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Ethiopia

Health Data Quality Review: System Assessment and Data Verification for Selected Indicators

2016

Ethiopia
Health Data Quality Review: System Assessment and Data Verification 2016

Ethiopian Public Health Institute
Addis Ababa, Ethiopia

Federal Ministry of Health
Addis Ababa, Ethiopia

World Health Organization (WHO)
Addis Ababa, Ethiopia

This report presents findings of the 2016 Ethiopia Data Quality Review (DQR), which was implemented by the Ethiopian Public Health Institute and the technical assistance was provided by the World Health Organization (WHO).

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Executive Summary

Introduction: Globally, there is increasing interest in the measurement of indicators to capture key information about health services and programs. This reliance on indicators necessitates quality assurance mechanisms that promote reliable data collection, storage, and management. As national health programs in promoting health, preventing and treating diseases and health problems like vaccine preventable diseases, maternal and child health problems, malaria, HIV/AIDS and tuberculosis (TB), assessing program effectiveness and management demands the development and maintenance of strong monitoring and evaluation (M&E) systems in the country health system. All functions of the health system rely on the availability of timely, accurate and dependable information for decision-making. Hence, revolutionizing the existing practice of collecting, analysing, disseminating and utilising information in the health sector can considerably contribute towards holistic transformation. . Quality of data is a key factor in generating reliable health information that enables monitoring progress and making decisions for continuous improvement. This survey describes the quality of the HMIS health facility data in Ethiopia for July to September 2015 at the Regional, Zonal, District and the operational health facility levels, using seven indicators.

Method: The 2016 Ethiopia data verification and system assessment was a cross-sectional study, which uses the World Health Organization's Data Quality Review tool. The sample size for the DV-SA was determined by a combination of census of hospitals and random samples of health centres and private clinics. Because of their importance and their limited numbers, all hospitals were included in the survey and allowing for inclusion of newly identified hospital in the survey. A representative sample of health centres and private clinics were selected and included in the survey, a total sample size of 544 health facilities were selected. The majority of facilities in the country are health centres (30 percent). Private clinics (31 percent) and Hospitals (38 percent) are the fewest in number. The core recommended indicators: Maternal health: Antenatal care first visit, and institutional deliveries, Immunization: Pentavalent/DTP third doses in children under one year, HIV indicators: PMTCT coverage, Tuberculosis: TB cases, Malaria: Confirmed malaria cases, and Family planning: Contraceptive accepters were included for data verification and system assessment.

Result: Private facilities are relatively less likely to report to the government reporting system than facilities managed by government authorities (99 percent Vs 75 percent). Only 30 percent of the ANC data reported matched with source document in government facilities, which is much lesser than the figure for the other facilities not managed by the government. From all facilities that report delivery services, 8 percent showed substantial over reporting (greater than 10percent) and 11 percent had substantial under reporting (greater than 10 percent). Fourteen percents of Private-for-profit facilities

made over reporting (greater than 10percent) while 12 percent of public facilities made substantial under reporting (greater than 10 percent) of delivery data. Compared with facilities managed by entities other than government, larger proportions of public facilities made greater than 10 percent over (20 percent) or under (15 percent) reporting of Penta3 data. NGO/not-for-profit facilities made bigger proportions (14 percent) of more than 10 percent over reporting while more than half of private-for-profit facilities (53 percent) under report PMTCT services data in to the next higher level of reporting system. Among all facilities, four in ten facilities had FP data over reporting followed by ANC and malaria data (23 percent). PMTCT data was the best-matched data among all indicators (88 percent) followed by TB data (76 percent). At district level, 16 percent of malaria data were over reported (greater than 10 percent) followed by penta 3 data (15 percent). About three fourth of the zones had ANC, delivery, PMTCT, malaria and FP data matched with source document. Only TB data had 100 percent matched with the source document. Among all indicators, greater proportions of zones (13 percent) had PMTCT data over reported (greater than 10 percent)at the same time 7 percent of zones also made under reporting (greater than 10 percent) At regional level, 73 percent of ANC report exactly matches with the source document. Eighty two percent of Delivery, penta3, and malaria confirmed cases reports also matched with the source documents findings. Highest concordance was seen in TB where all the data match each other (100 percent). It is, therefore, important to improve the quality and usefulness of relatively low-cost, pre-existing health data monitoring systems within Ethiopia.

Abbreviations and acronyms

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal Care
CAPI	Computer Assisted Personal Interviewing
DPT	Diphtheria Pertussis Tetanus
DV	Data Verifications
EHHMIS	Electronic Health Management Information System
FMOH	Federal Ministry of Health
FP	Family Planning
HEWs	Health Extension Workers
HIS	Health Information System
HIV	Human Immuno Virus
HMIS	Health Management Information System
M&E	Monitoring and Evaluations
NGO	Non-Governmental Organizations
PHCU	Primary Health Care Unit
PMTCT	Preventions of Mothers to Child Transmissions
RHBs	Regional Health Bureau
SARA	Service Availability and Readiness Assessment
SA	System Assessment
SNNP	South Nations Nationalities and Peoples

TB	Tuberculosis
USAID	United States Agency for International Development
VF	Verifications Factors
WHO	World Health Organizations
WoHOs	Woreda Health Office
ZHDs	Zonal Health Departments

1. Introduction

1.1. Background Information

Globally, there is increasing interest in the measurement of indicators to capture key information about health services and programs. This reliance on indicators necessitates quality assurance mechanisms that promote reliable data collection, storage, and management. As national health programs in promoting health, preventing and treating diseases and health problems like vaccine preventable diseases, maternal and child health problems, malaria, HIV/AIDS and tuberculosis (TB), assessing program effectiveness and management demands the development and maintenance of strong monitoring and evaluation (M&E) systems in the country health system (USAID,2011). Quality of information is also an issue in the health sector. This justifies the need for a different approach in terms of information management and utilization that can bring about a radical change in all dimensions (WHO, 2008). A well-functioning HIS is an integrated effort to collect, process, report and use health information and knowledge to influence policy and decision-making, programme action, individual and public health outcomes, and research (WHO, 2010). All functions of the health system rely on the availability of timely, accurate and dependable information for decision-making (FMOH, 2016). However, no health data from any source can be considered perfect: all data are subject to a number of limitations related to quality, such as missing values, bias, measurement error, and human errors in data entry and computation. Data quality assessment is needed to understand how much confidence can be put in the health data presented. In

particular, it is important to know the reliability of national coverage estimates and other estimates derived from HIS data that are generated for health sector reviews, as these often form the basis for annual monitoring (WHO). Hence, revolutionizing the existing practice of collecting, analysing, disseminating and utilising information in the health sector can considerably contribute towards holistic transformation (FMOH, 2016). Effective information use is critical across a range of activities in the health system. It is difficult to promote and maintain quality of primary, secondary and tertiary health care without the availability and effective utilization of micro level medical information. The decisions and organizational behaviours of service rendering facilities is also influenced by the amount of data they can gather and the capacity to translate it to meaningful information, which in turn is used for decision-making. From an equivalently imperative viewpoint, public access for essential information on health and health system is also important in terms of improving quality of care. The need for multi-dimensional accurate and timely information is eminent in light of addressing issues related to equity in the health sector. Existing inequalities in health are accurately identified only with the presence of multi-dimensional and comprehensive information about the problem and contributing factors. Selection and application of effective interventions to solve the equity problem also require the use of analytic information. The importance of information is also amplified when it comes to health emergency risk management. Local, national and global information is vital in terms of protecting the nation from health and health-related hazards. The same holds true for strengthening regulatory and purchasing functions in the health sector. In light of the above-mentioned importance of information use in Ethiopia, the prevailing practice in terms of effectively utilizing information is not satisfactory. Quality of data is a key factor in generating reliable health information that enables monitoring progress and making decisions for continuous improvement. The need for organized, accessible, timely, and accurate data for health decision making has become a growing concern at national and international levels. In response to this, the FMoH has undertaken an extensive reform and redesign of the national HMIS. The reform has taken major steps to respond to the deficiency of routine health data that limited the quality of care, planning, and management systems, as well as decision-making by managers at all levels in the health care system (FMOH, 2016). Despite the intensive effort to improve the efficiency of information systems in the past few years, the utilisation of information at the local level is still a challenge. In Ethiopia reports are generated at each level of the health system and then submitted to each next subsequent level. Health posts report to health centres & kebele counsels. Health facilities (public & private) prepare and submit their reports to WoHOs. The WoHOs then make aggregated monthly reports & send to Zonal Health Departments (ZHDs) and to Woreda Counsel. Similarly, the ZHDs will aggregate their reports and submit to the RHBs & Zonal counsels. The RHBs then send their reports to the FMOH. The electronic HMIS (eHMIS) will simplify perform data transfer and analysis at each level of the health

system (FMOH, 2014). In the web-based HMIS, facilities send monthly reports electronic or paper data to the health district/woreda office, where the facility- level data are entered electronically into the online database. Hospitals and large health centres with internet connections can enter their monthly reports directly into the web-based system. Once data have been entered into the system, it is visible to those with viewing rights to the national database (FMOH, 2016). This report describes the quality of the HMIS health facility data in Ethiopia for July to September 2015 at the Regional, Zonal, District and the operational health facility levels, using seven indicators.

1.2. Objectives

Objectives of DV-SA includes:

- Assess the existence of health information systems processes using the seven selected indicators
- Assess the level of technical determinants related to procedures manuals, tools and forms.
- Assess the level of data quality in relation to completeness, and timeliness at the service delivery point or woreda/ZHD and region;
- Assess the level of information use in relation to decision-making, monitoring, and promotion of information use;
- Develop action plans to improve both the data management and reporting systems and the data quality

1.3. Definition of key terms

Data verifications: is a quantitative comparison of, recounted to reported data and a review of the timeliness, completeness and availability of reports.

Indicator: is a variable that measures one aspect of a program or project that is directly related to the program's objectives.

Verification factor (VF): Number of recounted events from source document / number of reported events from HMIS report.

A verification factor (VF) of < 1 indicates a lower numbers were recorded as being provided at the source levels than are reflected in the number sent to next levels (over reporting). Conversely, a VF > 1 indicates that a higher numbers were recorded as being provided at source levels than are reflected in the number sent to next levels (underreporting).

Completeness of facility reporting: Percentage of expected monthly facility reports received for a specified period time (the three months, July – September 2015). Completeness of facility reporting (%) is defined as the number of reports received, according to schedule, from all health facilities , divided by the total expected reports from all facilities that are supposed to report to the HMIS for a specified

time period (the three months, July – September 2015). The numerator is the actual number of facilities that submit a report and the denominator is the total number of health facilities that are expected to submit a report. Total number of facility reports received at the unit/Total number of expected facility reports at that unit = completeness of reporting.

1.4. DV-SA Survey Methodology

The 2016 Ethiopia data verification and system assessment was a cross-sectional study, which uses the World Health Organization's Data Quality Review tool.

Content of DV-SA Survey

The 2016 DV-SA provide indicators at national level for the different facility types and managing authority as well as aggregate indicators at the regional level. To achieve the objectives of the assessment and to capture information from the different categories, data were collected using the following instruments that contain data collection tools for assessing data quality at the facility and other administrative levels and tools for assessing system that affect the quality of data. As these questions are to be administered to a sample of health facilities, which was administered with a broader health facility survey of the Ethiopian Service Availability and Readiness Assessment (SARA). The modules include: Facility level data verification tool, Facility level system assessment tool, woreda level data verification tool, woreda level system assessment tool, Zone level data verification tool, Zone level system assessment tool, Region level data verification tool, and Region level system assessment tool. The data reporting verification tool was is a questionnaire used to verify the availability of specific services provided at the facility level followed by verification of source documents and reports at all levels of health administration. The DV-SA is an assessment of health facilities, designed to provide information on the general performance of facilities that offer maternal, child, and reproductive health services as well as services for specific infectious diseases including HIV/AIDS, tuberculosis (TB), and malaria, and the functioning of the various components of the health system that may affect the quality of services.

Data Collection Instruments

To achieve the objectives of the assessment and to capture information from the different categories, data were collected using the Data Quality Review tool. The Data Quality Review (DQR) tool collects information on data quality at the facility and other administrative levels and assessing system that affect the quality of data. The tool further probes into listing out the discrepancies observed, if any. The questionnaire includes the following core recommended indicators: Maternal health: Antenatal care first visit, and institutional deliveries, Immunization: Pentavalent/DTP third doses in children under one year,

HIV indicators: PMTCT coverage, Tuberculosis: TB cases, Malaria: Confirmed malaria cases, and Family planning: Contraceptive accepters. The modules include:

1. Facility level data verification tool: A questionnaire used to verify the availability of specific services provided at the facility level followed by verification of source documents and reports
2. Facility level system assessment tool: The system assessment tool examines attributes that affect system functioning at the facility level.
3. Woreda level data verification tool: Compares the quantities reported at the woreda level of the same indicators examined at the facility level.
4. Woreda level system assessment tool: This questionnaire examines system attributes that can affect data quality at the woreda level
5. Zone level data verification tool: Compares the quantities reported at the zone level of the same indicators examined at the woreda and facility levels
6. Zone level system assessment tool: Examines system attributes that can affect data quality at the zone level
7. Region level data verification tool: compares the quantities reported at the region level of the same indicators examined at the zone, woreda and facility levels
8. Region level system assessment tool: Examines system attributes that can affect data quality at the regional level

Data Collection Approaches

After preparation of definitive questionnaires in English, the questionnaires were loaded on tablet computers, which were used during interviews to ask questions and record responses (computer assisted personal interviewing–CAPI). As these questions were administered to a sample of health facilities, it was done with a broader health facility survey, the Service Availability and Readiness Assessment (SARA).

