NHSSP

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The Mismatch Assessment

Operational research to identify ways to ensure HMIS reporting is timely and accurate

Strengthening Health Systems-Improving Services

CONTENTS

ACRONYMS

ACD	Active Case Detection
AHW	Auxiliary Health Worker
ANM	Auxiliary Nurse Midwife
BEOC	Basic Emergency Obstetric Care
CBNCP	Community Based Neonatal Care Programme
CEOC	Comprehensive Emergency Obstetric Care
D/PHO	District/Public Health Office/Officer
DoHS	Department of Health Services
DOTS	Directly Observed Treatment Short Course
DTLO	District Tuberculosis and Leprosy Officer
EOC	Emergency Obstetric Care
EDCD	Epidemiology and Disease Control Division
EDP	External development partner
EPI	Extended programme of immunisation
FCHV	Female Community Health Volunteer
FHD	Family Health Division
FY	Fiscal Year
GoN	Government of Nepal
HFI	Health Facility In-Charge
HIV/AIDS	Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome
HMIS	Health Management Information System
HP	Health Post
IMCI	Integrated Management of Childhood Illnesses
IT	Information Technology
LAN	Local Area Network
LEP	Leprosy Elimination Programme
LMD	Logistic Management Division
M&E	Monitoring and Evaluation
MCHW	Maternal and Child Health Worker
MD	Management Division
MIS	Management Information System
MoHP	Ministry of Health and Population
NCASC	National Centre for AIDS and STD control
NDHS	Nepal Demographic Health Survey
NHIC	National Health Information Centre
NGO	Non Government Organisation
NHSP	Nepal Health Sector Programme
NHSSP	Nepal Health Sector Support Programme
NPC	National Planning Commission
NTC	National Tuberculosis Centre
NTCP	National Tuberculosis Control Programme
PCDH	Passive Case Detection by Health Facility
PHCC	Primary Health Care Centre
PHN	Public Health Nurse
RFT	Released From Treatment
RHD	Regional Health Directorate
RTLO	Regional Tuberculosis and Leprosy Officer
SAHW	Senior Auxiliary Health Worker
SAG	Sodium Antimony Gluconate

SBA	Skilled Birth Attendant
SHP	Sub Health Post
TFR	Total Fertility Rate
VCT	Voluntary Counselling and Testing
VHW	Village Health Worker
WHO	World Health Organisation

EXECUTIVE SUMMARY

The Health Management Information System (HMIS) is one of nine management information systems (MIS) in the Ministry of Health and Population (MoHP). Despite having data quality controls in place, there are frequent concerns about data quality, including inconsistencies with data reported from other sources and within HMIS. This assessment is a joint initiative between the Government of Nepal (GoN) and Nepal Health Sector Support Programme (NHSSP) and aims to gain a better understanding of why these differences are occurring and to recommend appropriate measures to mitigate them. The objectives of this assessment are:

- to identify and explore factors that may impact upon the accuracy and timeliness of HMIS data
- to identify where the same data is reported by HMIS and other MIS/programmes, and why
- to assess whether reported data differs, and if so, to understand why
- to identify and understand any differences in HMIS data reported at different levels, i.e. health facility, district and central levels, and
- to identify ways to improve data quality in HMIS

HMIS has 43 recording and reporting tools and data is collected and collated at different levels within the health system, from the Female Community Health Volunteers (FCHVs) at the community level through to Central level. The data from the monthly reports are entered into an electronic HMIS database in the Management Information System (MIS) section in Kathmandu. In practice, the HMIS data collection system deviates from the design. Reports are incomplete and irregular, levels of the system are by-passed and some facilities, particularly non-public hospitals, do not report at all. The MIS Section tries to ensure data quality through data validation processes and review meetings. These take place at Ilaka, district and regional levels and consist of routine review meetings and bi-annual workshops. Data verification involves cross checking of reported data of selected indicators with the original records and, at the central level, identification and manual cross checking of outliers. Support and supervision visits are also undertaken by Regional staff and D/PHO to districts and facilities to monitor data quality. However, there are no guidelines or systematic processes in place for data verification, descriptions of roles and responsibilities for different levels and individuals, or support and supervision visits and a lack of functional linkages between the different verification processes at different levels. This creates opportunities for unverified data to enter into the system and thus reduces the quality of data; delays the availability of data and results in corrections being made at different levels independently with results not fed- back and corrected at other levels.

This assessment explored the mismatch in data reported by HMIS and other systems (looking at both national and district level comparisons) and the inconsistencies in data reported within HMIS. The team spoke to key informants to better understand why inconsistencies are occurring. It is commonly thought that data reported by HMIS and other systems are duplicated at the outset in parallel collection processes. In fact, for all variables duplicated at the reporting stage all systems utilise the data from the HMIS recording tools. However, from this stage onwards parallel systems are in operation in regards to reporting, data entry, verification etc. and provide multiple opportunities for differences to occur in the data. Given the source of all the data is the HMIS tools, inconsistencies arise therefore arise due to a number of factors that occur after this initial data recording stage. The main reasons for differences in data have been categorised as direct i.e. as a result of the data collection, reporting and verification processes and indirect i.e. broader systemic issues, as

many of the barriers are far reaching and beyond the control of the MIS Section. In summary these are:

Direct Reasons

- *Inclusion of facilities:* There is no accurate list of all public and non-public facilities (i.e. those who should report to HMIS) and their reporting status available at the district or national level. This makes it difficult to track which facilities should report and whether they are reporting complete data on a timely basis.
- *Different reporting periods:* The design of different systems is frequently not complementary to HMIS or each other. Reporting periods vary between systems: some use the fiscal year and others the calendar year, some require monthly reporting and others quarterly, some use the Nepali calendar others use the Julian calendar. As well as creating inconsistencies in the data reported it also places additional demands on health workers.
- *Data collection and submission controls and processes:* The system dictates that data are reported upwards through different levels, however, this is frequently not adhered to resulting in differences in data held at the various levels. There is limited feedback or accountability on the quality or timing of data reporting. This leads to delays and omissions in the submission of data and limits the extent to which problems can be identified and lessons can be learnt.
- *Independent verification processes:* Current verification processes are not completely reliable, comprehensive or universally adhered to. Verification might take place at various levels, but results are not fed back across the system causing duplication of effort and potential for differences in data between district, regional and central levels. Programmes also undertake their own verification processes independently, again placing an additional burden on the facilities.

Indirect Factors

- *Data management:* Data management is not considered to be an integrated part of service delivery and is often undervalued so receives less attention. Even within the HMIS guidelines data management is not comprehensively covered.
- *Human Resources:* Recruitment and retention of competent data management, information technology (IT) and monitoring and evaluation (M&E) staff is extremely challenging.
- *Data collection tools:* HMIS tools tend to be user-friendly, however, some programmes feel that the content does not adequately reflect current data requirements. Tools are often reviewed on an ad-hoc basis, or in response to just one particular programme's demands. There are also concerns regarding the timely distribution of tools, printing quality, paper quality binding and size of tools. Furthermore, most districts and facilities do not have adequate infrastructure in place for data management, with inadequate computers, filing systems and storage facilities.
- *Information technology:* There is a lack of strategic guidance for information technology (IT) related issues, so Divisions and Centres use different IT systems that are not compatible with each other. The MoHP lacks a framework to guide the development and implementation of software so the software is frequently changed from one architectural structure to another.

The report has noted the presence of systemic, human and information technology errors for differences in data, as well as valid reasons that are often overlooked, such as different facilities expected to report to different systems. The key recommendations for improving timely and accurate data reporting are:

- A *facility-level database* that is accessible, accurate and updated on a regular basis, and indicates which facilities should report to the different systems and the reporting status of each facility. This should be accessible at the district and central levels and should enable greater accountability.
- *Feedback mechanisms* need to be in place so that facilities have processed data returned to them and have a better understanding of how data is used. This will help them to better understand the benefit of providing accurate and timely data. Good performers need to be acknowledged and likewise poor performers identified and action taken.
- *Comprehensive HMIS guidelines* need to be developed, distributed and implemented by all those involved in data management activities at all levels. These guidelines should include data validation and verification, staff roles and responsibilities, and the amount of time required for data management responsibilities, and clear systems for supervision.
- *The Design of HMIS* should satisfy the needs of other programmes for timely and accurate HMIS data. This would remove dual systems of verification and corrections, and also reduce the burden on staff required to check the data.
- *A comprehensive training/orientation plan* should be developed for all levels, including refresher training.
- *A systematic and timely review of the tools and indicators* is required to accommodate the monitoring needs of the different programmes.
- *A uniform coding system* needs to be developed and utilised by all systems to enable linkages to be made.
- *A master IT framework* covering system architecture, tools, technique, connectivity, and coding system issues needs to be developed and practiced by all the concerned agencies or units while developing their systems.

1 INTRODUCTION

1.1 Background

The Health Management Information System (HMIS) is one of nine Management Information Systems (MIS) in the Ministry of Health and Population (MoHP). It is based in the MIS Section in the Management Division, Department of Health Services (DoHS) and has been in operation since 1994. It includes information relating to the provision of health services, health status and programme performance.

Every month the MIS Section receives public health and facility data from district/public health offices (D/PHOs) and hospitals. Despite having data quality controls in place, there are frequent concerns about data quality. These include: inconsistencies in the data reported by HMIS and that reported by other programme divisions and centres; unexplained sharp rises or falls in data trends over time; inconsistencies in data published in annual reports at district level (by D/PHOs) and at central level (by the DoHS). Therefore it is essential to gain a better understanding as to why these problems are occurring and to recommend appropriate measures to mitigate them.

This assessment is a joint initiative between the MoHP and the Nepal Health Sector Support Programme (NHSSP). The plan to conduct a 'Mismatch Assessment' was proposed to participants of the Consensus Building Workshop to strengthen HMIS, held on 6th June 2011, where it was well received and suggestions regarding how to take this forward were requested. The need to conduct this assessment was confirmed by many of the concerns raised by the participants at this workshop.

1.2 Objectives

The objectives of this assessment are:

- to identify and explore factors that may impact upon the accuracy and timeliness of HMIS data
- to identify where the same data is reported by HMIS and other MIS/programmes
- to assess whether reported data differs, and if so, to understand why
- to identify and understand any differences in HMIS data reported at different levels, i.e. health facility, district and central levels
- to identify ways to improve data quality in HMIS

1.3 Report Structure

In the remainder of Section One this report will outline the study methodology (including the limitations of the methodology) and the study location for the in-depth work.

Section Two describes the current design of the data collection system within HMIS and briefly touches on how the system diverges from this in practice. This section also describes the available information technology and process of data entry together with the current mechanisms for ensuring data quality through data validation process and review meetings.

Section Three presents the results of a systematic review to identify all the variables that are reported by HMIS and also reported by other systems, such as Aama or the National Tuberculosis Control Programme (NTCP). The section clarifies the point at which duplication begins to occur between HMIS and other systems and presents the reasons, identified by personnel linked to the vertical programmes, for the duplicative reporting of HMIS variables.

Section Four analyses the inconsistencies in data reported by HMIS, both within HMIS and with other data sources.

Section Five summarises the reasons for differences in reported data that were observed during this assessment, and for the purpose of this study, have been classified broadly as direct and indirect factors.

Section Six provides recommendations for addressing the mismatch, building on the identified reasons for the mismatch presented in Section Five and utilising the information gathered for Sections Three and Four. These recommendations advocate for broad systemic changes to HMIS and the MIS Section as well as providing practical solutions for immediate action.

1.4 Methodology

The Monitoring and Evaluation (M&E) Strategic Adviser and the M&E Implementation Adviser, NHSSP, oversaw the implementation of this assessment, with technical support from the NHSSP Monitoring and Evaluation Mentor. They were supported by three Research Officers and the M&E Regional Advisers for the Eastern, Central and Western regions. The team worked closely with the MIS Section, Management Division and Demography Section, Family Health Division, DoHS, at central level as well as with government officials at regional, district and facility levels. The following process was followed during this assessment:

- *Desk review of recording and reporting tools*
  The assessment firstly sought to identify where the same data are reported by HMIS and other sources. This stage involved a desk-based comparison of recording and reporting tools used in HMIS (Annex 1) and other systems, and consultations with relevant divisions and centres where necessary.

- *Analysis to compare data reported by HMIS and other systems*
  For selected key variables (see 4.2.2), duplicated at the reporting stage by HMIS and other data sources, the team obtained and compared district level data to identify and better understand the extent of any inconsistencies. This analysis was undertaken for all 75 districts for the most recent completed annual datasets 2066/67 (2009/10). In

selecting key variables priority was given to those included in NHSP-II Results Framework. The team also assessed how the design of the other systems compare to HMIS, and how duplicated data are collected and reported in reality.

- *Key informant interviews at central, district and facility levels*
  The team interviewed key informants at the central, district and facility levels. Four districts were purposively selected (see Study Location) for in-depth exploratory work to further understand why reported data differs between data sources. Within these districts the D/PHO, programme focal persons, statistical officers/assistants, and facility staff involved in data collection, record keeping and reporting, were interviewed to ascertain their views and suggestions regarding the reasons for inconsistencies occurring, recommendations on how to address these inconsistencies and how to improve timely and accurate data collection. Similarly, programme focal persons in different divisions and centres were interviewed at the central level. During the key informant interviews at the central level the team discussed possible reasons for different figures being reported to HMIS and programme divisions/centres. See Annex 2 for the key informant interview guideline.

- *Data verification at facility level*
  A data tracking exercise was undertaken for the purposes of this assessment to explore any mismatch in data within HMIS. One district was purposively selected from 4 of the 5 regions: Morang (Eastern); Sarlahi (Central); Myagdi (Western); Kailali (Far Western) (see Figure 1). Three of these are Terai districts (Morang, Sarlahi and Kailali) and one is a hill district (Myagdi). Within each district 3 to 4 government facilities were visited representing the different types of facility (SHPs, HPs, PHC and hospitals). Table 1 contains the names of the facilities visited by type and district. The team visited 14 facilities: 4 SHPs, 4 HPs, 4 PHCs and 2 hospitals. They were able to access some records at all facilities visited, except one, where the Health Facility In-Charge (HFI) had forgotten the key to the storage cupboard (Sashapur).

Table 1: Facilities visited during data tracking exercise

	Morang *(Eastern Region)*	Sarlahi *(Central Region)*	Myagdi *(Western Region)*	Kailali *(Far Western Region)*
Sub-Health Post	Pathari	Hariaun	Babiya Chaur	Baliya
Health Post	Buddhanagar	Sashapur[1]	Arman	Do Do Dhara
Primary Health Centre	Mangalbare	Lalbandi	Darbang	Malakheti
Hospital	-	-	District	Seti Zonal

1 The team visited Sashapur Health Post in Sarlahi District, however, the service registers, tally sheets and reports were not accessible as the HFI forgot the key to the storage cupboard.

At each facility the team looked at records for the following six variables:

- Number of children receiving the BCG vaccination
- Number of women receiving fourth antenatal check-up
- Number of deliveries
- Number of positive malaria cases
- Number of positive cases of tuberculosis
- Number of new family planning acceptors

The team tried to obtain data for the same 4 months (Sharwan – Kartik) for 2 fiscal years 2009/2010 (2066/67) and 2010/2011. Unfortunately a lot of the data were unavailable at the time of visit.

This exercise tracked data from facility service registers up to the district level. Service coverage data were collected from the service registers, which were verified with tally sheets, facility reports and district records (See Annex 4 for a more detailed description of these tools). The quality of the record keeping at facility and district level varied. For example, some facilities maintained the service registers but not the tally sheets, and vice versa, while others kept a copy of the facility report sent to Ilaka or district levels but others did not. Facility wise data was maintained in 2 of the 4 districts.

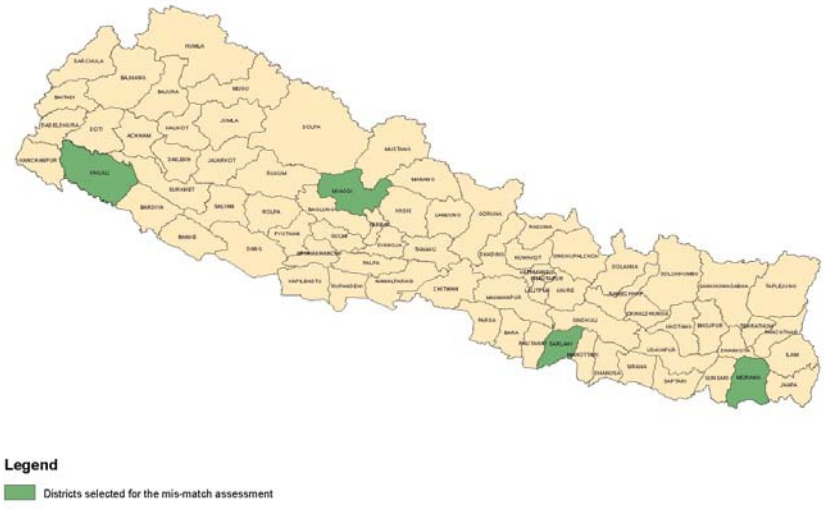
1.5 Limitations of Methodology

Given the lack of availability of facility level data in HMIS, it was not possible to cross-check data at this level with other systems and so district level comparisons were made despite different facilities reporting to the different systems. During the district visits the team looked at differences within HMIS at different levels and largely spoke to staff involved in collecting and reporting HMIS data. There was less interaction with programme focal persons linked to the other reporting systems and programme and HMIS data were not cross-checked at this level. Furthermore, during district visits the team did not go below the facility level, i.e. Female Community Health Volunteer (FCHV) registers and reports were not checked. Given they were already aggregated by the facility stage they were difficult to compare.

1.6 Study Location: In-depth Assessment

One district was purposively selected from 4 of the 5 regions for more in-depth exploratory work: Morang (Eastern); Sarlahi (Central); Myagdi (Western); Kailali (Far Western) (see Figure 1). Three of these are Terai districts (Morang, Sarlahi and Kailali) and one is a hill district (Myagdi).

