COMPLETENESS OF INPATIENT MEDICAL RECORDS OF TWO GENERAL HOSPITALS, OROMIA REGIONAL STATE, CENTRAL ETHIOPIA:

THE CASE OF BATU AND ABOMSA

BY

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RESEARCH THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH POLICY AND MANAGEMENT OF JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF SCIENCE (MSC.) IN HEALTH CARE AND HOSPITAL ADMINISTRATION

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OROMIA, CENTRAL ETHIOPIA

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Abstract

Background A medical record is considered complete if it contains sufficient information to identify the patient; support the diagnosis/condition; justify the care, treatment, and services; document the course and results of care, treatment, and services; and promote continuity of care among providers. However, there is paucity of latest published information in this regard in the study area.

Objectives: To assess and to comparing the completeness of inpatient medical records between Batu General Hospital and Abomsa General Hospitals in 2021.

Methods: An institution based cross sectional study was conducted at two general Hospitals found in central Oromia region from March to May 2022. Two population proportion formula was used to determine the sample size. The sample size required in each comparison group will be n= $\{p1(1-p1)+p2(1-p2)\}(Z/E)^{2,}$ n is the sample size required in each group, z, 95% confidence level. Two general Hospitals were compared for medical record completeness, permission was obtained from the Hospitals officials after ethical clearance was issued from Jimma University institutional review board prior to getting to data collection. Quantitative data was collected from the inpatient medical records using medical record review checklist prepared based on EHSTG and qualitative data was collected using focus group discussion and simple random sampling was employed to collect data. Clinical records were handled within the hospital premises to secure confidentiality. Before data entry, checklists were checked for errors, cleaned, coded and entered into SPSS version 23 software package for analysis. Independent-sample t test was used to compare two Hospitals' scores.

Result, the result showed significant differences for all variables as follows: - Total inpatient MR completeness score of Abomsa General Hospital (60.5%) whereas that of Batu general Hospital was (69.2%).

Conclusions: overall inpatient medical record completeness proportion in Batu general Hospital and Abomsa general Hospital was comparable with other hospitals in the country with highest rate of completeness physician order and physician note both were 0.92% in Batu.

Key words: medical record, medical record completeness, central Oromia, public Hospital

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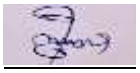
Name of the student: **Gezahegn Nigussie Dabale** Signature  03/02.23

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Lists tables and figures

Acronyms

CI	confidence interval
EHR	Electronic Health Record
EHSTG	Ethiopian Hospital Service Transformation Guidelines
HPMI	Hospital Performance Monitoring and Improvement
ICA	Information council on archive
HSTP	Health sector transformation plan
IOM	Institute of Medicine
ISO	information Science Organization
MR	medical record
OGO	Other Governmental Organization
OR	Odds ratio
PHCU	Primary Health care Unit
PI	Principal Investigator
SPHMMC	Saint Paul Hospital Millennium Medical College
WHO	World Health Organization

1. INTRODUCTION

1.1. Background

Total health care involves the preventive, curative, promotive, Palliative and rehabilitative

aspects of elevating the health status of the patient as well as improvement of patient

environment. Information about all aspects of health care services should be well documented on medical records. Medical records are powerful and sensitive information tools, including, personal, health, emergency health care and future healthcare information hospitals and health institutions keep paper and electronic medical records in support of legal, medical, supervisory and audit, scientific, and educational cases in accordance with

retention and disposal policies. Although medical records serve many functions, their primary

purpose is keeping information about patients and their care (1).

Medical records management is one of the components of health information system that documents information related to a patient generated during patient-to-health care provider encounters at a health care facility. A well-organized medical recording system ensures the availability of reliable healthcare data in the health system; in which it can serve as an input for the implementation of national health sector transformation strategic plan (HSTP) in particular to the information revolution agenda. Medical records provide clinical staff caring for patients with information needed to deliver optimal care in present or future hospital episodes, if it is well managed and complete (1) (2).

As health care records grow in usage and importance, it is important to ensure the completeness and validity of patient data. Medical record completeness is a key performance indicator that is related with delivery of health care services in the hospital. Complete and accurate medical records are essential to maintain the continuity of patient care and ensure that the health provider has full information about the patient when providing healthcare. The completeness of this medical record is a measure of the quality of care provided at the hospital (3).

Patient medical record review is very important to investigate adverse events in hospitals. The determination with which information is recorded may influence the visibility of adverse events.

Poor quality of the information in patient medical records may be a cause or a consequence of poor quality of care and associated with higher rates of adverse events (4). Poor clinical records might have a profound impact on a patient's lifelong health, and Misinform healthcare professionals and patients (5).

All entries in the medical record must be complete. A medical record is considered complete if it contains sufficient information to identify the patient; support the diagnosis/condition; justify the care, treatment, and services; document the course and results of care, treatment, and services; and promote continuity of care among providers. All entries in the medical record must have date and signature of provider or evaluator(6).

Medical record completeness is a key performance indicator that is related with delivery of health care services in the hospital. Complete and accurate medical records are essential to maintain the continuity of patient care and ensure that the health provider has full information about the patient when providing healthcare. The completeness of this medical record is a measure of the quality of care provided at the hospital. A complete medical record serves the interest of the medical practitioner as well as his patients. It is very important for the treating doctor to properly document the management of the patient under his/her care (7).

Inpatient Medical record is complete if it includes the following items; medical record number on each page, patient information in the record, physician order sheet, physician note, nursing care plan discharge summary, medication administration sheet, laboratory result if ordered and radiology result if ordered (8).

1.2 Statement of the problem

In a retrospective study involved reviewing completeness of 860 admission notes in Jeddah, Saudi Arabia, poor documentation of the admission notes was reported in 95% of the medical records specially those including the physical examination notes on admission of the patients(3).

Study done medical record completeness in government health facility in Egypt shows that medical record completeness is as low as 40% (2).

Despite the importance of medical records to high quality and efficient care management of patients' medical records, especially in developing countries like Ethiopia, it has not been a priority, generally inadequately supported and poorly managed. The study done in a rural hospital in Ethiopia shows that only 45.7% of medical records were complete (1).

