1. Frequency of meetings

Staff was further inquired about the frequency of routine staff meetings. Majority of the health facilities reported that the monthly meetings are being conducted as given in Figure 34.
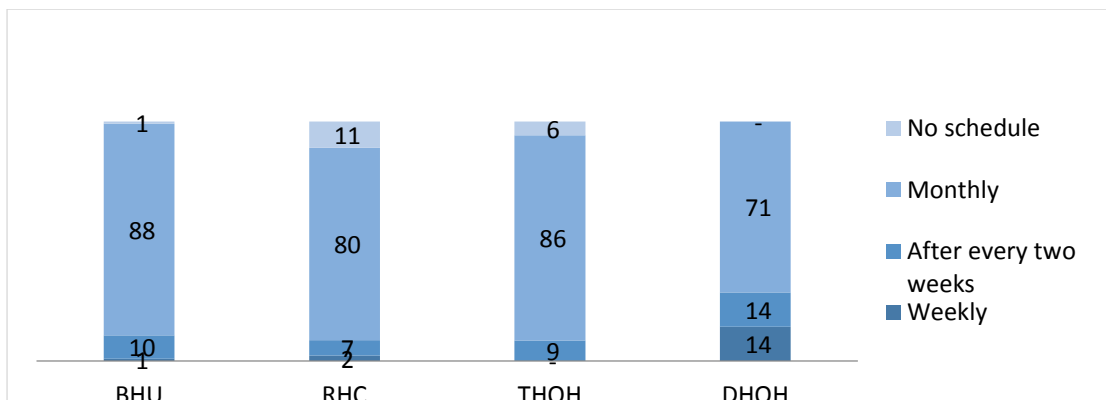
Figure 35: Percent distribution of meeting frequency reported from HFs.

Health facility Staff was further inquired about the number of meetings over the last 3 months. The highest proportion was reported for at least one meeting per month. Few facilities are also reported no meeting was held during the last three months (Figure 36).
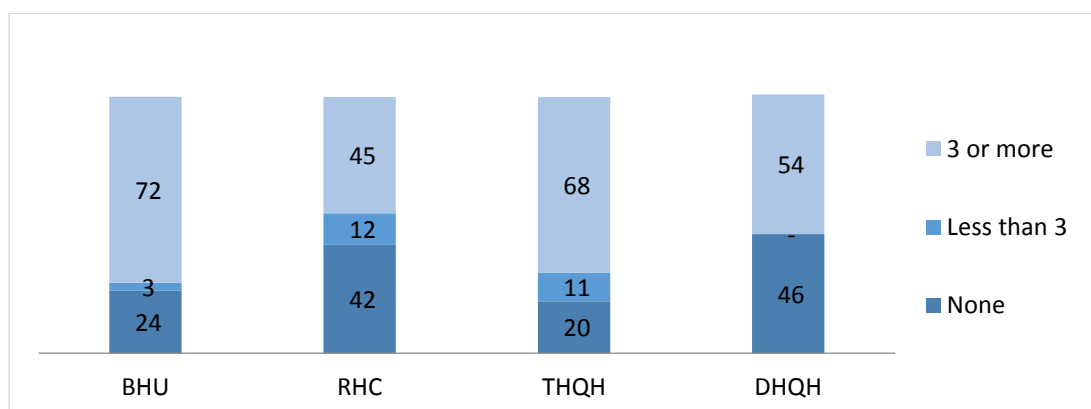
Figure 36: Percent distribution of facilities reporting meetings over the last 3 months