Figure 1: Map showing location of districts for in-depth assessment



2 OVERVIEW OF HMIS DATA COLLECTION, ENTRY AND VERIFICATION

This section gives an overview of data collection tools, and the process of data collection, reporting, entry and data verification within HMIS.

2.1 Data Collection Tools

HMIS currently has 43 recording and reporting tools and each tool has a title and unique number (Annex 1). The 'tools' include 20 registers, 7 cards/tickets, 4 slips/forms, one diary, 6 tally sheets and 5 reporting forms. Out of these 43 tools, 8 are used by hospitals (3 registers, one reporting form, and 4 tally sheets), the remaining tools are used by lower health facilities (Primary Health Care Centre (PHCC)), Health Post (HP) & Sub Health Post (SHP) and District/Public Health Office/Officer (D/PHOs).

2.2 Data Collection Process

2.2.1 Data Collection System

The data collection system within HMIS[1] is designed to be as follows (see Figure 2):

- **Data collected by Female Community Health Volunteers (FCHVs):**
  FCHVs work at ward or sub-ward level and maintain a pictorial *FCHV Register (HMIS 27)*. Each month they submit their register to the Village Health Worker (VHW) or Maternal and Child Health Worker (MCHW[2]) or directly to the facility if they are visiting it. The VHWs/MCHWs are expected to make ward visits every month and one of their key functions is to collect monthly reports from the FCHVs. In some districts the Ilaka level health facility conducts review meetings with FCHVs and the FCHVs bring their monthly reports and submit them to the Ilaka facility.

- **Data collated by VHWs/MCHWs:**
  VHWs/MCHWs prepare a *VHW/MCHW Reporting Form (HMIS 31)* that collates data from the outreach and extended programme of immunisation (EPI) clinics and the data from FCHV registers. They submit this report monthly to their assigned health facility (either a Sub Health Post, Health Post or Primary Health Care Centre (PHCC)).

- **Data collated at below Ilaka level:**
  Sub Health Post and non-Ilaka Health Posts prepare a *PHC/HP/SHP Reporting Form* (*HMIS 32*) collating the data related to the services provided at the facility and the data from VHW/MCHW reporting form and submit it on a monthly basis to the Ilaka Health Post or Ilaka PHCC. When FCHV meetings are held at an Ilaka facility the facility will also collate FCHV monthly reports.

[1] The data collection processes for other systems with duplicated variables are summarised in Section 3.2

[2] VHW/MCHW visit FCHVs to re-supply family planning commodities and other drugs

- **Data collated at the Ilaka level:**
  Ilaka HP and PHCCs compile service statistics from the facility itself and from SHPs and non-Ilaka HPs under the facility, and prepare *PHC/HP/SHP Reporting Form (HMIS 32*). They submit the report on a monthly basis to the D/PHO.

- **Data provided and collated at district hospitals:**
  District hospitals prepare a *Hospital Based Reporting Form* (*HMIS 34)* collating services provided by the hospital and submit it to the D/PHO every month. The sections of the *District Reporting Form (HMIS 33a)* that relate to public health and outpatient services are collated from hospitals, PHCC and Ilaka facilities and submitted to the MIS Section by D/PHOs. At the same time the inpatient records are reported by each hospital to the D/PHOs who then submit the inpatient report (by hospital) separately to the MIS Section every month.

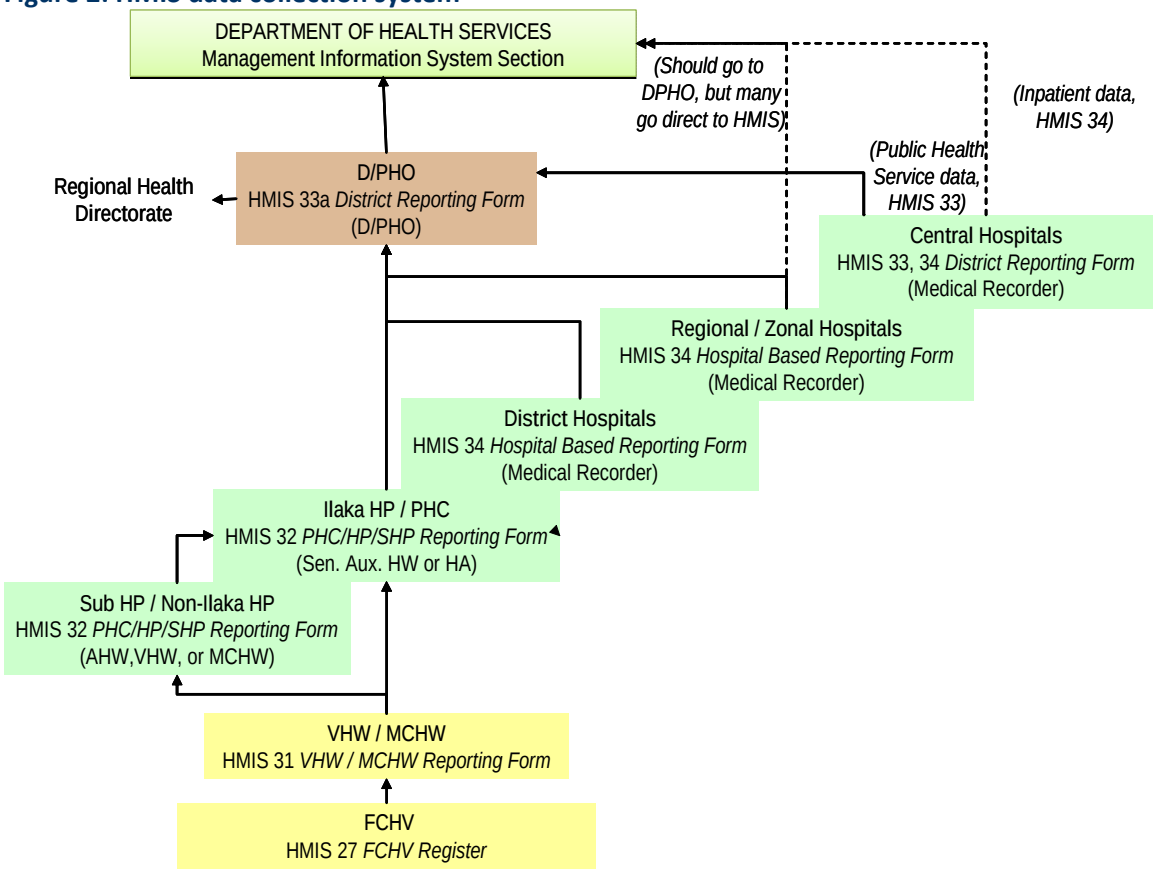
- **Data provided by higher level hospitals:**
  Zonal, Sub-regional, Regional and National level hospitals prepare a hospital based public health and outpatient Reporting Form *(HMIS 34)* collating services provided by the facility (both district hospital, PHCC and Ilaka level facilities). Similarly to the district hospitals, the inpatient reports received from higher level hospitals are also submitted separately by D/PHO to the MIS section every month.

- **Data provided by the private and Non Government Organisation (NGO) hospitals:**
  Private and NGO hospitals are supposed to prepare the *Hospital Based Reporting Form (HMIS 34)* and submit monthly to the D/PHO.

- **All facility data collated by the D/PHO:**
  D/PHO collates the reports received from all the health facilities, including hospitals, within the district and submits the *District Reporting Form* (*HMIS 33a)* and the hospital inpatient data (HMIS 34) to the MIS Section and the Regional Health Directorate (RHD) each month.

- **MIS enter D/PHO data in HMIS database:**
  The MIS Section in Kathmandu enters the monthly reports received from the D/PHOs and hospitals into an electronic HMIS database that can be accessed via the internet and the Local Area Network (LAN). The MIS Section maintains a separate database for public health data (data received from D/PHO – HMIS 33a) and hospital data (HMIS 34). The internet access is restricted and needs a password to access the HMIS data. The MIS Section provides monthly compiled data to all programme Divisions and Centres for monitoring purposes.

Figure 2: HMIS data collection system



2.2.2 Divergence from the Data Collection System

The in-depth exploration work undertaken for the purpose of this assessment highlighted how, in reality, the actual HMIS data collection system deviates in some cases from that outlined above. The following examples were noted.

- Hospital reports are frequently incomplete and irregular. Some zonal, regional and central level hospitals send reports directly to the MIS Section in Kathmandu, but fail to report to D/PHO. Some hospitals, particularly central and non-governmental hospitals, and especially private hospitals, neither report to the D/PHO nor MIS Section, Management Division (MD), DoHS.

- Hospital data is sometimes excluded from the aggregated HMIS 33: some D/PHOs just compile data from PHCCs, HPs and SHPs and forward the hospital report (HMIS 34) to the MIS Section, particularly when the hospital report is incomplete and delayed. At the central level staff in the MIS Section enter HMIS 33 and HMIS 34 in separate databases according to what is received from the D/PHOs and hospitals and often fail to make the necessary checks. Although some MIS Section personnel do manually check the data, there are no guidelines or systematic processes in place.

- Due to increased workload at facilities, VHW/MCHWs are failing to visit FCHVs on a monthly basis to collect the reports. At the same time the system lacks provision of

reimbursement of transportation expenses for FCHVs if they visit facilities to submit their monthly reports.

2.3 Information Technology and Data Entry

Equipment

- Each D/PHO has received two desktop computers and one laptop and all hospitals have received one computer from the MIS Section. In addition, computers, printers and other accessories have been received from other sources.

Software

- In 2009 HMIS software was installed in 60 D/PHOs and Statistical Officers/Assistants received training to use the software. Initially 35 districts sent data using this software and the MIS Section planned to extend coverage to all 75 districts. However, in 2010 the HMIS software changed at the district level as some revisions were made to the tools. The implementation of this new district level software was unsuccessful, mainly due to it being too complex and there being a lack of technical competency within the MIS Section.
- Many key informants interviewed were critical that the HMIS software is inflexible and difficult to modify when data requirements change over time. Furthermore, data generation is often cumbersome.
- In some instances whole areas of functionality were simply never completed by the software contractors.
- The presence of numerous software bugs was apparent, undermining data integrity and requiring labour-intensive workarounds. Although many bugs could be resolved by small software changes, some bugs reported years ago still remain unfixed.
- There was inadequate testing before acceptance, deployment and payment, and there has been inadequate on-going engagement with the contractor.

Data entry

- Given the present complications with the district level software outlined above, districts now send HMIS 33 to the MIS Section for data entry, either electronically via email or in hard copy. The MIS Section enters the data from the hard-copies or prints out the electronic reports and re-enters into the HMIS database. Currently data entry from all 75 districts takes place at the central level.
- Some hospitals enter their own data but, given that no uniform database has been developed for hospital data entry, databases vary.

Internet

- Internet access is now available in all 75 districts.

2.4 Data Verification and Review Meetings

HMIS tries to ensure data quality through the following data validation processes and review meetings:

- *Monthly Ilaka level verification*
  Verification is meant to be routinely undertaken at Ilaka level during the monthly review and reporting meetings, although this is not specified in the guidelines, it is included in

the annual workplan and budget (AWPB). However, in practice, most only use this meeting for reporting purposes rather than reviewing and verifying their data.

- *Quarterly district review meetings*
  D/PHOs generate data reports for each health facility. These reports are compared with the facility records and any errors are corrected. This process is undertaken prior to the review sessions at district quarterly, bi-annual and annual workshops or meetings.

- *Bi-annual regional forum*
  Data entered at the district and central level are verified twice a year through a three day workshop at a regional forum. The hospital medical recorders and D/PHO statistical officers/assistants from all districts within the region participate and review tally sheets for HMIS 29, 30 and 33. The Regional Health Directorate (RHD) prepares a verification sheet for each district within the region. The participants verify the reported figures with the regional database. However, during the 2010/11 fiscal year the regional review only occurred once, largely due to delayed release of the budget.

- *District level Annual/Bi-annual verification*
  A district level verification exercise is usually undertaken twice a year. However, during the 2010/11 fiscal year it was only undertaken once, largely due to a delayed release of the budget. The MIS Section selects 75 indicators for annual/bi-annual verification and informs all of the districts. The D/PHOs circulate the format to all Ilakas within their district. The verification exercise involves cross checking reported data for these selected indicators with the original records to identify any errors. The Statistical Officer/Assistant and Programme Focal Person(s) from the D/PHO facilitate the process, with the health facility in-charge and data personnel from the Ilaka level (Senior Auxiliary Health Worker (SAHW), Auxiliary Health Worker (AHW), Auxiliary Nurse Midwife (ANM) participating. Ilakas review the figures from HMIS 32, service registers, monitoring sheets and HMIS 31 (VHW/MCHW reporting form).

- *Identify outliers*
  Where outliers are observed at central level, e.g. an unexpected increase/decrease during one particular month in one district, the data is manually cross-checked for data entry error with the HMIS 33 reporting form received from the district. If necessary the concerned D/PHO is contacted for clarification/correction. However, there is no systematic mechanism in place to do this.

- *Support and Supervision visits*
  Regional staff undertake visits to districts and health facilities and D/PHO staff undertake visits to health facilities to monitor data quality. There are no guidelines detailing what process should be followed during these visits or how often they should take place. Regional visits are mainly to the district level with only some selected health facilities receiving visits. Central level staff also monitor data quality during visits to districts and facilities, however, these visits are very infrequent.

There is a clear lack of functional linkages between the different verification processes at the different levels. This presents problems for the timing of the availability of accurate data, with users having to wait a year for the Ilaka adjustments to be made. Therefore the earlier and more frequent district and regional reviews are using data that have not been reviewed at the source of data collection (i.e. the health worker/health facility records). Hence, changes made during these review/verification exercises might not be reflected in the

central dataset which leads to differences in the annual report and the facility data. There are also concerns about the effectiveness of these review/verification processes. In some instances the participants involved in these exercises fail to fully track the errors in the data.

3 DUPLICATE REPORTING BY HMIS AND OTHER MIS

3.1 Variables Duplicated in Reporting by HMIS and Other Systems

For the purposes of this report the study team conducted a systematic review to identify all variables that are reported by HMIS and also reported by other systems (Table 2).

Table 2: Variables reported by HMIS and other Systems

	Variable	System
Maternal Health	• Number of institutional deliveries • Number of caesarean sections • Number of obstetric complications managed at EOC facilities • Number of abortion complications managed	• Aama Programme • Emergency Obstetric Care (EOC) monitoring system
	• Number of home deliveries attended by SBAs • Number of home deliveries attended by other health workers	• Aama Programme
Family Planning	• Number of vasectomies • Number of Minilap	• Family Planning Section, FHD
Tuberculosis	• Case finding (New Sputum Positive, Relapse, Failure, Return after defaulter, New Sputum Negative, Extra Pulmonary, Transfer In, Other patient by sex) • Treatment category (CAT I, II, and III) • Sputum conversion (Negative, Positive, Died, Defaulted, Transferred Out, and No Result for New Sputum Positive, Relapse, Failure, Return after defaulter by sex) • Treatment outcome (Cured, Complete, Failure, Died, Defaulted, Transferred Out, No Result for New Sputum Positive, New Sputum Negative, New Extra Pulmonary, Relapse, Failure, Return after defaulter by sex)	• National Tuberculosis Control Programme (NTCP), National Tuberculosis Centre (NTC)
Leprosy	• Total number of patients (Patient at the end of last month, New, Relapse, Re-treatment, Transferred in cases • Cases treated in this month • Total cases deducted (Released from treatment (RFT) transferred out, defaulter, other deducted) • Patient <14 yrs. at the end of month • Smear examined (Cases smear examined among new, smear positive among examined) • Female cases among new, and • Deformity status of the new and RFT cases	• Leprosy Elimination Programme (LEP)
HIV/AIDS	• Number receiving counselling for HIV/AIDS • Number tested for HIV/AIDS • Number of new HIV positive cases • Number of new AIDS cases • Number of deaths due to HIV/AIDS • Number of patients treated for STI	• National HIV/AIDS Surveillance and Monitoring System, National Centre for AIDS and STD control (NCASC)
Malaria	• Slide collected (ACD, PCDH, and total) • Examined, result and treatment (Examined, positive) • Total treated (by type of malaria (PV, PF, PMix, Clinical malaria); age (<5 yrs, and >5 Yrs.) and sex) • Died (among suspected/probable, and confirmed falciparum)	• Malaria Control Programme, Epidemiology and Disease Control Division (EDCD)
Kala-azar	• Affected VDC and Village/tole • Number of patient (age (<5 yrs, and 5 yrs.) and sex) • Total number treated (with SAG, Fungizone and other) • Died by sex	• Kala-azar Elimination Programme Epidemiology and Disease Control Division (EDCD)

Note: The variables inside the parentheses are sub-divisions of the major variable.

3.2 Processes for MIS with Duplicated Reporting

To better understand why differences may or may not occur when the same data source is used by HMIS and other systems, it is necessary to understand the differences and similarities in data collection and reporting processes for the different systems. These are summarised in Table 3. There is a commonly held misconception that data reported by HMIS and other systems are duplicated at the outset in the data collection processes of the parallel systems. In fact there is no duplication between HMIS and other systems in regards to the recording tools used to collect the data initially. Instead all systems that report data, duplicated with HMIS variables at the reporting stage, rely on HMIS tools for the source of the data. This key finding should minimise the chance of any differences in data occurring and we can be certain that the tool is not a factor behind any differences observed. However, despite the HMIS tool being used by all, the parallel reporting systems often collect the HMIS data from these tools directly from the facility and/or district records (i.e. duplicating effort from this point right up until the reporting stage), or through phone calls to the district programme focal persons, often even prior to preparation of the monthly report, thus bypassing the HMIS reporting system and data entry. Hence, there are fundamental differences in the reporting process, frequency of reporting, and data entry, which would all provide the opportunity for differences to occur in the data reported by the various systems. Furthermore, if different facilities are expected to report, for example to Aama and to HMIS, it should be noted that there are legitimate reasons as to why differences in reported data will occur.