Sampling of health facilities

All levels of health service delivery and administration are expected to submit reports on key service outputs on a pre-determined schedule mostly per month. The best-case scenario would include reporting from all public facilities, private facilities, facilities run by non-governmental organizations, faith-based organizations, etc. to the higher level of health care and administration. However, in most developing countries, only the public health facilities and sometimes facilities run by non-governmental organizations and faith-based organizations report in to the health management information system (HMIS). It is critical to know the facility, district, zone and region reporting completeness rate to make informed

interpretation on key indicators. If facility, district, zone and region reporting completeness is less than 100 percent, there will be partial and incomplete information on health indicators. The total expected reports would include all facilities, woreda, zone, or regions that are supposed to report to the HMIS (FMOH, 2016). The sample size for the DV-SA was determined by a combination of census of hospitals and random samples of health centres and private clinics, which was already done for the broader service availability and readiness assessment (SARA) survey.. Because of their importance and their limited numbers, all hospitals were included in the survey and allowing for inclusion of newly identified hospital in the survey. A representative sample of health centres and private clinics were selected and included in the survey. A total sample size of 544 health facilities were selected.

Table 1.2.1 presents the percent distribution by background characteristics of the facilities, woredas and Zones that were successfully assessed. The majority of facilities in the country are health centres (30 percent). Private clinics (31 percent) and Hospitals (38 percent) are the fewest in number. The majority of the facilities (57 percent) are managed by the government and facilities managed by private for profit (38 percent). NGO (mission/faith-based, non-profit) (1 percent) are small in proportion (see table 1.2.1).

Oromia region Addis Ababa city administration contains the largest proportion of the facilities (17 percent each) followed by SNNP and Amhara regions which contain about one in ten (11 percent respectively) (see table 1.2.1).

Table 1.2 1 Percent distribution and number of surveyed facilities, by background characteristics, Ethiopia DV-SA 2016.

Percent distribution and number of surveyed facilities, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	**Percent distribution of Health facilities**	Number of facilities surveyed	
		Unweighted	Weighted
Facility type			
Referral Hospital	6	31	2
General Hospital	22	117	8
Primary Hospital	11	58	4
Health Centre	30	161	248
Higher Clinic	4	23	25
Medium Clinic	12	63	60
Lower Clinic	16	87	192
Managing authority			
Government/public	57	312	261
NGO/not-for-profit	3	17	3

Private-for-profit	38	207	272
Mission/faith based	1	4	2
Region			
Tigray	8	42	28
Afar	7	38	8
Amhara	11	61	133
Oromia	17	93	166
Somali	8	43	14
Benishangul Gumuz	6	30	6
SNNP	11	61	117
Gambella	6	30	10
Harrari	4	23	3
Addis Ababa	17	91	50
Dire Dawa	5	28	4
Total	100	540	540

Oromia region contains the largest proportion of the woredas (37 percent) followed by SNNP and Amhara regions, which contain about 13 percent each (see table 1.2).

Table 1.2 2 Percent distribution and number of surveyed woreda, by region, Ethiopia DV-SA 2016.

Percent distribution and number of surveyed facilities, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	**Percent distribution of woreda**	Number of facilities surveyed	
		Unweighted	Weighted
Region			
Tigray	10	28	18
Afar	6	17	12
Amhara	13	38	53
Oromia	37	106	111
Somali	8	24	22
Benishangul Gumuz	6	18	8
SNNP	14	40	56
Gambella	4	10	5
Harrari	3	8	3
Total	100	289	289

SNNPR region contains the largest proportion of the Zones (37 percent) followed by Oromia and Amhara regions, which contain about (26 percent and 15 percent) of zones respectively (see table 1.2. 3).

Table 1.2 3 Distribution of surveyed Zones, by region, Ethiopia DV-SA 2016

Background	**Percent distribution of zones**	Number of zones surveyed

characteristics		Unweighted	Weighted
Tigray	6	1	4
Amhara	15	12	10
Oromia	26	22	17
Ben. Gumuz	4	3	3
SNNP	29	14	19
Gambella	5	3	4
Addis Ababa	14	11	9
Total	100	66	66

All the nine regions and two city administrations were also included for the system assessment and data verification at regional level.

Training and Data Collection

The questionnaires were pretested to detect any possible problems in the flow of the questionnaires, gauge the length of time required for interviews, as well as any problems in the translations. The pre-test also helped to detect any problems with the data entry programs. After the pre-test, the questionnaires and computer programmes were finalised for the main data assessment.

Eighty-three, mostly health providers (nurses, nurse midwives, and clinicians) were trained in the application of survey instruments and computer programmes. The training included classroom lectures and discussion, practical demonstrations, mock interviews, role-plays, and field practices. The participants were also given daily homework—to conduct mock interviews among themselves using the survey tools.

Data management and analysis

The information entered in the PC-tablets by each interviewer was sent regularly to EPHI central server by the team supervisor, preferably, when data collection was completed in a health facility/woreda/zone /region. These data files were concatenated, reviewed and checked for any errors and inconsistencies. Data cleaning included checking of range, structure and selected set of checks for internal consistency. All errors detected during machine editing were corrected. All data entry and editing programs were written using CSPro software application. Then, the data analysis was done using STATA and presented using descriptive statistical methods; with frequency distribution tables, percentages and graphs of different indicators. In addition to national average, the verification factor was produced for different levels of health system administration such as regions, zones, woreda and facilities. Verification factor

(VF) was calculated for the previous three months (July, August and September, 2015) of reported activity: First the source documents are re-counted from paper/register records in the selected health units/woreda/zone/region; these are then divided by the number of cases found in report file records as reported by these health units//woreda/zone/region. Second, the quotient found above is multiplied by the ratio (reported program found at source level/reported by the unit found at that unit level) to account for any reporting differences between these latter two levels.

2. Findings on System Assessment

This section enables assessment of the relative strengths and weaknesses of functional areas of a data management and reporting system. The purpose of assessing the data management and reporting system is to identify potential threats to data quality posed by the design and implementation of data management and reporting systems. The seven functional areas of a data management and reporting system are as follows: monitoring and evaluation (M&E) Capabilities, Roles and Responsibilities, Training, Indicator Definitions, Data Reporting Requirements, Data Collection and Reporting Forms and Tools, Data Management Processes and Data Quality Controls and Links with National Reporting System. Data collected, aggregated and reported to measure indicators flow through a data management and reporting system that begins with the recording of an encounter between a client and a program staff member, a commodity distributed, or a person trained. Data are collected on source documents (e.g. patient records, client intake sheets, registers, training registers, commodity distribution logs, etc.) through the data management and reporting system, the data from source documents are aggregated and sent to a higher level for further aggregation before being sent to the next level, culminating in aggregation at the highest level of a program. The data from regional levels is regularly sent to federal ministry of health for national aggregation to show progress in meeting goals related to health initiatives.

2.1. Health Facility System Assessment

The data from health facility levels is regularly sent to woreda or district health office or next level of woreda for district aggregation to be submitted to the next reporting system. Overall, eighty-seven percent of health facilities report data to the government reporting system. Private facilities are relatively less likely than facilities managed by government authorities to report to the government reporting system (75 percent) (see table 2.1.1). In the 2016 DV-SA, a facility that reports at least one supervisory visit by external supervisors during the six months that precede the survey is defined as having routine external supervision. Overall, seven in ten health facilities have documented routine external supervision report (Fig. 2.1.1). Health centres (86 percent) are more likely than other facility types to have documented routine external supervision in the last 6 months. Private facilities are relatively less likely than facilities

managed by government authorities to have documented external supervision (56 percent). Facilities in Gambella (31 percent) and Somali (49 percent) regions are less likely to have documented routine external supervision (see table 2.1.1).

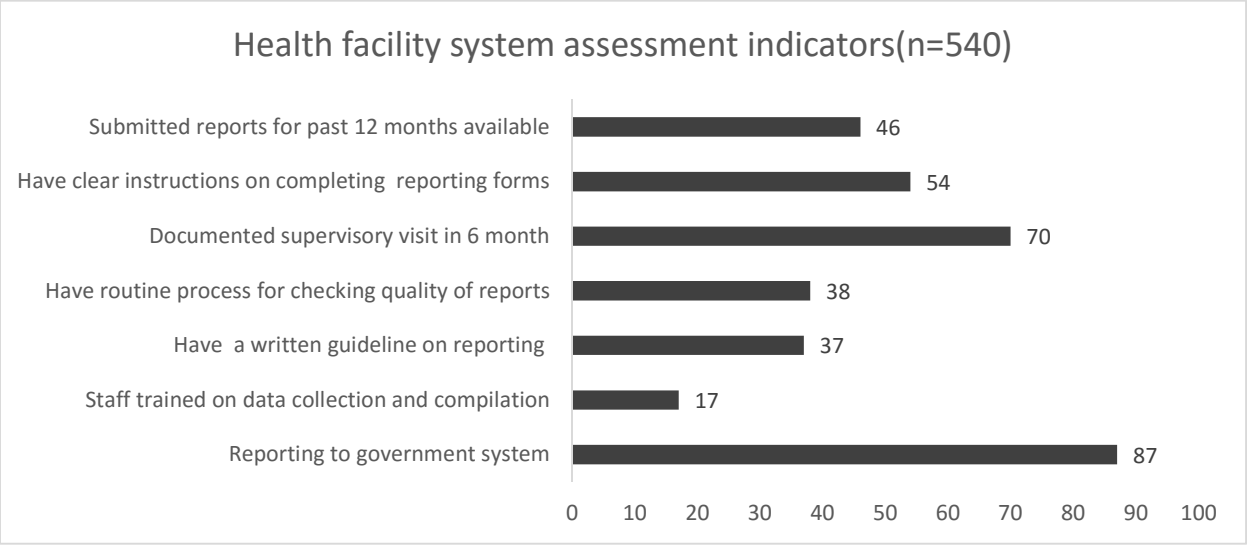

Figure 2.1. 1 Proportions of system assessment by health facility system assessment indicators, Ethiopia DV-SA 2016.

Table 2.1. 1 Health Facility Level System Assessment, by background characteristics, Ethiopia DV-SA 2016

	Percent distribution of health facility system assessment indicators, by background characteristics, Ethiopia DV-SA 2016							
Background characteristics	Reporting to government system[1]	Staff trained on data collection and compilation[2]	Have a written guideline on reporting	Have routine process for checking quality of reports	Documented supervisory visit in 6 month	Have clear instructions on completing reporting forms	Submitted reports for past 12 months available	Number of facilities surveyed
Facility type								
Referral Hospital	97	42	91	84	77	87	71	2
General Hospital	98	36	64	74	77	77	83	8
Primary Hospital	100	48	67	78	78	78	83	4
Health Centre	100	2	61	67	86	76	66	248
Private Clinics	74	15	14	11	56	34	26	277
Managing Authority								
Government/public	99	20	62	67	85	76	66	261
NGO/not-for-profit	98	68	77	73	85	82	87	3
Private-for-profit	75	14	13	11	56	34	25	272
Mission/faith based	96	11	89	96	89	0	96	2

Region								
Tigray	97	45	52	61	84	67	60	28
Afar	96	16	37	33	89	35	50	8
Amhara	97	6	36	35	68	60	45	133
Oromia	80	18	38	41	68	57	38	166
Somali	96	10	26	9	49	33	33	14
Benishangul Gumuz	96	21	53	47	88	70	66	6
SNNP	82	18	35	37	67	47	50	117
Gambella	56	6	10	7	31	14	20	10
Harrari	94	40	34	55	88	88	58	3
Addis Ababa	87	25	39	39	88	54	59	50
Dire Dawa	95	62	56	70	70	60	71	4
Total	**87**	**17**	**37**	**38**	**70**	**54**	**46**	**540**

[1] *Facility reports through HMIS*

[2] *All staff who collect and report data have been trained in data collection and reporting*

2.2. District/Woreda System Assessment

The system assessment for districts/woredas examined attributes that affect system functioning which includes structure and function, indicator definitions and reporting guidelines, data collection tools and reporting forms and data quality and supervision.

Overall, 70 percent of the districts/woredas had staff responsible for compiling data from health facilities and report to the next level who received training. This varied significantly with a lower percentage of Districts/woredas in Afar (53 percent), Gambella (50 percent), Somali (42 percent) and Benishangul Gumuz (28 percent) and higher in Harrari, Amhara and Tigray where more than eight in ten districts/woredas had trained staff to compile report data. .

More than eight in ten (82 percent) Districts/woredas in Benishangul Gumuz, Amhara, and Harrari had a written guideline for reporting routine data to the next reporting system. Lower proportion (30 percent) of Districts/woredas in Gambella had a written guideline for reporting routine data to the next reporting system.

Overall, about two third of the district/Woreda offices had a copy of written guideline for reporting of data and sufficient copies of blank forms. Availability of blank forms were higher in districts/woredas of Benishangul Gumuz (89 percent) and Harrari (88 percent) and lower in Somali (54 percent).

Regarding the availability of copy of report for the last 12 months report, 82 Percent of Districts/woredas had reports submitted to higher level. This was lower in districts/woredas in Somali (33 percent) and higher in Benishangul Gumuz, Amhara, and SNNP with 94, 92, and 90 percent respectively. Seventy-

two percent of districts /woredas had archives of all of the last 12 months of reports they have received from facilities. This result was lower in districts/woredas in Somali (17 percent) whereas it was higher in districts/woreds in Benishangul Gumuz (89 percent) and Tigray (86 percent).

Over all Eighty one (81 Percent) of districts/woredas had organized archives that can be easily retrieved. This was lower in Somali and Gambella where 46 and 50 percent of districts/woredas respectively had organized archives that can be easily retrievable (see table 2.2.1).

