COLLEGE OF MEDICINE AND HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

QUALITY OF MEDICAL RECORDS IN PUBLIC HOSPITAL OF WOLAYTA ZONE, SOUTH ETHIOPIA: 2023 MIXED STUDY

BY –MUHIDN JEMAL (BSc)

A REASERCH THESIS SUBMITED TO HAWASSA UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCE SCHOOL OF PUBLIC HEALTH IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF MASTER OF PUBLIC HEALTH IN HEALTH SYSTEM MANAGEMENT.

23 December 2023

HAWASSA ETHIOPIA

HAWASSA UNIVERSITY COLEGE OF MEDICINE AND HEALTH SCIENCES SHOOL OF PUBLIC HEALTH.

QUALITY OF MEDICAL RECORDS IN PUBLIC HOSPITAL OF WOLAYTA ZONE, SOUTH ETHIOPIA IN 20223

INVESTIGATOR –MUHIDN JEMAL

A THESIS PAPER SUBMITED TO HAWASSA UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCE SCHOOL OF PUBLIC HEALTH IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF MASTER OF PUBLIC HEALTH IN HEALTH SYSTEM MANAGEMENT.

ADVISOR

Mr.AKALEWOLD ALEMAYEHU (ASSISTANT PROFESSOR).

CO-ADVISOR

Mr.TEREFE MARKOS.

23 December 2023

HAWASSA ETHIOPIA

ADVISOR APPROVAL SHEET

This is to certify that a thesis paper entitled "QUALITY OF MEDICAL RECORDS IN PUBLIC HOSPITAL OF WOLAYTA ZONE, SOUTH ETHIOPIA: 2023" submitted in partial fulfillment of the requirement for the degree of MPH in health system management, the graduate program of the school of Public Health, and has been carried out by Muhidn Jemal ID N^{o}-GPHSMR/0004/14 under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit the thesis paper to the school.

Principal investigator: _____Signature: _____ Date: _____

This thesis will be submitted for examination with our approval as advisors

Main advisor: _____Signature: _____Date: _____

Co-advisor: _____Signature: _____ Date: _____

EXAMINERS' APPROVAL SHEET

We, the undersigned, members of the Board of Examiners of the final open defense by ____ Muhidn Jemal have read and evaluated his/her thesis entitled "QUALITY OF MEDICAL RECORDS IN PUBLIC HOSPITAL OF WOLAYTA ZONE, SOUTH ETHIOPIA: 2023" MIXED STUDY and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree.

Name of Major Advisor _____ Signature _____ Date _____

Name of Internal Examiner -1_____Signature _____ Date _____

Name of Internal Examiner-II _____ Signature _____ Date _____

Name of External examiner _____ Signature _____ Date _____

SGS Approval _____ Signature _____ Date _____

Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of Graduate Studies (SGS) through the Department/School Graduate Committee (DGC/SGC) of the candidate's department.

Stamp of SGS Date:_____

ACKNOWLEDGMENT

In every Beginning I would like to give great thanks for the Almighty Lord and I have great thanks to Hawassa University gives me chance to study on this title and I Have also a great thank fullness for my advisors Mr.Akalewold Alemayehu and Mr.Terefe Markos for their devotion in order to have these successive thesis paper developments, I would like to thank Hawassa University school of public health for giving me a golden opportunity to prepare this thesis.

TABLE OF CONTNET

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYM

ACRONYM	DETAILS
CI	Confidence Interval
HIT	Health Information Technicians
HSE	Health Service Executive
HSTP	Health System Transformation Guideline
IT	Information Technology
MoH	Ministry of Technology
MPI	Master Patient Index
MR	Medical Records
MRD	Medical Record Department
MRO	Medical Record Officer
MRU	Medical Record Unit
N-GOs	Non-Governmental Organization
PH	Primary Hospitals
SNNPRs	South Nation Nationality Peoples Regions
WHO	World Health Organization
WSUSCH	Wolaita Sodo University Comprehensive Specialized Hospital

ABSTRACT

Background – Medical record is a multifunctional document that is used to communicate and document critical information about patients' medical care among health care professionals. Medical record completeness is a key performance indicator that is related with delivery of health care services in the hospital. Medical recording system has faced challenges related with resources and lack of infrastructure in worldwide trend. Studies have indicated that medical record systems are lacking medical record management quality in low income countries.

Objective- To asses quality of medical records in public hospital of Wolaita zone, south Ethiopia, 2023

Methods- Institutional based cross-sectional study concurrently with qualitative study using stratified sampling method was conducted from March 1-15, 2023. A purposive criterion sampling method key interview method was used qualitative data. A total of 406 Medical records were reviewed at three public hospitals in Wolaiyta zone. Review of medical records was done using a checklist and key informant interviews of health professionals and medical record staff. The quantitative data were collected kobo toolkits and exported and analyzed by SPSS version 26.0.the qualitative data was collected analyzed manually by thematic analysis.

Results. A total of 406 medical records were reviewed during data collection period of medical records of three public hospitals, with 100% retrieval rate. In the assessment of quality of medical record, clinical components were lowered (76%) compared to Administrative components (87%).Majority of the respondents said that|"… Since lack of regular monitoring and evaluation process, there was problem in quality of medical records in the hospital According to the expected national standard, the study also showed that average quality of medical records of the study area was 68%. Records tertiary hospitals were 44.5% less likely to be quality record as compared to records in primary hospitals

Conclusion: The majority of medical records had poor completeness of administrative data, clinical, financial, and legal contents. The overall quality of medical records in Wolaita Zone was very low for components of the quality of medical records as per the standard of hospital requirements.

Keywords- Quality, medical records, hospitals, medical records.

1. INTRODUCTION

1.1. BACKGROUND

Medical record (MR) is the chronological, organized and comprehensive documentation of services delivered by service providers to the patient/client (1). It is a means of communication among health professionals, a legal document, and a tool for medical research and training(1). It is also the primary means of evaluating the quality and appropriateness of medical care rendered, as well as a source document for statistical use in research, planning budgeting and financial activity involving patient care (1,2).

Medical record completeness is a key performance indicator that is related with delivery of health care services in the hospital(3). 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(3). The completeness of this medical record is a measure of the quality of care provided at the hospital (4).

Medical Records (MR) are kept either as Paper-based Medical records (PMR) or as Electronic Medical records (EMR)(5). MR is expected to be complete and accurate to be useful as a reference inpatient care, protection of the legal interest of the patient, physician, and the facilities, and meeting regulatory requirements for standard and researches (6).

Health system generates huge volumes of data every day that may cost up to 30% of the total health budget(3). The goals of recording information in medical records are to support the delivery of good care, clinical decision-making, communication between healthcare workers, continuity of care, scientific research, quality assurance and transparency of the delivered care(7).

MR is potentially very important for the development of the health sector particularly in Ethiopia. Ethiopia has also poor health data status similar to other low-income countries, even within Sub-Saharan Africa(8). The country has set out different strategies to improve the quality of records to provide safe, effective, patient-centered, timely, efficient and equitable medical service(8). Provision of standardized medical record is one of the components to consistently

ensure and improve the outcomes of clinical care, patient safety and patient centeredness service for present and future follow up of health for all the Ethiopian population(9,10).

Government has strong commitment to improve health care quality(3). Achievement of quality care service requires addressing the problems that are associated with medical record incompleteness. the aim of this project is to find practical solution for the problem related with inpatient medical record incompleteness .in the inpatient setting some of the important pieces of inpatient documentation include history & physical, progress notes, orders, procedure reports and discharge summery. According to key performance indicator standard only 5 medical documentations (clinical formats) are essential for medical record completeness. The completeness of this medical record is defined as a proportion of the five minimums elements of an inpatient medical record which are:- Patient care (physician notes) –all present and all entries signed, Physician/health officer order sheet –all present and all entries signed, Nursing care plan –present and signed, Medication administration record –present and all medications given are signed, Discharge summary present and signed. These five items represent the minimum set of documents that should be present and signed in the medical record of every discharged inpatient. The percentage of completeness of 5 items was used in this study(4).Low quality of medical record management affects the quality of patient care. Poor quality of the information in patient MRS may result in poor quality of care and associated with higher rates of adverse events(7).

Retrieving of medical records is one of the aspects of quality medical records management. Studies conducted in Ethiopia noted that the average time needed to retrieve medical record number was two minutes, unable to find medical records (20%), average time to retrieve medical records was 4.7 minutes and number of missing medical records compared against registration log book was 25%(11)

Currently, the emphasis of health systems development aims at the district level and supporting strong data systems and feedback loops as “backbone” of all improvement actions is one of the four transformation agendas in the Health Sector Transformation Plan (HSTP) (12). However, different stakeholders feed backs and 2021 annual reports of the district health office and Zone health department shows that there were information gaps in wolayta Zone due to poor quality of medical record and factors related to incompleteness of components of medical records. .

1.2 STATEMENT OF PROBLEM

The goals of recording information in medical records are to support the delivery of good care, clinical decision-making, communication between healthcare workers, continuity of care, scientific research, quality assurance and transparency of the delivered care (7).

To be useful, data in a medical registry must be of good quality, meaning it should be complete, legible, reliable, accessible and timely. Medical records are of no value to medical science or health care management if they are not accurate, reliable and accessible. For these reasons, data utilized must be monitored for its quality (13).

Medical recording system has faced challenges related with resources and lack of infrastructure in worldwide trend. Studies have indicated that medical record systems are lacking medical record management quality in low income countries (14).

Medical record studies have showed (14%) of returning patients could locate their medical records and only (6.5%) of medical records contained complete patient information due to problems such as duplication, incompleteness and inaccuracy of clinical information in Ethiopia (15).