The most significant effects of incomplete documentations of inpatient medical records are: - poor quality of care, inaccurate reimbursement that results inaccurate gross revenue to the provider, impossibility of effective operational management could be impeded, lack of legal protections, and also if documentation is incomplete the effectiveness of research activities is significantly impeded. A base line assessment done at Saint Paul Hospital Millennium medical college in 2018 evidenced that medical record completeness was 46.48%(4).

Incomplete medical recording is one of a major observed challenge in hospital 's medical record management system. Incompleteness of medical records is a sign of significant problems that affects the quality of health care. quality health care data play a vital role in the planning, developments, the maintenance of health care service (9).

Inpatient medical records in many Ethiopian Hospitals even in well organized and equipped facilities are frequently incomplete. Even though no study has been conducted in my study area, the average medical record completeness in SPHMMC in 2018 was 38.7% which is low against the standard in which medical record completeness is expected to be 100% (,6). Another study conducted in Ethiopia showed that only 14% of returning patients could retrieve their medical record and only 6.5 of it contained complete information (10).

Staff training and quality improvement project on medical record completeness witnessed that the improvement of MR completeness in some Hospitals in Ethiopia (11). Therefore, conducting the study on MR completeness at inpatient department in Batu general Hospital and Abomsa General Hospital where no similar studies were conducted will be an important issue.

Medical errors account for 98,000 deaths each year in the U.S., according to a 1999 report published by The Institute of Medicine (IOM)interestingly, the report claims that medical errors are not due to incompetent people, but to bad systems that include the processes and methods used to carry out various functions(12).

1.3 Significance of the study

Medical Record Management is critical to improve the provision of continuum of quality health care services, ensure safe medical practice, improve the patient's experience and satisfaction with their medical encounter. It helps also to make clinical and public health evidence-based practices, making informed decisions and used as reliable source of information for medico-legal issues and medical/ public health researchers. These will be achieved if and only if the medical records are complete.

The findings of this study will contribute to the body of literature on medical record completeness and management of medical records in Ethiopian public Hospitals. It will also provide a more effective and reliable tool for improving the management of records and will be aimed at indicating the level of medical record completeness in the two Hospitals in Oromia and to compare the Hospitals that would help local health authorities Health planners and administrators of the two Hospitals.

Beside that the finding of this study may suggest policy makers important policy that must be made or adopted in order to keep medical records complete at all health service delivery points. The study may also provide base line information for researchers.

2. LITERATURE REVIEW

The Information Council on Archives (ICA) committee on Electronic Records defines a record as "recorded information produced or received in the initiation, conduct or completion of an institutional or individual activity and that comprises content, context and structure sufficient to provide evidence of the activity (7).

Medical records are the documents that explains all detail about the patient`s history, clinical findings diagnostic test results and other relevant information (5).

2.1 Public health relevance

The quality of care a patient receives is depends directly on the accuracy and legibility of the information the medical record contains. Maintaining a complete medical record is important not only to comply with licensing and accreditation requirements but also to enable a health care professional to establish that a patient received adequate care(12).

Clinical documentation reflects dignity and respect for the patient, their significant support network and other members of the health care team. Medical records are useful to assess the quality of the health care provision, investigation of incidents, patient complaints, and compensation(2). Moreover, medical records are also useful for management and planning facilities as well as medical services, health research and statistical purposes. (13).

2.2 Contents of Medical record completeness

MRs contain administrative and clinical data that assist in the process of coding. Administrative data include routine patient identification such as the patient's name, age, sex, date of birth, address, religious preference, insurance data, and consent for treatment. Clinical data include diagnoses, procedures, and results of tests such as laboratory work, x-ray studies, and operations(9).

Complete medical record includes items such as; medical record number on each page, patient information in the record, physician note, nursing note for inpatient, medication record if ordered, laboratory result if ordered and radiology result if ordered, clinician's name and signature are important in terms of follow up patient and medico-legal issue. However, name and signature of clinicians are often forgotten. On many records, the highest rate name and signature documentation belonged medical record must be filled completely and correctly, in order to patients get their

rights in the information gathering and the physician should carry out their obligations in the provision of information related to the treated patient. Moreover, medical records are also useful for management and planning facilities as well as medical services, health research and statistical purposes. (13).

Noncompliance in the progress record, such as a patient's failure to follow advice, take medication, obtain requested diagnostic studies, keep an appointment with a consultant, or other actions the patient takes or fails to take that could cause or contribute to an injury or delay in resolution of a medical problem should be well documented by physicians. And patient name with full address should be documented as well (14).

2.3 Challenges affecting medical records

The sensitivity of medical records has brought several challenges to managing institutions. The commonest relates to storage, access, safety and security. Hospitals which use primarily manual based medical records systems experience storage problems. Access to medical records is another challenge that users and custodians face. Sometimes there is conflict on the ownership and the right of access to a patient record (16).

The records of the patient could represent the formal records of the clinician formal record, which must be clear, accurate, legible, and scientifically written. That could include all relevant clinical findings, decisions made, agreed actions, the person making the actions and decisions, the information given to patients, any prescribed drugs, made investigations, treatments, and when and who made the recording. One of the mechanisms to practice evidence-based decision making and facilitated communication among health professionals uniformly to a common type of information is through the upgrading of the medical documentation system (17).

Medical record which contains gaps depicts poor clinical care, demonstrate non-compliance with institutional policies and can be used to support allegations of negligence or fraud. Moreover, an incomplete patient's clinical documentation can lead to legal actions, can results in loosing job, contribute to imprecise quality and care information, leading to lost revenue/reimbursement to institution or physician, inappropriate billing and leading to charges of fraud. In addition, incomplete or improper documentation interfere with research, data analysis, patient-related studies and most likely compromises safe patient care (18).