2.6.2. Official record of management meetings

Further, the staff was inquired for official record of the meetings to verify the information given in the previous indicator. The official record of meetings was found to be low, with less than 50% records available from RHCs, THQHs and DHQHs (Figure 37).
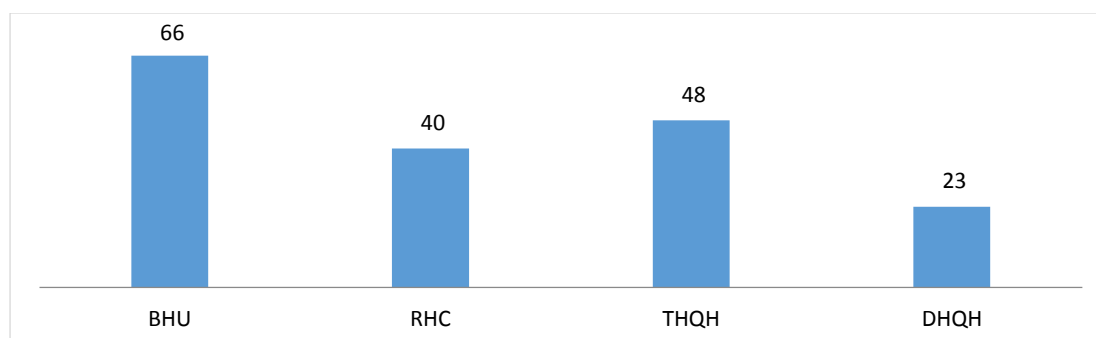
*Figure 37: Percentage of facilities with official record of meetings.*

2.6.3. Topics discussed in management meetings

For the meetings held, the official records were searched for specific topics. These included:

- Management of DHIS, such as data quality, reporting, or timeliness of reporting
- Discussion about findings by using DHIS monthly report such as patient utilization, disease data, or service coverage, or medicine stock out
- Decisions taken based on the discussions to improve service delivery
- Monthly performance review
- Monthly personnel performance review
- Advocacy for more resources
- Referral for DHIS related issues/problems to district level
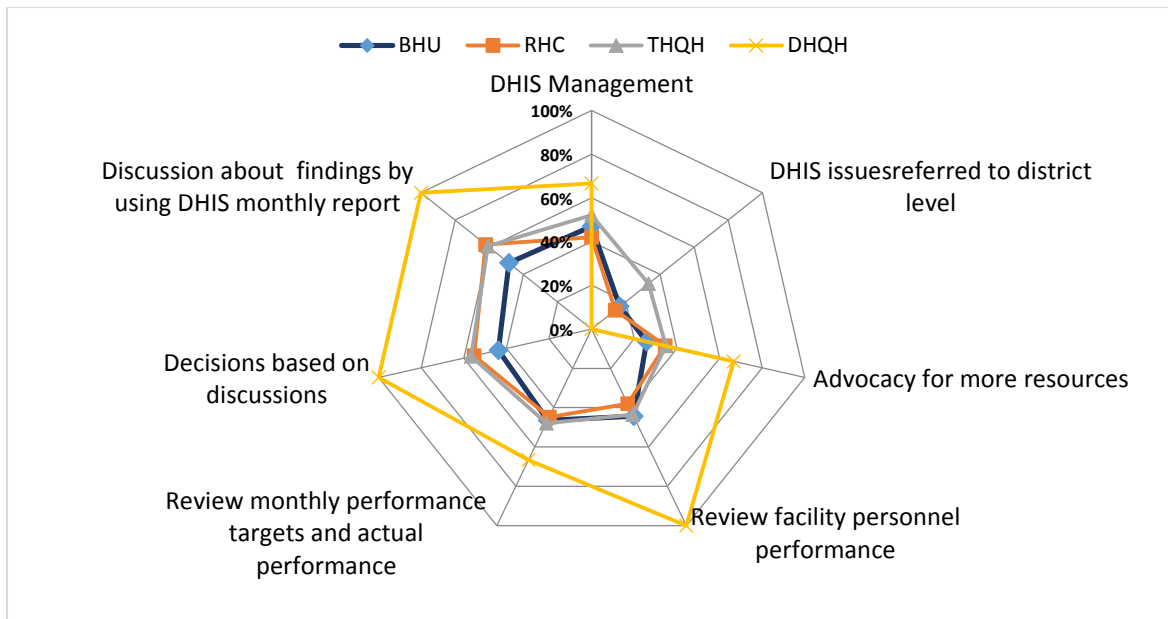
Figure 38: Percentage of facilities by topics discussed identified from official meetings record at HFs.