Incomplete, missing sheets, illegible handwriting, and the use of confusing abbreviations were major drawbacks of paper-based medical records. Some of these have been reported as common sources of weakness in a surgeon's defense in medico-legal(16).Ethiopia, including the study area , has been implementing HMIS at all levels of health system and standardized indicators, data collection and reporting forms, and procedures.(7,17).

Several studies were conducted on the documentation of MRS in other countries (18), whereas in Ethiopia few studies were conducted even though it is not directly related to the assessment of the quality of MRS (5).

As it is known patient MR is initial point of patient data production and primary source for all health information related to patient care and have high effect on quality of other health information, health service quality, way of decision making and resource allocation(8).

However, the issue has not been studied yet at wolaita Zone. The annual district reports have mentioned that problem related with incompleteness of healthcare medical records and patient

information either being incorrectly filled or being recorded improperly. The reports have also indicated that the need to improving the poor medical recording system and the direction in comply with international and Ethiopian medical record standards. To do so, the investigator initiated this research to assess the existence of quality medical record and to indicate the necessary measures to improve the health data management system.

Therefore, this study was intended to assess the quality of medical record in terms of completeness, accessibility, retention and durability, storage, security, supplies, equipment and human resources in public hospital, wolaita Zone.

1.3 Significance of study

The Medical Record may serve as the documentation of the healthcare services provided to a patient. Poor handling of medical records are the major challenging area especially in developing countries. This problem is also an obstacle in providing quality and effective health service in hospitals and other health institutions in Ethiopia and the Wolaiyta zone. Therefore, this study aims to explore the quality of medical record at public hospitals in Wolaiyta zone. Exploring medical records at public hospitals helps to show their status in the quality of MR management, share best experience among the hospitals, enables decision makers and health care professionals to show their gaps in the quality of medical record management in their health care set up and has a contribution to reporting and monitoring and evaluation system of the country as a whole. It also provides baseline information and direction for further research activities in the area.

2. LITERATURE REVIEW

2.1. MEDICAL RECORD

Medical record is an account compiled by physicians and other health professionals of a patient`s medical history, present illness, findings on examination, details of treatment and progress notes and it is a legal record of care. Primary records are the original records established to document the continuation of care given to a beneficiary and three categories for primary records health record, out patient record and inpatient record(19).

MR is a multifunctional document that is used to communicate and document critical information about patients' medical care among health care professionals. Comprehensive medical records are a cornerstone in the quality and efficiency of patient care during the hospitalization and in subsequent follow-up visits, as they can provide a complete and accurate chronology of treatments, patient results and plans for care(8,14).

Several studies were conducted on the documentation of MRS in other countries.(18)As identified by study conducted in Hadiya Zone soro district completeness of data format and consistency of data were found to be significantly associated with utilization of health information system .(20) and also study at jimma zone show poor completeness of administrative data, clinical, financial, and legal contents(21)

Hence this study aims to assess the quality of medical records in dimension of quality in terms of completeness, availability, and usability in public hospital of wolaita Zone.

2.2. DIMENSION OF QUALITY

2.2.1. Completeness of medical record

Medical record shall be maintained in written form for every patient seen at all points of care including emergency, outpatient, labor & delivery, inpatient and operation theatre(22).

The medical record shall contain sufficient information to identify and assess the patient and furnish evidence on the course of the patient's health/medical care. The record shall include accurate and legible documentation of any local health department activity involving or affecting the patient's health. All medical records must be maintained in a standard format with entries and forms filed in chronological order with the most recent on top(23,24). A retrospective study performed in Lazio, Italy, showed that completeness was good in 70.8% of the documents (25). With regard to completeness of MR, In Tanzania over 50% of the inpatient MRS sections are considered incomplete. With regards to the individual sections, attending doctor, procedures, and summary-of-a day were the most poorly completed, and the Follow-up sheet was not recorded (26). . A study conducted in hospitals found that in the rural parts of Ethiopia only 45.7% of MRs were complete (27).Though the standard for completeness of MRs is expected to be 100%, inpatient MR completeness was found to be 73% in Menelik II referral hospital. The study also found that knowledge gaps and a shortage of MR formats were the root causes of incomplete inpatient MR (5).

According to Ethiopian hospital(primary, general and comprehensive) requirement standard each medical record shall has four(synthesized form)(20) major sections or components of contents(22,28,29).

Administrative data content

Each medical record shall at least contain the following information: Identification (name, age, sex, address)(22,28,29).

The legibility of hand writing of medical records has a great importance in the patient's quality of health care service. Studies carried out in south west Spain on the illegibility of hand writing showed that 15% were so illegible that the meaning was unclear(30)

Correct identification is needed to positively identify the patient and ensure that each patient has one medical record number and one medical record. In addition, based on the standards the health center shall establish a master patient index with a unique number for each patient that help to get MR easily from the shelf(14).

Clinical data contents

Admitted or treated outpatient or emergency patient's information include:-History, physical examination, investigation results and diagnosis ,Medication, procedure and consultation notes ,Name and signature of treating physician, Consent form where applicable which shall be signed by the patient. In case where someone other than the patient signs the forms, the reason for the patient's not signing it shall be indicated on the face of the form, along with the relationship of the signer to the patient(22,28,29).institutional based cross sectional at jimma zone health facility shows Clinical data completeness is 55.62%(21).

Legal data contents and financial content

Original medical records shall not leave hospital premises unless they are under court order or in order to safeguard the record in case of a physical plant emergency or natural disaster. If a patient or the patient's legally authorized representative requests, in writing, a copy of the medical record shall be given (22,28,29). In all centers, patients' names and consultants in charge (especially where patients emanated from the wards) were stated on all request forms. However, there were variable non-documentation of patients' age, sex, and hospital number, date of request, requesting doctor's identities and the clinical diagnoses (6).Also, legal data including a signed consent for treatment by appointed professionals and authorization for the release of information. This help to defend and protect the best interests of the physician and patient in the event of a malpractice action(8). According to study at Nigeria (cross sectional) 27.2% - 33.2% of the requests, clinical information was inadequate or not provided(6).

2.2.2 Access

Medical record officers and clerks should have sufficient basic education to enable them to file accurately in both alphabetical and numerical order, and to spell patient names correctly.(14)

Evidence-based standards and a (electronic) format for record keeping are necessary for standardization of recording patient information. This will improve the completeness, readability, accessibility, accuracy and exchange of patient information between healthcare providers and institutions(7)

Medical records are only accessible to: -Health care personnel currently providing care, Staff involved in patient safety, the investigation of complaints, audit activities or research, Staff involved in urgent public health investigations for protecting public /consistent with relevant legislation, Patient / client to whom the record relates, or their authorized agent, Other personnel/ organizations/ individuals who are lawful order authorized by legislation.(22,28,29)

2.2.3 Timeliness

Timeliness is measured by the WHOs receiving facilities' reports by the predetermined deadlines(28).

According to Ethiopian hospital requirement guideline -Human memory tends to fail. Hence, it is imperative that all documentation regarding patient care must be done as soon as the treatment or care is given. Otherwise, the information taken from the patient may be recorded wrongly through time(22,28,29).The study at SNNPR implies five out of eight in Kembata Tembaro zone did not have records to measure timeliness. The 14 health facility had records of report receipt and showed 77% of the health facilities met the reporting deadline(17).

2.2.4. Storage and security

Any medical record shall be kept confidential, available only for use by authorized persons or as otherwise permitted by law(31) .

Medical records are stored in a well-designed, secure area, which is free of obvious hazards, is protected from fire and flooding and has stable levels of temperature and relative humidity. They are usually kept for long periods and may in some cases be selected for extended preservation. Suitable physical facilities safeguard the records from damage and destruction, optimize retrieval of records when required and provide a safe working environment [3]. When a medical record is taken out and returned to the record room, it shall be documented to create a good tracking mechanism.(32)

Cross sectional study at jimma zone finding shows Among the 36 health facilities, only one had a printer in the record room and three (8%) had tracer cards(16)

When a medical record is taken out and returned to the record room, it shall be documented to create a good tracking.(22,28,29)

2.2.5 Supplies and equipment

The Medical record room shall have:- Shelves made from metal and must be fire proof, Master patient index boxes, Computer, Cart ,Ladder, Water proof patient folder ,MPI Cards ,Log book ,Fire extinguisher(22,28,29).

Cross sectional study at jimma zone finding shows Among the 36 health facilities, only one had a printer in the record room and three (8%) had tracer cards(16). In terms of necessary equipment, 29 (81%) of the facilities had a Master patient index (MPI) box, and 32 (89%) had shelves, despite the fact that the bulk of the facilities (75%) lacked photocopy machines and printers (97%)(16).

2.2.6 Professional

Medical record department has shall be: - a full-time medical record personnel (Health Information Technician) with basic computer skill and ability to organize medical records responsible for medical records management. The number of MR department personnel in most hospitals is insufficient to perform effectively the functions assigned to the department (1).other additional staffs (like card sorter and runner) to perform patient registration, retrieving, filing and recording chart location(28).

The actual number of staff shall be determined based upon the total number of active charts in a day (Workload analysis).according study in Jordan MR department personnel in most hospital is insufficient to effectively perform assigned functions. In four hospitals, the ratio of MR staff to hospital beds was 1:12 beds; in two hospitals, it was 1:14. In Zerka hospital and Al-Hussein hospital the ratio was 1:30 and 1:15 respectively. The reported average ratio in the literature is 1:5-1:8 and Five hospitals have no staff qualified in MR and about 25% of MR staff in four hospitals has low educational levels (below elementary school)(1).the study at jimma zone shows Twenty-eight (40%) of the MRU personnel were diploma holders, followed by grade 10 completion, 27 (38.6%). Among the total number of MRU personnel in the districts, only 14 (20%) had computer skills and 18 (26%) had received in-service training on MRU procedures(16).