2.5 Medical Record Procedures

It is most important that plenty of space is available for filing medical records, and that the file area is clean, tidy and has good light. The file area should have desks for the medical record clerks to sort medical records and make out tracers; and space for records awaiting filing, and awaiting completion and confidentiality of any information they contain. Disposal of data records should be done in such a way as to render them unreadable and leave them in a form from which they cannot be reconstructed in whole or in part. Health care records must be accessed by patients whenever needed, maintained in a retrievable and readable state for their minimum required retention period and Personal health information, including healthcare records, must have appropriate security safeguards in place to prevent unauthorized use, disclosure, loss or other misuse(19). For example, all records containing personal health information should be kept in lockable storage or secure access areas when not in use, Health care records, both paper-based and electronic, must be disposed of in a manner that will preserve the privacy (20)

The incompleteness rate of medication use may be attributed to the nature of healthcare services provided to certain patients. For instance, surgical patients in the one-day surgery clinics with minor procedures may not require any pharmacological interventions upon admission. Moreover, patients who may have been seen by clinical practitioners and had no ailments to be confirmed at the visit, the system allows to only document the visit as a medical note, but prescribers cannot place any medication order without a documented diagnosis(21).

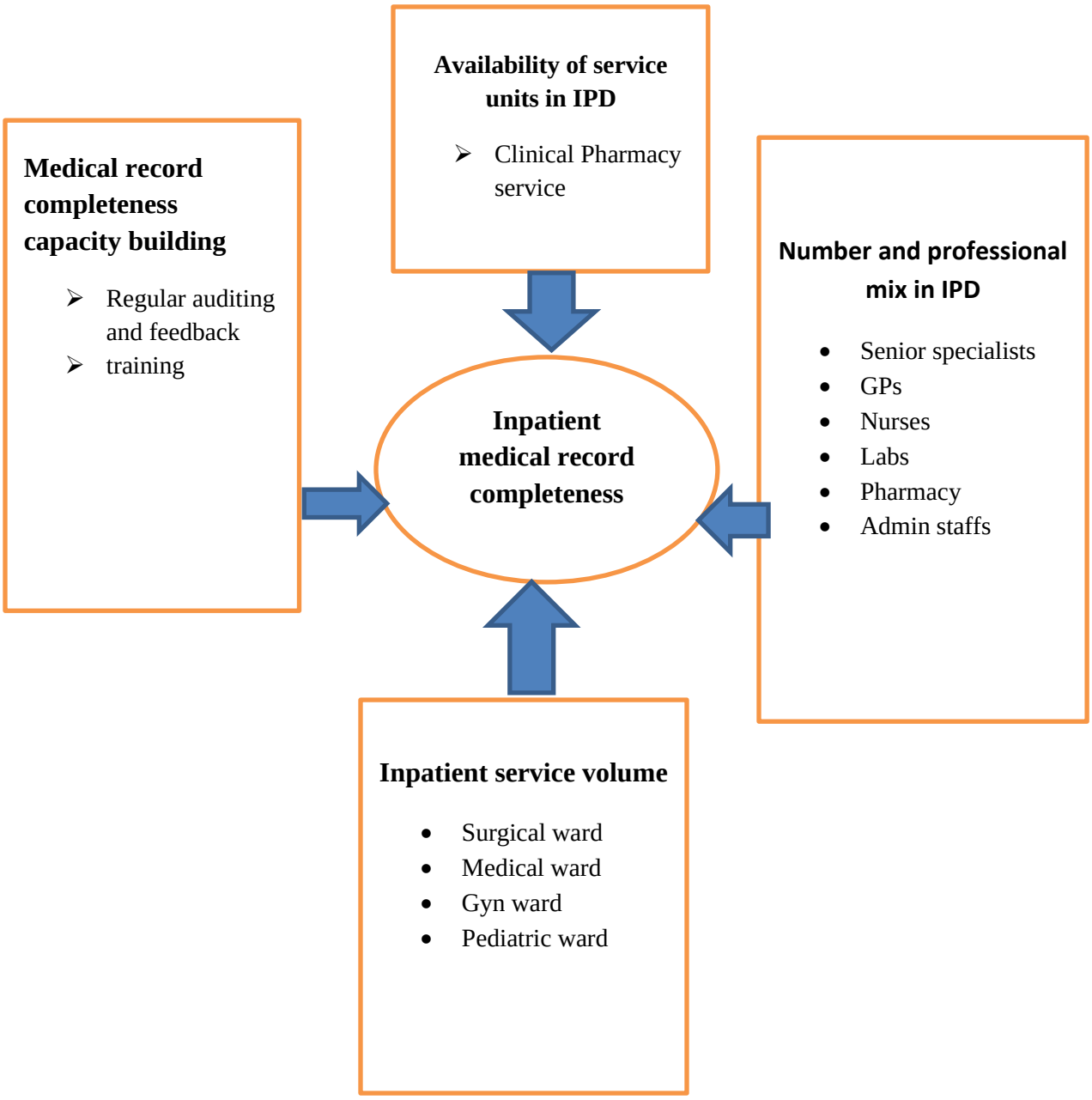


Figure 1. Conceptual framework of Inpatient medical record completeness as adapted from different literatures.

3. OBJECTIVES AND HYPOTHESIS

3.1 general objective

- To assess and to compare the completeness of inpatient medical records between Batu General Hospital and Abomsa General Hospitals in 2021.

3.2 Specific Objective

- To determine the overall level of completeness of inpatient medical records of both hospitals
- To compare the mean differences of variables of inpatient medical record completeness between the two hospitals

3.3 Hypothesis

There will be no difference in the mean level of medical record completeness between Batu general Hospital and Abomsa General Hospitals. This hypothesis was tested and null hypothesis was rejected as p value is 0.000 which is less than 0.05 and alternative hypothesis was taken.

4. METHODS

4.1. Study area

The study was conducted in two general Hospitals of East shoa from March to May 2022. East Shoa zone is one of the Oromia regional state zones located in the east of the capital city of Ethiopia, Addis Ababa the capital of east Shoa administrative zone Adama is located 98km away from A.A. The administrative zone is consisting of 28 urban kebeles and 285 rural kebeles. There are 114 functional health centers and 105 private clinics within the zone six public Hospitals and two OGO Hospital are also found in the zone which all together serve total population of 1,615,178 including 51960 under five children and 357,439 females in child bearing age. Among these, Batu General Hospital is serving with 60 beds. The total admission of 2021 was 3,162 patients with 2,869 discharges. whereas Abomsa General Hospital occupies 66 beds and had 1,986 total admission and 1961 discharge in 2021.