Amongst these aspects, referral for DHIS related issues was found to be the lowest at all facilities, while advocacy for more resources and performance reviews were also lower (Figure 38). DHIS management and discussion on the report was higher, with DHQHs reporting the highest proportions across all applicable aspects.

2.6.4. Promotion of Use of DHIS information

For the promotion of use of DHIS information, different aspects were observed in the record of previous 12 months. These included whether:

- Facility received annual/monthly planned targets based on DHIS information.
- District management issued directives concerning the use of information.
- Facility received a district or provincial newsletter or report during last three months giving examples on use of information.
- Use of information for advocacy purposes.
- In charge of the facility participated in meetings at district level to discuss DHIS performance at-least once every quarter.
- Other organizations received DHIS data

Findings from the 2013 Assessment showed that facilities having received annual/monthly planned targets based on DHIS information included 61% BHUs, 38% hospitals and 14% RHCs. Overall, 50% of the sample facilities reported that the facility in-charges participated in district level meetings to discuss DHIS performance at least once every quarter. None of the facility records in the last three months showed that district management issued any directives concerning the use of information. Only 4% of the facilities have seen any documentation showing the use of information for advocacy purposes, e.g., for resource allocation and budgetary preparation.

Figure 39: Percentage of facilities by use of DHIS information and type of HFs.

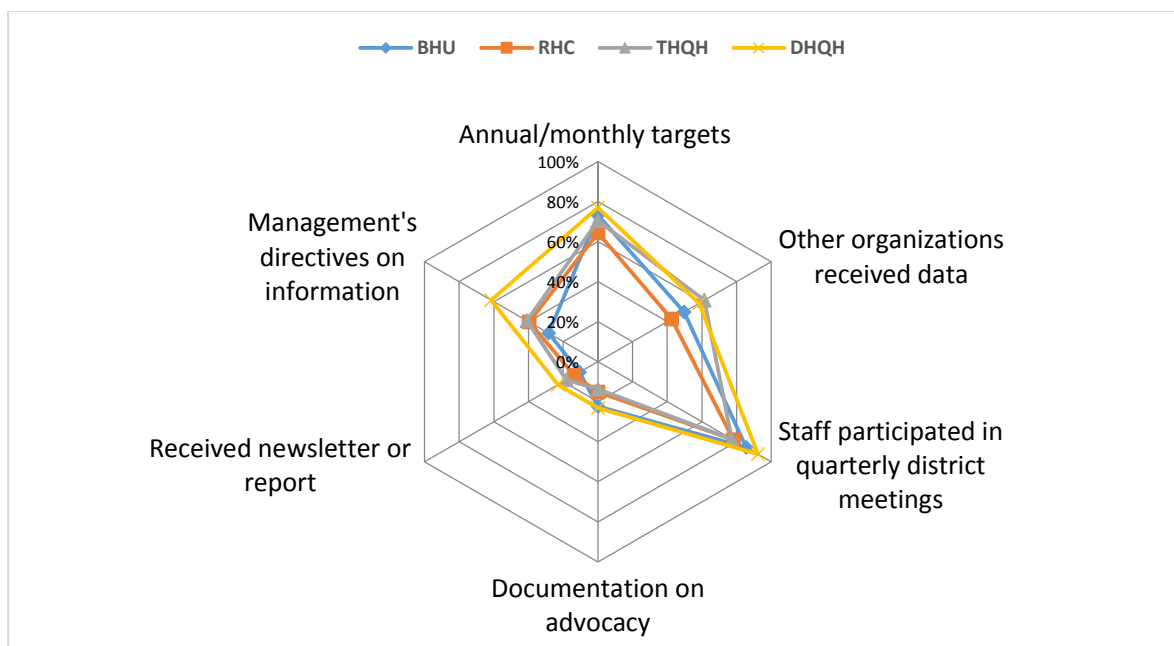In comparison, more than 60% of all facilities in the 2016 Assessment reported receiving Annual/monthly targets, while at least 75% staff participated in meetings (Figure 39). Feedback in the form of receiving newsletter or report, and advocacy for resources for found to be lower (23% or lower).