Table 3: Data collection, reporting, entry and verification systems in different programmes

	Which facilities should report	Record Keeping	Reporting Process	Frequency of reporting	Database	Data Entry	Verification
Aama	• All health facilities implementing Aama (i.e. all public health facilities that officially conduct deliveries and some non-public hospitals)	• HMIS tool (Maternity Register /HMIS10)	• Facilities report to D/PHO and D/PHO to FHD • Aama guideline states that facilities should also copy report to MIS Section, however, there is no mechanism within MIS Section to enter these data and systematically tally with the data reported to FHD.	• Monthly (Should be monthly, but some districts only send quarterly or annually)	• Excel format (Software was developed but not currently used)	• FHD, Kathmandu	• Periodic household and health facility surveys
EOC monitoring	• All basic emergency obstetric care (BEOC) and comprehensive emergency obstetric care (CEOC) facilities	• HMIS tool (Maternity Register /HMIS10)	• Facilities report to D/PHO and D/PHO to FHD • EOC monitoring guideline states that facilities should also copy report to MIS Section, however, there is no mechanism within MIS Section to enter these data and systematically tally with the data reported to FHD.	• Monthly (should be monthly, but some don't report and reports are often incomplete)	• Excel format	• FHD, Kathmandu	• Annual regional review
Family Planning	• All public health facilities	• HMIS tool (HMIS 12, 14)	• Focal person at central level telephones focal person at D/PHO i.e., Family Planning Officer/Assistant verbally receives the most recent data	• Monthly	• Excel format	• FHD, Kathmandu	• Annual review

	Which facilities should report	Record Keeping	Reporting Process	Frequency of reporting	Database	Data Entry	Verification
Tuberculosis	• All Directly Observed Treatment Short Course (DOTS) centres/ sub-centres	• HMIS tool (TB register - HMIS 21)	• Two reporting forms: one monthly (HMIS) and one quarterly (NTC) • For reporting to NTC DOTS centres/sub centres provide reports to District Tuberculosis and Leprosy Officer (DTLO). DTLO compiles data and reports to Regional Tuberculosis and Leprosy Officer (RTLO) (RHD).	• Quarterly	• Excel format • (Software was developed but not functional)	• NTC, Kathmandu	• Quarterly at DOTS centre, District, Region and Central level
Leprosy	• All public health facilities	• HMIS tool (HMIS 22, 23)	• Two reporting forms: one monthly and one quartely • DTLO sends quarterly report to LEP	• Quarterly	• Excel sheet	• LEP, Kathmandu	• Quarterly review at District Region & centre
HIV	• All voluntary counselling and testing (VCT) sites (including NGO)	• HMIS tool (HMIS 19)	• Government VCT sites (76) report to HMIS. Government and NGO VCT sites (>200) report to NCASC.	• Monthly	• Excel sheet	• NCASC, Kathmandu	•
Malaria	• All public health facilities	• HMIS tool (HMIS 24)	• Malaria inspector reports to EDCD	• Monthly and quarterly reports	• Excel sheet	• EDCD, Kathmandu	• Bi-annual regional review • Quarterly district review • Annual internal assessment
Kala-azar	• All health facilities providing Kala-azar services in 15 Kala-azar endemic districts	• HMIS tool (HMIS 24)	• District focal person visits facilities providing services and collects data, prepares annual report and submits to EDCD.	• Annual	• Excel Sheet	• District	• Bi-annual regional review • Quarterly district review • Annual internal assessment

3.3 Reasons for Duplicate Reporting

Personnel linked to vertical programmes gave the following reasons for duplicating reporting of HMIS variables:

Different reporting periods

- HMIS is designed to report on a monthly basis, but individual programmes have their own reporting time periods and these vary across the different programmes, with many being incompatible with HMIS reporting processes. For example malaria data for the World Health Organisation (WHO) is reported in the Julian calendar months (i.e. January to December) to enable international comparison. However, since HMIS report by the Nepali calendar the month-wise data are not comparable and different reporting forms are utilised. Furthermore, two reporting forms are used for tuberculosis and leprosy, a monthly one for HMIS and a quarterly one for the National Tuberculosis Control Programme (NTCP) and the Leprosy Elimination Programme (LEP), thus requiring a duplication of effort by facility staff despite all using the Nepali calendar, and hence systems could be designed to enable a simple aggregation of monthly reports to quarterly ones.

Delayed reporting by HMIS

- Even when reporting time periods match, frequent delays in reporting by HMIS result in programmes being unable to rely on HMIS as their data source. Many of the programmes are required to report to National Planning Commission and Ministry of Health and Population on a monthly basis. Given the smaller quantity of data required some programmes can resort to phoning and verbally receiving programme data from all districts on a monthly basis.

Incomplete reporting

- Facilities and districts frequently submit incomplete reports for HMIS, especially if the person responsible for preparing and submitting reports is on leave or absent. Furthermore, when complete reports are submitted, duplication may occur which is not identified.

Vertical funding from External Development Partners (EDPs)

Vertical funding by EDPs often requires personalised reporting systems.

4 EXTENT OF THE MISMATCH

The analysis of the inconsistencies in data reported by HMIS and other data sources has been categorised as follows:

1. Mismatch in data reported by HMIS and other systems
    - National Comparison
    - District Comparison

2. Mismatch in data reported within HMIS

4.1 Mismatch in data reported by HMIS and other systems

This section investigates the differences between data reported by HMIS and data reported by different systems.

4.1.1 National Comparison

To provide an indication of the accuracy of HMIS data reported at the national level, data from HMIS 2010/11 have been compared with the preliminary findings from the Nepal Demographic Health Survey 2011 (NDHS), where the same variables are reported (Table 4). District level NDHS data were unavailable at the time of writing.

On the whole the data reported by HMIS and the NDHS are very similar, especially given there are substantial differences in data collection, with the NDHS being a cross-sectional survey with a representative national sample. Furthermore, given verification is still on-going these are not the final data, and hence may vary from the final reported data. The similarities are positive and should encourage people to have more faith in the data reported by HMIS at the national level.

In particular, the findings for contraceptive methods are very similar. Regarding maternal health, differences in deliveries conducted by a skilled provider may be linked to methodological differences, i.e. NDHS is a household survey and more likely to capture home deliveries, or those interviewed may be unaware of the skill level of their provider and a greater number may assume the provider is *skilled*. Larger differences were apparent for vaccination coverage, with NDHS reporting consistently higher coverage rates. However, this is most likely due to problems with the denominator data used by HMIS to calculate these percentages rather than the data collected for the numerator being incorrect – i.e. the population projections used by HMIS are based on total fertility rates (TFRs) that are higher than those reported in the preliminary NDHS 2011 findings, suggesting that fertility has reduced at a quicker pace than expected when these projections were made.

Table 4: Comparison of HMIS 2011 data with NDHS 2011 preliminary findings

Indicators	HMIS-2010/11	NDHS 2011 Preliminary
Current Use of Modern Contraceptive Methods		
Any Modern Method	41.3	43.2
Female and male sterilisation	25.2	23.0
Pill	2.8	4.1
Injectables	7.6	9.2
Condom	2.8	4.3
Implants	1.5	1.2
IUD	1.5	1.3
Maternal Care Indicators		
% of deliveries by a skilled provider	25.8	36
% of deliveries in a health facility	26.3	28.1
Vaccination		
BCG	89.4	96.2
DPT 3	87.8	91.4
Polio 3	87.2	92.2
Measles	87.6	87.7

Note: The HMIS 2010/11 data has not been published, and may change when it is finally published due to on-going verification. This is just included for comparison purposes.

4.2.2 District Comparison

This section presents findings from a desk-based assessment comparing reported data for selected indicators from HMIS and other systems for the same time period, across all 75 districts. Annual data for 2009/10 were compared to explore the extent of the mismatch between the different sources, as this was the most recent set of complete annual data (except for Kala-azar 2008/09 as this was the latest year data was available). The district level data reported by the various systems for the following selected variables are contained in Annex 3:

- Maternal Health
  - Number of institutional deliveries
  - Number of deliveries by caesarean section
- Tuberculosis
  - TB Treatment success rate
  - TB case finding rate
- Malaria
  - Number of slides collected for malaria testing
  - Number of positive malaria cases identified
- Ka lazar
  - Number of reported Kala-azar cases

4.2.2.1 Maternal Health

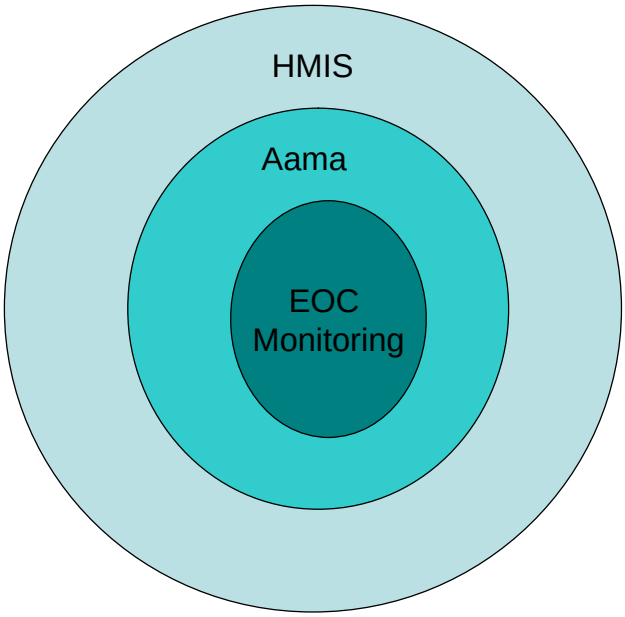
As outlined in Section 3, some maternal health indicators reported by HMIS are also reported by Aama or the EOC monitoring data. One very apparent reason for differences between these data sources is that each system has different criteria regarding which facilities are expected to report. In comparing HMIS data with data from Aama and EOC monitoring, the lack of facility level data in HMIS prevented the team from being able to just select HMIS data related to the Aama or EOC facilities and thus perform a like for like comparison. Thus differences in data naturally occur due to differences in the facility inclusion criteria and it is important that when data is disseminated from these systems that people are made aware of these differences. In the past, the differences in the maternal health estimates, such as the % of institutional deliveries produced by these sources, have been referenced when highlighting concerns with data quality. Table 5 shows the number of facilities, broken down by type of facility and whether they are public or private, that are expected to report to each system to highlight the difference. Figure 3 illustrates the fact that only CEOC and BEOC facilities are expected to report to EOC monitoring. All of these EOC facilities, along with other facilities that officially provide delivery care, such as birthing centres, then report to Aama, and all of these facilities that officially provide delivery care plus all other public and non-public facilities are then expected to report to HMIS. In the recent annual reports of DoHS, deliveries in any institution (i.e. HMIS data) and deliveries in EOC facilities (i.e. EOC monitoring data) have been presented separately and the percentages differ because of the different numerator. There has been anecdotal evidence of EOC facilities trying to show they are meeting the need for obstetric care by including non-obstetric complications as obstetric complications.

Table 5: Number of facilities that should be reporting to each system

HMIS	Aama Programme	EOC Monitoring
All public and all non-public facilities: 4109 public facilities: 95 Hospitals 209 Primary Health Centres 676 Health Posts 3129 Sub Health Posts 760 non-public facilities (Source HMIS 2010/11)[1]	*All public and all non-public facilities that officially provide delivery care and are included in Aama Programme:* 1068 public facilities: 95 hospitals 209 Primary Health Centres 533 Health Posts 326 SHPs 53 non–public facilities	*All public and all non-public CEOC and BEOC facilities:* 304 public facilities: 95 hospitals 209 Primary Health Centres

[1] HMIS facility database is not up to date / accurate – but this can be used as a guide

Figure 3 Diagram illustrating how facilities reporting to EOC monitoring, Aama programme and HMIS are a subset of one another



The analysis below looks at differences in district level figures for HMIS, and those for Aama and EOC monitoring data for two variables: institutional delivery and caesarean sections. It was clear that the facility inclusion criteria were not the only factors contributing to differences between the indicators.

- *Institutional Deliveries*

The district level data on institutional deliveries is included in Annex 3.1. The data highlights another difference between the systems in the number of districts that have reported data on institutional deliveries for 2009/10 to the central level (Table 6). Data on institutional deliveries were reported to HMIS for all 75 districts, but only 53 districts have reported data for Aama and 38 for EOC monitoring. HMIS is a regular system with monthly reporting, however Aama is linked to the budget release. The Aama reporting forms require financial information so if there is no payment they don't tend to submit the reports on time. Non-compliance with EOC monitoring is often linked to facilities failing to understand the importance or how it fits in given it is not integrated into HMIS.

Table 6: Variation in institutional delivery data reported in Aama programme and EOC monitoring system

	Number of districts …						
	reporting to HMIS	reporting to …		with >2% difference	with >5% difference	with >10% difference	with >20% difference
% institutional deliveries	75	Aama	53	30 (57%)	13 (25%)	11 (21%)	7 (13%)
		EOC mon.	38	32 (84%)	27 (71%)	15 (39%)	6 (16%)

For comparison purposes we have used the same denominator, i.e. the number of expected pregnancies, to calculate the estimated % of institutional deliveries, while the raw data can be found in Annex 3.1. For those districts that have reported data there are large variations between the HMIS data and the Aama (Figure 4) and EOC monitoring data (Figure 5). One

would expect a lower number of institutional deliveries to be reported by Aama and EOC monitoring compared to HMIS as these systems represent a subset of the facilities reporting to HMIS (see Figure 3). Although given that one would not expect a substantial number of deliveries to take place in unofficial birthing centres, one would not expect the differences to be large. The charts do indicate that HMIS is more likely to report a higher number of deliveries (i.e. the dots would appear below the line on the charts), however, there are a number of districts reporting a greater number of deliveries in Aama or EOC monitoring and hence facility inclusion can not be the only explanation for differences occurring. Similarly there has been anecdotal evidence of fraudulent exaggeration of deliveries, particularly by health workers at home, to claim the incentives provided by the Aama programme. Furthermore, 21% of districts reporting to Aama and 39% of districts reporting to EOC monitoring had a difference of greater than 10% with HMIS data (Table 6).

Figure 4: Percentage of institutional deliveries - comparing Aama and HMIS reported data

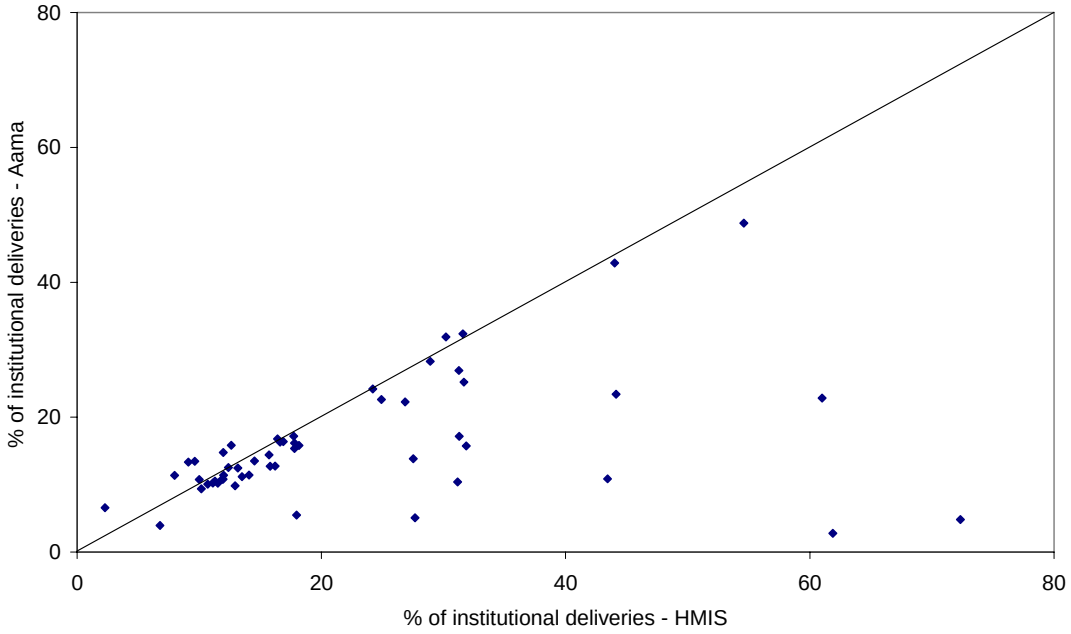
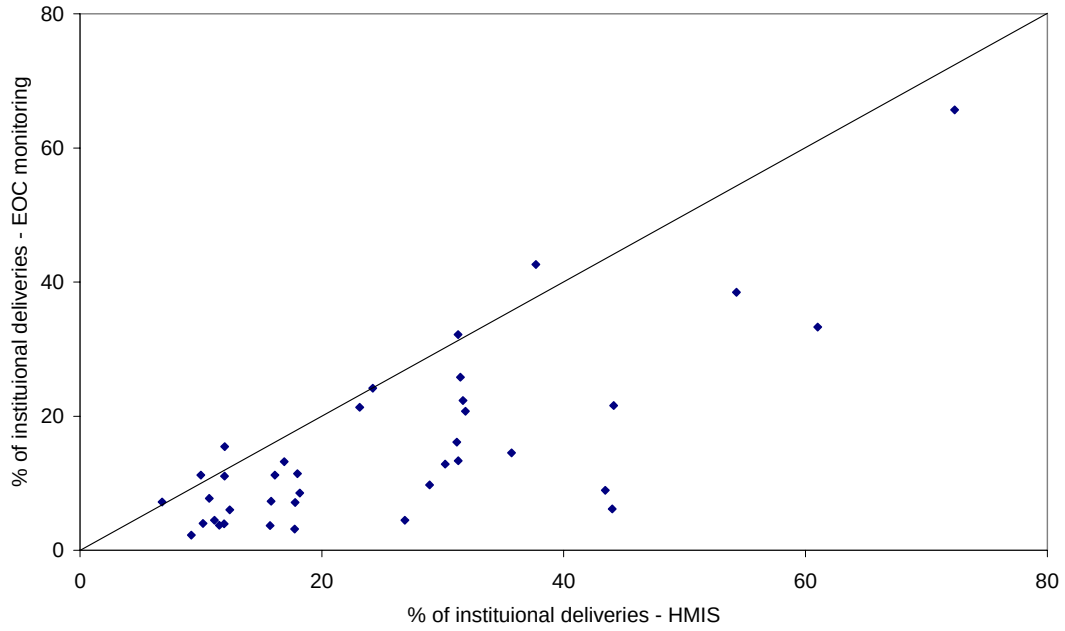


Figure 5: Percentage of institutional deliveries - comparing EOC monitoring and HMIS reported data



- *Caesarean Sections*

The district level data on caesarean sections are included in Annex 3.1. The same problem with reporting is apparent as described above, with data reported to HMIS for all 75 districts, but only 53 districts have reported data for Aama and 33 for EOC monitoring (Table 7).