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Over all eighty one (81 percent) of districts/woredas had organized archives that can be easily retrieved. This was lower in Somali and Gambella where 46 and 50 percent of districts/woredas respectively had organized archives that can be easily retrieved (see table 2.2.1).

Table 2.2. 1 District/Woreda Level System Assessment data management and reporting indicators, by background characteristics, Ethiopia SARA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia SARA 2016						
Background characteristics	Trained staff to compile report data	Written guideline for reporting routine data	Sufficient copies of blank forms are available to meet the needs of all facilities	Availability of copy of report in that last 12 months	Monthly report retrievable	Archive data organized and recorded easily retrieved
Region						
Tigray	82	71	68	71	86	96
Afar	53	59	59	76	65	76
Amhara	84	82	63	92	71	89
Oromia	75	65	70	85	78	83
Somali	42	58	54	33	17	46
Benishangul Gumuz	28	89	89	94	89	89
SNNP	65	58	70	90	78	80
Gambella	50	30	70	60	50	50
Harari	88	88	88	75	75	88
Total	**70**	**67**	**68**	**82**	**72**	**81**

Table 2.2.2 depicts districts/woreda level system assessment quality of data indicators. Three forth of districts/woredas monitored the timeliness and completeness of reports they received from facilities. Lower percentage of districts/woredas in Somali (42 percent) and Gambella (40 percent) monitor the timeliness and completeness of the report. Sixty one (61 percent) of districts/woredas reported a routine process for checking the quality of data. This was lower for districts/woredas in Somali (13 percent) and Gambella (10 percent) and higher (100 percent) among districts/woredas in Harrari.

Overall, 53 percent of districts/woredas had a written policy (observed) on when/how to conduct data quality checks. However, none of the districts/woredas in Gambella had such a written policy. Eight in ten of the districts had designated staff for reviewing the quality of data they have receiving from facilities. This percentage was lower for districts/woredas in Somali (38 percent) and Gambella (40 percent) (see table 2.2.2).

Table 2.2. 2 District/Woreda level system assessment on quality of data indicators, by background characteristics, Ethiopia SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia SA 2016				
Background characteristics	Monitor timeliness and completeness	Checking quality of data	Written policy for Data quality check at facilities	Designated staff for reviewing data quality

Region				
Tigray	75	64	71	75
Afar	71	65	76	82
Amhara	76	76	55	92
Oromia	83	60	56	86
Somali	42	13	13	38
Benishangul Gumuz	83	61	39	83
SNNP	75	68	58	78
Gambella	40	10	0	40
Harrari	100	100	88	88
Total	**75**	**61**	**53**	**80**

Ninety seven percent of districts/woredas reported that they had visited facilities in the woreda at least once in the past 12 months. However, less than three-fourth (73 percent) of the districts/woredas had a written documentation of such visits. . The overall supervisory visit from higher level to the Districts/woredas in the past 6 months preceding the survey was 93 percent with 100 percent supervisory visits from higher level in Afar, Benishangul Gumuz, Gambella and Harrari each. Sixty three percent of districts/woredas received written feedback on the quality of the data they reported. This percentage was lower for districts/woredas in Somali (21percent) and none of the districts/woredas in Gambella had received feedback on quality of reporting during supervision. Districts/woredas were also assessed for the availability of target population for priority indicators. Eighty eight Percent of woredas had targets for key indicators. This proportion was lower in Gambella (40 Percent) (Table 2.2.3). In 64 percent of districts/woredas, decisions made were based on analysed data/results. This result was lower for districts/woredas of Somali (33 Percent) and Gambella (10 Percent).

Table 2.2. 3 District/Woreda Level System Assessment supportive supervision and information use indicators, by background, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016						
Background characteristics	Staff form District/Woreda visited facility at least once in past 12 months	Written documentation of facility visit	Supervisory visit done at the District/Woredas from higher level	Feedback provided on quality of reporting during supervision	District/Woredas with target population priory indicators	Decision made based on the analysed data
Region						
Tigray	93	89	86	79	86	64
Afar	100	71	100	53	94	76
Amhara	100	92	89	79	92	87
Oromia	97	76	92	64	86	56
Somali	100	21	96	21	79	33

BenishangulGumuz	94	78	100	56	100	67
SNNP	93	65	98	65	98	70
Gambella	90	20	100	0	40	10
Harrari	100	88	100	100	75	88
Total	**97**	**73**	**93**	**63**	**88**	64

Overall, based on the findings on the system assessment indicators districts/woredas in Somali and Gambella regions scored least on making decision based on the analysed data compared with the rest of the regions.

2.3. Zonal System Assessment

About three forth (74 percent) of all zones had trained staff responsible for data compilation and reporting .This varied substantially across Regions with a lower percentage of zones in Benshangul Gumuz. (33 percent) and Gambella (0 percent) with higher percentage of zones (100 percent) in Tigray. At zonal level most of Regions (82 percent) have written guidelines on reporting which ranges from 100 percent in Tigray and Benshangul Gumuz to 33 percent in Gambella. In 77 percent of the zones, sufficient copies of the blank forms are available to meet the needs of all facilities in the zones. Moreover, in 93 percent of zones, copies of monthly reports submitted by the respective zone available for the past 12 months. As conclusion, Gambella region has scored low percentage in most of the indicators for Zonal level system assessment of data management and reporting indicators (See Table 2.3.1)

Table 2.3. 1 Zonal Level System Assessment Data management and reporting indicators, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV							**SA 2016**
Background characteristics	Staff responsible for reporting has received training	Have written guidelines on reporting	Sufficient copies of blank forms are available to meet the needs of all facility	Copies of monthly reports submitted by the ZONE available for the past 12 months	Archived monthly reports from facilities submitted to Zonal level	Archived data organized and records easily retrievable	Number of zones surveyed weighted

Region							
Tigray	100	100	100	100	100	100	4
Amhara	83	83	67	92	83	83	10
Oromia	91	91	77	95	95	91	17
Ben. Gum	33	100	67	100	100	100	3
SNNPR	64	71	86	100	93	100	19
Gambella	0	33	33	33	67	100	4
Addis Ababa	80	90	80	90	80	80	9
Total	74	82	77	93	90	93	66

Overall, there is a good mechanism in place to monitor data quality in terms of timelines and completeness of reporting from the facilities by zones (91 percent). Most zones (87 percent) also have designated staff for reviewing data quality. However, none of the zones in Gambella had such a written policy, designated staff and routine process for checking data quality at facilities (see Table 2.3.2).

Table 2.3. 2 Zonal Level System Assessment quality of data indicator, by background characteristics, Ethiopia DV-SA 2016

Table 2.3.2 Zonal Level System Assessment quality of data indicator, by background characteristics

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	monitors timelines and completeness of reporting from facilities	Routine process in the Zone for checking data quality at facilities	Written policy at zone on when and how to conduct data quality checks at facility	Designated staff for reviewing data quality	Number of zones surveyed weighted
Regions					
Tigray	100	100	100	100	4
Amhara	83	75	83	100	10
Oromia	100	82	82	86	17
Ben. Gumuz	100	67	67	100	3
SNNP	100	71	86	86	19
Gambella	33	0	0	0	4
Addis Ababa	80	60	70	100	9
Total	91	71	78	87	66

In nine of the ten zones, staff from‘ Zone visited each woreda at least once in the past 12 months with the percentage ranges from 100 percent for Tigray, Amhara, and Benishangul Gumuz to 67 percent in Gambella.. There was good written documentation on the result of supervisory visits to facility by Zones (82 percent), with the percentage of zones being only 33 for Gamballa. Supervisory visit conducted in last 6 months was done by 85 percent of the zones and written feedback provided to facilities on quality of reporting and programmatic decision based on analysed data done by 77 percent of the Zones. However, programmatic decisions based on analysed data done by none of the Gambella Zone, (see Table 2.3.3).

Table 2.3. 3 Zonal Level System Assessment supportive supervision and information use indicator, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	Staff from ZONE visited each WOREDA ’ at least once in past 12 months	Written documentation on the result of supervisory visits to facility	Supervisory visit conducted in last 6 months	Written feedback is provided to facilities on quality of reporting	ZONE has target population for priority indicator	Programmatic decisions based on analysed data	Number of zones surveyed weighted
Region							
Tigray	100	100	100	100	100	100	4
Amhara	100	100	92	92	100	83	10

Oromia	91	73	73	73	86	73	17
Ben. Gumuz	100	100	100	100	100	67	3
SNNPR	93	86	79	86	100	86	19
Gambella	67	33	100	33	33	0	4
Addis Ababa	80	80	100	50	100	80	9
Total	91	82	85	77	93	77	66

2.4 Regional System Assessment

This section enables assessment of the relative strengths and weaknesses of the seven functional areas monitoring and evaluation (M&E) capabilities, roles and responsibilities, training, indicator definitions, data reporting requirements, data collection and reporting forms and tools, data Management processes and data quality controls and links with national reporting system) of a data management and reporting system at regional level .

As illustrated in table 2.4.1, six of the 11 regions had trained staff on data collection and compilation. In Tigray, Afar, Somali, Benishangul Gumuz and Addis Ababa there is no trained staff for data collection and compilation at regional level. Ten of the eleven regions have written guideline on reporting of data whereas in Afar region such a guideline was non-existent. Eight of the eleven (73 Percent) of the regions had sufficient copies of the blank forms are available to meet the needs of all facilities in the region. Except Tigray region, all other regions have copies of monthly reports submitted by the Region available for the past 12 months. As can be seen in the table, Tigray and Afar region has scored low in most of the indicators percentage for Regional Level System Assessment, Data management and reporting indicators, .(see Table 2.4.1)

Table 2.4. 1 Regional Level System Assessment, data management and reporting indicators by region, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	Staff trained on data collection and compilation	Have a written guideline on reporting	Sufficient copies of blank forms are available to meet the needs of all facilities	Copies of monthly reports submitted by the Region available for the past 12 months	Archived data organized and records easily retrievable
Region					
Tigray	0	100	0	0	100
Afar	0	0	0	100	100
Amhara	100	100	100	100	100
Oromia	100	100	100	100	100

Somali	0	100	100	100	100
Benishangul Gumuz	0	100	100	100	100
SNNP	100	100	0	100	100
Gambella	100	100	100	100	100
Harrari	100	100	100	100	100
Addis Ababa	0	100	100	100	100
Dire Dawa	100	100	100	100	100
Total	**55**	**91**	**73**	**91**	100

As shown in Table 2.4.2, only 55 percent of regions provided written feedback to zones on quality of reporting even though all regions have designated staff for reviewing the data quality and target population for priority indicators, Afar and Somali Regions have scored low in most of regional level system assessment and quality of data indicators.

Table 2.4. 2 Regional Level System Assessment, quality of data indicators by region, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016							
Background characteristics	Region monitors timeliness and completeness of reporting from facilities	Routine process in the Region for checking data quality at health facilities	Written policy at the Region on when and how to conduct data quality checks at health facilities	Designated staff for reviewing data quality	Written documentation on the result of supervisory visits to facilities	Written feedback is provided to zones on quality of reporting	Region has target population for priority indicators
Region							
Tigray	100	100	100	100	100	0	100
Afar	100	0	0	100	0	0	100
Amhara	100	100	100	100	100	100	100
Oromia	100	100	100	100	100	100	100
Somali	0	0	0	100	0	0	100
Benishangul Gumuz	0	0	100	100	100	0	100
SNNP	0	100	100	100	100	100	100
Gambella	100	100	100	100	100	0	100
Harrari	100	100	100	100	100	100	100
Addis Ababa	100	100	100	100	100	100	100
Dire Dawa	100	100	100	100	100	100	100
Total	**73**	**73**	**82**	**100**	**82**	**55**	**100**

All regions conducted supervisory visit in the last six months, made programmatic decisions based on analysed data and staff visited each zone at least once in past 12 months. Staff from eighty two percent of all regions have visited each Zone at least written documentation once in on the result of past 12 supervisory visits to months, however in Somali and Afar the score is low (0 percent) .(see Table 2.4.3)

Table 2.4. 3 Regional Level System Assessment, supportive supervision and information use indicators by region, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	Programmatic decisions based on analyzed data	Supervisory visit conduct in the last 6 months	Staff from Region visited each Zone at least written documentation once in on the result of past 12 supervisory visits to months	Staff from Region visited each Zone at least once in past 12 months
Region				
Tigray	100	100	100	100
Afar	100	100	0	100
Amhara	100	100	100	100
Oromia	100	100	100	100
Somali	100	100	0	100
Benishangul Gumuz	100	100	100	100
SNNP	100	100	100	100
Gambella	100	100	100	100
Harrari	100	100	100	100
Addis Ababa	100	100	100	100
Dire Dawa	100	100	100	100
Total	**100**	**100**	**82**	**100**

3. Findings on Data Verification

Data verifications: is a quantitative comparison of, recounted to reported data and a review of the timeliness, completeness and availability of reports. The purpose of this part is to assess if 1) service delivery and intermediate aggregation sites are collecting and reporting data accurately, completely and on time, and 2) whether the data agrees with reported results from other data sources. A verification factor (VF) of < 1 indicates a lower numbers were recorded as being provided at lower health-service levels than are reflected in the number sent to next levels (over reporting). Conversely, a VF > 1 indicates that a higher numbers were recorded as being provided at lower health-service levels than are reflected in the number sent to next levels (underreporting). Data verification was done by comparing health facility source documents to health information management system report data to determine the proportion of the reported numbers that can be verified from the source documents. It checks whether the information contained in the source documents has been transmitted correctly to the next higher level of reporting, for each level of reporting, from the health facility level to the national level.