4.2. Study design

Institution based **comparative cross-sectional** study was conducted on a one-year (2021) inpatient medical records of the two hospitals.

4.3. Population

4.3.1 Source population

- All medical records of patients admitted in 2021 in Batu and Abomsa Hospitals

4.3.2 study population

- All selected medical records of patients admitted in inpatient department in 2021 at Batu General Hospital and Abomsa General Hospital

4.4. Sample size and Sampling procedures

4.4.1 Sample size determination

Two population proportion formula was used to determine the sample size of medical records to be reviewed in both hospitals, the formula for determining the sample size required in each comparison group was n= $\{p1(1-p1)+p2(1-p2)\}(Z/E)^{2.}$, n is the sample size required in each group, z is the value from the standard normal distribution reflecting 95% confidence level.

recent information available about proportion of impatient medical record completeness is 40% was used to generate the largest sample size (13,19) Where ; zα/2=1.96, P1=p2= 0.4, E=0.05

1. Hence, n= $\{0.4(1-0.4)+0.4(1-0.4)\}(1.96/0.05)^{2.}$

   = **369** was sample size for each Hospital.

2.The next medical record on the IPD registration from the increasing direction was included in the case of lost or invalid medical records to ensure the required sample size.

Then sample was selected using lottery method from all IPD registers after sample size was fairly allocated based on each ward`s last year discharge volume. Hence for Abomsa Hospital 48.5% ,25.1%, 14.6% and 9.8% were reviewed from Gyn ward, medical ward, Surgical ward and Pediatric ward respectively. And for Batu Hospital ,42.5% ,23.5% ,20.6% and 13.4% medical records were reviewed from Gyn ward, medical ward, Surgical ward and Pediatric ward respectively based on discharge volume of 2021.

4.4.2 Sampling procedure

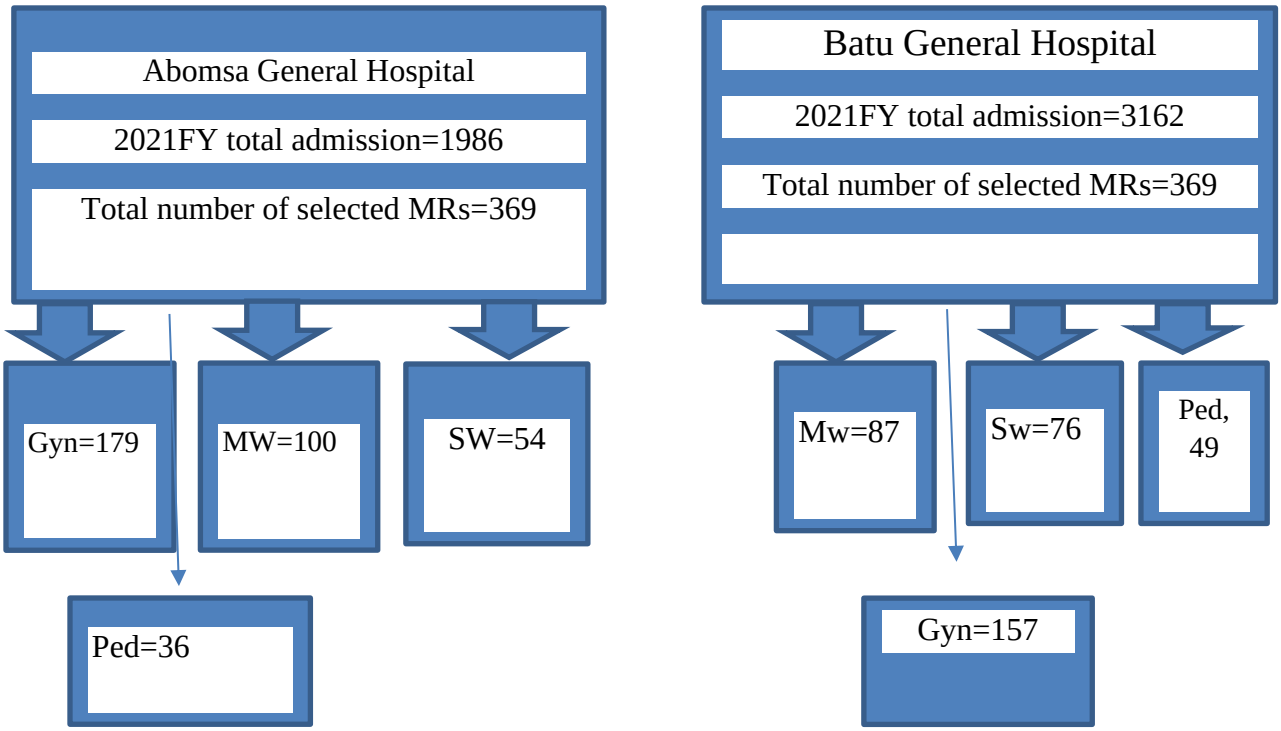


Figure 2. schematic presentation of sampling procedure in study of comparison between medical record completeness of two general Hospital in Oromia central Ethiopia 2021

4.5 data collection method

4.5.1 Data Collection Tools

Quantitative data was collected from the inpatient medical records using medical record review checklist prepared based on EHSTG and qualitative data was collected using focus group discussion method.

4.5.2 Data collection personnel

Four BSc holder health professionals who have experience in Hospital assessment were used to collect data and two MSc. holder health professionals were supervised the data collection procedure after taking training on data collection and handling. Data collectors were recruited based on their experience of Hospital Performance assessment and they were all from the Hospitals where study was conducted. The supervisors were recruited from other nearby Hospitals.