Table 7: Variation in caesarean section data reported in Aama programme and EOC monitoring system

	Number of districts …						
	reporting to HMIS	reporting to …		with >1% difference	with >2% difference	with >5% difference	with >10% difference
% caesarean sections	75	Aama	53	8 (15%)	5 (9%)	3 (6%)	1 (2%)
		EOC mon.	33	6 (16%)	3 (8%)	3 (8%)	1 (3%)

For comparison purposes we have again used the same denominator, i.e. the number of expected pregnancies, to calculate the % of deliveries by caesarean section, while the raw data can be found in Annex 3.1. Again for those districts that have reported data some have large variations between the HMIS data and the Aama (Figure 6) and EOC monitoring data (Figure 7). Unlike the number of institutional deliveries the facility inclusion criteria should be less of an issue given that caesarean deliveries should only take place in CEOC facilities which are included in HMIS, Aama and EOC monitoring and hence the data from the different systems should match. However, given the lack of clarity regarding which facilities should report to the different systems, especially with regard to private and NGO, differences are likely to occur. The charts clearly illustrate differences in data for a number of districts and where differences do occur, HMIS is more likely to report a higher number of deliveries (i.e. the dots appear below the line on the charts), however, there are also a few

districts where a higher number are reported by Aama or EOC monitoring. Furthermore, 6% of districts reporting to Aama and 8% of districts reporting to EOC monitoring had a difference of greater than 5% with HMIS data, which is a sizeable difference for the percentage of caesarean sections (Table 7).

Figure 6: Percentage of deliveries by caesarean section - comparing Aama and HMIS reported data

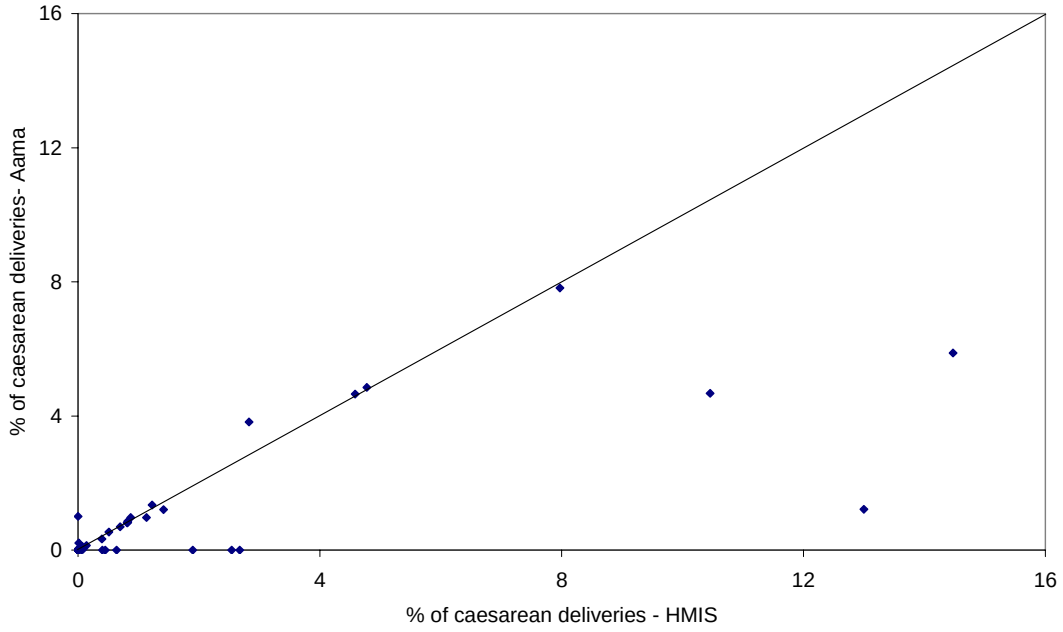
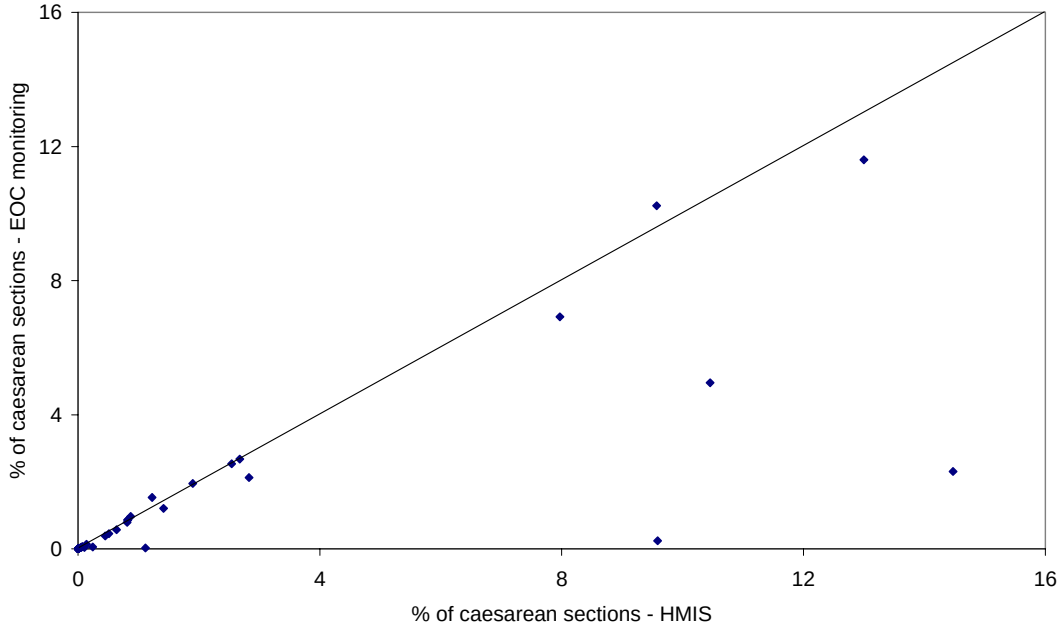


Figure 7: Percentage of deliveries by caesarean section - comparing EOC monitoring and HMIS reported data



4.2.2.2 Tuberculosis

Two variables have been selected to compare tuberculosis data reported from HMIS with that reported by the NTC: treatment success rate and case finding rate. HMIS and NTC reported data for the case finding rate, but NTC failed to report for one district for the success rate, while HMIS again reported for all (Table 8)

One would expect little variation in the data reported by HMIS and NTC given that HMIS have resorted to reporting data received from NTC than from their own system. However, when comparing the data differences were observed – for 7 districts that reported to both systems for the treatment success and for 2 districts for the case finding rate. On further exploration it appears that despite using data from NTC there is further duplication at the data entry stage as the MIS Section receive hard copies of the data from the NTC. All of the differences for both variables were indeed due to data entry errors, but on the part of the NTC.

Table 8: Variation in tuberculosis data reported in HMIS and NTC

	Number of districts …				
	reporting to HMIS	reporting to NTC	with >1% difference	with >5% difference	with >25% difference
TB-Treatment Success Rate	75	75	7 (9.5%)	3 (4.0%)	2 (2.7%)
TB Case Finding Rate	75	75	2 (2.7%)	2 (2.7%)	2 (2.7%)

4.2.2.3 Malaria

The two variables selected to look at malaria data are slides collected for malaria testing and number of positive cases. HMIS and EDCD both reported data for all 75 districts for both variables and the findings are plotted on Figure 8 and 9. To enable a better comparison of the data the charts have been plotted on a log scale. For the number of slides collected there are substantial differences between the two variables, with only 12 out of the 75 districts (16%) having matching data (Figure 8). For the remaining districts the differences for the remaining number of districts ranged from 1 to 12,248. For the number of positive cases there was slightly better with 26 out of the 75 districts matching, however, that is still only 36%. Therefore once again substantial differences can be seen on the chart (Figure 9).

Figure 8: Number of slides collected for malaria testing, in EDCD and HMIS data

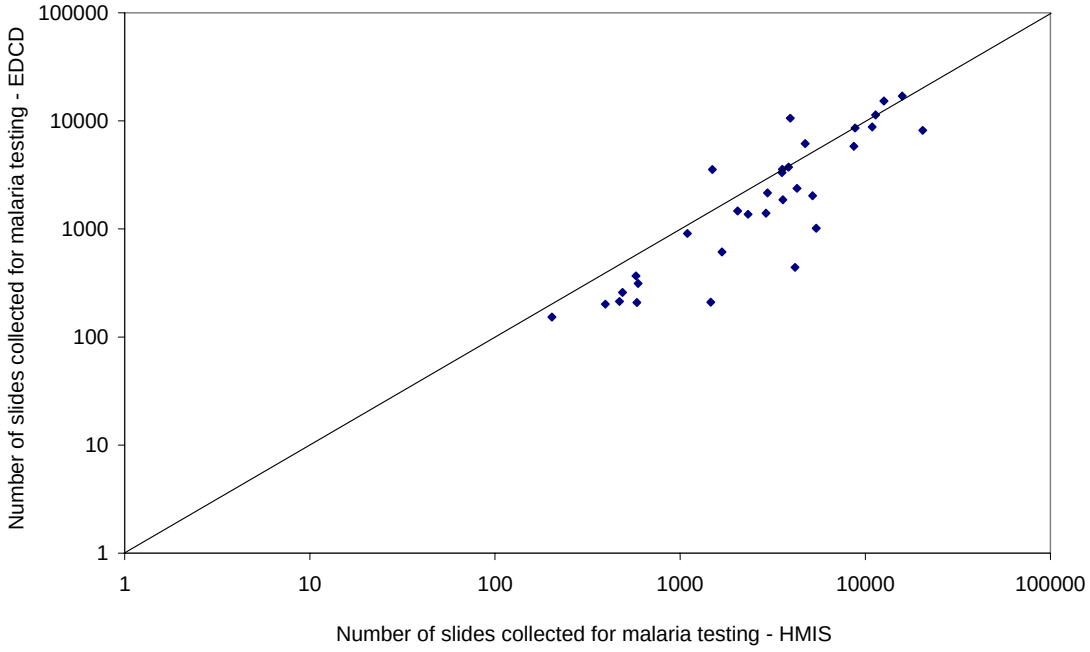
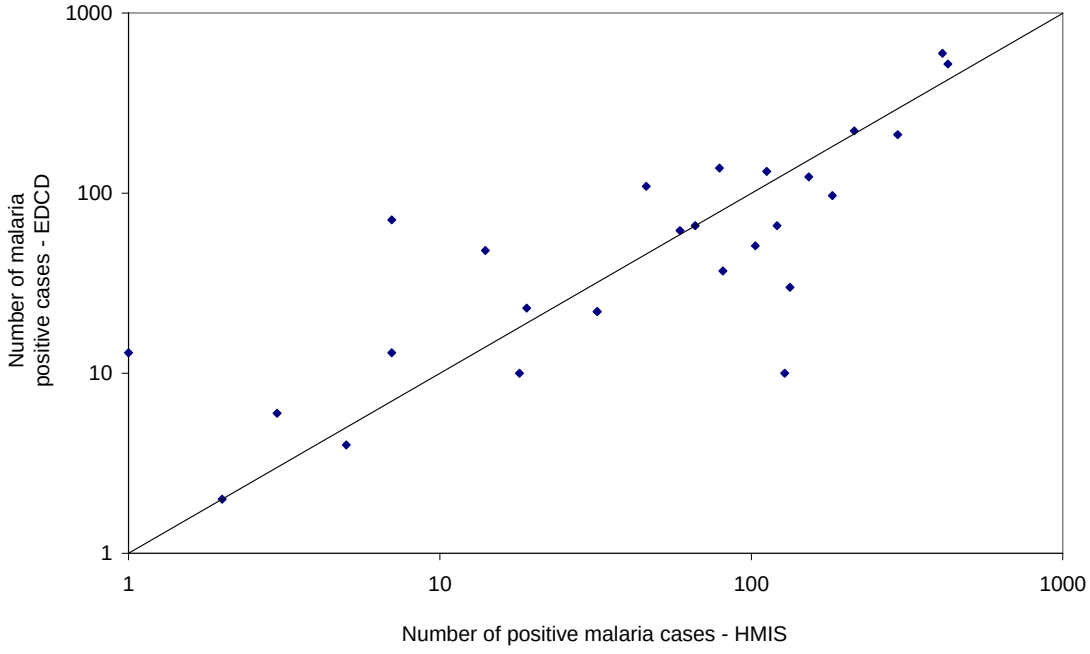


Figure 9: Number of positive malaria cases, in EDCD and HMIS data



4.2.2.4 Kala-azar

The number of reported Kala-azar cases is present in both the HMIS and EDCD reporting systems for the 15 districts where Kala-azar is endemic (see Annex 3.4). One would expect less variation in the data reported by HMIS and EDCD given that there are fewer districts reporting, data is only collected at the hospital level, the hospitals report directly to EDCD and HMIS have resorted to reporting data received from EDCD rather than from their own

system. This is because the medical recorders at the hospitals do not report the necessary data to the D/PHO or MIS Section, but do to EDCD, and hence the MIS Section has to rely on the data reported by EDCD, despite the original source of the data being the HMIS tool. The medical recorders of the hospitals are closely monitored by EDCD for Kala-azar treatment and the hospitals receive the Kala-azar drugs direct from central level.

4.2 Mismatch in Data Reported Within HMIS

The raw data collected from the records are contained in Annex 4. The tables highlight that a lot of the data were unavailable at the time of visit (shaded grey), which itself is a key finding, and for the data that are available there are many discrepancies (shaded pale blue), many small minor differences, as well as some more substantial ones. The data that are not shaded do not differ to any other reported data, however, in some cases this is simply because there is no data to compare it to.

Although discrepancies occurred at all stages, broadly, the data shows that discrepancies are more common and larger between the first two stages, i.e. from the service register to the facility reporting form. This largely seemed to be due to service registers either excluding data related to outreach camps and clinics entirely, or only including this data after the preparation of the annual report, however, tally sheets and facility reports do include this data. An additional observation was that some registers had lost pages due to poor binding. Discrepancies also seemed to be more common for the lower level facilities, especially for BCG coverage, antenatal check-ups and family planning (i.e. ones with more outreach services). Facilities with better availability of records at all stages tended to have less difference between the original (the service register) with what is recorded at the district level (D/PHO Reporting Form).

Key observations by variable showed that:

- *Number of children receiving the BCG vaccination*

Only 6 of the 14 facilities had data on BCG coverage in both the service register and the SHP/SP/PHCC reporting forms and the data only matched in one facility (Table 9). In 3 facilities it was just a difference of 1 case, however a bigger difference was noted for 2 SHPs. The differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms were minimal, however, in many instances the team were unable to compare the data. It was only possible to compare the data from the original source (the service register) with what is recorded at the district level (D/PHO Reporting Form) for 5 facilities. Only one facility had no difference in the data and the biggest differences were observed in the health post and PHCC in Myagdi. In both cases the SHP/HP/PHCC reporting forms could not be accessed and there was a big jump between the service register and the tally sheets. The team were only able to track the data through all 4 tools for 2 facilities, and it should be noted that where there was good accessibility to the records, the differences were minimal.

Table 9: BCG coverage Shrawan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report-ing Form (2)	Differ-ence (1-2)	Tally Sheet (3)	Differ-ence (2-3)	D/PHO Report-ing Form (4)	Differ-ence (3-4)	Differ-ence (1-4)
Morang	Pathari SHP	218	207	11	NA		NA		

	Buddhanagar HP	NA	132		132	0	NA		
	Mangalbare PHCC	323	322	1	322	0	NA		
Sarlahi	Hariaun SHP	118	100	18	NA		NA		
	Lalbandi PHCC	NA	75		74	1	NA		
Kailali	Baliya SHP	298	297	1	297	0	297	0	1
	Dododhara HP	NA	164		164	0	164	0	
	Malakheti PHCC	207	NA		NA		210		3
Myagdi	Babiyachaur SHP	24	25	1	25	0	25	0	1
	Arman HP	28	NA		46		46	0	18
	Darbang PHCC	39	NA		32		32	0	7
	District Hospital	131	131	0	NA		131		0

Number of women receiving fourth antenatal check-up

Data on antenatal check-ups was compared in both the service register and the SHP/SP/PHCC reporting forms in 10 of the 14 facilities and the data only matched in one facility (Table 10). In 2 of the remaining 9 facilities it was just a difference of one case, however, a bigger difference was for the others ranging from 7 to 91. The differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms were minimal, except for one PHCC in Lalbandi. However, in many instances the team were unable to compare the data. It was only possible to compare the data from the original source (the service register) with what is recorded at the district level (D/PHO Reporting Form) for 7 facilities. There was a difference for all facilities and differences were seen for all types of health facility. In all 3 cases one of the tools could not be accessed. The team were only able to track the data through all 4 tools for 2 facilities, which both had minimal differences.