3.1.Health Facility Data verification

Table 3.1.1A: demonstrates Percent distribution DV indicators by facility type, managing authority, and regions for ANC services. Seven in ten facilities provide ANC service. Among facilities that provide ANC services, all referral hospitals, primary hospitals and health centres report ANC data through HMIS. Private clinics are by far less likely to report ANC data through HMIS, particularly nine in ten facilities managed by private for profit report through HMIS.

Of the facilities that provide ANC service and report through HMIS, 72 percent had source document and report for ANC at hand during the survey. Availability of this document varied among the different types of facilities. Availability of source document and ANC report were higher in NGO/ non-profit facilities (91 percent) followed by government facilities. It was less likely to have source document ANC report in private clinics (34 percent). Facilities in Afar region were less likely to have source document and ANC report than facilities found in other regions.

Of the facilities that provide ANC service and report through HMIS, 87percent had complete ANC data at the time of the survey. The completeness of this data vary across facility types, managing authority and regions. All referral hospitals, nine in ten general hospital, primary hospital and health centre had complete ANC data while only half of private clinics had complete ANC data. All facilities in Harari had complete data while only about six in ten facilities in Afar and Somali regions had this completed data.

Over all about three in ten facilities had ANC report matched with source document. Greater proportions of private clinics were more likely to had ANC report matched with source document than other facility type. Three in ten referral hospital, general hospital and health centre had ANC report matched with source document. All mission/faith based facilities had matched ANC report and source document. The overall VF for the ANC data was 0.9197 showing over reporting.

3.1. 1A Health Facility Level data verification for ANC, by background characteristics, Ethiopia DV-SA 2016

	Percent distribution of ANC DV indicators, by background characteristics, Ethiopia DV-SA 2016						Weighted
Background characteristics	Provide ANC Service	Report ANC Data through HMIS	Availability of source documents and reports for ANC	Completeness of ANC data	ANC report matched with source documents	ANC Verification factor (VF)	number of facilities offering ANC services
Facility type							
Referral Hospital	90	100	100	100	33	1.009	2

General Hospital	96	99	79	95	34	0.9162	9
Primary Hospital	100	100	74	93	44	0.9022	5
Health Centre	100	100	82	96	30	0.9813	302
Private Clinics	34	91	34	49	72	1.0338	86
Managing authority							
Government/public	100	100	82	96	30	0.9149	313
NGO/not-for-profit	75	94	91	94	71	0.9875	3
Private-for-profit	35	91	36	49	70	1.0451	87
Mission/faith based	100	100	12	100	100	1	2
Other	16	100	0	100			0
Region							
Tigray	85	100	78	80	24	1.0035	28
Afar	84	100	32	66	42	1.0006	8
Amhara	74	100	69	88	44	0.9034	116
Oromia	81	96	82	88	22	0.8462	131
Somali	92	99	46	65	64	0.9547	15
Benishangul Gumuz	67	100	65	78	3	0.9412	5
SNNP	56	100	75	98	41	0.9782	65
Gambella	48	100	47	71	29	0.9829	3
Harrari	68	100	89	100	44	0.9927	2
Addis Ababa	51	92	50	75	49	1.0746	27
Dire Dawa	58	100	80	89	78	0.9952	2
Total	71	98	72	87	33	0.9197	405

In Facilities managed by government, only 30 percent of the ANC data reported matched with source document, which is much lesser than facilities not managed by the government. Availability of matched ANC report with source document varies across regions. Dire Dawa city administration was the highest (78 percent) whereas Benishangul Gumuz had the least, only 3 percent of ANC data matching with source document. Twenty thee percent of the facilities showed substantial over reporting (greater than 10percent) while 14 percent showed substantial under reporting (greater than 10percent). About 70 percent of the government facilities over or under report ANC data. Twenty six percent of public facilities made greater than ten percent over reporting while 12 percent of facilities did greater than ten percent under reporting. About three in ten facilities that found in Amhara, Oromia and Benishangul Gumuz regions made greater than 10 percent over reporting for ANC data. Under reporting is also the problems of some regions. Two in ten facilities that found in Harrari, Oromia and Addis Ababa city administrations made ANC data under reporting (greater than 10percent).

3.1. 2B Health facility level ANC data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016

Background characteristics	ANC verification category					Number of facilities offering reporting ANC service data to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	26	17	30	15	12	314
NGO/not-for-profit	4	15	71	7	4	3
Private-for-profit	2	1	70	1	26	80
Mission/faith based	0	0	100	0	0	2
Region						
Tigray	8	28	24	27	14	27
Afar	3	22	42	18	15	8
Amhara	30	13	44	6	7	112
Oromia	28	15	22	14	21	132
Somali	7	14	64	15	0	15
Benishangul Gumuz	29	17	3	37	15	5
SNNP	17	18	41	17	8	65
Gambella	24	12	29	24	12	3
Harrari	17	6	44	11	22	2
Addis Ababa	2	13	49	13	22	27
Dire Dawa	0	15	78	6	0	2
Total	23	16	34	14	14	399

Table 3.1.2A: shows Proportions of Delivery services DV indicators by facility type, managing authority, and regions. All types of facilities report delivery services through HMIS. There were also no disparities by type of managing authorities and regions to report delivery services data through HMIS reporting system. Among all facilities that provide delivery service, more than 80percent of referral, general, and primary hospitals had available source document and delivery report. Private for profit facilities were less likely to have all the three-month source document and three month report at the time of the study.

Of the facilities that provide delivery service and also report through HMIS, those in Tigray, Oromia, and Benshangul Gumuz had all source documents and delivery reports while only four in ten facilities in Afar

and Somalia regions had the same. All referral hospitals had complete delivery service data. Private for profit facilities were the least to have complete delivery service data. All facilities in Tigray, Oromia, and Benshangul Gumuz had complete delivery service data while the figure is 64 percent facilities for Somali.

The level of exact matching between source documents and report for delivery service data differ by facility type, managing authority and regions. Greater proportions of private clinics, (75 percent), had delivery service report matched with source document. Only 35 percent of referral hospitals had delivery service report matched with source document. In half of the government facilities, reported figures matched with source documents. Facilities that are found in Dire Dawa have larger proportions, (68 percent) of the facilities with matched source and reported document. The overall verification factor was 1.0086.

3.1. 3A Health Facility Level data verification for delivery service, by background characteristic , Ethiopia DV-SA 2016

Background characteristics	**Percent distribution of Delivery DV indicators, by background characteristics, Ethiopia DV-SA 2016**						Weighted number of facilities offering delivery service
	Provide Delivery Service	Report Delivery service Data through HMIS	Availability of all source documents and reports for Delivery service	Completeness of Delivery service data	Delivery service report matched with source documents	Delivery service data Verification factor (VF)	
Facility type							
Referral Hospital	90	100	88	100	35	0.9873	2
General Hospital	97	100	86	96	51	1.0185	10
Primary Hospital	100	100	81	93	49	1.0233	5
Health Centre	100	100	90	97	50	0.992	321
Private Clinics	11	100	56	78	75	1	31
Managing authority							
Government/public	99	100	90	97	50	1.0089	332
NGO/not-for-profit	64	100	100	100	84	1.0008	2
Private-for-profit	13	100	57	80	69	0.9914	34
Mission/faith based	12	100	100	100	100	1	0
Other	16	100	100	100	0	0.9885	0

Region							
Tigray	64	100	100	100	65	0.999	22
Afar	67	100	40	73	50	1.0112	7
Amhara	58	100	78	93	54	0.9754	97
Oromia	75	100	100	100	49	1.0307	129
Somali	92	100	46	64	55	0.9503	16
Benishangul Gumuz	47	100	100	100	16	0.9791	4
SNNP	56	100	87	98	50	0.985	69
Gambella	39	100	59	82	59	0.8637	3
Harrari	42	100	93	98	63	0.963	1
Addis Ababa	33	100	81	96	46	1.0137	18
Dire Dawa	47	100	80	85	68	1.0451	2
Total	61	100	87	95	51	1.0086	369

Table 3.1.2B illustrates health facility level delivery data verification factor categories. From all facilities that report delivery services, 8 percent showed substantial over reporting (greater than 10 percent) and 11 percent had substantial under reporting (greater than 10 percent). Fourteen percent of private-for-profit facilities made substantial over reporting while 12 percent of public facilities made substantial under reporting. One in five facilities in SNNP over report delivery data in to their higher level of reporting system by more than 10percent. On the other hand, one in five facilities in Oromia region made delivery services under reporting by over 10 percent.

3.1. 4B Health facility level delivery data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016						
Background characteristics	Delivery verification category					Number of facilities offering reporting delivery service data to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	7	18	50	13	12	328
NGO/not-for-profit	0	8	84	8	0	2
Private-for-profit	14	3	69	13	1	33
Mission/faith based	0	0	100	0	0	0
Region						
Tigray	7	15	65	14	0	22
Afar	15	15	50	18	3	7

Amhara	7	26	54	7	7	95
Oromia	0	13	49	19	19	127
Somali	14	15	55	14	2	16
Benishangul Gumuz	14	48	16	14	9	4
SNNP	21	15	50	7	7	68
Gambella	17	24	59	0	0	3
Harrari	8	30	63	0	0	1
Addis Ababa	17	7	46	24	5	18
Dire Dawa	8	13	68	5	5	2
Total	8	17	51	13	11	364

Table 3.1.3A demonstrates Percent distribution of Penta3 DV indicators, by background characteristics. Among the facilities that provide penta3 immunization service, almost all facilities report penta3 data through HMIS. Eighty three present of referral hospitals and 73 percent of health centres had all source document and reports for penta3. All mission/ faith based facilities and three in ten private-for-profit facilities had all source document and reports for penta3. Availability of all source documents and reports for Penta3 varied among regions ranging from 100 to 40 percent in Harrari and Afar respectively.

From all facilities that report Penta3 immunization service data, 95percent of facilities had completed penta3 data. All referral hospitals, nine in ten general and primary hospitals, and health centres also had completed Penta3 data. Similarly, 95percent of government /public facilities, almost nine in ten NGO/not-for-profit, and Private-for-profit facilities had completed Penta3 data. Completeness of the available penta3 data also showed variations among regions. It was highest (100 percent) in Benishangul Gumuz, SNNP, Harrari regions, and Addis Ababa city administrations and only 56 percent in Somali region.

Overall, only 52 percent of the Penta3 data matched with the source documents. These conditions vary within facility type, managing authority, and regions. Health centres and private clinics had higher proportions (52 percent) and referral hospitals were showed the lowest proportions (35percent) to have penta3 service report matched with source documents. The overall VF was 0.9576.

Table 3.1. 5 A Health Facility Level data verification for Penta 3 service, by background characteristics, Ethiopia DV-SA 2016.

Percent distribution of Penta 3 DV indicators, by background characteristics, Ethiopia DV-SA 2016						
Background					Weighted	

characteristics	Provide Immunization Service	Report Immunization service Data through HMIS	Availability of all source documents and reports for Penta 3	Completeness of penta 3 data	Penta 3service report matched with source documents	Penta 3 service data Verification factor (VF)	number of facilities offering Penta3 service
Facility type							
Referral Hospital	80	100	83	100	35	0.9378	2
General Hospital	80	99	79	94	48	0.9777	8
Primary Hospital	78	100	77	95	44	0.9085	4
Health Centre	98	100	73	95	52	0.954	303
Private Clinics	1	94	0	87	52	No PC	3
Managing authority							
Government/public	96	100	73	95	52	0.9574	313
NGO/not-for-profit	63	93	89	93	87	0.9729	2
Private-for-profit	2	100	30	91	36	0.9556	4
Mission/faith based	12	68	100	100	100	1.00	0
Other	16	100	0	100	52	NA	0
Region							
Tigray	56	100	76	97	63	0.6321	19
Afar	56	100	40	82	75	1.0072	6
Amhara	45	100	65	98	33	1.0155	72
Oromia	71	100	74	96	54	1.0056	119
Somali	91	99	48	56	81	0.9917	16
Benishangul Gumuz	47	100	93	100	19	0.9152	4
SNNP	55	100	87	100	57	0.9332	67
Gambella	41	87	48	74	27	0.8687	3
Harrari	35	100	100	100	75	0.9712	1
Addis Ababa	23	100	73	100	53	0.9895	13
Dire Dawa	42	100	78	93	71	0.903	2
Total	55	100	73	95	52	0.9576	320

As shown in Table 3.1.3B, greater than 10 percent over or under reporting of penta3 data in to the next higher level of reporting system were 19 percent and 15 percent respectively. Compared with facilities managed by entities other than government, larger proportions of public facilities made greater than 10 percent over (20 percent) and under (15 percent) reporting of Penta3 data. Almost half of the facilities that are found in Benishangul Gumuz region done greater than 10 percent over reporting followed by three in

ten facilities in Drie Dawa city administration, around one in four facilities in Benishangul Gumuz region and one in five facilities in Amhara region under report Penta3 data by over 10 percent.