4.6. Data analysis procedures

Before data entry, checklists were checked for errors, cleaned, coded and entered into SPSS version 23 software package for analysis. Independent-sample t test was used to compare two Hospitals' scores on the same variable and the average percentage completeness of inpatient medical records to evaluate whether there is a difference or not in medical record completeness in Abomsa General Hospital Batu General Hospital. And I considered whether to assume equal variance for the two groups (Hospitals) or not. To assess whether I should use the statistics for equal or unequal variances, I used the significance level associated with the, Levene's Test for Equality of Variances. Medical record completeness variance of the two groups, Abomsa Hospital and Batu Hospital in their medical record completeness was not equal. Thus, we should use the statistics in the row labeled Equal variances not assumed. In my result, the hypothesis that Abomsa Hospital and Batu Hospital in their medical record completeness sheet do not differ in their completeness, the t statistic under the assumption of unequal variances has a value of -41.430 and the degrees of freedom has a value of 1610.418 with an associated significance level of or p-value 0.000. The significance level tells us that the probability that there is no difference between Abomsa Hospital and Batu Hospital in their completeness is very small. Hence, we conclude that the difference between average Abomsa Hospital and Batu Hospital in their medical record completeness is significantly different from zero, that is average completeness of Abomsa Hospital

and Batu Hospital in their medical record completeness are different at 5% level of significant. P-value <0.05 at 95% confidence interval.

4.7. Study variables

4.7.1 Dependent Variable

- Medical record completeness

4.7.2 Independent variables

4.7.1.1 Number and professional mix in each ward

- senior doctors to patient ratio
- GPs to patient ratio
- Nurses to patient ratio

4.7.1.2 Availability of service units in inpatient department

- Clinical Pharmacy service

4.7.1.3 Inpatient service volume

- Internal medicine ward
- Surgical ward
- Gyn ward & Pediatric ward

4.7.1.4 Medical record auditing and feedback system

4.8. Data Quality management

In order to assure data quality, high emphasis was given to minimize errors using the following strategies. Training was given to the data collectors and supervisors for two days on basic skills, ways of obtaining consents and objectives of the study by the principal investigator. Pretest was done on 10% of sample size. The principal investigator underwent on-site supervision during the data collection period and reviewed all filled questionnaires during the next morning of each data collection so as to identify incomplete and incoherent findings. The supervisor and principal investigator had been closely supervised the performance of the data collectors on a daily basis and the collected record sheets were thoroughly summarized every day at the end of data collection session and any inconsistencies used to be amended on time.

4.9. Operational definitions

Completeness of medical record - it refers to all the relevant data elements in a patient/client register are filled. A single medical record will be labelled as complete if all verification criteria on the checklist is found recorded, even if a single entry is missed it will be incomplete.

Availability of inpatient medical record formats – the availability of standardized inpatient medical record formats. Completeness of inpatient medical record is calculated based on the following equation:

% Of completeness = Total Score sum of verification criteria completed, dated and signed(yes) / (Number of cards checked for completeness times 24.) times 100 (Source Federal hospital performance monitoring and improvement manual)

24 = total verification criteria for inpatient MR completeness

YES = All entries filled, with date and signature for individual record and individual record is scored as YES if and only if it is 100% complete for intended entries on the format.

Invalid medical record= Those teared medical records, or MRs destroyed by wet or rodents which were difficult to understand the information written on them.

4.10. Ethical consideration

Two general Hospitals were compared for medical record completeness, permission was obtained from the Hospitals officials after ethical clearance was issued from Jimma University institutional review board prior to getting to data collection. Then sample was selected using simple random sampling from all IPD registers after sample size was fairly allocated based on each ward`s last year discharge volume Measures were taken to ensure strict confidentiality and Clinical records were handled within the hospital premises and in line with hospital regulations.

4.11 Limitation of the study

- The analysis might be underpowered to detect small but significant differences in patient medical records according to compliance with recording standards.
- The study focuses only on medical record completeness but will not investigate whether the recorded information is correct or not.
- The study will not investigate the causes for medical record incompleteness.

4.12 Dissemination plan

The findings of this study will be disseminated to local and external partners including the hospitals studied, Oromia regional Health bureau, Jimma University and any other concerning bodies.

5. RESULT

5.1 quantitative description

The completeness of in-patient medical records of two general Hospitals were assessed in terms of physician note, physician order, nursing care plan, medication administration sheet, discharge summary clinical pharmacy records and medical diagnostic records completeness. Consequently, the result showed significant differences for all variables as follows: - Total inpatient MR completeness score of Abomsa General Hospital was 5357 out of 8,856 total verification criteria (60.5%) whereas that of Batu general Hospital was 6,127 out of 8,856 total verification criteria (69.2%).

Table 1. Descriptive data of Inpatient medical record completeness in Batu General Hospital and Abomsa General Hospital 2021.

Clinical records	**Abomsa General Hospital**		**Batu General Hospital**	
	N	**Proportion**	**N**	**Proportion**
Physician Note	1,026	0.93	1,022	0.92
Physician Order	1,026	0.93	1,022	0.92
Nursing Care plan	669	0.61	779	0.70
Medication Administration sheet	1,246	0.56	1,685	0.76
Discharge summary	974	0.66	1,065	0.72
Clinical Pharmacy records	0	0	0	0
Medical diagnostic records	652	0.88	657	0.89
Total	5,357	0.61	6,127	0.69

An independent sample t-test was conducted to compare the mean difference level of completeness of overall medical records of Abomsa and Batu general hospitals. The mean completeness of MRs for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 1610.418, P 0.000 in the score with mean score of Abomsa Hospital 58.750 and SD 5.000 was lower than Batu General Hospital mean score of 69 and SD 5.000 the magnitude of difference of mean 58.75 at 95% CI to 69 was significant.

Table 2: the result of the mean difference level of completeness of overall medical records of Abomsa and Batu hospitals.