Table 10: Number of women receiving fourth antenatal check-up Shrawan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report-ing Form (2)	Differ-ence (1-2)	Tally Sheet (3)	Differ-ence (2-3)	D/PHO Report-ing Form (4)	Differ-ence (3-4)	Differ-ence (1-4)
Morang	Pathari SHP	116	207	91	NA		NA		
	Buddhanagar HP	21	40	19	40	0	NA		
	Mangalbare PHCC	276	276	0	276	0	NA		
Sarlahi	Hariaun SHP	145	118	27	NA		NA		
	Lalbandi PHCC	81	89	8	81	8	NA		
Kailali	Baliya SHP	138	124	14	NA		114		24
	Dododhara HP	76	75	1	75	0	74	1	2
	Malakheti PHCC	104	NA		NA		113		9
Myagdi	Babiyachaur SHP	14	13	1	13	0	13	0	1
	Arman HP	7	NA	7	23		23	0	16
	Darbang PHCC	43	NA		49		49	0	6
	District Hospital	108	151	43	NA		151		43

Number of deliveries

Delivery data was compared in both the service register and the SHP/SP/PHCC reporting forms for half of the facilities visited (Table 11). The data matched for all of these, with the exception of one health post, where a small difference was observed. Likewise, the differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms, were also minimal. However, once again, in many instances the team were unable to compare the data. It was only possible to compare the data from the original source (the service register) with what is recorded at the district level (D/PHO Reporting Form) for half of the facilities. Only 2 facilities had no difference in the data. For the one with the biggest difference, the SHP/HP/PHCC reporting form and the tally

sheet were not accessible at the time of the visit. The team were only able to track the data through all 4 tools for 1 facility.

Table 11: Number of deliveries Sharwan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report-ing Form (2)	Differ-ence (1-2)	Tally Sheet (3)	Differ-ence (2-3)	D/PHO Report-ing Form (4)	Differ-ence (3-4)	Differ-ence (1-4)
Morang	Buddhanagar HP	1	1	0	1	0	NA		
	Mangalbare PHCC	187	187	0	187	0	NA		
Sarlahi	Lalbandi PHCC	95	95	0	95	0	NA		
Kailali	Baliya SHP	15	15	0	NA		14		1
	Dododhara HP	136	133	3	133	0	133	0	3
	Malakheti PHCC	74	NA		NA		53		21
	Seti Zonal Hospital	306	306	0	NA		306		0
Myagdi	Arman HP	7	NA		15		12	3	5
	Darbang PHCC	21	NA		24		24	0	3
	District Hospital	180	180	0	NA		180		0

Number of positive cases of malaria

In 3 out of the 4 facilities with malaria data no difference was observed between the service register and the SHP/SP/PHCC reporting forms (Table 12). Likewise, the differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms were also minimal. However, once again, in some instances this is because the team were unable to compare the data. It was possible to compare the data from the original source (the service register) with what is recorded at the district level (D/PHO Reporting Form) for 3 of the 4 facilities, but all of these had differences in the data. The team were only able to track the data through all 2 tools for one facility.

Table 12 Number of positive malaria cases Sharwan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report-ing Form (2)	Differ-ence (1-2)	Tally Sheet (3)	Differ-ence (2-3)	D/PHO Report-ing Form (4)	Differ-ence (3-4)	Differ-ence (1-4)
Morang	Mangalbare PHCC	7	7	0	7	0	NA		
Kailali	Baliya SHP	12	10	0	NA		6		6
	Dododhara HP	19	19	0	19	0	21	2	2
	Malakheti PHCC	55	NA		NA		53		2

Number of positive cases of tuberculosis

The team were able to compare TB data from service registers and SHP/SP/PHCC reporting forms for 6 facilities and no difference was observed for 5 of these (Table 13). Likewise, the differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms were also minimal. However, once again, in many instances this is because the team were unable to compare the data. It was possible to compare the data from the original source (the service register) with what was recorded at the district level (D/PHO Reporting Form) for 7 facilities, and most of these had no or minimal difference, aside from 2 facilities in Kailali. The team were only able to track the data through all 4 tools for 2 facilities.

Table 13 Number of positive cases of tuberculosis Sharwan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report -ing Form (2)	Differ- ence (1-2)	Tally Sheet (3)	Differ- ence (2-3)	D/PHO Report -ing Form (4)	Differ- ence (3-4)	Differ- ence (1-4)
Morang	Pathari SHP	10	NA		NA		NA		
	Mangalbare PHCC	44	45	1	44	0	NA		
Sarlahi	Lalbandi PHCC	10	10	0	10	0	NA		
Kailali	Baliya SHP	10	10	0	NA		10		0
	Dododhara HP	6	6	0	6	0	9	3	3
	Malakheti PHCC	22	NA		NA		16		6
Myagdi	Babiya Chaur SHP	0	0	0	0	0	0	0	0
	Arman HP	2	NA		2		2	0	0
	Darbang PHCC	1	NA		1		1	0	0
	District Hospital	1	1	0	NA		2		1

Number of new family planning acceptors

The team were able to compare family planning data from service registers and SHP/SP/PHCC reporting forms for 9 facilities. Differences were only observed in 4 of these (Table 14). The biggest differences were noted at SHP level. The differences between the SHP/SP/PHCC reporting forms and the tally sheets, and then the tally sheets and D/PHO reporting forms were minimal. However, once again, in many instances this is because the team were unable to compare the data. It was possible to compare the data from the original source (the service register) with what is recorded at the district level (D/PHO Reporting Form) for 6 facilities, and most of these had no or minimal differences, aside from 2 facilities in Kailali. The team were only able to track the data through all 4 tools for two facilities.

Table 14 Number of new family planning acceptors Sharwan – Kartik 2010/11

District	Health Facility	Service Register (1)	SHP/ HP/ PHCC Report -ing Form (2)	Differ- ence (1-2)	Tally Sheet (3)	Differ- ence (2-3)	D/PHO Report -ing Form (4)	Differ- ence (3-4)	Differ- ence (1-4)
Morang	Pathari SHP	144	99	45	NA		NA		
	Buddhanagar HP	42	50	8	50	0	NA		
	Mangalbare PHCC	22	22	0	22	0	NA		
Sarlahi	Hariaun SHP	54	100	46	NA		NA		
	Lalbandi PHCC	66	66	0	66	0	NA		
Kailali	Baliya SHP	58	59	1	NA		59		1
	Dododhara HP	52	64	12	64	0	64	0	12
	Malakheti PHCC	35	NA		NA		41		6
Myagdi	Babiyachaur SHP	2	2	0	2	0	2	0	0
	Arman HP	NA	NA		22		16	6	
	Darbang PHCC	17	NA		17		16	1	1
	District Hospital	94	94	0	NA		94		0

5 REASONS FOR MISMATCH

This section summarises the main reasons for differences observed in reported data. As illustrated in Section 4, the inconsistencies occur between different levels within HMIS and between HMIS and other data systems. One key observation is that for all HMIS variables duplicated in the reporting of other systems, the source for all of the data is the same, i.e. they all rely on HMIS tools. Therefore any differences are not due to the initial data recording. Instead, inconsistencies arise due to a number of factors that occur after this initial data recording stage. The factors identified during this assessment have been classified as *direct* and *indirect*. However, it should be noted that there is not always a clear distinction between the direct and indirect factors.

5.1 Direct Factors

Various *direct factors* have been identified during this assessment that lead to inconsistencies between data from different systems. These have been categorised as follows:

- inclusion of facilities
- different reporting periods
- data collection and submission controls and processes
- independent verification processes

5.1.1 Inclusion of facilities

D/PHOs do not have an accurate list of all public and non-public facilities that operate within their districts, and hence which facilities should be reporting to HMIS. This is especially a problem for private facilities. D/PHOs are often not formally notified when a private facility initially gains approval to operate, and likewise private facilities close without district knowledge, therefore making the tracking of these facilities difficult. Even if they are known about informally, the institutional records that list the facilities that should report to HMIS are rarely updated. All private facilities should get concerned D/PHO's approval for their periodic renewal annually, or at least once every 2 to 3 years, but many fail to do this and continue to operate without a renewal notice or they obtain their renewal status from higher authorities and by-pass the approval of the D/PHOs. It is unknown how many private facilities are in operation and what proportion participate in the required reporting procedures. Without accurate facility databases for each district, it is also not possible for the MIS Section to know which facilities are/are not reporting, or whether they are reporting on time.

> *"In absence of proper legal and policy framework private health institutions are not reporting to DPHO regularly. Most of the facilities provide their reports during the processing of approval. Standard policy and legal frameworks should be developed with a clause to report concerned district (public) health offices regularly as per the format recommended by HMIS and HMIS should also provide necessary adequate copies of the report for the private health facilities."*

- *DPHO staff*

The lack of facility level data in HMIS also makes it difficult to cross-check data and to compare data for the same sub-set of facilities as those included in the Aama Programme or EOC monitoring. In some instances, inconsistencies in data between HMIS and other systems are expected as the systems have different inclusion criteria regarding which facilities should be reporting. For example, the Aama programme only includes those facilities that are authorised under the programme, likewise EOC monitoring only relates to BEOC and CEOC facilities. In contrast, HMIS should be more comprehensive as it should include all public and non-public facilities, e.g. HMIS should also report institutional deliveries that occurred in unofficial birthing centres. Therefore, this is an issue of how these data are used and disseminated rather than a problem with HMIS or other systems.

> *"In Aama we only report those deliveries conducted in authorised facilities and those who received an incentive, while HMIS reports deliveries conducted even at non-birthing centres and those who didn't receive incentive. That's why the total figure reported in HMIS and Aama may not match. While comparing data from these two systems we must be conscious about the reporting units. In our district most of the health facilities not listed as birthing centre are also conducting delivery so the total figure reported in Aama is different than that of HMIS."*
>
> *PHN*

5.1.2 Different reporting periods

Differences between data frequently arise due to differences in reporting periods. The design of the different systems is frequently not complementary to HMIS or to each other. Reporting periods vary between systems with the use of the fiscal year by some (e.g. by HMIS) and the use of the calendar year by others (e.g. malaria reporting to WHO by EDCD), likewise some report on a monthly basis using the Nepali month (e.g. HMIS), while others report on a quarterly basis using the international calendar (e.g. tuberculosis). However, currently reporting to HMIS is more regular than for the Aama programme which is not receiving district reports on a regular basis. This is possibly due to districts and facilities receiving the annual budget for Aama in advance and hence continuing to implement Aama without reporting on a monthly basis to the FHD. Regular and complete reporting to Aama often depends on the presence and/or activeness of the focal person, i.e. the PHN, and also on the district manager's orientation on the data management. In some cases districts report quarterly, bi-annually or annually without disaggregating the month making it difficult to track the monthly status and to compare with monthly HMIS service statistics. When figures for different systems are based on different reporting periods/calendars then naturally differences will occur and the interpretation and comparison of these figures should consider this. However, the main problem is the additional demands this places on health workers to report the same data but for different time periods, which leads to problems with data quality and can result in them opting to just report to one system and not another (e.g. tuberculosis).

> *"HMIS data do not always match with the report submitted to other programme divisions/centres. Generally data for TB don't match with HMIS. It might be due to different people generating different reports, at different times, and with different levels of attention. TB programme reviews data thoroughly while we could not do that in HMIS. We do not have the adequate*

budget to visit each facility and bring all registers in one place to generate the report - which is being done by the TB/Leprosy programmes."

- Statistical Officer

Furthermore, the need to submit annual figures prior to the end of the fiscal year means that some data are submitted in the wrong fiscal year. All the government financial accounts close around 9 or 10 days before the end of the fiscal year, and so the Aama and HMIS reports are prepared at this financial transaction closure time. Therefore services for the remainder of the month are included in the data for the first month of the next fiscal year. Comparing data on the facility register with the HMIS reports highlighted these differences for the last month of the fiscal year.

"In the last month of the Nepal fiscal year (month of Ashad) the financial transactions are closed on 23rd of Ashad. The services provided (delivery, complications, c-sections) during these 9 days (24th to 32nd Ashad) are included in the report of the month of Shrawan (1st month of the new fiscal year) and are paid from the new fiscal year budget. However, the register for month of Ashad includes all the services provided until the end of Ashad (including 9 days i.e., 24th to 32nd Ashad."

- District Staff

5.1.3 Data collection and submission controls and processes

There is currently limited feedback or accountability on the quality or timing of data reporting which limits the extent to which problems can be identified and lessons can be learnt. This lack of control allows scope for delays and omissions in the submission of monthly data which subsequently leads to different data being reported, especially at different levels within HMIS. Some facility data are sent direct to central or district level, by-passing the next step in the designated system and hence resulting in some levels not receiving complete data.

Incomplete reporting is generally more frequent at the non-Ilaka and Ilaka levels where staff shortages are most acute. If the D/PHO has not received all the necessary reports they often initially delay submission for a short period and, failing that, submit an incomplete report to the MIS Section. Subsequently, missing data may be identified by staff involved in HMIS through verification checks, but then only corrected at one and not all levels in the system.

"Ilaka receive data on time due to regular Ilaka level meeting, but do not report on time themselves because they have higher case load leaving less time to compile the HMIS report. Most of the health workers prepare reports during their time off as home work. Complete data reporting on time could be achieved if each health facility submits HMIS -32 individually. It will reduce the time taken for compilation and will be easy to enter onto computer as well."

- DPHO staff

Whilst the devised system dictates that data are reported upwards through the different levels, this is not universally adhered to. Some bypass the level that they are expected to report the data to and instead send it direct to a higher level. For example, some higher level hospitals (Zonal, Regional and Central level) send HMIS reports directly to the MIS Section in

Kathmandu and fail to report to their respective D/PHOs. This leads to differences in data held at the central and district level for affected districts.

When data are aggregated at each level before being sent upward, the same data are not consistently included in the compiled reports. For example, often D/PHOs aggregate data from PHCCs, HPs & SHPs for HMIS 33 and just forward the hospital report (HMIS 34) to the MIS Section without including the required hospital data in the aggregated HMIS 33. This is sometimes due to delays in receiving hospital reports. Staff at central level often fail to make the necessary checks to see whether the public health part of the hospital data has been included in HMIS 33, and instead just automatically enter the data as it appears in the forms received. Given that the aggregation of lower level records is usually done manually, this leaves a lot of room for human error.

There is no systematic mechanism of programme-focal persons reviewing HMIS reports or vice versa. Statistical Officers/Assistants at the D/PHO prepare the monthly reports (HMIS 33) and these are sent to the MIS Section. Simultaneously programme-focal persons also report service statistics to the concerned divisions and centres.

At hospitals, medical recorders are responsible for inpatient records, whereas outpatient and public health records are the responsibility of the health workers (AHW, ANM, HA, Staff nurse, etc.). As a result there is often poor co-ordination while preparing the hospital reporting form (HMIS 34) and hence poor quality reports, or reports with missing data, are often submitted.

Different hospitals have different record keeping systems and in many cases hospitals fail to generate and complete the HMIS hospital reporting form (HMIS 34) from their operating system and therefore do not respond to HMIS. Problems with hospital recording are further hampered by a large number of hospitals having an inadequate number of medical recorders, given the patient load, and many vacant posts. There is currently no feedback mechanism within HMIS to districts or facilities regarding timely or accurate data reporting: i.e. no acknowledgement for those performing well, and equally no punitive action for poor performance.

However, some of the differences between the systems may also occur due to some of the other systems being linked to payments to facilities. For example, facilities implementing an Aama programme should complete Anusuchi 6 and report to D/PHO to claim the transportation incentive for the mother and reimbursements for the facility. Conversely, for the HMIS there is no financial link to reporting. Furthermore, at present the EOC monitoring tools (maternity registers and tally sheets) are not used by all B and CEOC facilities.

5.1.4 Independent verification processes

Current verification processes within HMIS largely rely on manual cross-checking of facility/Ilaka records with reported figures by D/PHO staff for Ilaka verifcation, regional and central level staff for district verification, and central staff for regional level data verification. This is not a completely reliable process, and is not considered to be a comprehensive verification system, especially given most reported data are aggregated and therefore may hide inconsistencies at lower levels. Furthermore, even these limited verification processes are not being universally adopted. Last year data verification of service statistics with service registers was only undertaken for around 30% of facilities due to budget limitations, and

data verification at the Ilaka level is only conducted once a year. Differences may also be due to the lack of a linked verification system and corrections are subsequently made independently at different levels, without results being fed back to the other levels. Data verification takes place at Illaka and district level. After district level data verification has been completed the District Public/Health Offices prepare the District Annual Report. This is presented during the annual regional review and occasionally errors are found. These errors are corrected by the districts and reported to MIS Section. A national review takes place after the completion of the regional review and subsequently the DoHS prepares the Annual Report. Therefore, in some instances, the data in district annual report differs from the data for that district in the DoHS Annual Report. Differences also occur due to the late submission of reports with aggregated reports sent upwards sometimes being left uncorrected.

> *"Data collected from each health facility are verified before district review meetings, i.e. in quarterly review meetings. This verification is basically to check whether the data entered at the district level matches with that reported by health facilities. The report is being verified with the actual record (registers at health facility) only once in a year. Last year only 30 percent health facilities could conduct this activity due to limited budget. Each health facility brings their record at the Ilaka level meeting where participants from another facility checks record and report of other facility (cross checking). They identify the major areas of error, discuss the cause of error and plan to improve in the future."*
>
> *- DPHO staff*

In addition to the verification undertaken by HMIS, many programmes also undertake their own verification processes to ensure the data are accurate. The dual verification processes increase the burden on the facilities, Ilakas and districts that are required to consult the data source, check for errors and correct the data accordingly. The verification schedules for other programmes do not complement HMIS reporting and verification schedules. Therefore, corrections made to the data by other programmes are not fed back to HMIS. Likewise, corrections from HMIS verification checks are not being fed into programme data. Therefore cross-checking of data between HMIS and programmes rarely takes place at facility, district or central levels. Despite HMIS tools being the source for both HMIS and programme reporting, the data are subsequently reported, entered and verified separately, and statistical officers and programme-focal persons often work in isolation. For example, at the D/PHO the Statistical Officers/Assistants aggregate reports and send them to the MIS Section, while the PHN is responsible for preparing the Aama programme report and sending it to the FHD.