2.6.5. Feedback from district management

Districts are supposed to provide feedback in the form of monthly reports comparing performance of facilities and yearly summary report. The assessment studied whether facilities received feedback on data accuracy or facility performance based on DHIS from the DHO. Letters and minutes received within last three months from DHO were verified for the purpose. If the facility had received any written instructions/comments on the performance or quality of data from the DHO during this period, it was considered as feedback given. Areas of feedback particularly included:

- Complete filling the monthly report form
- Checking the accuracy of data on monthly basis
- Submitting the report by the specified deadline
- Feedback on services statistics received from M&E Cell

In the 2013 assessment, this was found to be one of the weakest areas. Only one quarter of the BHUs reported having received feedback regarding the completeness of the monthly reports and two-fifth of BHUs reported they received the feedback on the accuracy of the data and the submission of the monthly reports within the due date. None of the RHCs received any feedback on the accuracy of the data, whereas only 7% RHCs reported receiving feedback on the completeness of reports. It was the same for THQHs and DHQHs.

In comparison, the 2016 Assessment showed considerable improvements at DHQHs and THQHs, while feedback at BHUs lowered in all aspects (Figure 40). RHCs showed improvement as well.
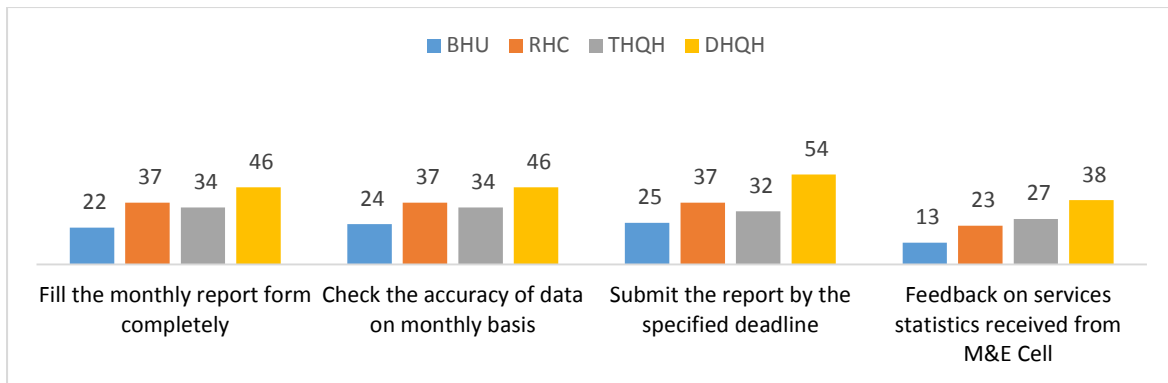
Figure 40: Percentage of facilities by status of feedback from the District Management and type of HFs

2.6.6. Actions taken by HF In-charge

In response to the feedback received, it was inquired what actions were taken by the HF in-charges. There were 40 responses from all 276 facilities. This mostly related to verbal instructions to staff for improving quality of DHIS data quality and accuracy.