The hospital shall provide basic training on medical record keeping to the staffs(22,28,29).

2.2.7. Space

There shall be a separate medical record room -The premises shall have one meter wide space in between and around shelves. The medical records shall be shelved 20-30cm above from the floor(28).

The medical record room shall have adequate space to accommodate the following: -central filing space, Work space, Archive space, Supply/Storage room

The medical record room shall have adequate light and ventilation

The medical record room shall be built far from fire sources -There shall be a room for archiving dead files until they are permanently destroyed(22,28,29).

Also study done by hadiya zone soro district shows according to the standard, 13(81%) respondent noted that there is no specific storeroom for medical record department in the health centers(20)

CONCEPTUAL FRAMEWORK

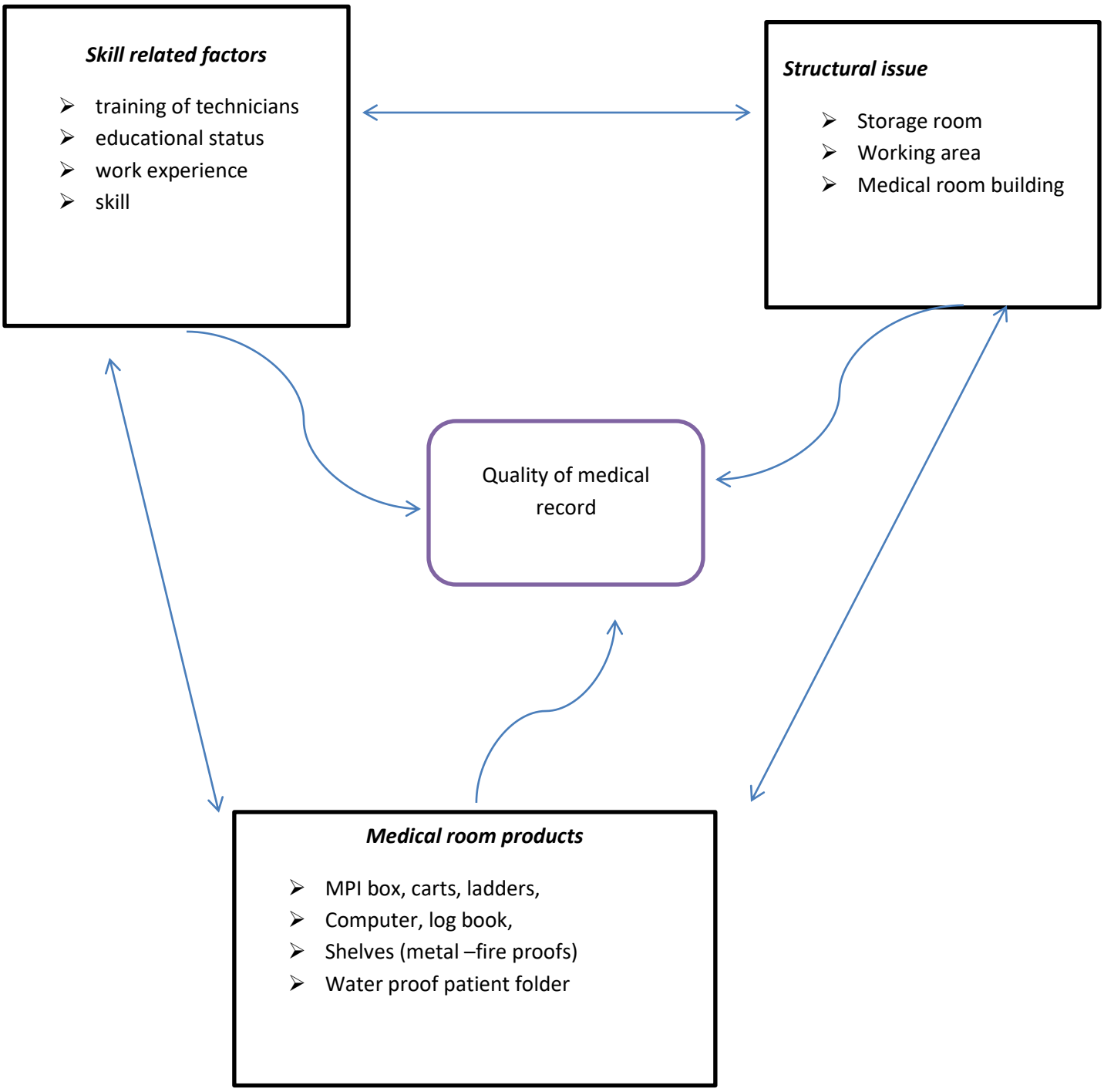


Figure 1 Conceptual framework (Developed based on literature review(20,21,25)

3. OBJECTIVES

3.1 GENERAL OBJECTIVE

- To asses quality of medical records in public hospital of Wolaiyta zone, South Ethiopia ,2023

3.2 SPECIFIC OBJECTIVE S

- To determine quality of medical records in public hospital of Wolaita zone, SNNPR Ethiopia January to May in 2023
- To explore factor that affect the quality of medical records in public hospital of Wolaita zone, South Ethiopia January to April in 2023

4. METHODOLOGY

4.1 STUDY AREA

The study conducted in Wolaita Zone, south Ethiopia. Wolaita zone is located at a distance of 153km from capital of SNNPR (Hawassa) and 328Km south of the capital city (Addis Ababa). Wolaita Zone is administratively divided into twelve districts and three town administration .The Zone has 6 primary hospital 2(private) 2(NGOs) 1 comprehensive tertiary hospitals, 71 health centers, 372 health posts and 98 private clinics .Based on the projection of 2007population and housing census the population of Wolaita Zone is about 1888,390 in 2014, out of which 50.73 is female and 49.27 is male and 96.31% are Wolaita ethnic groups.

Zonal town (sodo) is pathway for many travelers and tourists since it has five transportation gates to the nearby zonal towns .the major economic activities are agriculture (production of legumes ,root crops and some cereals –predominantly maize),and livestock's rearing which is source of income for about 88.5% of population(33).

4.2 STUDY PERIOD

The study conducted from March to April 2023.

4.3 STUDY DESIGN

An institutional based cross-sectional study supplemented by qualitative method concurrently was done.

4.3 POPULATION

4.3.1 Source population

4.3.1.1Quantitative data

All medical records of patients of public hospital at wolaita zone..

4.3.2 Study population

4.3.2.1 Quantitative data

All medical records from those produced during data collection period in selected pubic hospital at Wolaita zone .

4.3.2.2 Qualitative data

All hospital medical director, case team coordinators, and medical records personnel's at selected public hospital of Wolaita zone.

4.3.3 Inclusion and exclusion criteria

4.3.3.1 Inclusion criteria

A medical record of those patients attending the selected hospitals in the last one year was included.

4.3.3.2. Exclusion criteria

Professionals who were not in hospitals before one year had not included as key informants.

4.4 SAMPLE SIZE AND SAMPLING TECHNIQUE

4.4.1 Sample size determination

The sample size for quantitative study was calculated by using a single population proportion formula based on the following assumptions. The proportion of medical records having quality was estimated to be 40 %(institutional - based cross-sectional studies from a previous study conducted in Hadiya zone soro district which gives maximum sample size(20).

$$n= (z \alpha/2)2\ p\ (1-p)/d2$$

Where;

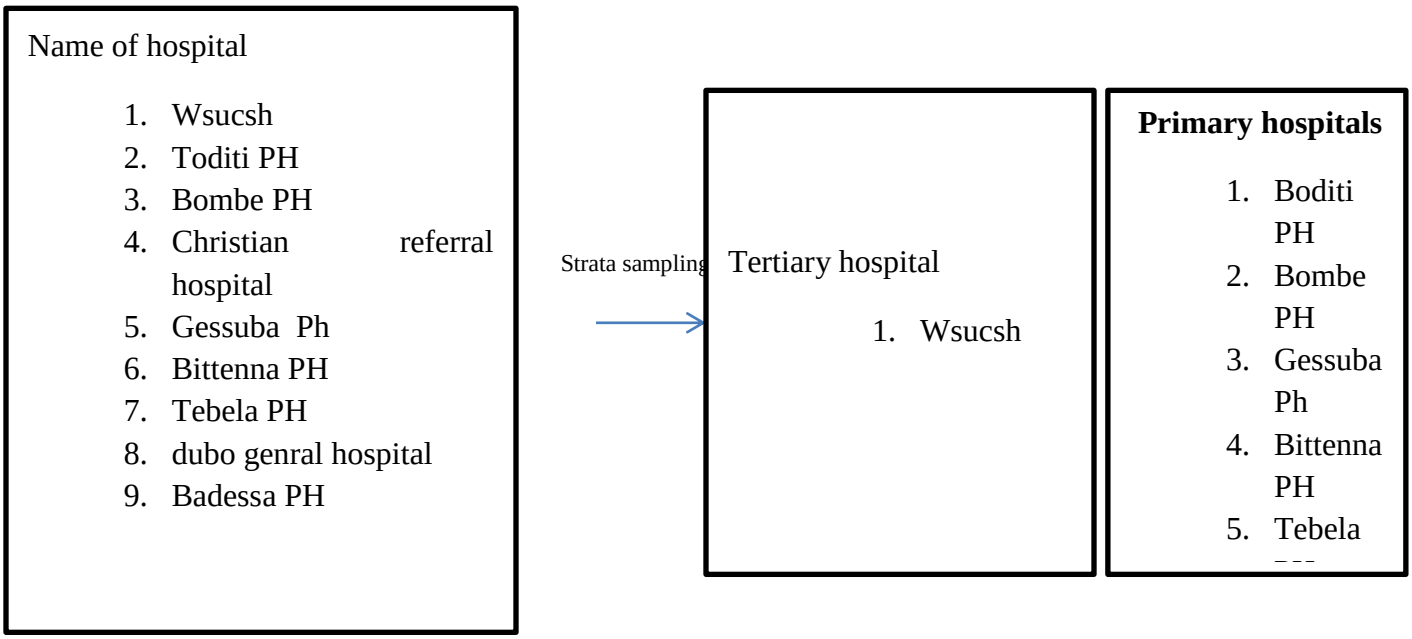
- n =sample size.
- D 2 = marginal error.
- Z (α/2) at CI of 95% i.e.1.96.