> *"We are collecting EPI data in addition to HMIS-32. HMIS doesn't have provision to report ward wise and children immunized from outside the catchment area. So I am entering that data on my own computer using excel spreadsheet. Health facility in-charge generally doesn't review the report prepared by VHW/MCHW against service register so this leads to inconsistent data reporting. HMIS and EPI section coordination is very poor. Most of the supervisors are working in isolation."*
>
> *- EPI Supervisor*

A late submission of a facility report should not (in theory) lead to differences in HMIS and programme data as both rely on the same source data. However, this does in fact have the

potential to cause inconsistencies as one system may incorporate the delayed report at a later date, and adjust the data accordingly.

5.2 Indirect Factors

There are also issues that affect data quality that *indirectly* contribute to the inconsistencies observed between the different systems and between different levels within HMIS. Given that all systems rely upon the same original data, the natural assumption would be that any problems with data quality would affect all systems that rely on that data equally. However, due to the fragmented nature of the different systems and levels, when data quality issues are identified and corrected, ad hoc retrospective changes to the data are made independently. Concerns about data quality have been categorised as follows:

- data management
- human resources
- data collection tools
- information technology

5.2.1 Data Management

Strategic planning

Better strategic planning is needed to improve timely and accurate data collection. Many of the barriers to strengthening HMIS that became apparent during this assessment are far reaching (e.g. human resources, finance, procurement, etc.) and many are beyond the immediate control of the MIS Section, especially given its current position in the MoHP organogram of the MoHP. There is lack of effective supervision or leadership on broader data management issues leading to missed opportunities to improve systems, and duplication of efforts between systems.

Importance given to data management

Data management is not considered to be an integrated part of service delivery and so often receives less attention from higher and middle level managers, and health workers. Many personnel solely focus on service delivery and programme management and, even when time is given to data management, it is often inadequate to ensure data quality. Those involved in data management often feel that there is little or no recognition for data-related work and rarely informed of the purpose of the data or receive any feedback. Hence many staff involved in data management are unmotivated.

> *"Being very sincere, though it (data management) is considered integral part of the service delivery health workers don't feel interested or comfortable to work on reports. They request others to prepare reports. Less priority is given to this. It is mainly due to high case load, health workers have to spend most of their day time serving the clients.*
>
> *- AHW*

Furthermore, even when data management is given importance, HMIS data is often under-valued with senior officials failing to recognize the value of information produced by HMIS and programme focal persons at district level often ignoring the statistical officers/assistants.

Comprehensive guidelines
HMIS guidelines, including the *Revised HMIS Guideline,* cover recording and reporting issues. However, they fail to cover broader data management issues. Key components currently excluded from the guidelines include mechanisms for data validation and verification and descriptions of roles and responsibilities for different levels and individuals.

Governance & accountability
HMIS is designed so that reports are aggregated at the district level and hence the MIS Section is unable to monitor the reporting status of facilities. Furthermore, the MIS Section does not have an up to date list of all the facilities who should be reporting. Most districts and facilities claim to report complete data on time each month, and dispatch dates in the facility records checked during this assessment reflect this. However, at the same time most also reported that they did not receive around 10-20% of reports from lower levels on time. At the MoHP there is no section or unit directly responsible for medical records or hospital information systems. The support given by the MIS Section to the hospitals and medical recorders for hospital data management is reported to be inadequate.

Support from higher levels
With regard to effective data management, facilities do not receive adequate support from districts and, in turn, districts do not receive adequate support from regional and central levels. The MIS Section only provides programme and budget support to D/PHOs with no direct support to hospitals. The MoHP provides budget and programme support for zonal and higher level hospitals, but the budget is not disaggregated by activities. Hence hospital management usually opt to spend very little on data management and it is often insufficient to maintain a good quality system.

Use of available data
Data are rarely used to improve service delivery or for local area planning. However, there appears to be a correlation between use of data (at local and district levels) and data quality. Data quality tends to be poorer at facilities that believe that no one is going to use that data, i.e. to monitor a public health programme or improve service delivery. Limited feedback from higher levels reinforces the belief that no one is using or concerned about the quality of the data they are reporting.

Supervision for data management
There is no system for regular supervision of data management activities and no budget is specifically allocated for this purpose. Instead most districts use funds from the integrated supervision budget which has a wider scope beyond data management. The Monitoring Section, Management Division and DoHS are responsible for this integrated budget but it is often used for general administrative visits rather than data supervision. Staff often use programme visits for supervision purposes.

> *"In the past programme people used to review data during their programme visits, but now they are not giving much attention to data."*
>
> - *Statistical Officer*

-

Ilaka level meetings
No budget or activity is allocated in the district work plan for Ilaka level meetings (where non-Ilaka level report to Ilaka level), instead they have to manage the budget from other headings. Often reports are just submitted at these meetings and there is no specific agenda or discussion. Most districts organise Ilaka level meetings around the 7th of each month,

however, some hold them on the 10th of each month which is after the reporting deadline. This delays the preparation and submission of the monthly report to the higher level.

5.2.2 Human Resources

Recruitment and retention
There are often long delays in filling vacant posts which has resulted in many vacant posts in data management roles. Also, the retention of information technology (IT) experts on a GoN salary is difficult given the lucrative alternative options. Regional level M&E positions are not considered to be challenging and statisticians do not want to be posted in these as regional statisticians rarely have the opportunity to develop their skills by being nominated for education, training and seminars opportunities.

Staff capacity
Statistical officers or assistants often lack motivation and commitment and are frequently unsupported (by district and central level). The number of medical recorders is low in comparison to international guidelines (WHO recommends one medical recorder per 25 in-patient beds). Generally there is a maximum of one medical recorder per hospital, with some having none. Likewise most districts only have one statistician. Terai districts tend to fare better with some having two statisticians and a computer operator. Clinical staff have less time for high quality data recording due to increasing utilisation of health services and private clinic commitments. The development of parallel reporting systems increases the burden on staff and so leads to a deterioration of the quality of HMIS data.

Staff capability
The skill level of personnel involved in data management is frequently inadequate, especially the medical recorders at hospital level. District and facility staff often focus solely on data recording and reporting, with many unclear of the broader concept of data management, thus highlighting a need for further orientation. Orientation and training on HMIS has been received at district level, but it hasn't been received by all staff involved in data management at lower levels. Some staff, such as VHW and MCHWs, are physically not capable of doing the necessary work (for example, having difficulty in writing, communicating, mobility or vision).

Roles and Responsibilities
Current guidelines lack clarity regarding roles and responsibilities at the different levels. Without clear guidelines the reality is often influenced by the individual working relationships between staff. During this assessment it was noted that where good relationships exist there is a greater focus on data management and problems are identified and rectified. However, where inter-personal communication is poor, this affects the timely flow of information and data discrepancies being rectified. At lower level government health institutions (PHCCs, HPs, SHPs), health workers maintain service registers and prepare monthly reports for the service(s) for which they are responsible. At hospitals doctors commonly feel it is not their responsibility to maintain records and registers, instead seeing their role as purely clinical and data management as the responsibility of the medical recorder.

Use of FCHVs
The system has been designed with the expectation that VHW/MCHWs will collect FCHV reports on a monthly basis during their ward visits. With the recent increase in utilisation of

health facilities, and thus an increase in the VHW/MCHW facility-based workload, ward visits have become less common. Also FCHVs are volunteers and hence the government cannot enforce them to visit and submit reports to facilities on a monthly basis. Most facilities in the terai now organise monthly FCHV meetings where they collect records and discuss health-related matters, and some health facilities in the terai have managed to provide incentives for attending these meetings. However, those in hill districts don't have such provision because funds are not provided to all D/PHOs for organising these meetings.

5.2.3 Data Collection Tools

Revising tools

HMIS tools are generally perceived to be user-friendly, however, some programmes feel that the content does not adequately reflect current data requirements. Tools are often reviewed on an ad hoc basis, or in response to one particular programme's demands. Ideally, tool revision needs to be undertaken comprehensively on a routine basis. The database needs to be designed, and printing and distribution of tools, taking the tool revisions into account.

> *"We have to report ORS + Zinc combined. But there are many instances where we run out of Zinc, so health workers only treat diarrhoeal cases with ORS and then they don't know how to report a figure for ORS + Zinc combined. If it is mandatory to provide Zinc with ORS then LMD has to ensure the continuous availability of Zinc otherwise we need two different columns for reporting; one ORS only and another ORS + Zinc, then only we will have correct reporting, otherwise we are reporting false data."*
>
> *- DPHO Staff*

Printing and distribution of tools

Concerns were raised about the timely distribution of tools, printing quality, paper quality, binding and size of tools. This is especially an issue for service registers as they are used frequently and need to be stored for several years. It is not uncommon for delays to occur in distributing tools and for them to sit in district level store rooms for extended periods. Clearly without the necessary tools facilities cannot record and report data. Some sets of tools distributed to the facilities were found with inner pages not matching the cover page (i.e. the mixing of two set of tools), missing pages, using poor quality ink etc., again affecting the ability of facilities to report the necessary data.

> *"Quality of HMIS tools is poor, paper is so thin, it does not last long and binding is also poor. Lack of good handling practice is another cause of short life of registers."*
>
> *- DPHO Staff*

> *"We have not received the tools yet for this year, we are facing this problem each year, we always receive tools very late. The quality of tools and binding is so poor it doesn't last for the whole year."*
>
> *- DPHO Staff*

Managing the physical data

Most districts and facilities do not have adequate infrastructure in place for data management. Computers, filing systems and storage facilities are inadequate to perform

necessary data management functions. In particular, the Medical Record Sections in some hospitals frequently have inadequate space and infrastructure.

5.2.4 Information Technology

There is a lack of strategic guidance within the MoHP for IT related issues, so Divisions and Centres use different IT systems that are not compatible with each other (including different processes, program language, network connectivity and data constructs), which affect the integration of different systems. The MoHP lacks a framework to guide the development and implementation of software within the MoHP. In the absence of a guiding framework HMIS software is frequently changed from one architectural structure to another. The current software has been poorly designed and is inadequate to respond to changing requirements when tools are modified. It is not user friendly and was not adequately tested before installation at the district level leaving many crippling bugs.

> *"Frequent change in software without testing; lack of standard policy guideline on data management; inability of the software in generating the required reports; lack of computer personnel working with HMIS are the key problems related to software."*
>
> *- Statistical Officer*

D/PHOs have a database to prepare a district monthly report (HMIS 33) using the HMIS 32 forms received from the Ilaka level, which contains aggregated data, but no database to enter the tally sheets that record facility level data. The central server cannot retrieve the HMIS 33 database files sent by the districts so the district data is re-entered into the central database. This has generated a heavy data entry burden for the MIS Section. The server environment and operation procedures at the central level are poor.

> *"We don't have a specially designed database to enter the Tally Sheets so we use an excel sheet and this is different from the database that we use to enter HMIS 32. This increases chances of human error while entering data. Districts often were not able to submit report in time last year due to software problem."*
>
> *- DPHO*

6 Recommendations

This section describes the recommendations that have come out of the process of compiling this report. To enable linkages to be made to the previous section, the same headings have been utilised.

6.1 Direct Factors

6.1.1 Inclusion of facilities

- A facility-level database needs to be accessible, accurate and updated on a regular basis to indicate which facilities should be reporting to the different systems and the reporting status of each facility. This should be accessible at the district and central levels and should enable greater accountability. The FHD should monitor the reporting status of the Aama programme and EOC monitoring on a routine basis and they should notify the MIS Section of any changes to the facilities that are expected to report to these programmes. Any authorities that grant approval to facilities to provide services should immediately notify the MIS Section - preferably through a linked computer system.

- A computerised and linked data system that allows facility level data to be submitted on a monthly basis without being aggregated would aid the verification process. This system would also reduce the data entry burden at the central level, would allow for additional data entry once delayed or complete reports are submitted, and aid local level planning. It would also allow more accurate cross checking between systems of facility level data and greater accountability.

- Maternity registers and the tally sheets should be used by all EOC facilities for consistent data reporting.

6.1.2 Different reporting periods

- Programme divisions or centres should focus on monitoring their programmes rather than data collection. The resources saved could be invested in improving the quality of HMIS data and ensuring that it meets the needs of all programmes.

- The monthly report produced by HMIS should be developed in a manner that meets the needs of the various programmes.

- The different systems need to align reporting requirements and thus reduce the burden on the facility level.

6.1.3 Data collection and submission controls and processes

- All levels of the reporting processes need to have adequate numbers and skill-level of staff allocated to data management, e.g. an adequate number of medical recorders in hospitals, and all staff need to receive the necessary training/orientation.

- Hospitals should be regulated to report to HMIS regularly, particularly higher level public and private hospitals.

- A uniform hospital information system needs to be developed that responds to both the needs of the facilities as well as the HMIS and would minimize the noncompliance of reporting.

- D/PHOs and other concerned agencies should play an effective and proactive role in regulating the private facilities using the available legal instruments, for example, regular and complete reporting should be mandatory for renewal approval.

- Feedback mechanisms need to be put in place so facilities have their processed data returned to them in order that they can have a better understanding of how the data is used and the benefit of providing accurate and timely data.

- Good performers need to be acknowledged, and likewise poor performers identified and action taken to improve their reporting.

- Better mechanisms need to be in place for programme focal persons to review HMIS data and vice versa.

- Better enforcement needs to be in place to ensure facilities follow the designated system and ensure reports are submitted to the correct levels.

6.1.4 Independent verification processes

- There is a need to develop a standard data validation and verification modality or framework. This needs to be incorporated in the comprehensive guidelines for HMIS. The system should be designed to satisfy the quality and verification needs of other programmes that use HMIS data. This will remove dual systems of verification and corrections, and also reduce the burden on staff required to check the data.

- In the short-term, any corrections made by HMIS or other programmes in verification exercises should be shared with each another. More cross-checking and communication between programmes is necessary.

6.2 Indirect Factors

6.2.1 Data Management

- HMIS needs to be given greater importance within the MoHP and to implement a strategic plan to ensure the necessary steps are taken to improve timely and accurate data collection. Strategic planning by senior officials needs to focus on human resources, finance, logistics and IT in order to meet the needs of a functioning health information system. This process would be facilitated if a National Health Information Centre (NHIC) were established and took responsibility for coordinating all M&E activities within the MoHP.

- Programme focal persons should work in close coordination with statistical officers, and vice versa.

- The possibility of bringing in external systems, such as the Aama Programme and EOC monitoring under the MIS Section, needs to be explored. This would allow for greater collaboration between data management staff and less room for inconsistencies between datasets.

- Increased and more visible use of data for service delivery and local area planning will provide a better feedback loop that allows people to see how the data that they collect can be used.

- Comprehensive national guidelines on HMIS need to be developed, distributed and implemented by all those involved in data management activities at all levels. These guidelines should also specify the amount of time required for data management responsibilities.

- HMIS needs to operate as a comprehensive system. It needs to be held accountable for supporting the hospital information system, and the position of the MIS Section in the hierarchy may need to be reviewed in light of this. If this is not possible given the administrative position and jurisdiction, then an Information Management Unit at the MoHP needs to be established to govern health information system issues that are beyond the control of the MIS Section.

- A punitive action system should be implemented to address those who are not complying with the systems, meeting reporting requirements, or deliberately exaggerating their progress.

6.2.2 Human Resources

- National FCHV guidelines need to include a revised system for data reporting. Adequate funds should be allocated to all the districts to organise the monthly FCHV meetings and FCHVs be reimbursed for attending.

- There is an urgent need to clearly define roles and responsibilities linked to data management at all levels in national guidelines and to ensure that these guidelines are distributed and implemented. There should also be a comprehensive

training/orientation plan developed for all levels, including refresher training. The guidelines should include clear systems for supervision, and any supervision activities need to be adequately budgeted for.

- If clinical personnel are not responsible for data management there is a need to ensure alternative members of staff are assigned this role and that they are competent, trained and supported

- The Ilaka level meeting needs to be institutionalised and district supervisors should be present to support health workers in generating the necessary reports. HMIS should allocate a regular budget for the monthly Ilaka level meetings along with a defined date, agenda and guideline.

6.2.3 Data Collection Tools

- A systematic and timely review of the tools should be made to accommodate the monitoring needs of the different programmes. When new tools are implemented they should be piloted to assess how well they meet the different reporting requirements.

- Guidelines need to outline the minimum operating standards required for data management at the different levels. An adequate budget needs to be allocated to reflect the necessary improvements at all levels.

- Better quality assurance is needed with regards to printing and binding of tools. The Logistic Management Division (LMD) and the MIS Section need to ensure high quality tools are developed and distributed on time***.***

6.2.4 Information Technology

- The MoHP should have a unit that oversees all IT issues to maintain quality and uniformity within different systems. An agreed Health IT Policy Framework needs to be developed and the unit should work within this to guide all IT related issues.

- A uniform coding system needs to be developed and utilised by all systems to enable linkages to be made.

- Technical capability of the data management staff (IT person, Statisticians, Demographers, Epidemiologists and Biostatistician) needs to be enhanced and strategies developed to retain them for a long time.

- A functional software system needs to be developed at the district and central levels.

- The MIS Section should have a dedicated Software Manager who closely manages contractors and software development processes and acts as a single point of contact for contractors and users.

- There is a need to revise the database application in line with a revision of the tools.

- The MIS Section needs to have a stronger engagement with software developers to ensure a quality product is delivered and maintained.

- A master framework covering system architecture, tools, technique, connectivity, and coding system issues needs to be developed and practiced by all the concerned agencies or units while developing their systems.

- Routine summary tables and indicators should be auto-generated to enable effective use of data.