3.1. 6B Health facility level EPI data verification factor category, by background characteristics, Ethiopia DV-SA 2016

2016 Background characteristics	**Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA** EPI data verification category					Number of facilities reporting EPI service data to the next reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	20	9	52	4	15	306
NGO/not-for-profit	9	0	87	4	0	2
Private-for-profit	14	29	36	14	7	4
Mission/faith based	0	0	100	0	0	1
Region						
Tigray	23	1	63	12	0	18
Afar	0	22	75	0	4	6
Amhara	22	11	33	11	22	67
Oromia	18	9	54	1	18	118
Somali	6	0	81	13	0	15
Benishangul Gumuz	47	0	19	11	24	3
SNNP	21	7	57	0	14	66
Gambella	13	33	27	13	13	3
Harrari	9	9	75	8	0	1
Addis Ababa	3	34	53	9	1	13
Dire Dawa	29	0	71	0	0	2
Total	19	9	52	4	15	313

Table 3.1.4A shows health Facility Level data verification for PMTCT, by background characteristics. From all facilities that provide PMTCT services, 99 percent of facilities report their data through HMIS. Compared with facilities governed by any of managing authority, NGO/not-for-profit facilities were the least (84 percent) to report PMTCT data through HMIS. The overall obtainability of all three month report and its source document were 93 percent. It showed variations among facility type. Majority of health centres (95 percent) had all three month PMTCT reports and their source documents while only 41

percent of private clinics had these documents. All facilities that had Mission/faith based managing authority had all source documents and reports for PMTCT. Only 47 percent of Private-for-profit facilities had these documents.

Almost all (99 percent) of health centres, about nine in ten all types of hospitals had complete PMTCT data whereas the figure is 72 percent for private clinics. Having PMTCT service report matched with source documents also differ by facility type, managing authority, and regions. Nine in ten health centres and 28 percent of private clinics had PMTCT service report matched with source documents. All facilities that were managed by Mission/faith based and 40 percent of Private-for-profit had PMTCT service report matched with source documents. The overall DV for PMTCT was 0.8521 which shows the presence of over reporting.

3.1. 7A Health Facility Level data verification for PMTCT, by background characteristics, Ethiopia DV-SA 2016

	Percent distribution of PMTCT indicators, by background characteristics, Ethiopia DV-SA 2016						
Background characteristics	Provide PMTCT Service	Report PMTCT service Data through HMIS	Availability of all source documents and reports for PMTCT	Completeness of PMTCT data	PMTCT service report matched with source documents	PMTCT service data Verification factor (VF)	Weighted number of facilities offering PMTCT service
Facility type							
Referral Hospital	90	100	89	95	45	0.8962	3
General Hospital	96	99	79	94	51	0.8193	11
Primary Hospital	93	100	77	91	60	0.5799	6
Health Centre	83	100	95	99	91	0.8929	308
Private Clinics	3	88	41	72	28	1.5	10
Managing authority							
Government/public	83	100	94	99	89	0.9466	322
NGO/not-for-profit	27	84	75	84	72	100	1
Private-for-profit	5	100	47	78	40	1.3188	14
Mission/faith based	12	100	100	100	100	1	0
Other	16	100	0	100			0
Region							
Tigray	60	100	94	94	90	0.9016	24

Afar	46	100	47	80	77	0.0713	6
Amhara	33	100	99	100	89	1.05	64
Oromia	63	100	99	100	90	0.5861	124
Somali	45	98	82	94	82	1.0109	9
Benishangul Gumuz	44	100	78	88	57	1.7782	4
SNNP	56	100	87	98	92	1.0147	80
Gambella	40	100	56	85	93	1.5244	3
Harrari	61	100	100	100	82	0.7639	2
Addis Ababa	29	99	74	93	50	0.8521	19
Dire Dawa	42	100	86	94	86	1.0155	2
Total	48	99	93	98	86	0.9476	338

From all facilities that report PMTCT services in to the next higher level of reporting system, 3 percent and 9 percent of these facilities were more than 10 percent over or under reporting. NGO/not-for-profit facilities made bigger proportions (14 percent) of more than 10 percent over reporting while more than half of private-for-profit facilities (53 percent) under report PMTCT services data in to the next higher level of reporting system. Over reporting of more than 10 percent were seen from about one in five facilities that found in Afar region and Addis Ababa city administrations. Moreover, four in ten facilities in that found in Benishangul Gumuz regions and 1/4th of facilities in Addis Ababa city administrations made more than 10 percent under reporting (Table 3.1.4B).

Table 3.1. 8B Health facility level PMTCT data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016						
Background characteristics	**PMTCT data verification category**					Number of facilities reporting PMTCT service data to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	2	0	89	0	8	317
NGO/not-for-profit	14	0	72	0	14	1
Private-for-profit	7	0	40	0	53	12
Mission/faith based	0	0	100	0	0	0
Region						
Tigray	8	0	91	0	1	24

Afar	23	0	77	0	0	5
Amhara	1	0	89	0	11	63
Oromia	1	0	90	0	8	122
Somali	2	0	82	16	0	9
Benishangul Gumuz	0	0	57	0	43	4
SNNP	0	0	92	0	8	79
Gambella	0	0	93	0	7	3
Harrari	6	6	82	0	6	2
Addis Ababa	21	3	50	0	25	18
Dire Dawa	6	0	86	0	8	2
Total	3	0	88	0	9	330

Table 3.1.5A shows percent distribution of health facility level data verification for TB, by background characteristics. From all facilities that offer TB services, 99 percent of them report TB data through HMIS. All referral hospitals and health centres report TB service data through HMIS. Ninety percent private clinics report TB service data for HMIS. Concerning the managing authority, except private for profit facilities (91 percent), all other facilities report TB service data through HMIS. Facilities that were found in SNNP were less likely to report TB service data through HMIS compared with other regions. Availability of all source documents and reports for TB vary among facility types. Grater proportions of referral hospitals (88 percent) and health centres (87percent) had all source documents and reports for TB service, while 43 percent of private clinics had this document.

Completeness of TB data was 97 percent for health centres and 96 percent for referral hospitals while it is only 48 percent for private clinics. TB service report matched with source documents in 100percent of private clinics while this figure is as low as 39 percent for referral hospitals. Regional level analysis shows that Tigray (96percent), Afar (97percent) and Dire Dawa (97 percent) had high level of matching between report and source document, whereas Gambella (38pecent) and Benishangul Gumiz (42percent) had low level of matching.

3.1. 9A Health Facility Level data verification for TB, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	**Percent distribution of TB indicators, by background characteristics, Ethiopia DV-SA 2016**						
	Provide TB diagnosis and/or treatment Service	Report TB service Data through HMIS	Availability of all source documents and	Completeness of TB data	TB service report matched with source documents	TB service data Verification factor (VF)	Weighted number of facilities offering TB service

			reports for TB				
Facility type							
Referral Hospital	90	100	88	96	39	1.0213	2
General Hospital	96	98	83	91	61	0.8918	9
Primary Hospital	97	96	73	87	68	0.7993	5
Health Centre	98	100	87	97	75	0.9602	302
Private Clinics	33	90	43	48	100	1.0112	86
Managing authority							
Government/public	97	100	87	97	74	0.9697	313
NGO/not-for-profit	71	100	96	96	96	1.0625	2
Private-for-profit	35	91	44	50	98	0.994	88
Mission/faith based	4	100	100	100	100	1	0
Other	100	100	100	100	100	1	1
Region							
Tigray	86	100	77	77	98	0.9517	29
Afar	76	100	48	69	97	1.0465	8
Amhara	58	100	93	94	87	1.0031	92
Oromia	78	100	93	100	64	0.9431	128
Somali	74	100	75	75	55	0.8955	13
Benishangul Gumuz	55	100	74	87	42	0.9901	4
SNNP	70	94	62	89	86	1.008	84
Gambella	38	100	62	90	38	0.972	3
Harrari	100	100	100	100	78	0.8912	3
Addis Ababa	69	99	57	69	77	1.0269	38
Dire Dawa	74	100	89	100	97	1.02	3
Total	**70**	**99**	**81**	**90**	**71**	**0.9707**	**404**

The problem of more than 10 percent over (14 percent) and under (11 percent) reporting of TB services data were seen among government facilities. Greater percentages of matched TB report were observed among facilities that found in Tigray regions (98 percent). Yet four in ten facilities in Somali region and three in ten facilities in Benishangul Gumuz and Gambella regions were over reporting more than 10 Percent of TB services data. Similarly, three in ten facilities in Gambella regions had more than 10 percent under reporting of TB service data (Table 3.1.5B).

Table 3.1. 10B Health facility level TB data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016

Background characteristics	TB data verification category					Number of facilities reporting TB service data to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	14	1	74	0	11	319
NGO/not-for-profit	0	0	96	0	4	2
Private-for-profit	1	0	98	0	0	50
Mission/faith based	0	0	100	0	0	0
Region						
Tigray	1	1	98	0	0	28
Afar	0	0	97	0	3	7
Amhara	7	0	87	0	6	89
Oromia	21	0	64	0	14	120
Somali	42	2	55	0	1	12
Benishangul Gumuz	32	11	42	0	16	4
SNNP	1	0	86	1	12	77
Gambella	31	0	38	0	31	2
Harrari	22	0	78	0	0	2
Addis Ababa	4	9	77	0	10	28
Dire Dawa	0	0	97	3	0	3
Total	13	1	76	0	10	371

Table 3.1.6A shows percent distribution of health facility level data verification for Malaria, by background characteristics. From all facilities that provide malaria services, 98 percent report their data through HMIS. The overall availability of all source documents and reports for malaria services was 61 percent. Almost eight in ten referral and primary hospitals and health centres had all source documents and reports for malaria at the time of the survey. Availability of all source documents and reports for malaria services during the implementation of the survey was 23 percent for private clinics. All Mission/faith based facilities had this report while the figure is 22 percent for Private-for-profit facilities. The presence of all source documents and reports for malaria services at the time of the survey differ among regions. It ranges 81 percent in Harrari to 23 percent in Gambella.

Completeness of malaria service data varies across facility type, managing authority and regions. Majority of referral hospitals (98 percent) had completed malaria data whereas the figure is 40 percent for private facilities. Almost all Mission/faith based and NGO/not-for-profit facilities had Completed Malaria data however, only 40 percent of Private-for-profit facilities had this document. Eight in ten facilities that found in Amhara and Oromia regions had completed Malaria data at the time of the survey. On the other hand, half of facilities that found in Gambella region had this document.

The overall prevalence of Malaria service report matched with source documents was 50 percent at the time of the survey. More than five in ten primary hospitals, and primary clinics and five in ten health centres had malaria service report matched with source documents (see Table 3.1.6A).

3.1. 11A Health Facility Level data verification for Malaria, by background characteristics, Ethiopia DV-SA 2016

	Percent distribution of Malaria indicators, by background characteristics, Ethiopia DV-SA 2016						
Background characteristics	Provide Malaria Service	Report Malaria service Data through HMIS	Availability of all source documents and reports for malaria	Completeness of Malaria data	Malaria service report matched with source documents	Malaria service data Verification factor (VF)	Number of facilities offering Malaria services
Facility type							
Referral Hospital	97	97	83	98	45	0.8112	2
General Hospital	97	98	75	88	40	0.856	9
Primary Hospital	100	100	79	85	54	0.7222	5
Health Centre	97	100	78	93	50	0.994	280
Private Clinics	70	94	23	40	55	1.0571	166
Managing authority							
Government/public	97	100	78	93	49	0.9167	291
NGO/not-for-profit	71	100	96	99	85	0.9877	2
Private-for-profit	70	94	22	40	53	1.2525	166
Mission/faith based	100	100	100	100	100	1.0046	2
Other	100	58	16	58	0	0.25	1
Region							
Tigray	93	100	64	71	51	0.911	29

Afar	100	95	27	60	0	0.8169	9
Amhara	74	100	63	82	42	0.8148	111
Oromia	89	100	73	83	53	0.8527	137
Somali	94	99	56	73	39	0.9155	15
Benishangul Gumuz	76	100	46	77	9	0.9795	5
SNNP	89	96	50	69	53	1.0448	99
Gambella	80	72	23	49	43	1.1033	5
Harrari	100	90	81	81	65	0.8688	3
Addis Ababa	88	95	54	70	73	0.9792	45
Dire Dawa	79	100	63	75	96	0.9057	3
Total	85	98	61	76	50	0.9209	462

All Mission/faith based facilities had malaria service report matched with source documents. Availability of malaria service report matched with source documents widely differs among regions. More than 10 percent over reporting of malaria services data were observed mainly in government facilities (24 percent) yet, more than 10 percent under reporting were observed in Private-for-profit facilities (28 percent). There was no facility that report malaria services data exactly matched with source document in Afar regions. About half of facilities that found in this region over report more than 10 percent. Similarly about 1/4th of these facilities also had more than 10 percent under reporting. Only 4 percent of facilities that are found in Drie Dawa city administrations were done more than 10 percent over reporting (Table 3.1.6B).

3.1. 12B Health facility level malaria data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016						
Background characteristics	Malaria data verification category					Number of facilities reporting Malaria service data to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	24	8	49	8	11	291
NGO/not-for-profit	0	7	85	4	4	2
Private-for-profit	18	1	53	1	28	139
Mission/faith based	0	0	100	0	0	2
Region						
Tigray	18	15	51	0	16	29
Afar	52	9	0	15	24	9

Amhara	28	7	42	7	16	102
Oromia	24	8	53	0	15	128
Somali	38	23	39	0	0	13
Benishangul Gumuz	40	9	9	33	9	5
SNNP	19	1	53	26	1	95
Gambella	29	14	43	0	14	5
Harrari	24	12	65	0	0	2
Addis Ababa	8	1	73	0	18	43
Dire Dawa	4	0	96	0	0	3
Total	23	7	50	7	12	435

Among all facilities that offered FP services 97 percent of them report their data through HMIS. Almost all facility types except private clinics (93 percent) report FP data through HMIS. There is high disparity of reporting FP service data by managing authority,, all government facilities report their FP data through HMIS while, none of Mission/faith based facilities report through HMIS. Nine in ten referral hospitals had all source documents and reports for FP. Seventy six percent of facilities in Harrari regions had all source documents and reports for FP while, two in ten facilities in Gambella regions. About 95 percent of referral, general hospitals, and health centres had completed FP data. Private clinics by far low (two in every five) to have completed FP data. Availability of completed FP data ranging 94 percent in government facilities to 40 percent in private –for-profit facilities. Availability of completed FP data also differ by regions. Eight in ten facilities in Oromia regions and 48 percent facilities in Gambella had completed FP data. The overall availability of FP service report matched with source documents was 28 percent with VF of 0.8022, which revealed the presence of over reporting of FP data (Table 3.1.7A).