By considering 95% level of confidence and 5% margin of error, the minimum required sample size was found to be 406 medical records.

The sample size for qualitative study was determined purposively considering head of hospitals , case team coordinators and medical record personnel from each selected hospitals(until saturation of idea).

4.4.2 Sampling procedure

Public hospitals were stratified into tertiary hospital and primary hospitals. Then study hospitals were selected randomly from each stratum. Next using proportional to size allocation method the required sample size were taken from each of the selected hospitals, and the observation unit (MR charts) were selected from each hospital using systematic random sampling technique. The total medical records were 20200 of these wsucsh (15000), Tebela primary hospital (3200) and Boditi primary hospital (3200).Total sample size were 406 medical records of these wsucsh (301), Tebela primary hospital (64) and Boditi primary hospital (41).The first card was selected using lottery method from 25 medical records selected form registration book, then the interval between the cards were every 25 cards until the required sample size were collected. In addition, 19 key informants (3 hospitals head and 16MR personnel and Case team coordinators) were select considering their experiences in the selected hospitals, and year of delegation for responsibility at hospitals for supporting the reviewed data and to assess the dimensions of medical records quality.



S.No	Name of selected Hospitals	N= Total Out Patient Per capita three hospitals	Ni=Outpatient Per capita of One Month	N= 406 Total Sample Size	(Ni*N)/N =Proportional Allocation to Each hospitals
1	WSUSCH	20200	15,000	n=406	301
2	Tebela primary hospital		3200		64
5	Boditi primary hospital		2000		41

4.5. Data collection tools and procedures

4.5.1 Data collection tools

Data was collected through data gathering tools (key informant interview guide) from literature review and experts for qualitative and document review (checklists) for quantitative that was prepared based on the standard for Ethiopian hospitals requirements.(22,28,29)

4.5.2 Data collection personnel

One supervisor with background of BSc nursing was assigned as supervisor. Four BSc nurse were recruited from WSUCSH as a data collector. Training was given for data collectors and supervisor for two consecutive day on the purpose, technique of data collection, art of interviewing and supervising, objectives of the study and how to get informed consent to conduct in-depth interview.

4.5.3 Data collection method

4.5.3.1 Quantitative data

Medical records of patients were reviewed by using checklist from folders. The questionnaire and checklist was developed by reviewing relevant literature(20) and standard guidelines (4,34).

4.5.3.2 Qualitative data

In-depth interview and interview checklist was used. I used also a semi-structured open interview guide with a flexible probing technique. It was initially developed in English, translated to Amharic (local and national language), and back-translated into English to ensure consistency. Participants were encouraged to speak and express their ideas freely and describe their experiences with cases related to the topic. All interviews was conducted by the author in Amharic, tape-recorded, translated, and, transcribed verbatim on the same day of the interview. Interviews of participants continued until saturation was reached, meaning the investigator agreed that there will be redundancy in the responses and there will no new ideas emerging.

4.6. Study variables

- ✓ Medical records quality
- ✓ Socio-demographic characteristics
  - Educational status
  - Work experience
  - Computer skill
  - Training related to MR
- ➢ Supplies and equipment.
- ➢ Space.

4.7. Operational definitions

- Medical Record: is a written medical document of patient or client by authorized service provider of health institution.
- Completeness of medical record- The medical record shall contain sufficient information to identify and assess the patient and furnish evidence on the course of the patient's health/medical care.
- Administrative data: is a data includes patients' medical identification/demographic data.
- Timeliness is measured by the WHOs receiving facilities' reports by the predetermined deadlines.
- Good quality MR: the medical record is labeled as having good quality if greater than or equal to eighty percent (≥80%) of the major components are completed properly, otherwise poor quality(34).
- % of completed quality medical record = Total Score (yes`s) / (Number of cards checked for quality × number of contents) (Taken from: Federal hospital performance monitoring and improvement manual and EHAQ(35)).
- Qualified Medical Record Personnel: an employee who is full-time custodian/medical record personnel (Health Information Technician) with basic computer skill and ability to organize medical records responsible for medical records management.
- Adequate Human resource –five and above MR staff and at least with educational status of grade 10 completed and computer skill.
- Inadequate Human resource – four and less MR staff and have educational status of less than grade 10 completed and didn't have computer skill.

4.8. Data processing and analysis

Quantitative part: The data were collected and cleaned by kobo toolkit and also exported and analyzed using SPSS version 26.0. Descriptive statistics was carried out and results were presented using proportions, percentage and mean. Average mean of the contents of medical record was taken to determine the overall quality of medical record.

Qualitative part: predetermined theme (Input attribute of quality, Process attribute of quality and Output attribute of quality of questionnaires was used and analyzed by thematic analysis to analyze qualitative data. Text by text, every interview will be thoroughly read, and codes were predetermined.

4.9 Data quality management

The tools was developed first in English some checklist are interviewer administrated questionnaire do not need translation .Before collecting data and in order to perform a quality control on the checklists, Data collectors were supervised by supervisor and the principal investigator. Data collectors submitted data and it will be checked for missing and consistencies by the principal investigator. Two supervisors were recruited to supervise the data collectors, and perform facility inventory at their respective facilities.

For qualitative. The tools were developed first in English and were translated into the local language (Amharic) .Triangulated with tape recording and observation.

4.10 Ethical consideration

Ethical clearance was obtained from Hawassa University, Institutional Review Board (IRB). Then, permission letter also was obtained from wolaita zone health department. In addition, consent was taken from the selected hospital heads and all key informants. Privacy and confidentiality of the respondents was kept during and after the data collection. While reviewing records; care has been taken to make sure that no individual other than the research team members shall access to records.

4.11. Dissemination plan

The final findings and recommendations will be disseminated to, school of Public Health, Post Graduate Library and Wolaiyta zone Health department will be used as an input to plan on management of medical record quality and to improve data management system of hospitals respectively. Finally, this study will be submitted for publication in reputable scientific journals.

5. RESULTS

5.1. Description of Medical records of hospitals

Four hundred six medical records were reviewed from three public hospital of Wolaiyta zone with a retrieval rate of 100%.Of these, 301(74%) medical records were from wsucsh , 41(10%) from Boditi primary hospital , (15%) from Tebela primary hospital. In addition, 3 hospital heads and 16 case team coordinators from respective hospital participated to support the reviewed data and to show the attributes for quality medical record production.

Socio-demographic characteristics of key informants

Besides of document review, sixteen case team coordinators of hospitals, medical record personnel and three heads participated as key informant to triangulate the reviewed data and to mention the dimensions for medical record quality in hospitals. Majority of them 15 (73.7%) were males and 11(57.9%) of participants were a diploma holder by qualification. The median age of them is 32.5 and standard deviation of 5.037. The maximum work experiences of them are 5 years and the minimum is 1 year.

Table 1 Socio demographic characteristics of key informants, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s.no	Variables		Frequency	Percentage (%)
1	Sex of participant	Male	15	73.7
		Female	4	22.3
2	Age by year	20-33	10	52.6
		33-45	9	47.4
3	Educational status	Diploma	11	57.9
		First degree	8	42.1
4	Service year	1-4	15	78.9
		4-7	4	21.1

5.1.1 Components of medical records

Four hundred six medical records were reviewed during data collection period in three public hospitals in Wolaiyta zone. All components for the completeness of medical records were checked for the quality of medical records with respect to administrative, clinical, financial and legal contents.

Documentation of administrative data contents

Data of patient's identification or demographic data were reviewed in each of medical records of hospital. The highest value of documentation belonged to title and name of hospital (100%). In 77(18.9%) of medical records, date of birth of patients were recorded, 94.3%) of them had sex of patients. The lowest recorded value in the documentation was marital/citizenship (31.5%).

Table 2 Recorded components of administrative data of medical records of patient of Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s/n		Wsucsh		Betena ph		Boditi ph	
		frequency	%	frequency	%	frequency	%
1	Title and name of health center recorded	301	100	64	100	41	100
2	Full name of patient recorded	300	99.7	64	100	41	100
3	Date of birth recorded	60	19.9	6	9.4	11	26.6
4	Home address recorded	287	95.3	59	92.2	38	92.7
5	Sex of patient recorded	286	95	59	92.2	38	92.7
6	Health care record number assigned at registration	294	97.7	59	92.2	40	97.3
7	Mode of arrival (reason to come to Hospital)	245	81.7	42	65.6	31	75.8

Documentation of clinical data contents

Clinical components of medical records include medical and therapeutic information of the patients. The contents of this section are important from medical point of view. Among the clinical data contents, 308(75.9%) clinical data components recording the presenting problem/complaints, 316(77.8%) had records current diagnosis information, and 276(66%) had medication and diet information. Only 97(23.9%) recorded information about service users concerning alerts /allergies.