2.6.7. Directives from the District Health Offices

To inquire about any corrective actions to be taken for improving data quality and accuracy, HF staff was asked about whether the DHO communicated about any consequences for not adhering to the directives pertaining to data accuracy, completeness and timeliness. Low proportions for all 3 aspects were reported from all HFs, with 21% or lower for timely submission, 11% or lower for completeness, and 18% or lower for accuracy (Figure 41).
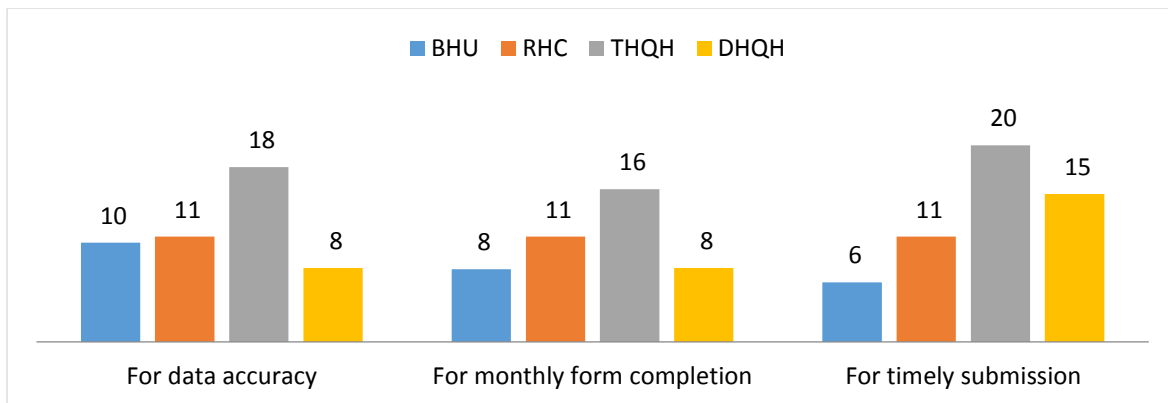
Figure 41: Percentage of facilities by directives received from District Health Offices for data timeliness, completeness and accuracy

2.6.8. Supervision by the district health office

For supervision of the HFs by the district health office, the frequency of supervisory visits was inquired over the last 3 months. Up to 3 visits were reported by 32% BHUs, 55% RHCs, 77% THQHs and 69% DHQHs (figure below). About 20% facilities also reported no supervisory visits in the last 3 months.
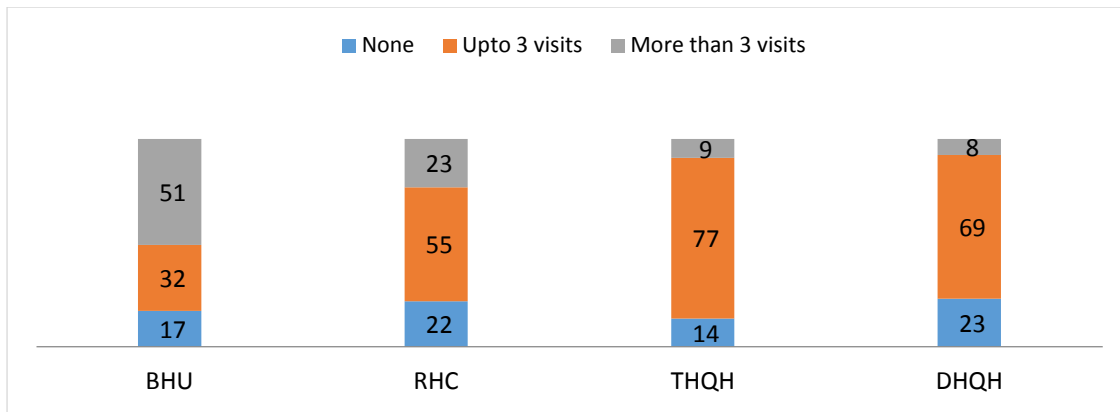
Figure 42: Percentage distribution of supervisory visits in the last 3 months by type of HFs

Further, reports were checked for important aspects of the supervisory visits. These particularly included these aspects:

- Supervisor had a checklist to assess data quality
- Supervisor checked the data quality
- Supervisor discussed performance of health facilities based on DHIS information
- Supervisor helped make any decision based on DHIS information
- Supervisor sent a report/feedback/note on the last two supervisory visits