***Table** 3.1. 13 A Health Facility Level data verification for FP, by background characteristics, Ethiopia DV-SA 2016.*

Percent distribution of FP indicators, by background characteristics, Ethiopia DV-SA 2016

Number of facilities offering

Background characteristics	Provide FP Service	Report FP service Data through HMIS	Availability of all source documents and reports for FP	Completeness of FP data	FP service report matched with source documents	FP service data Verification factor (VF)	FP services
Facility type							
Referral Hospital	90	100	89	96	21	0.9895	2
General Hospital	92	99	82	94	26	0.9152	7
Primary Hospital	95	100	70	94	37	0.9124	4
Health Centre	99	100	70	94	22	0.7332	250
Private Clinics	89	93	27	39	49	0.8709	183
Managing authority							
Government/public	99	100	70	94	23	0.2871	261
NGO/not-for-profit	26	84	84	87	65	0.9976	1
Private-for-profit	91	94	27	40	48	1.0131	184
Mission/faith based	0	0	0	0	0	0	0
Other	100	100	72	100	28	0.287	0
Region							
Tigray	95	100	62	74	30	0.786	26
Afar	98	100	48	60	19	0.5054	8
Amhara	100	97	54	72	36	0.733	127
Oromia	97	97	60	80	7	0.7656	131
Somali	89	99	37	51	73	0.9058	11
Benishangul Gumuz	96	100	42	67	11	0.9662	6
SNNP	92	100	50	77	49	9648	90
Gambella	95	88	20	48	15	0.4854	5
Harrari	61	100	76	76	22	0.7569	2
Addis Ababa	80	95	38	55	24	0.6642	36
Dire Dawa	78	100	53	69	72	0.6917	3
Total	95	97	53	73	28	0.8022	446

Only two in ten referral hospitals and health centres were had FP service report matched with source documents. Sixty five percent of NGO/not-for-profit facilities and 23 percent of Government/public had a report which matched with the source document. More than seven in ten facilities in Somalia regions and Dire Dawa city administrations had FP service report matched with source documents whereas the figure was low Oromia which was 7 percent. The overall percentages of greater than 10 percent over or under

reporting of FP services data to the next higher reporting level were 39 percent and 11 percent, respectively. Over reporting of FP services data more than 10 percent were largely observed in Mission/faith based facilities (100 percent) followed by government facilities (44 percent). While, one in five Private-for-profit facilities did under reporting. More than six in ten facilities in Gambella regions and half of facilities in Oromia and Harrari regions had greater than 10 percent over reporting. (Table 3.1.7B).

Table 3.1. 14B Health facility level FP data verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of verification factor categories, by background characteristics , Ethiopia DV-SA 2016

Background characteristics	Family planning data verification category					Number of facilities offering FP service reporting to the next higher reporting system
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Managing Authority						
Government/public	44	21	23	4	9	264
NGO/not-for-profit	0	23	65	11	0	1
Private-for-profit	17	4	48	9	22	170
Mission/faith based	100	0	0	0	0	0
Region						
Tigray	37	16	30	9	8	26
Afar	57	14	19	0	11	8
Amhara	40	11	36	6	6	129
Oromia	50	25	7	1	17	128
Somali	23	0	73	2	2	11
Benishangul Gumuz	24	26	11	24	16	6
SNNP	16	16	49	9	9	84
Gambella	62	15	15	0	7	5
Harrari	50	7	22	14	7	1
Addis Ababa	40	18	24	1	17	33
Dire Dawa	15	5	72	0	8	3
Total	39	18	28	5	11	435

The following figure (Fig 3.1.1) shows the overall report variations of the selected indicators report with their source document at facility level. Among all facilities, four in ten facilities had FP service data over reporting followed by ANC and malaria service data (23 percent) over reporting. PMTCT service report data was the best-matched data among all service data (88 percent) followed by TB service data (76 percent).

Summary of health facility level verification factor category

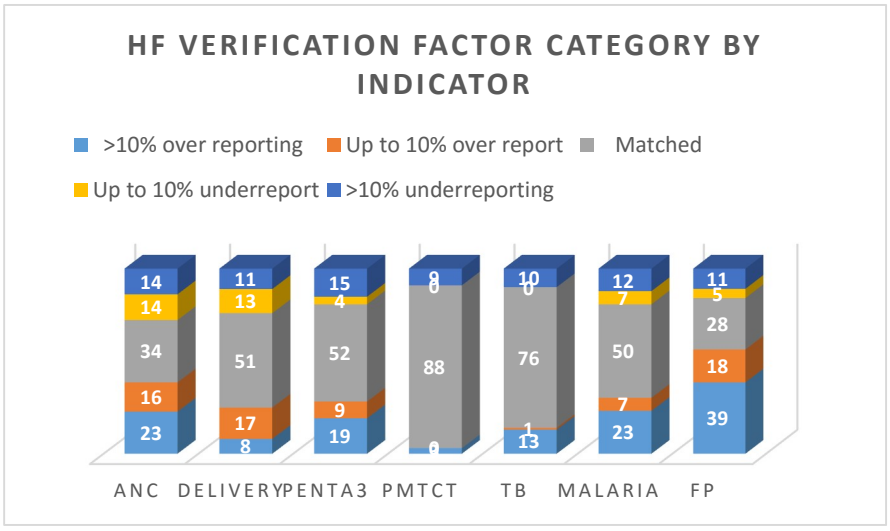

Figure 3.1. 1 Percent distributions of all indicators by reporting categories at health facility level, Ethiopia DV-SA 2016

3.2. Woreda Data verification

The quality of reported data and use of information are dependents on the underlying data management and reporting systems. Stronger systems ought to produce better quality data. In other words, for good quality data to be produced by and flow through a data management system, key HMIS functional components need to be in place at all levels of the system. Data for ANC1, delivery, penta3, PMTCT, TB, malaria, and family planning acceptors were verified using reports and source document. The findings were presented in accordance with the verification factor (ratio) for these seven indicators accordingly.

Table 3.2.1 Depicts Woreda/district antenatal care first visit data verification. The findings at district/woreda level indicated that the source document data for ANC1 match with the ANC reported data to a higher level in 60 percent of woredas. Thirteen percent of the woredas have >10 percent over reporting of data for ANC1. When the data are disaggregated by region, Somali with VF = 0.6584 had a Woreda ANC VF of less than 1 indicating 35 percent of districts/woreda over-reporting by more than 10 Percent . While, Tigray with VF = 1.1160 and SNNPR with VF = 1.0009 had district/ Woreda ANC1 VF of greater than one (See table 3.2.1).

Table 3.2. 1 District/woreda Level Data Verification for ANC data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016

Background characteristics	Verification category					Verification factor	Number of District/Woredas
	>10Percent over	Up to 10Percent	Matched	Up to 10Percent	>10Percent under		

	reporting	over report		under report	reporting		
Region							
Tigray	8	4	58	21	8	**1.1160**	18
Afar	25	25	38	6	6	**0.8547**	12
Amhara	5	14	76	3	3	**0.9782**	53
Oromia	12	20	58	5	5	**0.9571**	111
Somali	35	29	29	0	6	**0.6584**	22
BenishangulGumuz	22	28	33	11	6	**0.9252**	8
SNNP	14	11	84	0	3	**1.0009**	56
Gambella	14	0	71	14	0	**0.9714**	5
Harrari	25	13	63	0	0	**0.9365**	3
Total	**13**	**17**	**60**	**6**	**4**	**.9643**	289

Table 3.2.2 depicts woreda/district institutional delivery data verification. Related to data on delivery service, seven in ten of district/woredas had reported data matched with the facility data received. About one in ten of the diatricts/woredas had over-reporting by more than 10 percent. Half of the districts/ woredas in Somali regions appeared to have over-reported delivery service data by more than 10 Percent. The overall VF for districts/woreda were found to be 0.9662 indicating woreda delivery data is over reported (see table 3.2.2).

Table 3.2. 2 District/Woreda Level Data Verification for Delivery data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					**Verification factor**	**Number of District/Woredas**
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**		
Region							
Tigray	8	13	75	4	0	1.0112	18
Afar	20	33	27	7	13	0.9137	12
Amhara	8	8	76	8	0	0.9724	53
Oromia	4	9	79	6	3	0.9703	111
Somali	50	6	25	0	19	0.6114	22
Benishangul Gumuz	17	28	39	11	6	0.8367	8
SNNP	5	15	77	3	0	0.9832	56
Gambella	0	0	100	0	0	1.0000	5
Harrari	0	0	86	0	14	1.0212	3
Total	**9**	**12**	**70**	**5**	**4**	.9662	**289**

Table 3.2.3 Depicts woreda/district pentavalent 3 data verification. Overall, sixty four percent of district/ woredas had Penta3 data matched the source document with reported data to a higher level. When the data are disaggregated by region, the highest over reporting was found in Somali with VF = 0.7211 followed by Afar with VF = .8208 had 47 percent and 38 percent over reporting by more than 10 percent respectively (see table 3.2.3).

Table 3.2. 3 District/Woreda Level Data Verification for EPI data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					Verification	Number of
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**	**factor**	District/Woredas
Region							
Tigray	8	4	58	21	8	1.0039	18
Afar	38	25	37	0	0	0.8208	12
Amhara	11	0	84	3	3	0.9693	53
Oromia	9	17	67	6	2	0.9431	111
Somali	47	29	18	0	6	0.7211	22
Benishangul Gumuz	28	17	44	11	0	0.9240	8
SNNP	8	10	80	0	3	1.0029	56
Gambella	29	0	71	0	0	0.9646	5
Harrari	25	13	50	0	13	0.9549	3
Total	**15**	**13**	**64**	**5**	**8**	.9509	289

Table 3.2.4 depicts district/woredas PMTCT data verification. The re-aggregated facility PMTCT service data match the PMTCT reported to a higher level for 86 percent of districts/woredas. Seven percent of district/Woredas had over-reporting by more than >10 percent, and 2 percent had under-reporting by more than >10 percent. Somali (25 Percent) followed by Tigray (19 Percent) had the highest over reporting by more than >10 percent. The overall VF of districts/woreda was found to be 0.9742 indicating districts/woreda PMTCT data is over reported (see table 3.2.4).

Table 3.2. 4 District/Woreda Level Data Verification for PMTCT data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					Verification	Number of
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**	**factor**	**District/Woredas**
Region							
Tigray	19	5	71	0	5	1.0000	18
Afar	13	25	50	13	0	0.9529	12

Amhara	10	0	85	0	5	0.9923	53
Oromia	3	2	92	3	0	0.9929	111
Somali	25	0	63	0	13	0.2774	22
Benishangul Gumuz	0	0	100	0	0	1.0000	8
SNNP	0	6	94	0	0	0.9980	56
Gambella	0	0	100	0	0	1.0000	5
Harrari	0	0	100	0	0	1.0000	3
Total	**7**	**3**	**86**	**2**	**2**	**.9742**	**289**

Table 3.2.5 Depicts woreda/district TB data verification. The re-aggregated woreda/district Tb service data matches the Tb reported to a higher level for almost three-fourth of woredas. One in ten woreda had over-reporting and 4 percent of woreda had under reporting by more than 10 percent. Somali (25 percent) and SNNPR (24 percent) had high percentages of District/Woredas, which over-reported Tb service data by more than 10 percent. The overall VF of districts/woreda was found to be 1.0565 indicating woreda Tb data is slightly under reported (see table 3.2.5).

Table 3.2. 5 District/Woreda Level Data Verification for TB data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					**Verification factor**	Weighted number of District/Woredas
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**		
Region							
Tigray	5	0	70	10	15	1.0565	18
Afar	8	0	92	0	0	0.9808	12
Amhara	6	14	75	6	0	0.9801	53
Oromia	8	8	78	6	1	0.9700	111
Somali	25	0	44	13	19	0.9660	22
Benishangul Gumuz	0	0	88	6	6	1.0782	8
SNNP	24	9	62	3	3	0.9087	56
Gambella	0	0	100	0	0	1.0000	5
Harrari	17	17	67	0	0	0.9200	3
Total	**10**	**7**	**74**	**6**	**4**	1.0565	**289**

Table 3.2.6 depicts woreda/district malaria data verification. Woreda/district malaria service data match the malaria service data reported to a higher level for 56 Percent of woredas. Sixteen percent of

woreda/district had over-reporting and 7 percent of them had under reporting by more than 10 Percent. Tigray (25 percent), Afar (27 percent), and Gambela (29 percent) had high percentages of District/Woredas, which over-reported malaria service by more than 10 Percent. Verification factor was notably low for Tigray (0.6198) Harari (0.8395) and Afar (0.8504) indicating over reporting. The overall VF was 0.9197(see table 3.2.6).

Table 3.2. 6 District/Woreda Level Data Verification for Malaria data, by background characteristics, Ethiopia SA 2016.