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Abomsa Hospital	**766.000**	**58.750**	**5.000**	**0.181**
Batu Hospital	**875.000**	**69.000**	**5.000**	**0.169**

Independent Samples Test

	Mean Difference	Std. Error Difference	T	Df	Sig. (2-tailed)
Equal variances assumed	-10.250	0.247	-41.430	1639.000	0.000
Equal variances not assumed	-10.250	0.247	-41.430	1610.418	0.000

Hartley test for equal variance: F = 16.000, Sig. = 0.0021

An independent sample t-test was conducted to compare the mean difference of physician notes completeness of inpatient medical records of the variables of Abomsa and Batu hospitals. The mean completeness of physician notes for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df.1916.182, P 0.000 in the score with mean score of Abomsa Hospital 69.500 and SD 10.000 was lower than Batu General Hospital mean score of 92.3 and SD 13.000 the magnitude of difference of mean 69.5000 at 95% CI to 92.300 was significant

Table 2. the result of the mean difference level of physician notes completeness of inpatient medical records of the variables of both hospitals

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Physician Note Abomsa	1026.000	69.500	10.000	.312
Physician Note batu	1022.000	92.300	13.000	.407

Independent Samples Test

	Mean Difference	Std. Error Difference	T	Df	Sig. (2-tailed)
Equal variances assumed	-22.800	0.512	-44.496	2046.000	0.000
Equal variances not assumed	-22.800	0.513	-44.473	1916.182	0.000

Hartley test for equal variance: F = 1.690, Sig. = 0.0000

An independent sample t-test was conducted to compare the mean difference of physician order completeness of inpatient medical records of the variables of Abomsa and Batu hospitals. The mean completeness of physician order for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 1916.182, P 0.000 in the score with mean score of Abomsa Hospital 69.500 and SD 10.000 was lower than Batu General Hospital mean score of 92.3 and SD 13.000 the magnitude of difference of mean 69.5000 at 95% CI to 92.300 was significant

Table 3. the result of the mean difference level of completeness of Physician order medical records of the variables of both Abomsa and Batu hospitals

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Physician order Abomsa	1026.000	69.500	10.000	.312
Physician order batu	1022.000	92.300	13.000	.407

Independent Samples Test

	Mean Difference	Std. Error Difference	T	Df	Sig. (2-tailed)
Equal variances assumed	-22.800	0.512	-44.496	2046.000	0.000
Equal variances not assumed	-22.800	0.513	-44.473	1916.182	0.000

Hartley test for equal variance: F = 1.690, Sig. = 0.0000

An independent sample t-test was conducted to compare the mean difference nursing care plan records of the variables of Abomsa and Batu hospitals. The mean completeness of nursing care plan for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 1420.948, P 0.000 in the score with mean score of Abomsa Hospital 60.400 and SD 21.000 was lower than Batu General Hospital mean score of 70.400 and SD 28.000 the magnitude of difference of mean 21.000 at 95% CI to 28.000 was significant.

Table 4. the result of the mean difference level of completeness of nursing care plan records of the variables of Abomsa and Batu hospitals

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Nursing care plan Abomsa	669.000	60.400	21.000	0.812
Nursing care plan batu	779.000	70.400	28.000	1.003

Independent Samples Test

	Mean Difference	Std. Error Difference	t	Df	Sig. (2-tail
Equal variances assumed	10.000	1.318	-7.585	1446.000	0.000
Equal variances not assumed	10.000	1.291	-7.748	1420.948	0.000

Hartley test for equal variance: F = 1.778, Sig. = 0.0000

An independent sample t-test was conducted to compare the mean medication administration records of variables of Abomsa and Batu hospitals. The mean completeness of medication administration record for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 2150.099, P 0.000 in the score with mean score of Abomsa Hospital 56.300and SD 38.780was lower than Batu General Hospital mean score of 76.100and SD 27.550the magnitude of difference of mean 56.300 at 95% CI to 76.100 was significant. Allergic information which is verification criteria of medication administration was also zero in Abomsa and as low as only 3% at Batu.

Table 5. the result of the mean difference level of completeness of medication Administration records of the Abomsa and Batu hospitals

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Medication administration sheet Abomsa	1256.000	56.300	38.780	1.094
Medication administration sheet Batu	1685.000	76.100	27.550	0.671

Independent Samples Test

	Mean Difference	Std. Error Difference	t	Df	Sig. (2-tailed)
Equal variances assumed	19.800	1.223	-16.184	2939.000	0.000
Equal variances not assumed	19.800	1.284	-15.425	2150.099	0.000

Hartley test for equal variance: F = 1.981, Sig. = 0.0000

An independent sample t-test was conducted to compare the discharge summary variables of Abomsa and Batu hospitals. The mean completeness of discharge summary record for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 1746.775, P 0.002 in the score with mean score of Abomsa Hospital 65.900 and SD 52.500 was lower than Batu General Hospital mean score of 72.200 and SD 37.550 the magnitude of difference of mean 65.900 at 95% CI to 72.200 was significant.

Table 6 the result of the mean difference level of completeness of discharge summary records of Abomsa and Batu hospitals.

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Discharge summary sheet Abomsa	974.000	65.900	52.500	1.682
Discharge summary sheet Batu	1065.000	72.200	37.550	1.151

Independent Samples Test

	Mean Difference	Std. Error Difference	t	Df	Sig. (2-tailed)
Equal variances assumed	6.300	2.009	-3.136	2037.000	.002
Equal variances not assumed	6.300	2.038	-3.091	1746.775	.002

Hartley test for equal variance: F = 1.955, Sig. = 0.0000

An independent sample t-test was conducted to compare the medical diagnostic request variables of Abomsa and Batu hospitals. The mean completeness of medical diagnostic service record for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 1522.960, P

0.000 in the score with mean score of Abomsa Hospital 88.500 and SD 21.500 was higher than Batu General Hospital mean score of 69.000and SD 27.550 the magnitude of difference of mean 88.500 at 95% CI to 69.000 was significant.

Table 7 the result of the mean difference level of completeness of medical diagnostic request records of Abomsa and Batu hospitals

Summary Data

	N	Mean	Std. Deviation	Std. Error Mean
Medical diagnostic services request forms Abomsa	653.000	88.500	21.500	0.841
Medical diagnostic services request forms Batu	875.000	69.000	27.550	0.931

Independent Samples Test

	Mean Difference	Std. Error Difference	T	Df	Sig. (2-tailed)
Equal variances assumed	19.500	1.300	14.997	1526.000	0.000
Equal variances not assumed	19.500	1.255	15.536	1522.960	0.000

Hartley test for equal variance: F = 1.642, Sig. = 0.0000

An independent sample t-test was conducted to compare the medical diagnostic request variables of Abomsa and Batu hospitals. The mean completeness of medical diagnostic service record for Abomsa Hospital and Batu Hospital accordingly. There was significant difference df. 3.418, P 0.000 in the score with mean score of Abomsa Hospital 50.00 and SD 5.000 was higher than Batu General Hospital mean score of 33.000and SD 5.000 the magnitude of difference of mean 50 .000 at 95% CI to 33.000 was significant.