Regarding these aspects, supervisor feedback was reported in less than one-third of the visits, while supervisor helped in decision making in about 70% of the visits at BHUs, RHCs and THQHs, while this was about 50% for DHQHs (Figure 43). Sharing of feedback was the lowest reported, with less than 31% responses or lower at all facilities. Supervisor discussed HF performance about 70% at all HF levels, while checklist for data quality ranged from 29% at DHQHs to 70% at BHUs.
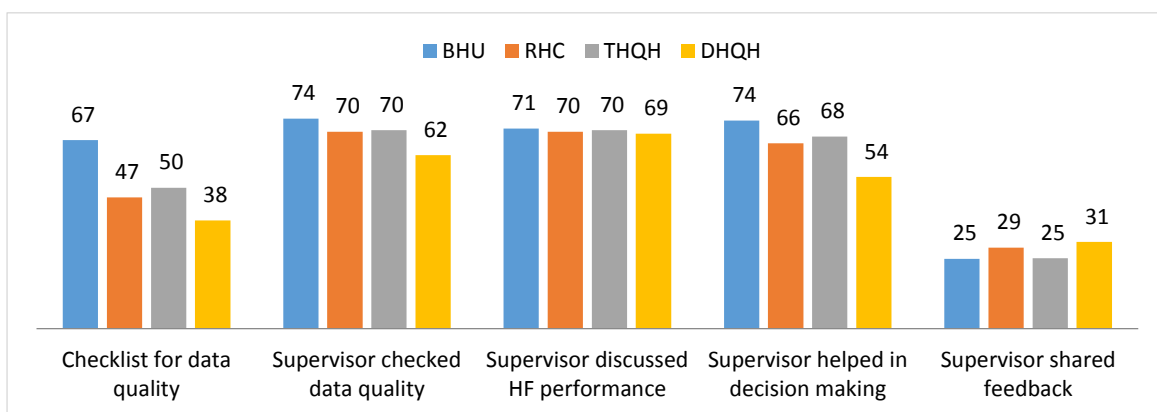
Figure 43: Percentage of items used for supervisory visits at HFs.

2.6.9. Technical Assistance Provided by Stakeholders

Technical assistance provided by other development partners particularly for DHIS/MIS related activities during the last 3 months was inquired from the HF staff. Facility records of such visits were verified. Further, HF performance and assistance offered for reporting and analyzing data was also verified from the records.

Most development partner visits were reported from THQHs (77%), followed by DHQHs (69%) and RHCs (69%). Lowest proportion of partner visits was reported from BHUs (15%). Of the visits, records showed that more than 80% checked for data quality, discussed HF performance, and helped with analysis and reporting at RHCs, THQHs and DHQHs (Figure 44).
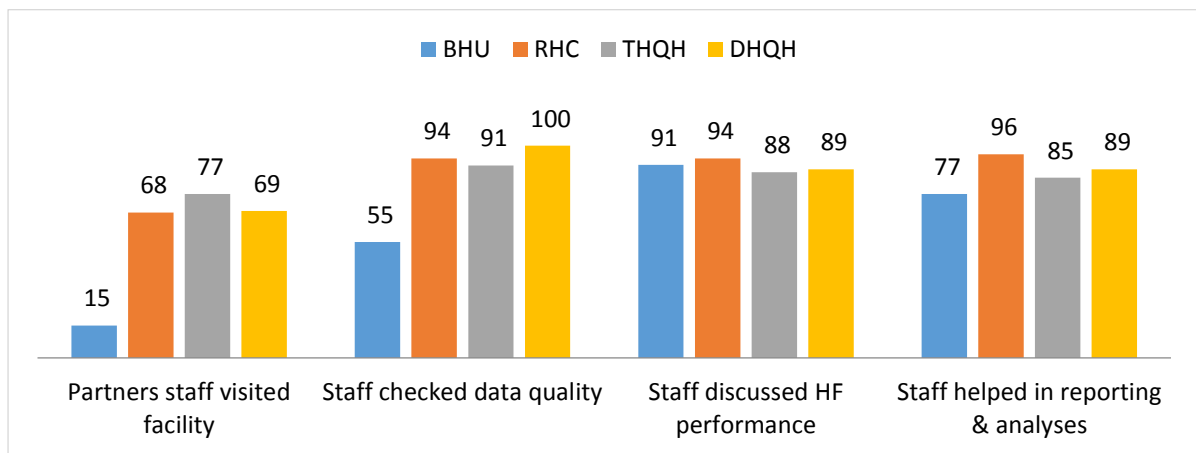
Figure 44: Percentage of facilities by partner visits, and breakdown for data quality, HF performance and reporting by facility type.