Table 3 Recorded components of clinical data of medical records of patient, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s/n		Wsucsh		Tebela ph		Boditi ph	
		frequency	%	frequency	%	frequency	%
1	History and physical examination forms	265	88	52	81.3	38	92.7
2	Presenting problem/complaint	224	74.4	49	76.6	35	85.4
3	Past illnesses	117	38.9	39	60.9	25	61
4	Current diagnoses	228	75.7	50	78.1	38	92.7
5	Service user alerts/allergies	72	23.8	15	23.4	10	24.4
6	Procedures and investigations	173	57.5	43	67.3	31	75.6
7	Medications and diets	201	66.8	47	73.4	28	68.3
8	Family history	126	41.9	24	37.5	20	49.8
9	Examination findings	208	69.1	46	71.6	31	75.6
10	Results of investigations	242	80.4	50	79.1	36	87.8
11	Overall assessment	276	91.7	60	93.8	40	97.6
12	Management plan	277	92	60	93.8	40	97.6
13	Information given to service user	102	33.9	20	31.3	17	41.5
14	Follow-up entry	108	35.9	29	45.3	23	56.1

Documentation financial and legal data contents

Concerning financial and legal data in medical records, 176(43.3%) of medical records of patients had an information about service fee, and 238(56.6%) had also information about the accomplishment of medication fee. Medical records consent for retrieval and consent for treatments were the least recorded in all hospitals

Table 4 Recorded components of legal and financial data of medical records of patient, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s/n		Wsucsh		Tebela ph		Boditi ph	
		frequency	%	frequency	%	frequency	%
1	Consent for treatment	97	32.2	21	32.8	24	58.5
2	Consent for information retrieval	52	17.3	18	28.1	16	39
3	Authenticated by responsible service provider	96	31.9	19	29.7	20	48.8
4	Service fee	131	43.5	27	42.3	18	43.8
5	Medication fee	179	59.5	42	65.6	17	41.5
6	Investigation fee	171	56.8	41	64.1	17	41.5

Assessment of quality medical records in terms of completeness.

Accordingly, to assess the quality of medical records with respect to each major section of components, the identified necessary contents of section was calculated as follows:

Total contents fulfilled in each sections of the study (Yes's) divided by total revised medical records multiplied by number of factors in each section (the number of contents/variables in each of the section).It is reported as % completeness of medical record(22,28,29).

Administrative data content= total contents/total revised documents * 7

= 2495/406*7= 2495/2842=87%

Clinical data contents = total contents/total revised documents * 14

= 4320/406*14 = 4320/5684=76%

Financial and legal contents = total contents/total revised documents * 6

= 1006/406*6 =1006/2436 = 41%

Average mean of all components of quality of medical record in percentage=

Admin + Clinical + legal &financial/ 3 = 87+76+41/3 =68%

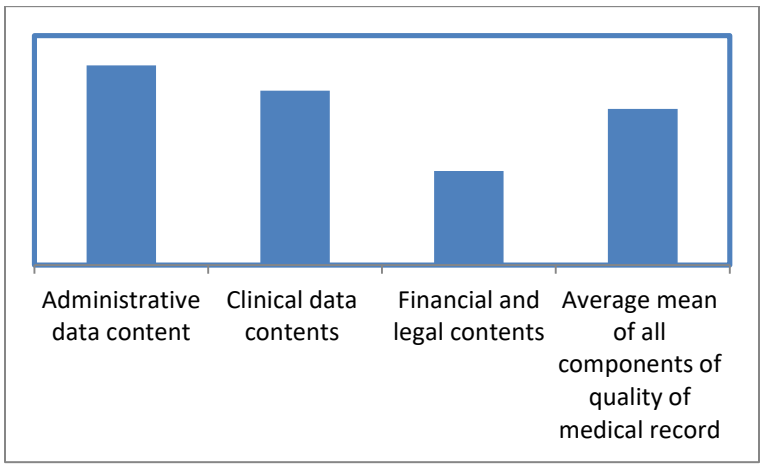


Figure 2 Quality of medical records with respect to each component, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

View of the key informants about the reviewed medical records quality and dimensions of quality of medical records(completeness).

In line with the medical record review, the key informants have also the view that there is problem with quality of the MRs, Majority of case team coordinators from the key informants, 16 out of 19 (84%), agreed that there is poor data accessibility and retrievable due to the poor unique patient numbering system. The same number (84%) replied that professionals missed to write the date of visit on all components of the chart. All of the respondents (94.7%) mentioned that the family history, past history and functional inquiry (including significant negative observations) are not clearly recorded and maintained in the medical record.

Ten (52.6%) of the coordinators said that allergies were not clearly documented in their respective hospitals. All of the respondents (100%) commonly agreed that the chief complaint of the patient clearly stated in medical record. According to the respondents, (78.9%) scientifically known abbreviations and duration of symptoms were clearly written on medical records. Similarly, respondents mentioned hospital have problem on laboratory and investigation documentation system in medical record of the patients. In contrast, 17(89.5%) of respondents mentioned service providers did not authenticate medical records during service provision.

One Nurse from emergency OPD department (28 years old, Male) expresses his feeling as follow:

"….most of the cards was feeling by negligence because one health professional is responsible to see more than 30 cards in the morning…"

In contrast …….

One physician from OPD department (34 year's old, female,) expresses her feeling as follow: "…we don't have problem in case of filling medical records however there was a problem for getting information from the paper and some modification should be made…"

5.2. Assessment of dimensions of quality of medical record

In the present study, 10 (52%) of study case team coordinators mentioned the presence of the gaps on medical record entries (dating, and signing by responsible professional). In addition, there was no monitoring, evaluation and supervision carried on medical record department by responsible bodies. Moreover, according to respondents, 15 (78%) medical record forms were not held by a clip or fastener and none of the hospitals auditing of MR document as of the standard.

5.2.1. Space for medical record quality

5(27%) respondent noted that there is no specific storeroom for medical record and separated areas for filing active and inactive medical records in the hospitals premises.

Table 5 Space for quality of medical records, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s.n	Variables	response	Frequency	Percentage
1	MRD space to handle all functions properly	No	4	27
		Yes	15	73
2	The design of facilitates to handle the traffic of people, records and equipment inside the MRD	No	4	27
		Yes	15	73
3	Separately provided active and inactive MR filing areas	No	4	27
		Yes	15	73
4	A storeroom for MRD	No	4	27
		Yes	15	73

5.2.2. Supplies for medical records quality

All lists of standardized printed formats were also evaluated in medical records of patients in each hospital. Two hundred twenty-four (55%) medical records had no standardized investigation chart. Fifty -one (13%) of them had no history and physical examination format or chart. Two hundred sixty four (65%) of records had no treatment charts. Relatively, wsucsh medical records had the necessary formats of medical records than other hospitals.

Table 6 Availability of necessary formats in medical records of patient, Wolaiyta zone public hospital, Southern Ethiopia, 2023.

S.n	List of format	Wsucsh(n=301)		Tebela ph(n=64)		Boditi ph (n=41)		Total (n=406)	
		Count	%	Count	%	Count	%	Count	%
1	Front/face sheet available	284	94	60	93	37	90	381	93
2	History and	265	88	52	81	38	92	355	87

	examination chart available								
3	Investigation chart available	139	46	53	36	20	48	183	45
4	Treatment chart available	104	34	20	31	18	44	142	35

In addition to interviewee's responses, the three hospitals were checked for availability of necessary basic supplies which are important for recording, processing, documenting, filing and retaining medical records safely and in a secured manner. According to the national hospitals supplies requirement, majority of supplies were not adequate to run the basic medical recording system. Only wsucsh had investigations request format and medication prescription format.

In addition to this most of the participant of the in depth interview said that explained absence of computers because of the lack of a budget, which hinders them from having a computerized system that improves the quality of medical records. None of the card rooms have a lock. Sometimes there is a loss of medical records of the patient's medico-legal records, because of not handled properly and the room is not locked.

35 years old female record personnel with 2 years experienced express her feeling as follow-

"….We ask report many time about Shortage of shelves, Lack of functional computer and the recording system is not an online computer-based system they said due to the shortage of budgets".

30 years male record personnel with 2 years experienced said that

"….We face repeatedly similar problems such as lose recorded history, their individual medical folder, and service identification cards"

5.2.3. Human resource requirement

5.2.3.1. Capacity building

Thirteen (68%) respondents mentioned that the shortage of employee related with the medical record in the hospitals. Fifteen (79%) of the respondents answered the lack Merit based employee placement is another gap to keep quality MR.

32 years old male record personnel with 3 years experienced

"…..In our office most our colloquy are untrained and we ask for a training and assignment skilled personnel they higher health department answered we have lack of budget"

Table 7 Capacity building assessment for quality of medical records of Wolaiyta zone public hospital, Southern Ethiopia, 2023.

s.n	Variables	Response	Frequency out of 19	Percentage (%)
1	Enough number of MRD personnel	No	13	68
		Yes	6	32
2	Formal training for MRD director and technicians in MR	No	16	84
		Yes	3	16
3	Qualified and competent employee in the hospital	No	7	36
		Yes	12	64
4	Provision of on-job training frequently to employee	No	4	21
		Yes	15	79
5	Provision of induction and orientation for new employee in MRD	No	5	26
		Yes	14	74
6	Merit based employee placement	No	15	79
		Yes	4	21

All participants of the in-depth interview mentioned that most of the time they face difficulty to found the folder in a short time easily due to different reasons like the patient lost (forget) the

services cards, wash the service card with their clothes when the patient cannot place service card safely, and the medical records not returned back daily to the medical record unit from service area.