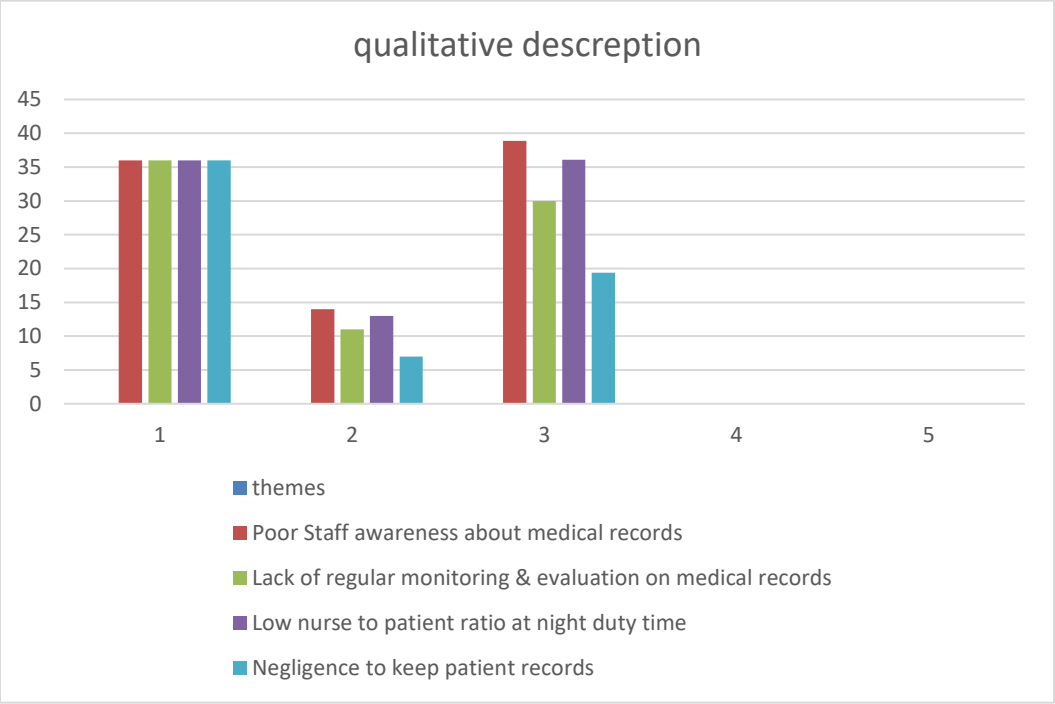
5.2 Qualitative Descriptions

Focus group discussions were carried out to assess the responses of the key informants of the two Hospitals about inpatient medical record completeness in Abomsa and Batu general Hospitals. The FGDs were held at two general Hospitals in Oromia regional state. Each FGDs consists of three distinct groups namely, IPD care providers group composed of four ward coordinator nurses, one internist and one clinical pharmacy professional, Hospital triage group composed of five medical record unit workers and one liaison officer and hospital management group composed of chief clinical officer, hospital quality officer, matron and HMIS focal person at both Hospitals and the responses of the key informants were summarized in four themes, namely poor awareness about medical record, lack of regular monitoring and evaluation on medical record completeness, high nurse to patient ratio at duty night duty times and negligence.

On FGD held at Abomsa general Hospital (44.4%) participants responded that there was poor staff awareness about medical record in general and in patient medical record completeness specifically. And 38.9% of FGD participants responded poor staff awareness about medical records at Abomsa general Hospital. One participant from Abomsa hospital IPD department added that he recently joined the Hospital from rural health center and he didn't know anything about inpatient medical records.

27.7% ,33.3% of FGD participants about inpatient medical record completeness at Abomsa General hospital and Batu general hospital respectively, responded that monitoring and evaluation regarding inpatient medical records was not enough to cope with the national standards. And an internist from Batu Hospital added that there are many discussions and supervisions in our hospital but really there was no any supervision and feedback given to us regarding to inpatient medical records.

38.9% and 33.3% of FGD participants at Abomsa general and Batu general hospital respectively, responded that high low nurse to patient ratio at night duty time which led nurses not to keep all necessary patient records at inpatient department. Matron from Abomsa hospital explained that even though there is high work load at inpatient department there is also negligence among nurses to keep medical records appropriately.



6.DISCUSSION

This study shows that the inpatient physician note, physician order have high rate of completeness as 92% ,69% in Batu and Abomsa general Hospitals respectively whereas, the study conducted in SPHMMC shows higher rate of inpatient physician note completed 96% (17). The study also shows that medical diagnostic records completeness level of 89% and 88.5% in Batu and Abomsa General Hospital respectively while the national standard for medical records completeness is 100% (1). This study again shows that medication administration completeness of 76% and 56.3% in Batu and Abomsa General Hospitals respectively. There is no evidence of allergic information record at Abomsa general Hospital. Whereas study conducted in in Dalefage Hospital Afar region shows only 55% which is lower than the finding of this study (15). The level of completeness of discharge summary was 72% and 65.9% in Batu and Abomsa Hospital respectively. another study conducted in Menelik II Hospital showed that discharge summary was completed as 87 % which is greater than Batu and Abomsa. According to this study nursing care plan completeness was 70% and 60.5%.The same Study conducted at Menelik II Hospital evidenced that nursing care plan completeness was 70.3% (4). On FGD held at Abomsa general Hospital (44.4%) participants responded that there was poor staff awareness about medical record in general and in patient medical record completeness specifically. And 38.9% of FGD participants responded poor staff awareness about medical records at Abomsa general Hospital. One participant from Abomsa hospital IPD department added that he recently joined the Hospital from rural health center and he didn't know anything about inpatient medical records. There was large discrepancy among departments in their medical record completeness and Clinical pharmacy evidences are not recorded at both Hospitals yet while there were clinical pharmacy professionals at both hospitals. Which implies giving due attention to all medical records and standardization.