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					Verification factor	Weighted number of District/Woredas
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**		
Region							
Tigray	25	13	50	4	4	0.6198	18
Afar	27	33	20	6	7	0.8504	12
Amhara	3	13	75	6	6	0.9380	53
Oromia	17	14	53	7	7	0.9815	111
Somali	21	21	43	14	14	0.9086	22
Benishangul Gumuz	17	28	39	6	6	0.9691	8
SNNP	8	8	75	6	6	0.9781	56
Gambella	29	0	57	14	14	1.0577	5
Harrari	17	0	83	0	0	0.8395	3
Total	16	15	56	7	7	0.9197	289

Table 3.2.7 depicts woredas/district Facility Family Planning data verification. Facility Family Planning acceptors data match with the Family Planning acceptors reported to a higher level for 58 percent of woredas/district. Fourteen percent of woredas/district had over-reporting (>10 percent) while 3 percent had under-reporting by more than 10 percent. When the data are disaggregated by region, large percentage (38 percent) of woredas/district in Somali were over reporting with (VF = 0.3553) (see table 3.2.7).

Table 3.2. 7 District/woreda Level Data Verification for Family planning data, by background characteristics, Ethiopia SA 2016

Percent distribution of data verification indicators, by background characteristics, Ethiopia SA 2016							
	Verification category					Verification factor	Number of District/Woredas
Background characteristics	**>10Percent over reporting**	**Up to 10Percent over report**	**Matched**	**Up to 10Percent under report**	**>10Percent under reporting**		
Region							
Tigray	13	13	63	8	4	0.9993	18
Afar	31	25	31	6	6	0.8983	12
Amhara	3	14	68	14	3	0.9909	53
Oromia	17	17	57	7	2	0.9598	111
Somali	38	15	31	0	15	0.3553	22
Benishangul Gumuz	17	44	17	22	0	0.9554	8
SNNP	0	13	82	0	5	0.9984	56
Gambella	0	0	86	14	0	0.9996	5
Harrari	25	25	50	0	0	0.9830	3
Total	14	18	58	8	3	0.9725	289

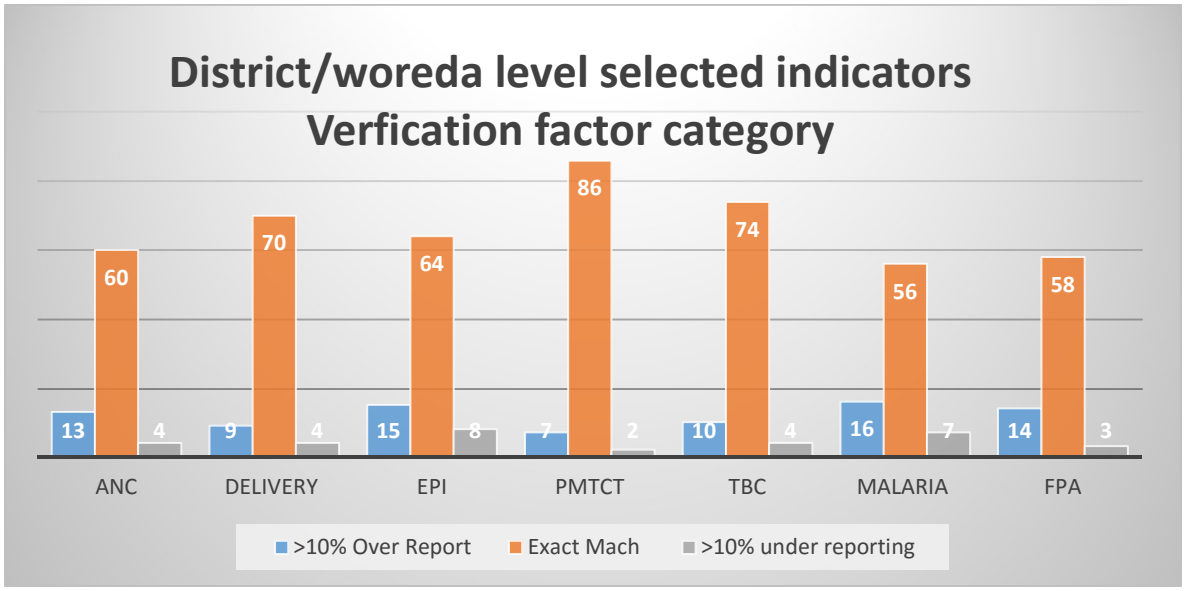

Figure 3.2. 1 Percent distributions of all indicators by reporting categories at woreda level, Ethiopia DV-SA 2016

3.3. Zonal Data verification

Table 3.3.1 depicts zonal antenatal care first visit data verification. Seventy seven percent of zone's had an exact match with source for ANC1 report. Three percent had substantial over-reporting (greater than 10 percent) and (3 percent) had substantial under-reporting (greater than 10 percent) .In Gambella with verification factor 2.07 indicating the gross underreporting. (See Table 3.3.1 below).

Table 3.3. 1 Zonal level ANC data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016							
Background characteristics	ANC verification category					ANC Verification	Number of zones surveyed weighted
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting		
Region							
Tigray	0	0	0	100	0	1.0454	4
Amhara	8	8	84	0	0	0.9961	10
Oromia	5	9	77	9	0	1.0024	17
Benishangul Gumuz	0	33	67	0	0	0.9966	3
SNNP	0	0	100	0	0	0.9998	19
Gambella	0	0	50	0	50	2.0781	4
Addis Ababa	0	36	55	0	9	0.9908	9
Total	3	12	77	5	3	1.0010	66

Coming top data on delivery service, at 79 percent of zone has had an exact match with source for Delivery report. None had substantial over-reporting (greater than 10 percent) however (3 percent) had substantial under-reporting (greater than 10 percent) Similar to ANC data, 100 percent of zone in Tigray had an up to 10percent under reporting(See table 3.3.2).

Table 3.3. 2 Zonal level delivery data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016						
Background characteristics	Delivery verification category				Delivery Verification Factor	Number of zones surveyed weighted
	Up to		Up to	>10percent		

	10percent over report	Matched	10percent underreport	underreporting		
Region						
Tigray	0	0	100	0	1.0611	4
Amhara	8	83	8	0	0.9971	10
Oromia	5	86	10	0	1.0007	17
Ben.Gumuz	0	100	0	0	1.0000	3
SNNP	0	93	0	7	1.0512	19
Gambella	0	100	0	0	1.0000	4
Addis Ababa	27	45	18	9	1.0142	9
Total	8	79	10	3	1.0170	66

Table 3.3.3 depicts zonal penta3 data verification. Seventy seven percent of zone has had an exact match with source for penta3 report. Three percent had substantial over-reporting greater than 10 percent and 6 percent had substantial under-reporting greater than 10 percent. The overall VF stood at 1.02. In Gambella with verification factor 1.165, indicating the gross underreporting. (See table 3.3.3 below).

Table 3.3. 3 Zonal level EPI data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	EPI verification category					EPI Verification	Number of zones surveyed weighted
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting		
Region							
Tigray	0	100	0	0	0	0.9518	4
Amhara	8	8	83	0	0	0.9979	10
Oromia	5	0	90	0	5	1.0166	17
Benishangul Gumuz	0	0	100	0	0	1.0000	3
SNNP	0	7	86	0	7	1.0346	19
Gambella	0	0	50	0	50	1.6518	4
Addis Ababa	0	36	36	18	9	0.9847	9

Total	3	11	77	3	6	1.0172	66

Seventy two percent of zone has had an exact match with source for PMTCT report. Thirteen percent had substantial over-reporting greater than 10 percent and 7 percent had substantial under-reporting greater than 10 percent. The average zonal PMTCT VF was 0.93. All zones in Tigray over reported by more than 10 percent.

Table 3.3. 4 Zonal level PMTCT data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016							
Background characteristics	PMTCT verification category					PMTCT Verification	Number of zones surveyed weighted
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting		
Region							
Tigray	100	0	0	0	0	0.5909	4
Amhara	0	10	90	0	0	0.9986	10
Oromia	14	5	67	5	10	1.0003	17
Benishangul Gumuz	0	0	100	0	0	1.0000	3
SNNP	15	0	85	0	0	0.9998	19
Gambella	0	0	100	0	0	1.0000	4
Addis Ababa	18	9	45	9	18	0.4307	9
Total	13	5	72	3	7	0.9342	66

At zonal level 100 percent of the zones have exact much with source for TB cases report (See figure 3.3.1.)

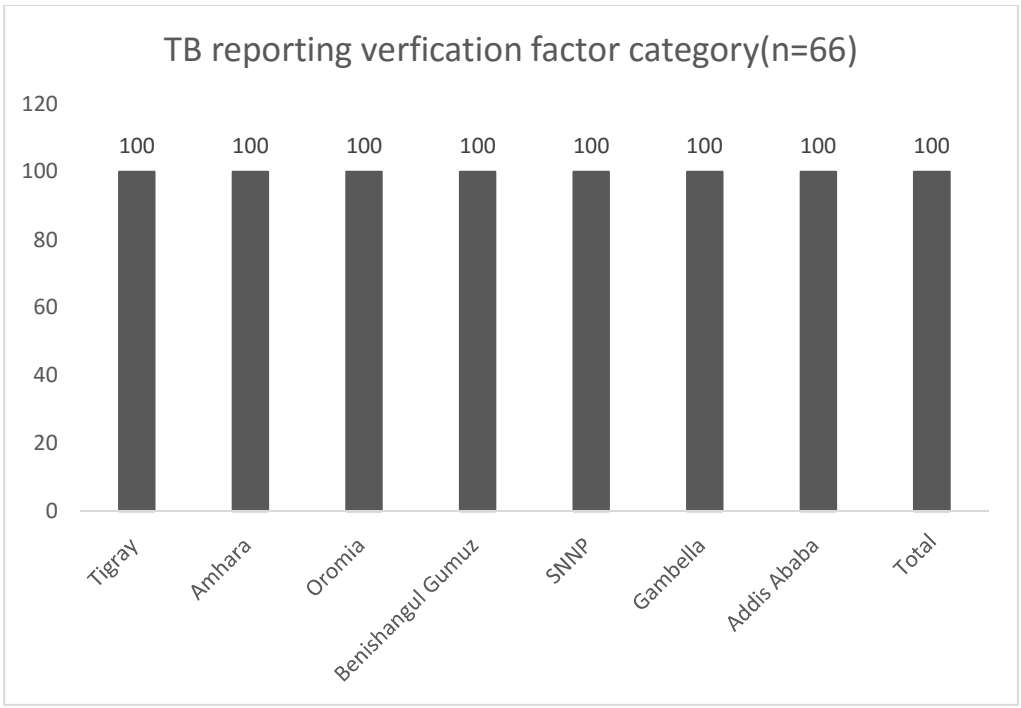

Figure 3.3. 1 Percent distributions of TB indicators by exact match of VF categories at Zonal level, Ethiopia DV-SA 2016.

Almost seven in ten of zone has had an exact match with source for Malaria report. Eight percent had substantial over-reporting greater than 10 percent and 3 percent had substantial under-reporting (greater than 10 percent). Over reporting by greater than 10 percent was highest in Addis Ababa (30 percent), with VF of 0.99 (See table 3.3.5 below)

Table 3.3. 5 Zonal level Malaria data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	Malaria verification category					Malaria Verification	Number of zones surveyed weighted
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting		
Region							
Tigray	0	0	0	0	100	1.4603	4
Amhara	8	17	75	0	0	0.9844	10
Oromia	5	10	55	30	0	0.9931	17
Benishangul Gumuz	0	0	100	0	0	1.0000	3
SNNP	0	7	93	0	0	0.9998	19

Gambella	0	0	100	0	0	1.0000	4
Addis Ababa	30	0	50	10	10	0.9963	9
Total	8	8	69	11	3	0.9951	66

Three forth of zones have had an exact match with source for family planning accepters report. Five percent had substantial over-reporting greater than 10 percent and (5 percent) had substantial under-reporting greater than 10 percent. Of zones over-report by more than 10 percent, Addis Ababa had the highest (20 percent), .with VF of 0.96, indicating the gross over reporting, (See table 3.3.6.below)

Table 3.3. 6 Zonal level Family planning acceptors data verification, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of system assessment indicators, by background characteristics, Ethiopia DV-SA 2016

Background characteristics	Family planning Accepters verification category					FP Verification	Number of zones surveyed weighted
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting		
Region							
Tigray	0	0	0	100	0	1.0663	4
Amhara	8	0	92	0	0	0.9951	10
Oromia	0	18	68	9	5	1.0178	17
Benishangul Gumuz	0	0	100	0	0	1.0000	3
SNNP	0	0	100	0	0	0.9999	19
Gambella	0	0	50	0	50	1.0600	4
Addis Ababa	20	20	40	10	10	0.9651	9
Total	5	9	75	6	5	1.0044	66

Summary of Data verification factor category by indicators at zonal level

Table 3.3. 7 Summary of Data Verification category at zonal level, by indicators, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	Verification factor category					Verification factor
	>10percent	Up to		Up to	>10percent	

	over reporting	10percent over report	Matched	10percent underreport	underreporting	
Indicators						
ANC	3	12	77	5	3	1.00.00
Delivery	0	8	79	10	3	1.0170
Penta 3	3	11	77	3	6	1.0172
PMTCT	13	5	72	3	7	0.9342
TB	0	0	100	0	0	1
Malaria	8	8	69	11	3	0.9951
FP	5	9	75	6	5	1.0044

3.4.Region Data verification

At regional level 73 percent of ANC, report exactly matches with the source document. Eighty two percent of Delivery, penta3, and malaria confirmed cases reports also matched with the source documents findings. Highest concordance was seen in TB where 100 percent. It is worth noting the situation in Dire Dawa where only none of the reported data is exact match with the source document with exception of TB data (See Table 3.4.1)

Table 3.4. 1 Regional Level overall data Verification factor exact match, by region and indictor, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016									
Background characteristics	ANC Exact Match	Delivery Exact Match	EPI Exact Match	PMTCT Exact Match	TB Exact Match	Malaria Exact Match	FP exact Match
Region							
Tigray	100	100	100	100	100	100	100
Afar	0	100	100	100	100	0	100
Amhara	100	100	100	100	100	100	100
Oromia	100	100	100	100	100	100	100
Somali	100	100	100	100	100	100	100
Benishangul Gumuz	0	0	0	100	100	100	100
SNNP	100	100	100	100	100	100	100
Gambella	100	100	100	100	100	100	100
Harrari	100	100	100	100	100	100	100
Addis Ababa	100	100	100	100	100	100	100
Dire Dawa	0	0	0	0	100	0	0
Total	**73**	**82**	**82**	**91**	**100**	**82**	**91**

Eighteen percent of regional ANC report was up to 10 percent over reported when compared to the source document and similarly up to 10 percent of it was under reported by 9 percent of the regions. ANC data from Afar region and Dire Dawa city administrations showed 100 percent up to 10 percent over reporting compared to the source document.