32 years old male record personnel with 3 years experienced said that

"…In our office most our colloquy are untrained and we ask for a training and assignment skilled personnel they higher health department answered we have lack of budget"

36 years old male medical record room head who has 3 years of work experience said that

"….I remembers that many days individual medical record of chronic patient lost from shelve then replaced by other medical records".

Table 8 overall quality of medical record of each hospitals at wolaiyta zone southern Ethiopia 2023

s.n	Variables	Wsucsh (%)	Tebela ph (%)	Boditi (%)	Total (%)
1	Administrative content	84	78	69	77
2	Clinical content	62	65	73	67
3	Financial and legal content	40	43	44	42

Table 9 Cross tabulation of facility type and quality of medical record.

	Facility type		
	Tertiary hospitals	Primary hospitals	Total
Poor records	62%(187)	60%(63)	61%(250)
Quality records	38%(114)	40%(42)	39%(156)
Total	100(301)	100%(105)	100%(406)

Records at primary hospitals were 44.5% less likely to be quality record as compared to records in above tertiary hospitals (95% CI: 41.8–67.9%), $p < 0.001$.

Qualitative results

Thematic analysis

19 participants were interviewed by using face-to-face in-depth interviews. During an interview, the responses were recorded and the interviewers have taken notes. The responses are summarized in 3 predetermined themes .The 3 themes were further divided to 7sub themes sections (table 14).

Table 10 Thematic analysis

s.no	Themes	Categories/subthemes
1.	Input attribute of quality	Human resources related
		Medical record room input resource related
		Chart fulfillment
2.	Process attribute of quality	Client awareness
		Medical room related
3.	Output attribute of quality	Medical record personnel related
		Client related

Theme 1 Input attribute of quality

Subtheme 1 Human resources related factors

All participants of the qualitative part responded that to improve the quality of medical records trained recording personnel must be assigned in the record room, necessary materials need to be fulfilled as per the standard, need to construct standard medical record unit, the patient record need to be placed in a safe place and necessary information should be completed in every patient's records.

"In our office most our colloquy are untrained and we ask for a training and assignment skilled personnel they higher health department answered we have lack of budget"

32 years old male record personnel with 3 years experienced

Subtheme 2 Medical record room input resource related

None of the card rooms have a lock. Sometimes there is a loss of medical records of the patient's medico-legal records, because of not handled properly and the room is not locked.

"We ask report many time about Shortage of shelves, Lack of functional computer and the recording system is not an online computer-based system they said due to the shortage of budgets"

35 years old female record personnel with 2 years experienced

Subtheme 3 Chart fulfillment

Additionally, they stressed the absence like MPI cards, ANC charts, and tracer cards.

“We face repeatedly similar problems such as lose recorded history, their individual medical folder, and service identification cards”

30 years male record personnel with 2 years experienced

“We ask so many times the head of HC in order to purchase the MPI cards but still the cards not printed”

25 years old male record personnel with 2 years experienced

Theme 2 Process attribute of quality

Subtheme 1 Client awareness

A folder is assigned to each individual medical record of the clients.

“Most of the time we face the difficulty of getting individual medical records from the shelves, the clients lost their service identification card while coming for another visit due to this they may stay a long time and they complain”.

40 years male record personnel with 2 years experienced.

Subtheme 2 Medical room related

In addition to the findings from the quantitative study, respondents of in-depth interviews explained problems regarding medical record keeping, high patient loads, and patients’ poor knowledge and awareness of proper handling of service identification cards.

“Most of the time we face the difficulty of getting individual medical records from the shelves, the clients lost their service identification card while coming for another visit due to this they may stay a long time and they complain”.

35 years old male record personnel with 5 years experienced

. There is no established medical record auditing system as per facilities standards. But some of the facilities conduct auditing with the insurance scheme team while they work on clinical auditing for payment on a quarterly basis but as such not continuous.

“As standard all facilities needed to use tracer cards. But, we are not using tracer cards due to lack of the card instead of that we are using the information on summary sheet.

32 years old female record personnel with three years’ experience

"We have tried to audit those records stay more than five years in the medical record unit, But all records not audited because of many medical records stored in the medical record unit for the long period that are not audited in regular basis"

35 years old male with fifteen years' experience

Theme 3 Outcome attributes of quality

Subtheme 1 Medical record personnel related

All participants of the in-depth interview mentioned that most of the time they face difficulty to found the folder in a short time easily due to different reasons like the patient lost (forget) the services cards, wash the service card with their clothes when the patient cannot place service card safely, and the medical records not returned back daily to the medical record unit from service area.

"I remember that many days individual medical record of chronic patient lost from shelve then replaced by other medical records".

36 years old male record personnel who has 3 years of work experience

Subtheme 2 Client related

Additionally, respondents also mentioned the absence of tracer cards because of the poor implementation of the standard procedure for MRU.

"Everybody's is responsible in the proper handling of an individual medical record, for example, those card room workers need to have handled and placed properly, the health worker must record the necessary information completely and accurately, and also the administrative body of the health center must fulfill the different formats and materials timely". 32 years old male who has three years of work experience.

6. DISCUSSION

This study was conducted with the objective of assessing medical records data quality in wolayta zone. Key findings show that there are notable gaps in completeness and legibility of patient profile, complaint, diagnosis, treatment and date and signature. As a written collection of information about patient's health and treatment, medical records are used essentially for the present and continuing care of the patient.

In this study, 406 medical records were reviewed for assessing quality and to identify dimensions of medical record for quality; (68%) of components of the quality medical records completed based on the standard of hospitals medical record requirements. Similarly, a study that conducted in rural hospital of Ethiopia showed that 45.7% of medical records were completed(15). Inconsistence with a study of Minilik II Referral hospital, the completeness of medical record was 73%(5).Another study conducted at hadiya zone soro district was 40.2%(20). This might be due to difference in the study area and methodology.

On the completeness of medical records, though most of the administrative data were recorded, date of birth and the mode of arrival were the least recorded elements, with 19% and 21%, respectively. This finding was lower as compared with the studies done in Emam Reza hospital and Valias hospital in Iran, which indicated a 61.7% recording of date of birth and mode of arrival(16). This might be due to weak monitoring and follow-up by the medical record department, as evidenced from the qualitative data. On the other hand, the completeness of the medical records for the presenting complaint was recorded at 80%, which is higher than a study conducted in South Africa, in which the history of the present complaint was recorded at 65% (18).This might be due to the difference in study units, in which the latter one focused only on a single ward, while this study was conducted in all service departments associated with the facilities.

In present study, it is clear that the result shows all medical records were incomplete in these hospitals. However, medical records have a significant benefit for high quality and efficient care management of patients. In many of hospitals set up of developing countries including Ethiopia, medical record has not been a priority, generally inadequately supported and poorly managed. To alleviate the quality problem related with medical records studies have indicated the presence of interventions to improve the completeness of medical records(15,27).

Completeness of the medical records for medication and diet were recorded (69%), in (20%) of the records past medical history were recorded, in (44%) of the records service user allergies were recorded, in (39%) of the records were follow up entry recorded and in 41% of the records family history were recorded in the patient medical records. This is not consistent with study conducted in Nigeria indicate that medications and diets was recorded in (82.6%), (87.7%) of records contained information on past medical history, past family history illnesses was recorded in (31.8%), and follow-up entry was 93.62% (16).

Whereas the study conducted in South Africa also vary with the present study; previous medical history (76%), service user allergies (59%)(18). The variation might be due to lack of training, poor follow up of the completion process, lack of commitment and poor understanding of the standard. This study reveals that 77% of the medical records current diagnosis were recorded, 78% of the records management plan were recorded, 60% of records procedure and investigation were recorded, 92% of the records overall assessment were recorded, 70% of the records examination findings were recorded, around 80% of the records were result of investigation recorded and 21% of the records information given to service user were recorded. This is inconsistent with study conducted in Iran that indicate the medical history and physical examination completed was 71%, 100% laboratory report attachment and radio logical exam 53%(36). This might be due to difference in the study area and sample size. Finding from the component of legal and financial data revealed that 13% were investigation fees recorded, 5% were service fee recorded and 2% were medication fees recorded in the medical records.

All most all reviewed medical records consent for treatment, consent for information retrieval and authentication were the least recorded content in studied facilities. This was different as per the standard stated “entries in the patient's medical record should be dated and signed by the custodian/recording person”(22,28,29). This is probably due to weak control of financing system and negligence of the workers.

The overall completeness of the reviewed medical records of the hospitals is 68% for components of the quality of medical records completed based on the standard of health facilities requirements. Similarly, a study conducted in rural hospital of Ethiopia indicated that 45.7% of medical records were completed (15). Inconsistence with a study of Minilik II Referral hospital,

the completeness of medical record was 73%(5). This might be due to difference in the study area and methodology.

Records at primary hospitals were 44.5% less likely to be quality record as compared to records in tertiary hospitals (95% CI: 41.8–67.9%), $p < 0.001$. A study from the same country also reported that general hospitals are more likely to report good data as compared to primary hospitals and health centers (37).This could be due to the setup of facilities. General and above Hospitals are more equipped and staffed than primary hospital. Despite the computer revolution and data digitalization, clinical records especially in study setting continue to be handwritten and difficult to read.