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- All key informants including District Public/Health Officers, Staff, health workers and volunteers

ANNEX 1: HMIS Tools

Tool Number	Tool
HMIS 1	Master Register
HMIS 2	Multipurpose Contact Card
HMIS 3	Child Health Card
HMIS 4	OPD Ticket
HMIS 5	Immunization Register
HMIS 6	TT Register
HMIS 7	<5 Nutrition Register
HMIS 8	Transfer/Referral Slip
HMIS 9	Maternal Health Service Card
HMIS 10	Maternal Health Register
HMIS 11	Abortion Care Register
HMIS 12	Family Planning Service Face Sheet/Card
HMIS 13	Family Planning Register
HMIS 14	Sterilization Register
HMIS 15	Norplant/IUD Removal Register
HMIS 16 A	IMCI OPD Register
HMIS 16 B	Out Patient Register
HMIS 17	Outreach Clinic Register
HMIS 18 A	Specimen Collection Form for Malaria, TB & Kala-azar
HMIS 18 B	Specimen Collection Form for TB
HMIS 19	Laboratory Examination Register for Malaria, TB, Leprosy, Kala-azar & HIV/AIDS
HMIS 20 A	Tuberculosis Treatment Card (Institution)
HMIS 20 B	Tuberculosis Treatment Card (Patient)
HMIS 21	Tuberculosis Treatment Register
HMIS 22	Leprosy Examination & Treatment Card
HMIS 23	Leprosy Treatment Register
HMIS 24	Malaria and Kala-azar Classification & Treatment Register
HMIS 25	Health Education, Information & Communication Programme Register Training Programme Register
HMIS 26	Defaulter Follow-up Slip
HMIS 27	FCHV Register
HMIS 28	VHW/MCHW Diary
HMIS 29	Closed Tally Sheet
HMIS 30	Open Tally Sheet
HMIS 31	VHW/MCHW Monthly Reporting Form
HMIS 32	PHC/HP/SHP Reporting Form
HMIS 33 A	District Public/Health Office Monthly Reporting Form
HMIS 33 B	Human Resource Quarterly Reporting Form
HMIS 34	District/Regional/Central Level Hospital Monthly Reporting Form
HMIS 35	Admission Register
HMIS 36	Discharge Register
HMIS 37 A	Tally Sheet (Summary of Indoor Services)
HMIS 37 B	Tally Sheet (Summary of Indoor Services)
HMIS 37 C	Tally Sheet (OPD Morbidity)
HMIS 37 D	Tally Sheet D (Emergency Morbidity)
HMIS 38	Emergency Service Register

ANNEX 2: Key Informant Discussion Guideline

1. Guidelines, Roles & Responsibilities

- Are there clear guidelines within HMIS at the district/facility level? For data collection? For reporting? If not, why not?
- Are individuals/facilities aware of these guidelines? If not, why not?
- Do individuals/facilities follow these guidelines? If not, why not?
- Are there clear roles and responsibilities for individuals/facilities/levels? If not, why not?
- Are people aware of the roles and responsibilities for individuals/facilities/levels? If not, why not?

2. Reporting

- What is the current status of district-level reporting to HMIS? Do they consistently report on time? Has the district sent complete reports to HMIS regularly for this fiscal year? If not, why not? What is needed to be done to make sure reporting is complete and on time?
- How do the D/PHOs collect monthly reports from different public facilities (hospitals, PHCC, HP, SHP)? Do they consistently report on time? Have facilities within the district sent complete reports to the D/PHO for this fiscal year? Why do some facilities report complete data on time but others not? What is needed to make all facilities report complete data on time?
- How do the D/PHOs collect monthly reports from non-public facilities? What is the reporting status? How can it be improved?
- How do they compile data from different sources (e.g. facility registers, out-reach clinics, camps) to prepare the monthly report? (i.e. discuss the different programmes – family planning, safe motherhood etc.)
- What are the barriers to achieving complete data reporting on time? How can these be overcome?
- Do individuals/facilities report to one system but not another? If so, why?

3. Verification

- How do you verify the data collected? How are data verified from D/PHO level? How do the D/PHOs verify the data reported from facility?
- How effective is the current data verification process?
- How could the current data verification process be improved?
- Does the data reported to the D/PHO and recorded in the facility register/record sheet match? If not, why do they not match? Which data do not match? Why do data match in some instances and not in others?

4. Accountability

- Is there any accountability?
- Does accountability vary between the different systems? If so, how?

5. Comparing different systems

- Are the different systems well designed?
- Which aspects of the different systems are stronger/weaker? What do they like/not like about the different systems?
- For duplicated variables are data reporting requirements conflicting? e.g. need to report the same data for different time intervals - monthly to one system, quarterly to another; or need to report the same data in a slightly different format?
- Why do the duplicated data match in some instances and not in others?

6. Tools

- Are the tools user-friendly? If not, which tools are not user-friendly and why?
- How can the tools be improved?

7. District Health Annual Report

- Does the data in the District Health Annual Report and the DoHS Annual Report match? If not, why not?
- How can this be improved?

8. Manpower & Infrastructure

- Is there enough manpower? Vacancies? Transfers?
- Are individuals competent? Motivated? Received adequate training/orientation?
- Is the infrastructure adequate?
- How much time is spent on data management? Is this adequate?
- How is data management viewed? Is it seen as a priority?
- What type of support is received by the district level from the central level for data management? Is it enough? If not, what else is needed?
- What type of support is received by the facilities from the district level for data management? Is it enough? If not, what else is needed?

9. Actions already taken

- What problems have you encountered/identified?
- Have they taken any measures to try to correct these problems?
- What efforts you have made?
- Has this improved the problem? If not, why didn't it work?

10. Recommendations

- What needs to be done to improve the accuracy of data collection/reporting?
- What needs to be done to improve the timeliness of data reporting?
- Do you need any additional support to improve the accuracy or timeliness of data collection/reporting? If so what additional support do you need?

ANNEX 3: Mismatch in Selected Indicators at District Level

(Note: Blank cells indicate unreported data)

3.1: Reported Maternal Health Indicators for Year 2066/67 (2009/10)

Region	Topo-graphy	District	Number of institutional deliveries			Number of deliveries by C/Section		
			HMIS	Aama	EOC monitoring	HMIS	Aama	EOC monitoring
Eastern	Terai	Jhapa	10975	2741	2269	3656	1485	583
	Terai	Morang	9371	8067	9639	2389	2343	2073
	Terai	Saptari	5619	2772	3657	448	0	531
	Terai	Siraha	2819		1963	195		5
	Terai	Sunsari	11950		8468	2107		2253
	Hill	Bhojpur	567		140	0		0
	Hill	Dhankuta	563	518	222	0	0	0
	Hill	Ilam	1047	986	760	120	132	148
	Hill	Khotang	820		272	3		2
	Hill	Okhaldhunga	740	595	343	38	38	33
	Hill	Panchthar	1132	976	454	90	77	77
	Hill	Sankhuwasabha	1210	1209	1209	41	43	43
	Hill	Taplejung	506	457	469	0	0	0
	Hill	Teharthum	433	393	NA	0	0	NA
	Hill	Udaypur	1034		657	10		0
	Mountain	Solukhumbu	760		701	8		8
Central	Terai	Bara	2537	2360	NA	0	6	NA
	Terai	Chitwan	6862		NA	1237		NA
	Terai	Dhanusha	8310		NA	19		NA
	Terai	Mahottari	2757		NA	0		NA
	Terai	Parsa	8306		NA	0		NA
	Terai	Rautahat	1614	2252	NA	2	36	NA
	Terai	Sarlahi	1920	2063	2153	10	10	10
	Hill	Bhaktapur	1134		NA	31		NA
	Hill	Dhading	1369	1717	NA	0	0	NA
	Hill	Dolkha	576	843	NA	25	21	NA
	Hill	Kathmandu	25038		NA	4291		NA
	Hill	Kavre	3408	2823	3,671	359	485	461
	Hill	Lalitpur	8383	373	NA	0	136	NA
	Hill	Makawanpur	2313	2010	1088	111	124	123
	Hill	Nuwakot	1456	1144	NA	6	7	NA
	Hill	Ramechhap	658		NA	0		NA
	Hill	Sindhuli	1184		NA	0		NA
	Hill	Sindupalchowk	1040	957	NA	0	0	NA
	Mountain	Rasuwa	213	195	50	0	0	0
Western	Terai	Kapilvastu	1016	585	1080	0	0	0
	Terai	Nawalparasi	2296	2830	2969	27	27	27
	Terai	Rupandehi	9002		10173	2289		2404

Region	Topo-graphy	District	Number of institutional deliveries			Number of deliveries by C/Section		
			HMIS	Aama	EOC monitoring	HMIS	Aama	EOC monitoring
	Hill	Arghakhanchi	750	698	NA	0	0	NA
	Hill	Baglung	1632	496	1038	41	0	42
	Hill	Gorkha	1502	1471	NA	63	63	NA
	Hill	Gulmi	1370		NA	40		NA
	Hill	Kaski	10039	667	9115	1804	169	1607
	Hill	Lamjung	1555	781	NA	64	55	NA
	Hill	Myagdi	626	607	490	0	0	0
	Hill	Palpa	2397	439	NA	397	403	NA
	Hill	Parbat	634	641	309	0	0	0
	Hill	Syangja	1221	1159	NA	8	2	NA
	Hill	Tanahu	1202	1065	391	6	0	0
	Mountain	Manang	8	23	NA	0	0	NA
	Mountain	Mustang	72		NA	0		NA
Mid- Western	Terai	Banke	7993	2991	4363	1370	613	1026
	Terai	Bardiya	3891	3804	1314	0	0	391
	Terai	Dang	5165	4109	3644	134	134	134
	Terai	Surkhet	4536	2404	2220	275	0	275
	Hill	Dailekh	3193	3109	448	37	39	40
	Hill	Jajarkot	597	494	NA	0	0	NA
	Hill	Kalikot	571	584	NA	14	0	NA
	Hill	Mugu	464		189	0		0
	Hill	Pyuthan	889	840	NA	0	0	NA
	Hill	Rolpa	936	760	NA	0	1	NA
	Hill	Rukum	961		NA	39		NA
	Hill	Salyan	1202	1091	NA	0	0	NA
	Mountain	Dolpa	120	91	NA	0	0	NA
	Mountain	Humla	652		535	0		0
	Mountain	Jumla	851	899	362	2	3	2
Far- Western	Terai	Kailali	6798	2269	3519	414	0	439
	Terai	Kanchanpur	4172	2288	1781	85	0	87
	Hill	Achham	1262	1222	227	1	1	1
	Hill	Baitadi	596	850	NA	0	0	NA
	Hill	Bajhang	1222		NA	2		NA
	Hill	Bajura	1031	1056	NA	0	0	NA
	Hill	Dadeldhura	2228	1991	NA	195	198	NA
	Hill	Darchula	690		NA	0		NA
	Hill	Doti	1633	1482	NA	0	1	NA

*No data from Bhim Hospital and AMDA Hospital; ** No data from Nepalgunj Medical College.

3.2: Reported Tuberculosis Indicators for Year 2066/67 (2009/10)

(Note: Districts where no cases have been reported both in HMIS and EDCD have been removed)

District	TB-Treatment success Rate		TB Case Finding Rate		District	TB-Treatment success Rate		TB Case Finding Rate	
	NTC	HMIS	NTC	HMIS		NTC	HMIS	NTC	HMIS
Jhapa	93	94	83	83	Arghakhanchi	93	93	83	83
Morang	87	87	60	60	Baglung	89	89	44	44
Saptari	93	90	42	42	Gorkha	88	88	81	81
Siraha	92	92	58	58	Gulmi	92	92	68	68
Sunsari	84	84	65	65	Kaski	90	90	83	83
Bhojpur	100	100	27	27	Lamjung	88	88	68	68
Dhankuta	90	90	33	33	Myagdi	84	84	50	50
Ilam	94	94	41	41	Palpa	92	92	98	98
Khotang	97	97	23	23	Parbat	85	85	40	40
Okhaldhunga	93	93	19	19	Syangja	90	90	74	74
Panchthar	98	98	36	36	Tanahu	91	91	73	73
Sankhuwasabha	97	97	63	63	Manang	0	0	26	26
Taplejung	100	100	34	34	Mustang	100	100	109	109
Teharthum	100	100	21	21	Banke	88	88	97	97
Udaypur	96	96	81	81	Bardiya	87	88	66	66
Solukhumbu	93	93	54	54	Dang	92	92	79	79
Bara	91	91	75	75	Surkhet	86	86	113	113
Chitwan	86	86	74	74	Dailekh	82	82	52	52
Dhanusha	83	83	58	58	Jajarkot	93	93	47	47
Mahottari	89	89	68	68	Kalikot	96	96	73	73
Parsa	87	87	61	61	Mugu	0	56	81	27
Rautahat	93	93	44	44	Pyuthan	91	91	96	96
Sarlahi	88	88	75	75	Rolpa	90	90	84	84
Bhaktapur	93	93	43	43	Rukum	95	90	81	81
Dhading	95	95	63	63	Salyan	86	86	69	69
Dolkha	85	85	35	35	Dolpa	67	67	16	16
Kathmandu	86	89	51	51	Humla	100	100	28	11
Kavre	92	92	54	54	Jumla	100	100	71	71
Lalitpur	93	93	44	44	Kailali	88	88	61	61
Makawanpur	91	91	125	125	Kanchanpur	94	94	89	89
Nuwakot	96	96	64	64	Achham	80	80	60	60
Ramechhap	97	97	43	43	Baitadi	89	89	51	51
Sindhuli	93	93	98	98	Bajhang	95	95	98	98
Sindhupalchowk	87	87	78	78	Bajura	100	100	77	77
Rasuwa	82	82	128	128	Dadeldhura	90	90	81	81
Kapilvastu	87	120	68	68	Darchula	100	100	113	113
Nawalparasi	92	91	66	66	Doti	79	79	99	99
Rupandehi	89	89	68	68					

3.3 Reported Malaria Indicators for Year 2066/67(2009/10)

(Note: Districts where no cases reported both in HMIS and EDCD have been removed)

District	Number of slides collected for malaria testing		Number of positive malaria cases identified		District	Number of slides collected for malaria testing		Number of positive malaria cases identified	
	HMIS	EDCD	HMIS	EDCD		HMIS	EDCD	HMIS	EDCD
Jhapa	12625	15324	411	598	Rupandehi	3939	10587	46	109
Morang	11367	11362	214	222	Arghakhanchi	437	0	11	0
Saptari	4743	0	234	0	Baglung	194	0	6	0
Siraha	5933	0	94	0	Gorkha	145	0	5	0
Sunsari	3765	0	15	0	Gulmi	623	0	12	0
Bhojpur	827	0	25	0	Kaski	1021	0	3	0
Dhankuta	489	259	1	0	Lamjung	593	313	0	1
Ilam	4172	441	66	66	Myagdi	82	0	0	0
Khotang	12	0	2	0	Palpa	1682	614	18	10
Okhaldhunga	203	153	5	4	Parbat	233	0	14	0
Panchthar	1464	210	32	22	Syangja	577	368	2	2
Sankhuwasabha	689	0	19	0	Tanahu	470	214	2	0
Taplejung	637	0	0	0	Banke	3848	3739	14	48
Teharthum	415	0	4	0	Bardiya	8679	5820	79	138
Udaypur	1094	911	7	13	Dang	4277	2377	133	30
Bara	3589	1862	128	10	Surkhet	5196	2028	81	37
Chitwan	3562	3562	19	23	Dailekh	519	0	7	0
Dhanusha	20443	8195	295	211	Jajarkot	1	0	0	0
Mahottari	8085	0	359	0	Kalikot	26	0	0	0
Parsa	2041	1470	0	4	Pyuthan	1157	0	4	0
Rautahat	4735	6187	1	13	Rolpa	289	0	0	0
Sarlahi	1495	3560	121	66	Rukum	54	0	0	0
Dhading	416	0	0	0	Salyan	311	0	0	0
Kavre	5429	1017	7	71	Jumla	200	0	1	0
Lalitpur	372	0	0	0	Kailali	15849	16971	428	522
Makawanpur	3544	3329	112	132	Kanchanpur	10905	8805	153	123
Nuwakot	13	0	0	0	Achham	114	0	5	0
Ramechhap	55	0	1	0	Baitadi	584	209	3	6
Sindhuli	2908	1399	103	51	Bajhang	1	0	0	0
Sindhupalchowk	394	202	0	0	Dadeldhura	2328	1368	32	22
Kapilvastu	2964	2158	182	97	Darchula	27	0	0	0
Nawalparasi	8822	8613	59	62	Doti	18	0	2	0

3.4 Reported Kala-azar Indicator for 2065/66 (2008/9) for Kala-azar endemic districts

Region	Topography	District	Number of reported Kala-azar Cases	
			HMIS	EDCD
Eastern	Terai	Jhapa	76	76
	Terai	Morang	60	60
	Terai	Saptari	135	135
	Terai	Siraha	47	47
	Terai	Sunsari	118	118
	Hill	Okhaldhunga	5	5
	Hill	Udaypur	13	13
Central	Terai	Bara	18	18
	Terai	Dhanusha	58	58
	Terai	Mahottari	162	162
	Terai	Rautahat	31	31
	Terai	Sarlahi	223	223
	Hill	Kathmandu	41	41
	Hill	Makwanpur	28	28
Western	Hill	Palpa	4	4

ANNEX 4: Facility Level Data Tracking Results

Service Register *(HMIS 5 – Immunisation Register, HMIS 10 – Maternal Health Register, HMIS 13 Family Planning Register/IUD Norplant Removal Register -, HMIS 21 Tuberculosis Register –, HMIS 24 - Malaria Classification and Treatment Register)*
Service registers are utilised at the facility level and vary for the different services, for example, the Maternity Registers record information on for all clients admitted to the maternity ward, Immunisation Registers record immunisation coverage, Family Planning Registers record family planning service coverage etc.