Table 3.4. 2 Regional Level ANC Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	ANC verification category					ANC Verification Factor
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Region						
Tigray	0	0	100	0	0	1
Afar	0	100	0	0	0	0.9406
Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	1
Somali	0	0	100	0	0	1
Benishangul Gumuz	0	0	0	100	0	1.0122
SNNP	0	0	100	0	0	1
Gambella	0	0	100	0	0	1
Harrari	0	0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire Dawa	0	100	0	0	0	0.9050
Total	**0**	**18**	**73**	**9**	**0**	0.9989

One in ten of regions had delivery services report over reported and under reported up to 10 percent when compared to source document (see Table 3.4.3 below).

Table 3.4. 3 Regional Level delivery Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	Delivery verification category					Delivery Verification Factor
	>10percent over	Up to 10percent	Matched	Up to 10percent	>10percent underreporting	

	reporting	over report		underreport		
Region						
Tigray	0	0	100	0	0	1
Afar	0	0	100	0	0	0.9980
Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	1
Somali	0	0	100		0	1
Benishangul Gumuz	0	0	0	0	0	1.0499
SNNP	0	0	100	0	0	1
Gambella	0	0	100	0	0	1
Harrari	0	0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire dawa	0	100	0	0	0	0.9868
Total	**0**	**9**	**82**	**9**	**0**	**1.0002**

In addition, 9 percent of regions had Penta 3 data up to 10 percent over reporting compared to the source document. The national penta3 verification factor was nearly one (see Table 3.4.4 below).

Table 3.4. 4 Regional Level penta3 Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	EPI verification category					EPI Verification Factor
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Region						
Tigray	0	0	100		0	1
Afar		0	100	0	0	1.0009
Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	1
Somali		0	100	0	0	1
Benishangul Gumuz	0	0	0	0	100	1.0126
SNNP	0	0	100	0	0	1

Gambella	0	0	100	0	0	1
Harrari		0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire Dawa		100	0	0	0	0.9845
Total	**0**	**9**	**82**	0	**9**	**1.0001**

PMTCT report was more than 10 percent over reported in 9 percent of the regions as compared to source document. Highest score was seen in Dire Dawa city administrations with VF of 0.900 (See table 3.4.5).

Table 3.4. 5 Regional Level PMTCT Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	PMTCT verification category					PMTCT Verification Factor
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Region						
Tigray	0	0	100	0	0	1
Afar	0	0	100	0	0	1
Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	0.9981
Somali	0	0	100	0	0	1
Benishangul Gumuz	0	0	100	0	0	0.9957
SNNP	0	0	100	0	0	1
Gambella	0	0	100	0	0	1
Harrari	0	0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire Dawa	100	0	0	0	0	0.900
Total	**9**	**0**	**91**	**0**	**0**	**.9995**

Malaria report was up to 10 percent over reported in 18 percent of regions and 82 percent of malaria report exactly matched with the source document. Over reporting was seen mainly in Afar regions and Dire Dawa city administrations (See Table 3.4.6).

Table 3.4. 6 Regional Level Malaria Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	Malaria verification category					Malaria Verification Factor
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Region						
Tigray	0	0	100	0		1
Afar	0	100	0	0	0	0.9784
Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	1.0075
Somali	0	0	100	0	0	1
Benishangul Gumuz	0	0	100	0	0	1.0029
SNNP	0	0	100	0	0	1
Gambella	0	0	100	0	0	1
Harrari	0	0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire dawa	0	100	0	0	0	0.9622
Total	**0**	**18**	**82**	**0**	**0**	**1.0006**

Nine percent of the reported family planning acceptor data was up to 10 percent under reported as compared to the source document (See table 3.4.7).

Table 3.4. 7 Regional Level FP Data Verification factor category, by background characteristics, Ethiopia DV-SA 2016

Percent distribution of data verification indicators, by region, Ethiopia DV-SA 2016

Background characteristics	Family Planning Acceptor verification category					FP Acceptors Verification Factor
	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	
Region						
Tigray	0	0	100	0	0	1
Afar	0	0	100	0	0	.99532

Amhara	0	0	100	0	0	1
Oromia	0	0	100	0	0	.9999
Somali	0	0	100	0	0	1
Benishangul Gumuz	0	0	100	0	0	1.0029
SNNP	0	0	100	0	0	1
Gambella	0	0	100	0	0	1
Harrari	0	0	100	0	0	1
Addis Ababa	0	0	100	0	0	1
Dire Dawa	0	0	0	100	0	1.0236
Total	**0**	**0**	**91**	**9**	**0**	**1.0001**

The source document and reported TB cases exactly matched in all the regions.

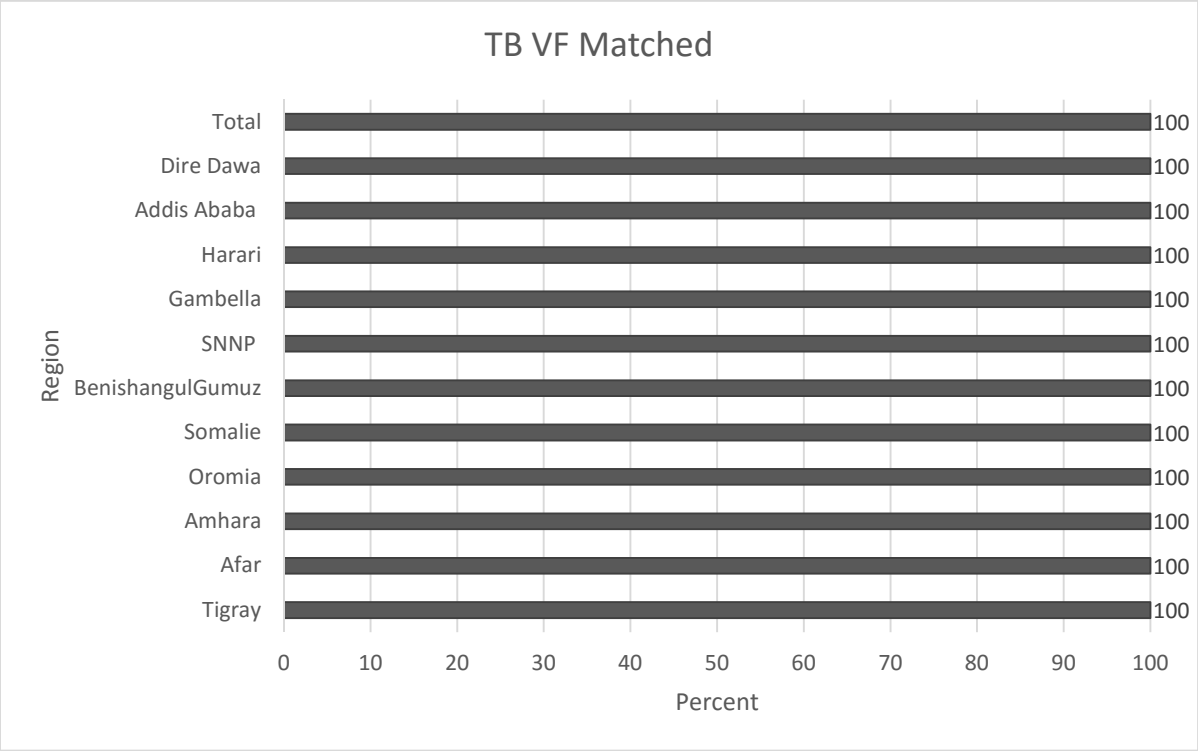

Figure 3.4. 1 Percent distributions of TB indicators by exact match of VF categories at Regional level, Ethiopia DV-SA 2016.

Summary of Data verification factor category by indicators at Regional level

Table 3.4. 8 Summary of Data Verification category at Regional level, by indicators, Ethiopia DV-SA 2016

Percent distribution of data verification indicators at regional level , Ethiopia DV-SA 2016		
Background	Verification factor category	**Verification**

characteristics	>10percent over reporting	Up to 10percent over report	Matched	Up to 10percent underreport	>10percent underreporting	**Factor**
Indicators						
ANC	0	18	73	9	0	0.9989
Delivery	0	9	82	9	0	1.0002
Penta 3	0	9	82	0	9	1.0001
PMTCT	9	0	91	0	0	.9995
TB	0	0	100	0	0	1
Malaria	0	18	82	0	0	1.0006
FP	0	0	91	9	0	1.0001

Conclusion and Recommendation

Conclusions:- based on the findings the following conclusion were drawn

- Private facilities (75 percent) are relatively less likely to report to the government reporting system than facilities managed by government authorities (99 percent).
- Only 30 percent of the ANC data reported matched with source document in government facilities, which is much lesser than the figure for the other facilities not managed by the government.
- From all facilities that report delivery services, 8 percent showed over reporting (> 10 percent) and 11 percent had under reporting (> 10 percent).
- Fourteen percent of Private-for-profit facilities made over reporting (>10 percent) while 12 percent of public facilities made under reporting (> 10percent) of delivery data.
- Compared with facilities managed by entities other than government, larger proportions of public facilities made greater than 10 percent over (20 percent) or under (15 percent) reporting of Penta3 data.
- NGO/not-for-profit facilities made bigger proportions (14 percent) of more than 10 percent over reporting while more than half of private-for-profit facilities (53 percent) under report PMTCT services data in to the next higher level of reporting system.
- Among all facilities, four in ten facilities had FP data over reporting followed by ANC and malaria data (23 percent). PMTCT data was the best-matched data among all indicators (88 percent) followed by TB data (76 percent).
- More than eight in ten (82 percent) Districts/woredas had Copies of monthly reports submitted by the woreda available for the past 12 months.

- At district level, 16 percent of malaria data were over reported (greater than 10percent) followed by Penta 3 data (15 percent).
- PMTCT data was the best-matched data among all indicators (86 percent) followed by TB data (76 percent) at district level.
- More than nine in ten (93 percent) Zones had had Copies of monthly reports submitted by the Zone available for the past 12 months.
- About three fourth of zones had ANC, delivery, PMTCT, malaria and FP data matched with source document. Only TB data had 100 percent exactly matched with the source document.
- Nine in ten (91 percent) regions had had copies of monthly reports submitted by the region available for the past 12 months.
- At regional level, 73 percent of ANC report exactly matches with the source document. Eighty two percent of Delivery, penta3, and malaria confirmed cases reports also matched with the source documents findings. Highest concordance was seen in TB where 100 percent exactly match with source document.

Recommendation

It is, therefore, important to improve the quality and usefulness of relatively low-cost, pre-existing health data monitoring systems within Ethiopia through:

- Ensuring that DV-SA is very valuable M&E tool that should be used to explain health data information system strengths, and determine specific data quality issues to be addressed.
    - FMOH should encourage and support regions, zones and woreda to implement their data quality assurance mechanism at all levels
    - FMOH should ensure that feedback is systematically provided to all sub-reporting levels on the quality of their reporting (i.e., accuracy, completeness and timeliness).
- Conducting DV-SA as an integral part of program evaluations as a routine activity
- FMOH should provide all health facilities with HMIS guidelines through RHBs, who should further distribute them to health facilities.
- FMOH should set a written policy that states for how long source documents and reporting forms need to be retained especially at health facility and district level.
- The FMOH should, in collaboration with partner organizations, arrange training and capacity building activities on use, retrieval, and documentation of HMIS data to the regional, zonal, woreda, and facility-level staff, so that

- All the source documents and reporting forms relevant for measuring the indicator(s) will be available for auditing purposes (including dated print-outs in case of computerized system).
- HMIS Unit will have update on standard reporting forms/tools to be used by all reporting levels / the forms/tools, which are consistently used by all levels.

➢ FMOH should encourage private managed facilities to report through a single channel of the national reporting system.

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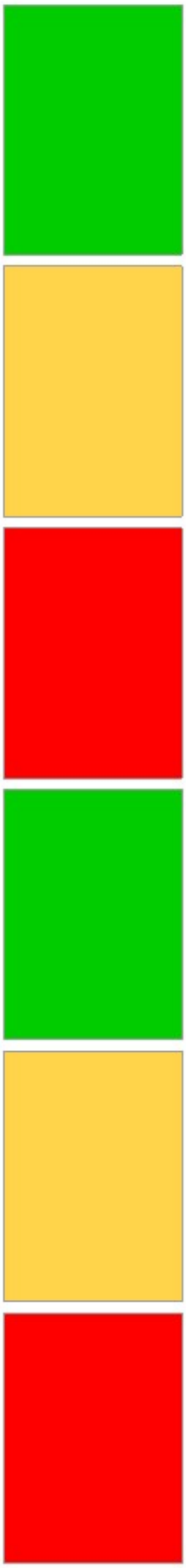

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