Two main purposes of visits could be identified from the HF records. The first was for data quality, accuracy and completeness by the HSS. The other were visits from MCHIP, WHO and Save the Children Federation (SCF) regarding information on deliveries, FP and MCH related activities. Most visits (90% or more) were by the HSS at RHCs, DHQHs, and THQHs.
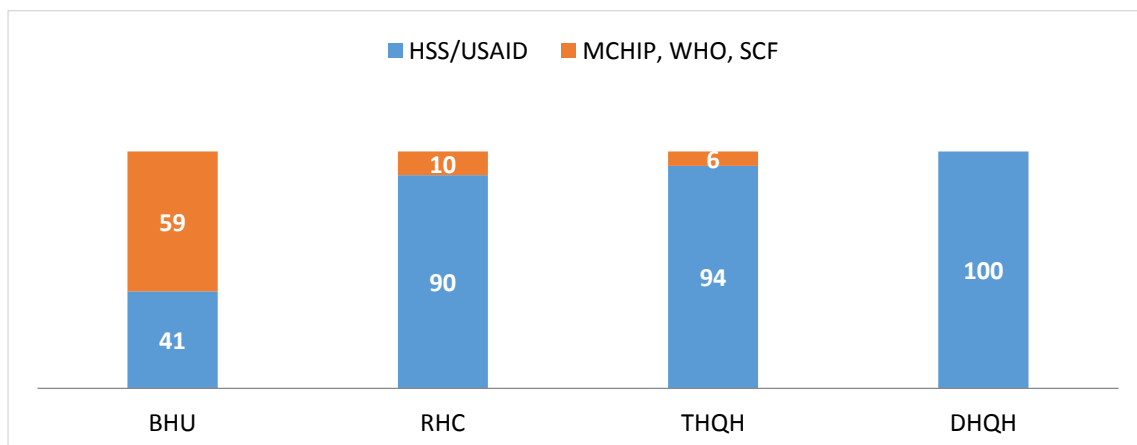
Figure 45: Percent distribution of visits and activities by partners from verified HF reports.

2.7. Conclusions and Recommendations

Findings of the 2016 Assessment show that there have been considerable improvements compared to the 2013 Assessment in the DHIS management, implementation and quality assurance at both the Districts and Health Facility level in the province of Sindh. After the 2013 assessment, HSS had designed a methodology of providing hands-on support in the form of mentoring the facility staff, district managers and provincial M&E Cell managers.

The 2016 Assessment points to specific areas needing improvement and continued support. These areas with proposed interventions are discussed here.

1. Although the HSS provided hands-on support in the preceding year, training needs have been clearly outlined by the personnel at both the DHO and facility levels. Due to frequent transfers and postings at the DOH, training was not undertaken by HSS. To overcome these inefficiencies, a training needs assessment with mapping of personnel within the DOH can be carried out as a precursor to minimize attrition, and targeting training sessions at the right personnel.
Some staff may require refresher trainings in the new online systems, and on revised indicators. The areas of focus include: information use, data quality, transmission, record keeping, online uploading of information, and compliance to policies.
Training needs have also changed because of the change in the DHIS system to an online system, which does not require specialized IT skills. The online system allows for upload data, error correction and reporting with minimal effort for analysis and to provide feedback to those who collect and report data.

2. Improvement in capacity for the DHIS system to run smoothly and without interruptions boils down to the basics of having trained personnel, computing and utilities, especially continuous power supply. While the HSS component is in the process of equipping M&E Cells at DHO offices, uninterrupted power solutions can be factored into this intervention.

3. At the DHO level, hand holding for use of information from the DHIS system for planning, resource allocation, and performance is needed. Analytic skills for use of the system and related M&E Online Dashboards require continued support.

4. Related to organizational and behavioral aspects studied, most responses have shown a positive trend towards use of information. There is an opportunity to build on this base, and develop a culture of open learning, transparency and professionalism to maximize the use of information from the DHIS online system.

5. Although data accuracy has improved over the course of time, the HSS component should aim towards ensuring 100% accuracy, by targeting processes and exploring innovative solutions for it.

6. Regarding data completeness, the most basic requirement is the availability of tools, which was related to the appropriate use of these. Hence, it is important to ensure availability of tools at all levels.