PHC/HP/SHP Reporting Form *(HMIS 32)*
Non-Ilaka and Ilaka level facilities use the service registers to compile the PHC/HP/SHP Reporting Form (HMIS 32). Each facility prepares two copies of the reporting form on a monthly basis. They should keep one copy at the facility and submit one copy to the next level, i.e. non-Ilaka level facilities submit it to Ilaka level and Ilaka level submit to non-Ilaka level. The study team used the facility copy of the HMIS 32 to verify with the tally sheet.

Closed Tally Sheet *(HMIS 29)*
Tally sheets are designed for Ilaka level health facilities to record their own facility level data and facility level data from the non-Ilaka level facilities on a monthly basis from the PHC/HP/SHP Reporting Forms (HMIS 32). They are also designed to include aggregated data from the non-Ilaka and Ilaka level facilities. The district should be able to use the tally sheets submitted by Ilaka level for facility level monitoring. However, some Ilaka level facilities only submit the aggregate data and fail to complete the facility level information. Each Ilaka level facility should prepare two copies of the tally sheet each month; one copy goes to D/PHO, along with HMIS 32, and the other stays at the facility.

D/PHO Reporting Form *(HMIS 33)*
District compiles the monthly reports received from Ilakas and prepares HMIS 33 (D/PHO Reporting Form) which is then sent to MIS Section, MD, DoHS. Study team verified the data recorded in the HMIS 32 with the facility level record maintained at the district level.

4.1 Morang District

4.1.1 Pathari Sub-Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	32	38	32	79	42	56	66	54	
	PHC/HP/SHP Reporting Form	31	38	31	78	41	55	57	54	
	Tally Sheet	31	38	31	78	NA	NA	NA	NA	Not used in 2010/11
	D/PHO Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available, facility level data unavailable
Number of women receiving 4th ANC check-up	Maternal Health Register	34	24	16	22	35	9	35	37	
	PHC/HP/SHP Reporting Form	44	8	36	35	38	19	37	41	
	Tally Sheet	38	8	36	34	NA	NA	NA	NA	Not used in 2010/11
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	NA	NA	NA	NA	Delivery service not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	No case during this period
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive cases of tuberculosis	Tuberculosis Register	7	2	0	3	4	3	3	0	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Does not report to HMIS; report to NTC quarterly
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Not used
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	28	52	30	34	Register not available
	PHC/HP/SHP Reporting Form	27	46	26	25	29	30	21	19	
	Tally Sheet	28	46	23	25	NA	NA	NA	NA	Not used in 2010/11
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available

4.1.2 Buddhanagar Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	NA	NA	NA	NA	Immunization register at field, i.e. EPI clinic is undergoing, could not observe
	PHC/HP/SHP Reporting Form	22	44	40	58	16	32	54	30	
	Tally Sheet	22	44	40	58	16	32	54	30	
	D/PHO Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of women receiving 4th ANC check-up	Maternal Health Register	3	7	0	4	3	4	10	4	
	PHC/HP/SHP Reporting Form	13	5	21	9	7	13	15	5	
	Tally Sheet	13	5	21	9	7	13	15	5	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of deliveries	Maternal Health Register	0	0	0	0	0	1	0	0	
	PHC/HP/SHP Reporting Form	0	0	0	0	0	1	0	0	
	Tally Sheet	0	0	0	0	0	1	0	0	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive malaria cases	Malaria Register	0	0	0	0	0	0	0	0	
	PHC/HP/SHP Reporting Form	0	0	0	0	0	0	0	0	
	Tally Sheet	0	0	0	0	0	0	0	0	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive cases of tuberculosis	Tuberculosis Register	3	0	0	0	0	0	0	0	
	PHC/HP/SHP Reporting Form	3	0	0	0	0	0	0	0	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Not used
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	10	12	8	12	Register not available at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	8	19	10	13	
	Tally Sheet	NA	NA	NA	NA	8	19	10	13	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available

4.1.3 Mangalbare Primary Health Care Centre

		2066/67 (2009/10)				2067/68 (2010/11)				
	Source of data	Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	Remarks
Number of children receiving BCG vaccination	Service Register - EPI	50	63	22	109	75	75	84	89	
	PHC/HP/SHP Reporting Form	49	61	21	109	75	76	83	88	
	Tally Sheet	49	61	21	109	75	76	83	88	
	D/PHO Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of women receiving 4th ANC check-up	Maternal Health Register	49	82	35	49	90	59	55	72	
	PHC/HP/SHP Reporting Form	49	82	35	49	90	59	55	72	
	Tally Sheet	49	82	35	49	90	59	55	72	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of deliveries	Maternal Health Register	76	71	46	29	49	47	46	45	
	PHC/HP/SHP Reporting Form	76	71	46	29	49	47	46	45	
	Tally Sheet	76	71	46	29	49	47	46	45	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	0	2	0	5	Not available for 2009/10
	PHC/HP/SHP Reporting Form	10	3	9	4	0	2	0	5	
	Tally Sheet	10	3	9	4	0	2	0	5	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive cases of tuberculosis	Tuberculosis Register	16	10	7	15	18	11	9	6	
	PHC/HP/SHP Reporting Form	16	10	7	15	19	11	9	6	
	Tally Sheet	16	10	7	15	18	11	9	6	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of new family planning acceptors	Family Planning Register	11	22	14	11	7	7	4	4	
	PHC/HP/SHP Reporting Form	11	22	14	11	7	7	4	4	
	Tally Sheet	11	22	14	11	7	7	4	4	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available

4.2 Sarlahi District

4.2.1 Hariaun Sub-Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	18	37	26	37	Not available as HFI was on sick leave at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	0	0	0	100	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of women receiving 4th ANC check-up	Maternal Health Register	NA	NA	NA	NA	59	36	22	28	Not available as HFI was on sick leave at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	54	26	28	10	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	NA	NA	NA	NA	No delivery service at SHP
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	Not available as HFI was on sick leave at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive cases of tuberculosis	Tuberculosis Register	NA	NA	NA	NA	NA	NA	NA	NA	Not available as HFI was on sick leave at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	7	8	15	24	Not available as HFI was on sick leave at the time of field visit
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	12	37	35	16	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available

4.2.2 Lalbandi Primary Health Care Centre

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	NA	NA	NA	NA	Register not found
	PHC/HP/SHP Reporting Form	34	22	35	16	20	21	17	17	
	Tally Sheet	34	22	35	16	20	21	17	16	
	D/PHO Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of women receiving 4th ANC check-up	Maternal Health Register	NA	NA	NA	NA	22	16	21	22	Register not found for 2009/2010
	PHC/HP/SHP Reporting Form	43	28	40	47	23	23	21	22	
	Tally Sheet	43	28	40	47	22	16	21	22	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	32	19	20	24	Register not found for 2009/2010
	PHC/HP/SHP Reporting Form	24	24	30	17	33	19	19	24	
	Tally Sheet	24	24	30	17	32	19	20	24	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive malaria cases	Malaria Register	0	0	0	0	0	0	0	0	No cases recorded during this period
	PHC/HP/SHP Reporting Form	0	0	0	0	0	0	0	0	
	Tally Sheet	0	0	0	0	0	0	0	0	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of positive cases of tuberculosis	Tuberculosis Register	10	4	5	2	4	0	5	1	
	PHC/HP/SHP Reporting Form	10	4	5	2	4	0	5	1	
	Tally Sheet	10	4	5	2	4	0	5	1	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	16	15	20	15	Register not found
	PHC/HP/SHP Reporting Form	24	22	21	20	16	15	20	15	
	Tally Sheet	24	22	21	20	16	15	20	15	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Only aggregated Ilaka level data available

4.3 Myagdi District

4.3.1 Babiya Chaur Sub-Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	1	0	4	8	4	5	12	3	
	PHC/HP/SHP Reporting Form	7	10	9	9	5	5	12	3	
	Tally Sheet	NA	NA	NA	NA	5	5	12	3	Tally sheet not used in 2009/10
	D/PHO Reporting Form	7	10	9	9	5	5	12	3	
Number of women receiving 4th ANC check-up	Maternal Health Register	3	3	1	2	7	2	3	2	
	PHC/HP/SHP Reporting Form	2	4	7	3	5	1	5	2	
	Tally Sheet	NA	NA	NA	NA	5	1	5	2	Tally sheet not used in 2009/10
	D/PHO Monthly Reporting Form	2	4	7	3	5	1	5	2	
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	NA	NA	NA	NA	Delivery service is not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	No malaria in this area so Malaria register is not in use
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive cases of tuberculosis	Tuberculosis Register	0	0	0	0	0	0	0	0	No TB cases recorded during this period Tally sheet not used in 2009/10
	PHC/HP/SHP Reporting Form	0	0	0	0	0	0	0	0	
	Tally Sheet	NA	NA	NA	NA	0	0	0	0	
	D/PHO Monthly Reporting Form	0	0	0	0	0	0	0	0	
Number of new family planning acceptors	Family Planning Register	0	2	0	0	0	1	0	1	
	PHC/HP/SHP Reporting Form	0	2	0	0	0	1	0	1	
	Tally Sheet	NA	NA	NA	NA	0	1	0	1	Tally sheet not used in 2009/10
	D/PHO Monthly Reporting Form	0	2	0	1	0	1	0	1	

4.3.2 Arman Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	13	13	13	6	8	1	13	6	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	13	15	13	12	13	0	23	10	
	D/PHO Reporting Form	13	15	13	12	13	0	23	10	
Number of women receiving 4th ANC check-up	Maternal Health Register	NA	NA	NA	NA	1	0	1	5	Register not available for 2009/10
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	8	4	15	17	9	7	2	5	
	D/PHO Monthly Reporting Form	9	8	15	17	9	7	2	5	
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	1	1	2	3	Register not available for 2009/10
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	0	0	0	0	4	4	4	3	
	D/PHO Monthly Reporting Form	7	0	0	0	3	2	4	3	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	No Malaria in this area so Malaria Register is not in use
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive cases of tuberculosis	Tuberculosis Register	0	0	0	0	2	0	0	0	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	0	0	0	0	2	0	0	0	
	D/PHO Monthly Reporting Form	0	0	0	0	2	0	0	0	
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	NA	NA	NA	NA	Register not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	12	2	0	5	1	10	7	4	
	D/PHO Monthly Reporting Form	12	2	0	5	1	4	7	4	

4.3.3 Darbang Primary Health Care Centre

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	9	1	16	13	Register not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	25	9	9	3	8	0	17	7	
	D/PHO Reporting Form	25	9	9	3	8	0	17	7	
Number of women receiving 4th NC check-up	Maternal Health Register	11	6	10	1	15	10	8	10	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	15	6	10	4	14	16	10	9	
	D/PHO Monthly Reporting Form	15	6	10	4	14	16	10	9	
Number of deliveries	Maternal Health Register	NA	NA	NA	NA	6	7	6	2	Register not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	7	8	4	9	7	7	8	2	
	D/PHO Monthly Reporting Form	7	8	4	9	7	7	8	2	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	No Malaria in this area so Malaria Register is not in use
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive cases of tuberculosis	Tuberculosis Register	0	0	0	0	0	1	0	0	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	0	0	0	0	0	1	0	0	
	D/PHO Monthly Reporting Form	0	0	0	0	0	1	0	0	
Number of new family planning acceptors	Family Planning Register	3	4	4	3	2	4	3	8	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Form not available
	Tally Sheet	2	5	4	2	2	4	3	8	
	D/PHO Monthly Reporting Form	2	5	4	2	2	3	3	8	

4.3.4 District Hospital

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	NA	NA	NA	NA	Register not available
	PHC/HP/SHP Reporting Form	37	43	24	37	30	41	31	29	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Reporting Form	37	43	24	37	30	41	31	29	
Number of women receiving 4th ANC check-up	Maternal Health Register	29	8	12	28	39	19	25	25	
	PHC/HP/SHP Reporting Form	19	31	25	68	32	35	36	48	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	19	31	25	68	32	35	36	48	
Number of deliveries	Maternal Health Register	51	33	45	30	47	59	36	38	
	PHC/HP/SHP Reporting Form	51	33	45	30	46	59	37	38	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	51	33	45	30	46	59	37	38	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	NA	NA	NA	NA	No Malaria in this area so Malaria Register is not in use
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	
	D/PHO Monthly Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	
Number of positive cases of tuberculosis	Tuberculosis Register	3	1	0	1	0	0	1	0	Abdominal TB
	PHC/HP/SHP Reporting Form	3	1	0	1	0	1	NA	0	Record not maintained
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	3	1	0	1	0	1	NA	1	
Number of new family planning acceptors	Family Planning Register	NA	NA	NA	NA	30	11	33	20	New cases cannot be differentiated
	PHC/HP/SHP Reporting Form	25	60	35	35	30	11	33	20	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	25	60	35	35	30	11	33	20	

4.4 Kailali District

4.4.1 Baliya Sub-Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	78	82	71	76	45	120	90	43	
	PHC/HP/SHP Reporting Form	78	82	71	76	44	120	90	43	
	Tally Sheet	78	82	71	76	44	120	90	43	
	D/PHO Reporting Form	78	82	71	76	44	120	90	43	
Number of women receiving 4th ANC check-up	Maternal Health Register	106	96	106	65	50	30	45	13	
	PHC/HP/SHP Reporting Form	110	103	40	74	39	31	35	19	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	110	113	40	74	34	27	39	14	
Number of deliveries	Maternal Health Register	0	3	1	4	5	5	3	2	
	PHC/HP/SHP Reporting Form	8	28	0	6	5	5	3	2	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	8	8	0	2	3	5	4	2	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	3	0	4	5	Not Available
	PHC/HP/SHP Reporting Form	1	1	2	17	0	0	4	6	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	1	1	2	17	NA	0	NA	6	
Number of positive cases of tuberculosis	Tuberculosis Register	8	3	2	2	2	2	3	3	
	PHC/HP/SHP Reporting Form	0	0	3	2	0	2	3	5	
	Tally Sheet	8	3	2	2	NA	NA	NA	NA	Tally sheet not in use in 2010/11
	D/PHO Monthly Reporting Form	10	2	3	2	NA	2	3	5	Record not maintained
Number of new family planning acceptors	Family Planning Register	24	17	28	30	13	17	16	12	
	PHC/HP/SHP Reporting Form	14	11	70	37	14	13	17	15	
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	14	11	70	37	14	13	17	15	

4.4.2 Do Do Dhara Health Post

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	PHC/HP/SHP Reporting Form	42	66	40	34	30	41	42	51	
	Tally Sheet	42	66	40	34	30	41	42	51	
	D/PHO Reporting Form	42	66	40	34	30	41	42	51	
Number of women receiving 4th ANC check-up	Maternal Health Register	24	16	20	35	28	20	9	19	
	PHC/HP/SHP Reporting Form	12	11	9	2	18	17	13	27	
	Tally Sheet	12	11	9	2	18	17	13	27	
	D/PHO Monthly Reporting Form	12	11	9	2	18	17	13	26	
Number of deliveries	Maternal Health Register	7	3	0	1	37	26	36	37	
	PHC/HP/SHP Reporting Form	26	4	8	5	35	25	36	37	
	Tally Sheet	26	4	8	5	35	25	36	37	
	D/PHO Monthly Reporting Form	26	4	8	5	35	25	36	37	
Number of positive malaria cases	Malaria Register	0	0	4	1	8	4	3	4	
	PHC/HP/SHP Reporting Form	0	0	5	1	8	4	3	4	
	Tally Sheet	0	0	5	1	8	4	3	4	
	D/PHO Monthly Reporting Form	0	0	5	1	8	4	5	4	
Number of positive cases of tuberculosis	Tuberculosis Register	1	1	1	1	0	1	1	4	
	PHC/HP/SHP Reporting Form	1	1	1	1	0	1	1	4	
	Tally Sheet	1	1	1	1	0	1	1	4	
	D/PHO Monthly Reporting Form	1	1	1	1	1	4	2	2	
Number of new family planning acceptors	Family Planning Register	17	27	8	7	20	7	13	12	
	PHC/HP/SHP Reporting Form	17	27	8	7	22	10	12	20	
	Tally Sheet	17	27	8	7	22	10	12	20	
	D/PHO Monthly Reporting Form	17	27	8	8	22	10	12	20	

4.4.3 Malakheti Primary Health Centre

	Source of data	2066/67 (2009/10)				2067/68 (2010/11)				Remarks
		Shrawan	Bhadra	Aswin	Kartik	Shrawan	Bhadra	Aswin	Kartik	
Number of children receiving BCG vaccination	Service Register - EPI	NA	NA	NA	NA	27	55	76	49	Register not available
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Reporting Form	37	47	60	46	23	54	76	49	
Number of women receiving 4th ANC check-up	Maternal Health Register	18	3	4	1	31	32	29	12	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	29	35	18	20	32	32	31	18	
Number of deliveries	Maternal Health Register	4	0	2	1	22	25	27	`14	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	4	0	2	1	20	24	27	14	
Number of positive malaria cases	Malaria Register	NA	NA	NA	NA	9	12	14	20	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	6	5	4	7	9	10	14	20	
Number of positive cases of tuberculosis	Tuberculosis Register	2	3	3	3	5	4	6	7	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	2	4	3	3	3	4	5	4	
Number of new family planning acceptors	Family Planning Register	3	2	1	2	8	9	10	8	
	PHC/HP/SHP Reporting Form	NA	NA	NA	NA	NA	NA	NA	NA	Not available
	Tally Sheet	NA	NA	NA	NA	NA	NA	NA	NA	Tally sheet not in use
	D/PHO Monthly Reporting Form	10	6	12	9	12	11	10	8	

4.4.4 Seti Zonal Hopsital

	Source of data	Jeshtha 2068
Number of normal deliveries	Maternity Register (HMIS - 10)	230
	Report copy of HF	230
	Monitoring Sheet	NA
	District report	230
Number of complicated deliveries	Maternity Register (HMIS - 10)	43
	Report copy of HF	43
	Monitoring Sheet	NA
	District report	43
Number of caesarean sections	Maternity Register (HMIS - 10)	33
	Report copy of HF	33
	Monitoring Sheet	NA
	District report	33

Note: Only data for one month was verified for this facility.