In this study, most of the hospital was not implementing auditing of MR document. Majority of the respondents said that|" … Since lack of regular monitoring and evaluation process, there was problem in quality of medical records in the hospitals…"According to the study which conducted in eastern Ethiopia, the presence of auditing, evaluation and monitoring is needed to data quality improvement changes with the supervisory directives and feedback role(20,38). Similarly, a study conducted in Rwanda [10], showed that the importance of proper medical record management in facilitating high quality care in health institution. It has also contributions in accreditation efforts and medical record auditing to prove implementation of a policy or guideline.

All participants of the qualitative part responded that to improve the quality of medical records trained recording personnel must be assigned in the record room, necessary materials need to be fulfilled as per the standard, need to construct standard medical record unit, the patient record need to be placed in a safe place and necessary information should be completed in every patient's records. Most of the respondent said that "In our office most our colloquy are untrained and we ask for a training and assignment skilled personnel they higher health department answered we have lack of budget"

Although I reviewed quality of medical records for completeness and legibility in multiple sites, limitations of this study include that other dimensions of medical records quality like security (confidentiality) and in patient chart fulfillment were not addressed. Finally, I used structured checklist with options described in results and data were categorized during data collection at field levels, and detail information on some of items were missed. For example, which of demographic data (name, sex, age and/or address) was missing was not addressed.

7. CONCLUSION

7.1. CONCLUSION

The findings of the study concluded that the quality of medical records in public hospitals in the wolaita zone is poor as per the standard of hospitals requirements. The available human resources in the MRU are unqualified, untrained, and not enough in number to run medical records of the patients in the majority of studied health facilities. The MRUs are not standardized, and there is a shortage of recording formats and equipment.

Therefore; based on the findings of the study the following recommendations forwarded for responsible bodies at different levels. Since there is poor quality in components of medical records particularly in administrative contents of data, monitoring and evaluation, Supportive supervision, induction/orientation and on-job training should be provided for medical record personnel and staffs of health centers related to medical record. The zonal health department should hire qualified, competent and efficient human resource. Zone Health department should also provide all necessary input /supplies to have quality medical record in the hospitals.

REFERENCE

1. Ajlouni M. Assessment of Medical Records Services at Ministry of Health Hospitals in. 2006;(May 2006).

2. Pyrene M-B. Management of medical records for healthcare service delivery at the Victoria Public Hospital in the Eastern Cape Province: South Africa. 2015.

3. Health Information and Quality Authority. Guidance on Developing Key Performance Indicators and Minimum Data Sets to Monitor Healthcare Quality. Heal Inf Qual Auth. 2013;1.1(February):70.

4. Services H, Directorate Q, Edition S. Health Services Quality Directorate Hospital Performance Monitoring and Improvement Manual. 2017;

5. Tola K, Abebe H, Gebremariam Y, Jikamo B. Improving Completeness of Inpatient Medical Records in Menelik II Referral Hospital , Addis Ababa , Ethiopia. 2017;2017.

6. Abdulkadir A, Yunusa G, Tabari A, Anas I. Medical record system in Nigeria: observations from multicentre auditing of radiographic requests and patients' information documentation practices. Age (Omaha) [Internet]. 2011;2(April):854–8. Available from: http://ww.interesjournals.org/JMMS/Pdf/2011/May/Abdulkadir et al.pdf

7. Zegers M, De Bruijne MC, Spreeuwenberg P, Wagner C, Groenewegen PP, Van Der Wal G. Quality of patient record keeping: An indicator of the quality of care? BMJ Qual Saf. 2011 Apr;20(4):314–8.

8. Publications PR. Medical Records Manual : A Guide for Developing Countries.

9. Draft F. Federal Democratic Republic of Ethiopia Ministry of Health Health Sector Development Program IV October 2010 Contents. 2014;(October 2010).

10. Beyene W, Jira C, Sudhakar M. ORIGINAL ARTICLE ASSESSMENT OF QUALITY OF HEALTH CARE IN JIMMA ZONE , SOUTHWEST ETHIOPIA. (2):49–58.

11. Surgery G. Setting the records straight – a prospec- tive audit of the quality of case notes in a surgical department. 2007;45(3):92–5.

12. Ethiopian Ministry of Health. Health Sector Transformation Plan II 2020/2021-2024/2025. Ethiop Minist Heal. 2021;25(February):1–128.

13. Quality D. A GUIDE FOR DEVELOPING COUNTRIES IMPROVING DATA QUALITY : A GUIDE FOR DEVELOPING COUNTRIES WORLD HEALTH ORGANIZATION.

14. Care H. ETHIOPIAN NATIONAL HEALTH CARE QUALITY Transforming the Quality of Health Care in Ethiopia. 2020;

15. Bradley E, Hartwig KA, Rowe LA, Cherlin EJ, Pashman J, Wong R, et al. Hospital quality improvement in Ethiopia: A partnership-mentoring model. Int J Qual Heal Care. 2008;20(6):392–9.

16. Getachew N, Teka M, Birhanu B, Abraham G. The Quality of Medical Records Management in Public Health Facilities inthe Jimma Zone, Oromia Regional state, Southwest Ethiopia. Ethiop J Heal Dev. 2022;36(Special Issue 1).

17. Sanga LJ. Assessment of health management information system (hmis) perfomance in health facilities. 2015;(April).

18. Liu C, Talaei-Khoei A, Zowghi D, Daniel J. Data Completeness in Healthcare: A Literature Survey. Pacific Asia J Assoc Inf Syst. 2017;(June):75–100.

19. Wong R, Bradley EH. Developing patient registration and medical records management system in Ethiopia. Int J Qual Heal Care. 2009;21(4):253–8.

20. DEPARTMENT OF HEALTH POLICY AND MANAGEMENT QUALITY OF MEDICAL RECORDS IN PUBLIC HEALTH CENTERS OF SORO DISTRICT, HADIYA ZONE, SOUTHERN ETHIOPIA. 2019.

21. Endashaw N, Birhanu B, Teka M, Center SH, Abrham G. Public Health Facilities of Jimma Zone. Oromia Reg State [Internet]. 2021; Available from: https://doi.org/10.21203/rs.3.rs-864716/v1

22. Ethiopian Standards Agency (ESA). ETHIOPIAN Primary Hospital - Requirements.

2012;0–188.

23. Abera E, Daniel K, Letta T, Tsegaw D. Utilization of Health Management Information System and Associated Factors in Hadiya Zone Health Centers , Southern. 2016;242.

24. Randall SM, Ferrante AM, Boyd JH, Semmens JB. The effect of data cleaning on record linkage quality. BMC Med Inform Decis Mak. 2013;13(1).

25. QUALITY OF MEDICAL RECORDS MANAGMENT AT PUBLIC HOSPITALS IN TIGRAY REGION By : QUALITY OF MEDICAL RECORDS MANAGMENT AT PUBLIC HOSPITALS IN TIGRAY REGION By : Advisors : 2011;

26. Access O. Open Access. 2016;8688:1–5.

27. Dima NM. Improving the Completeness of Medical Records at Inpatient department of Dalefage Primary Hospital , west A capstone project submitted to School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the degree of Mas. 2014;1–46.

28. EFMHACA. ETHIOPIAN STANDARD ES 3614 : 2012 General Hospital - Requirements. 2012;0–272.

29. Ethiopian Standards Agency (ESA). ETHIOPIAN Comprehensive Specialized Hospital - Requirements. 2012;0–353.

30. Sa A, Borrachero C, Pujol E. Illegible handwriting in medical records. 2002;545–6.

31. NSW Ministry of Health. Privacy manual for health information [Internet]. 2015. Available from: https://www.health.nsw.gov.au/policies/manuals/Documents/privacy-manual-for-health-information.pdf

32. No Title. 2017;

33. CERVICAL CANCER SCREENING PRACTICE AND ASSOCIATED FACTORS. 2017;

34. FMoH F. The Ethiopian Hospital Alliance for Quality (EHAQ) Patient Satisfaction

Change Package. 2016;1–23.

35. For L. Ehaq Audit Tool. 2020;

36. Karbasi H, Ziai M, Hosaini M. Evaluation of Data Recording at Teaching Hospitals. 2006;9(2):93–7.

37. Arsenault C, Yakob B, Kassa M, Dinsa G. Using health management information system data : case study and verification of institutional deliveries in Ethiopia. 2021;2:1–8.

38. Sultan A. ORIGINAL ARTICLE UTILIZATION OF HEALTH INFORMATION SYSTEM AT DISTRICT LEVEL IN JIMMA ZONE OROMIA REGIONAL STATE , SOUTH WEST ETHIOPIA.

ANNEXES

ANNEX-1

Tools to assess quality of medical records and facilities for quality medical record Information sheet

Dear Respondent

My name is ……I am here with you on behalf of Muhidn Jemal . He is a student of Hawassa university school of public health and he is conducting a research on quality of medical records and facilities for medical record quality among public hospitals of Wolaiyta zone for partial fulfillment of master of public health in health system management. The researcher kindly requests your participation in filling this questionnaire because your participation by giving clear and accurate answer is very important for realization of the research. Please be sure that all the information provided in this questionnaire will be used for the study purpose only and treated with at most confidentiality, you are not obliged to answer any question that you do not want to answer. Your participation in this study does not involve any direct risk or benefit for you. It is very useful since your answers and those of other participants will help to improve the problem related to quality of medical records. If you need any further information or explanation regarding to the study, you can have this address to contact.

Name –Muhidn Jemal

Tel no - 0949247410.

E-mail –muhidnjames@gmail.com

Based on the information provided are you willing to participate in the study?

Yes____ No_____

If Yes- read the consent form to the participant, sign it and continue the interview.