7. CONCLUSION

The highest score of this study was physician note and physician order in both Hospitals and even if it was not complete it was comparable to the results of high performing Hospitals in Ethiopia. The lowest finding of this study was Clinical pharmacy evidences are not recorded at both Hospitals. According to this study, poor staff awareness about medical records, lack of regular monitoring and evaluation regarding to medical records, low nurse to patient ration at night duty time and negligence to keep medical records among some staffs were identified as problems. It is possible to conclude that attention given to medical records from Hospital officials was insufficient to meet the MR management standards. All staffs should well understand about the importance of MRs and continues follow up and audits should be conducted to ensure medical record completeness. These critical benefits of MRs can be achieved if and only if they are complete to convey the intended information.

8. RECOMMENDATIONS

The hospitals and the regional health bureau as well need to give emphasis for the completeness of inpatient medical records as it plays great role in quality of healthcare. Hospitals should create awareness on medical records and monitor the performance of their departments specially on medical records and the identified causes to alleviate the problems related to MRs incompleteness and should reward best performing individuals and departments. Regional health bureaus and partners should facilitate training and assess the nurse patient ratio in hospitals and make reforms to enhance better medical records management.

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Annex I. DATA COLLECTIO0N TOOL

COMPLETENESS OF INPATIENT MEDICAL RECORDS OF TWO GENERAL HOSPITALS, OROMIA REGIONAL STATE, CENTRAL ETHIOPIA: THE CASE OF BATU AND ABOMSA

OBSERVATION CHECKLIST FOR INPATIENT MEDICALRECORD COMPLETENESS AS ADAPTED FROM DIFFERENRT LITERATURES

BY GEZAHEGN NIGUSSIE (MHA STUDENT)

DIRECTION

I. Put **1;** Infront of each question if the entry is completed and signed

II. Put **0;** Infront of each question if the entry is not completed

III. Tick under **yes** column if all of the entries were completed and signed in subtotal Row

IV. Tick under **No** column if any of the entries were not completed and in subtotal Row

I. Medical record completeness review Form

Unique Medical record number _____

Date of discharge from Hospital, _____Ward_____

Sn.	**Section I. Medical record management assessment checklist**	**yes**	**No**
001	Is the location of the MRD accessible for all users of its service?		
002	Is there an up-to-date organizational chart showing lines of reporting and authority?		
003	Does the MRD have enough space to handle all its functions properly?		
004	Does the design consider basic environmental conditions (i.e., ventilation, light, heat, moisture)?		
005	Are active and inactive filing areas provided?		
006	If filing shelves are too high to be reached from the floor, is there a method provided to reach the files on the top shelves?		

007	Is there medical record access policy?			
Section II. medical record completeness checklist				
1	**Physician note**			
	008	Chief complaint		
	009	Intervention made		
	010	Patient response to the intervention		
Subtotal				
2	**Physician order**			
	011	Patient name		
	012	Drug name, dose, route and frequency		
	013	Date, time and signature		
Subtotal				
	Nursing care plan			
	014	Problem identified with date and time		
	015	Date and time problem resolved		
	016	Provider`s name and signature		
Subtotal				
4	**Medication administration sheet**			
	017	Diagnosis		
	018	Name drug		
	019	Dose and route of administration		
	020	Frequency of administration		
	021	Allergy information		
	022	Name of prescriber and giver date and signature		
Subtotal				
5	**Discharge summary sheet**			
	023	Chief complaint, past medical history, and physical examination		
	024	Medication and treatment given		
	025	Condition at discharge, date and time of next follow up		
	026	Advice on discharge, date and sign of doctor will be checked		

Subtotal				
Clinical pharmacy records				
	027	Medication profile recording form		
	028	Pharmaceutical care progress note record		
	029	Medication reconciliation record		
Subtotal				
Medical diagnostic services request forms				
	030	**Laboratory request completeness**		
	031	**Radiology request completeness**		
	Total			

COMPLETENESS OF INPATIENT MEDICAL RECORDS OF TWO GENERAL HOSPITALS, OROMIA REGIONAL STATE, CENTRAL ETHIOPIA: THE CASE OF BATU AND ABOMSA

II. FOCUS GROUP DISCUSSION GUIDES FOR FACTORS RELATED TO MEDICAL RECORD COMPLETENESS AS ADAPTED FROM DIFFERENRT LITERATURES

BY

GEZAHEGN NIGUSSIE (MHA STUDENT)

PART ONE MEDICAL RECORD STORAGE SAFETY		
SN	VERIFICATIONS	RESPONSES
1	. Could you please describe the main challenges to complete inpatient medical record completeness for inpatient admitted patients based on seven standardize formats (Patient Card (Physician Notes), Progress note, Physician Order sheet, Nursing Care Plan, Medication Administration Record, Discharge summary, and clinical pharmacist record)?	
2	Could you please describe the participation of inpatient department coordinator, case manager, and hospital management team on the activity of inpatient medical record completeness for admitted patients?	
3	In your own opinion, what will be the solutions to complete inpatient medical records for inpatient admitted patients based on seven standardize formats(Physician Notes), Progress note, Physician Order sheet, Nursing Care Plan, Medication Administration Record, Discharge summary, and clinical pharmacist record) ?	
4	IF you have additional idea	

Annex .2 Nursing care plan

Name_____ father`s name_____ Address MRN Age Tele. sex	_____Hospital Ward Bed number			
Date identified and time	Problem	Sign. & Designation	Date and time resolved	Signature &designation

Annex 3. Medication Administration Record

Name _____

MRN_____

Ward_____

Diagnosis				**Allergy**			
date	Medication name, dose, route & frequency	Time given	Given by	Time given	Given by	Time given	Given by

Annex 4. Abomsa General Hospital and Batu General Hospital IPD Profile

Sn.	Variables	Abomsa	Batu
1	**Professional mix**		
	Number of specialists	2	3
	Number of GPs	10	16
	Number of nurses	43	50
	Number of Lab staffs	5	9
	Number of Pharmacy staffs.	7	11
	MRU staffs	11	10
2	Total number of Beds	66	60
3	**IPD service volume**		
	SW	131	153
	MW	192	200
	Gyn	284	269
	PD	161	146