7. Data timeliness is related to record keeping and transmission. The system is available for ensuring processes for timely completion of reports and their onward submission. Ways to improve timeliness can be explored in the training sessions by the HSS component, by involving relevant stakeholders.

8. Display of information for transparency and meeting targets is important. However, the main issue was found to be non-availability of requisite materials, which the HSS Component can target.

9. Feedback to the facilities from the DHO has surfaced as an important aspect which needs urgent attention. Supportive supervision can be offered to improve accuracy, timeliness, completeness and transmission. Supervisory visits need to be systemized, and made a regular feature. In addition, 'error reports' that point to outliers and/or incongruent information are being added to the DHIS system, which will help the DHOs in detecting issues and targeting corrective actions.

10. In the past, the DHIS Focal Person is usually handed as an additional charge. Through HSS assistance, 30 district health managers have already completed masters' degree in public health and the deployment plan for their posting at the incharge of M&E cell has approved by the DOH. Once they placed, the capacity will greatly improve the functioning of the system.

Annex 1: Sample of the PRISM DHIS 2016 Assessment

Districts	Type of Health Facility				Total
	BHU	**RHC**	**THQH**	**DHQH**	
Badin	7	2	2	1	12
Dadu	6	3	2	1	12
Ghotki	6	3	2	1	12
Hyderabad	6	3	3	0	12
Jaccobabad	6	3	2	1	12
Jamshoro	6	3	2	1	12
Kambar Shahdadkot	6	3	3	0	12
Kashmore	6	4	2	0	12
Khairpur	6	5	1	0	12
Larkana	6	3	3	0	12
Matiari	6	3	3	0	12
Mirpur Khas	6	3	2	1	12
Naushero Feroze	6	3	2	1	12
Sanghar	6	4	1	1	12
Shaheed Benazirabad	6	5	1	0	12
Shikarpur	6	4	1	1	12
Sujawal	7	2	3	0	12
Sukkur	7	2	3	0	12
Tando Allah Yar	8	3	0	1	12
Tando Muhammad Khan	8	3	1	0	11
Tharparker	6	2	3	1	12
Thatta	6	4	1	1	12
Umer Kot	6	3	2	1	12
Total	**145**	**73**	**45**	**13**	**276**

Annex 1: Sample of the PRISM DHIS 2016 Assessment

Annex 2: DHIS Provincial Compliance Report (March 2016)

District	Mar			Apr			May		
	Total facilities	Repot submitted	%	Total facilities	Repot submitted	%	Total facilities	Repot submitted	%
Badin	101	101	100	101	101	100	102	102	100
Dadu	72	68	94	72	68	94	72	68	94
Hyderabad	70	70	100	70	70	100	70	70	100
Sujawal	46	46	100	48	48	100	48	48	100
Jamshoro	58	54	93	58	54	93	58	54	93
T.Allahyar	50	50	100	50	50	100	50	50	100
Thatta	34	34	100	34	34	100	34	34	100
Matiari	43	43	100	43	43	100	43	43	100
T.M. Khan	39	39	100	39	39	100	39	39	100
Karachi	96	96	100	93	93	100	89	89	100
Jacobabad	47	45	96	47	46	98	47	47	100
Larkana	64	64	100	64	64	100	64	64	100
Shikarpur	63	63	100	63	63	100	63	63	100
Kamber	66	66	100	66	66	100	66	66	100
Kashmore	49	47	96	49	48	98	49	49	100
Khairpur	162	157	97	162	159	98	162	157	97
N. Feroze	103	103	100	104	104	100	104	104	100
S.Benazirabad	122	122	100	122	121	99	122	122	100
Sukkur	49	47	96	49	47	96	49	47	96
Ghotki	56	53	95	56	53	95	56	51	91
Mirpurkhas	108	108	100	108	108	100	108	108	100
Sanghar	103	103	100	103	103	100	103	103	100
Tharparkar	155	154	99	155	155	100	155	154	99
Umerkot	64	64	100	64	64	100	64	64	100
Total	1820	1797	99	1820	1801	99	1817	1796	99