If No- thank and skip to the next participant.

Informed consent

Informed consent Certified by:

Respondent's signature ----------Date----------

Interviewer: Name---------- Signature----------

Questionnaire number---------- Date of interview----------Time started----------
Time completed----------

Result of interview: 1. Completed

2. Respondent not available

3. Refused

4. Partially completed

Checked by: Supervisor: Name _____ Signature_____

Please kindly provide responses by writing or ticking the numbers and by filling in the spaces provided as applicable.

1. Check list for reviewing contents of medical records

If the indicators of medical record qualities in terms of completeness available in medical record of patient say yes, if not say no.

s.no	Item	Availability		Remarks
		yes	No	
Part 1 Administrative data				
1	Title and name hospitals			
2	Full name (forename and surname)			
3	Age recorded			
4	Home address/current address(if different)			
5	Gender			
6	Marital /civil partnership			
7	Healthcare record number assigned at registration			
8	Mode of arrival (reason come to hospital			
Part 2 clinical data with their formats				
1	Face sheet or registration form			
2	History and physical examination forms			
3	Investigation chart			
4	Treatment chart			

5	Presenting problem/complain			
6	Past illness			
7	Current diagnosis			
8	Service user alert /allergies			
9	Procedure and investigation			
10	Medication and diets			
11	Family history			
12	Examination finding			
13	Result of investigation			
14	Overall assessment			
15	Management plan			
16	Information given to service user			
17	Follow-up entry			
Part 3 Are their legal documents				
1	Consent for treatment			
2	Consent for information retrieval			
3	Authenticated by responsible service provider			
Part 4 financial data (service if the service is free tick on remark)				
1	Service fee			
2	Medication fee			
3	Investigation fee			

2. **Factor that affect the facilities for the quality of medical record at MRD**

S.no	Indicators of facilities for medical records quality	Response		
		Yes	No	functionality
1	Does the location of the MRD accessible for all users of its service?			
2	Is the MRD have enough space to handle all its functions properly			
3	Does the design of facilitates the traffic of people, records and equipment inside the MRD?			
4	Is efficient supervision carried on the MRD?			
5	Doe smooth flow of work among various units of the MRD practiced?			
6	Are active and inactive filing areas provided separately?			
7	Is there a store room for the MRD?			
8	Are there available written rules and regulations of MR?			
9	Are there enough number of MRD personnel to effectively perform the functions as assigned to the department?			
10	Do the director of the MRD and technicians have formal training in MR?			
11	Does a unique patient identifier is used in your hospitals ?			
12	Are medical record forms held in your health center together by a clip or fastener?			
13	Do MRD have an adequate security system (i.e. fire control system, fireproof cabinets)?			
14	Does MRs retained to maximum duration of period?			

15	The availability of qualified and enough number of competent employee in the hospitals?			
16	Provision of induction and orientation for newly hired employee concerning on medical record			
17	Availability of MR inputs in the hospitals ?			
18	Provision of on-job training frequently to employee			

1. Interview questions prepared for key informants (case team coordinators) of hospitals.

Dear respondents:

The purpose of this interview is purely to assess the quality of medical records and facilities for medical record qualities in public hospital in wolayta zone. I would like to request you to participate voluntarily in the study. The information obtained from will be used to make informed decision about the realities of quality of medical records in study area. Your genuine responses will therefore; be treated with utmost confidentiality. You are kindly requested to respond to all questions as honesty as humanly possible in order to enable the researcher accurate conclusion on the title. Please, briefly state your response for the open-ended items.

Thank you in advance for your cooperation!

I. Personal data

i. Office/health institution name ----------
ii. Gender Male-------- Female -------
iii. Age -----
iv. Educational status diploma--- first degree----second degree and above------ other if any-----
v. Service year in the sector -----

2. Interviewing questions related to medical record quality

S.no	Indicators for quality of medical records	Availability or functionality		
		yes	**No**	Remark
1	Is each individual patient file easily and readily retrievable?			
2	Are the records readable to any and all reviewers?			
3	Is the patient's name written on all components of the chart?			
4	Are the patient's name, age, sex and address clearly shown on the chart?			
5	Is the date of each visit recorded?			
6	Does the family history, past history and functional inquiry (including significant negative observations) clearly recorded and maintained?			
7	Are allergies clearly documented?			
8	Is the chief complaint clearly stated?			
9	Is the durations of symptoms noted?			
10	Is there clear documentation of the requested lab investigations?			
11	Are scientifically known abbreviations frequently used?			
12	Does authorized service providers authenticate on MR?			
13	Does MR of a patient/client starts as soon as the service seeker enters in to the hospital?			
14	Is wrong documentation corrected immediately by respective service providers?			

ANNEX-3

Check list prepared for reviewing the availability of necessary supplies for MR in the medical record room/ department

Supplies and equipment Name of the hospitals_____ Code No_____

If available say yes, if not say no.

s.no	Items		availability		If yes, is it functional and adequate?
		Standards	**Yes**	**No**	
1	MR folder				
2	MR folder				
3	printer				
4	Computer				
5	MPI file cabinet				
6	Shelves for filing				
7	MPI files				
8	Stationeries				
9	Request formats				
10	Laboratory				
11	Face sheet or registration record				
12	Authorization form				
13	Consent for release of information				
14	Master patient index				
15	Log book				
16	Fire extinguisher				
17	Carts				
18	Ladders				

ANNEX-4

Tool -4 (Qualitative)

1. **Semi- structured interview prepared for hospitals heads and case team coordinator**

This is an assessment innocent for academic purpose on the quality of medical record and facilities for quality medical records in public hospital of wolayta zone. Your information is kept both confidential and strictly private. Regarding your participation in the research, you are free to respond or stop your participation at any moment in the interview process. Thus, I ask your permission and willingness to give genuine and honest response.

Thank you in advance for your cooperation!

Personal information

- Sex ------
- Age------
- Occupation -------
- Educational status ----------
- Experience Place of work process ----------
- Position title----------

1. **Interview guide/question**

Theme 1

1. What type of have standards related to medical record hospital use?

3. What are employees status in the hospital ?

4. Is induction and orientation given for employee concerning on their occupation?

5. What about MR inputs (MPI), identification card and space available and enough by their proportion?

6. Has the On-job training provided frequently to employee?

If there, how?

If no, why?

7. How employees hired?

Theme 2

8. How regular monitoring and evaluation implemented?

9. How MR document audited as of the standard?

Theme 3

10 What facilities the hospital has for the lost identification card ?

11 Are all Medical Record entries to be completed, dated and signed?

12. Over all, how is the quality of the medical record in your hospital? ---------- ---- ---------- --------

---

Thank you for your cooperation

1. ቃለ- መጠይቅ ለሆስፒታሎች ኃላፊዎች የተዘጋጀ

ይህ በወላይታ ዞን የህዝብ ሆስፒታል በህክምና መዝገብ ጥራት እና በህክምና መዝገብ ጥራት ላይ ለአካዳሚክ ዓላማ ንፁህ የሆነ ግምገማ ነው። መረጃዎ በሚስጥር እና በጥብቅ ሚስጥራዊ ነው። በምርምርው ውስጥ ያለዎትን ተሳትፎ በተመለከተ በቃለ- መጠይቁ ሂደት ውስጥ በማንኛውም ጊዜ ምላሽ ለመስጠት ወይም ተሳትፎዎን ለማቆም ነፃ ነዎት። ስለዚህ፣ እውነተኛ እና ታማኝ ምላሽ ለመስጠት ፍቃድ እና ፍቃደኛነት እጠይቃለሁ።

ስለ ትብብርዎ አስቀድመው እናመሰግናለን!

የግል መረጃ

ጾታ ------ ዕድሜ---

ስራ ------የትምህርት ደረጃ ----------

የስራ ልምድ ---------- የአቀማመጥ ርዕስ ----

1. የቃለ መጠይቅ መመሪያ / ጥያቄ

1. ጤና ጣቢያው ከህክምና መዝገብ ጋር የተያያዙ ደረጃዎች አሉት?

ካለ ምን አይነት? ----------

2. ለአንፃራዊ ዓላማዎች ጥቅም ላይ ይውላል? አዎ /አይ

3.በጤና ጣቢያው ብቁ እና በቂ ቁጥር ያላቸው ሰራተኞች አሉ? አዎ /አይ

4. ለሠራተኞች ስለ ሥራው ተነሳሽነት እና መመሪያ ተሰጥቷል? አዎ/አይደለም 5. የ MR ግብዓቶች ይገኛሉ እና እንደ መጠናቸው በቂ ናቸው? አዎ/ አይ

6. በሥራ ላይ ያለው ሥልጠና ለሠራተኛው በተደጋጋሚ ሰጥቷል?

ካለ እንዴት?

ካልሆነ ለምን?

7. ሰራተኞች የሚቀጠሩት በብቃትና በተሞክሮ ነው?

8. መደበኛ ክትትልና ግምገማ ይተገበራል?

9. MR ሰነድ እንደ ስታንዳርድ ኦዲት ተደርጎበታል?

10. ሁሉም የሕክምና መዛግብት የሚሟሉ፣ የሚታረሙ እና የሚፈርሙ ናቸው?

11. በአጠቃላይ በጤና ጣቢያዎ ውስጥ ያለው የህክምና መዝገብ ጥራት እንዴት ነው? ---------- -

---------- ---------- ---------- ---

2. ጤና ጣቢያው ለህክምና መዛግብት ጥራት ምን አይነት መገልገያዎች አሉት?

ለትብብርዎ እናመሰግናለን