

## **PART I**

### **INTRODUCTION (PROJECT)**

#### **Medical Records.**

1. Medical record has been defined as a "clear, concise and accurate history of patient's life and illness, written from the medical point of view". It is also defined as a "clinical, scientific, administrative and legal document related to patient care, in which is recorded sufficient data written in sequence of events, to justify the diagnosis, and warrant the treatment and end results".(Gupta, Shakti Kumar, Modern Trends In Planning and Designing of Hospitals. Jaypee publications')

2. Medical Record is defined simply as a systematic documentation of a patient's personal and social data, history of his or her ailment, clinical findings, investigations, diagnosis, treatment given, and an account of follow up and final outcome. (Sakharkar, B.M, 2009, Principles of Hospital administration and Planning)

#### **The Importance of Medical Records.**

3. The medical records have become very essential part of the modern health care. No hospital is established without the proper and well established medical Records Department. There are various issues involved apart from clinical requirements to refer to the medical records like in case of MLC cases, Medical audits, and insurance cases and on orders from the court. The medical records have become a very important part of HMIS of the hospitals. As digital medical records databases continue to grow, healthcare will become more cost-effective and result in improved patient outcomes. Physicians use medical records for providing patient care and by using these tools, they will be able to catch errors, track treatments, monitor their effectiveness, and make predictions about outcomes.

4. The Income Tax Act: Under Section 38 (5) of the Income Tax Act 1922 no Prior Permission from the Patent is necessary to Show the records to the IT Department.

5. The body of the Dead in MLC cases need to be handed over to the Police only and not the relatives.

6. Patient Left the Hospital against Medical Advice (LAMA): If Patient is being L.A.M.A. the signature of patient or relative should be obtained in a prescribed L.A.M.A form.

7. **Policy:** Medical records storage

**Scope:** MRD

Policy: The hospital has a policy of storing all the medical records.

Procedure:

(a) All physical records shall be maintained and stored by the MRD.

(b) The files shall be arranged and stored in medical records room. The R. No. shall reflect on the file.

- (c) Only authorized users can view / retrieve the medical records.
- (d) The Authorized user is:-MRD technician
- (e) Representative from Quality Department for various Quality Audits.
- (f) Consultants
- (g) All Case files are filed in individual folders. The files are stored in the racks.
- (h) The racks are labeled with R NO.
- (i) All MLC cases are stored under lock and key. This prevents the case file from wear /tear and keeps the case file neat and tidy.

## **8. Scope:** MRD

**Policy:** The hospital has a policy of storing the medical records in consonance with the requirements of law, confidentiality and security.

**Procedure:** The department is responsible for consolidation of all forms belonging to the patient which are sent for storage in a manner with the help of R.No, which is assigned at the time of admission.

- (a) All medico legal patient records will be retained permanently.
- (b) All the death records shall be maintained for 10 years.
- (c) Out- patient record will be maintained for 3 years
- (d) In-patient records will be retained for 5 years.
- (e) The other records and registers, detailed below, are retained for the period mentioned against each:
- (f) Death registers Permanent
- (g) Wound/injury certificate file Permanent
- (h) Statistics files Permanent
- (j) Important circulars file and miscellaneous circular file Permanent
- (k) Dispatch register of death reports to the registrar's office- Ten years

**Note:** A quarterly audit of medical records will be carried out by a multidisciplinary team constituted for this purpose by the CEO/ VCEO. Results of the audit will be shared with the medical and nursing staff with a view to improve quality of the records.

## **9. Policy:** Medico Legal Cases

**Policy type:** Global

**Scope** : Hospital wide

**Policy:** The hospital has a policy for managing medical records of medico legal cases. Following are to be considered in the MLC:

- Accidents
- Attempted suicides.
- Homicides.
- Death occurring under suspicious conditions
- Rape.
- Assault
- Burns.
- Snake bites
- BID

### **Note**

- ❖ Intimation to the police is done.
- ❖ All investigation reports and evidential materials are to be preserved.
- ❖ Details of the MLC will be documented by the Casualty medical officer.

- ❖ Brought in dead cases are medico legal and intimation to the police is done.
- ❖ MLC on admission, discharge to home, transfer to another hospital or death will be documented and the police will be intimated.
- ❖ Police is intimated by the CMO through telephone
- ❖ Police intimation papers are sent to the police station in whose area of jurisdiction the MLC has occurred.

#### 10. **Policy:** Certificates Issued From Medical Records Scope:

**Policy:** The hospital has a policy to control the issue of certificates from the medical records department.

Procedure: The following records are generally provided by the medical records department to the patients:-

##### (a) Police intimation for Medico Legal Cases

One copy of the Police Intimation form should be handed over to the police and the other copy should be retained by the MRD.

Police intimation forms with required information shall be filled by the Emergency department Doctor and signed.

Police intimation forms will be taken to Police station by the authorized personnel i.e., security personnel.

The Form will be signed by the police and the station seal should be placed in the required place, as a token of receipt & it must be stored in a file in the MRD. Photocopy of this may be handed over to the patient/authorized representative.

##### (b) Wound/injury Certificate

Note Police will bring the request letter to MRD for Wound/injury Certificate. The Wound Certificate shall be processed as under:

MRD Staff shall inform the MLC consultant who will fill and sign the Wound/injury certificate.

RD Staff shall affix the Hospital Seal in the required Place.

MRD Staff shall inform the Police Station to collect the Wound/injury certificate.

MRD Staff shall hand over the Wound/injury Certificate to Police after obtaining their Signature.

A copy shall be kept in the MRD.

##### (c) Life Insurance Claims

Patient's attendant shall bring the Claim form and hand over to the MRD.

MRD staff will make a photocopy of the form, and fill the patient's demographic information.

Original and Photocopy of the form will be handed over to the concerned doctor who will fill the photocopy. Once the doctor fills the required details in the Photocopy and ensures its correctness, the original copy will be filled.

The document is signed by the concerned doctor and witnessed by another doctor.

The hospital seal will be placed and the document will be scanned.

The Original copy will be handed over to the Patient's attendant after obtaining the signature of the attendant on

Photocopy of the completed document.

Photocopy of the claim form will be maintained in MRD

Note: These records are generated based on the patient's case history /and other documents received from various wings and department of the hospital, information, and to provide guidelines for preserving confidentiality.

## **POLICY: SECURITY. CONFIDENTIALITY AND INTEGRITY OF INFORMATION**

### 11. Security, Confidentiality and Integrity of Information

**Scope:** MRD

**Policy:** The hospital has a policy to define confidential patient information, which includes verbal as well as written.

**Responsibilities:**

(A). Maintain patient confidentiality when using Patient Information in any form, including, but not limited to:-

- Verbal communications; Hard.
- Copy records (charts); Printouts.
- Pertaining to the patient;
- Notes maintained by staffer faculty providing care to the patient;
- Patient sign-in sheets;
- Inquiries or information from payers;

(B) Restrict the amount of information released in response to calls about current inpatients.

(C) Adhere to and incorporate into its policies and procedures existing laws that require a specific degree of confidentiality for specialized patient information, including mental health, and drug/alcohol-related records regarding diagnosis and treatment.

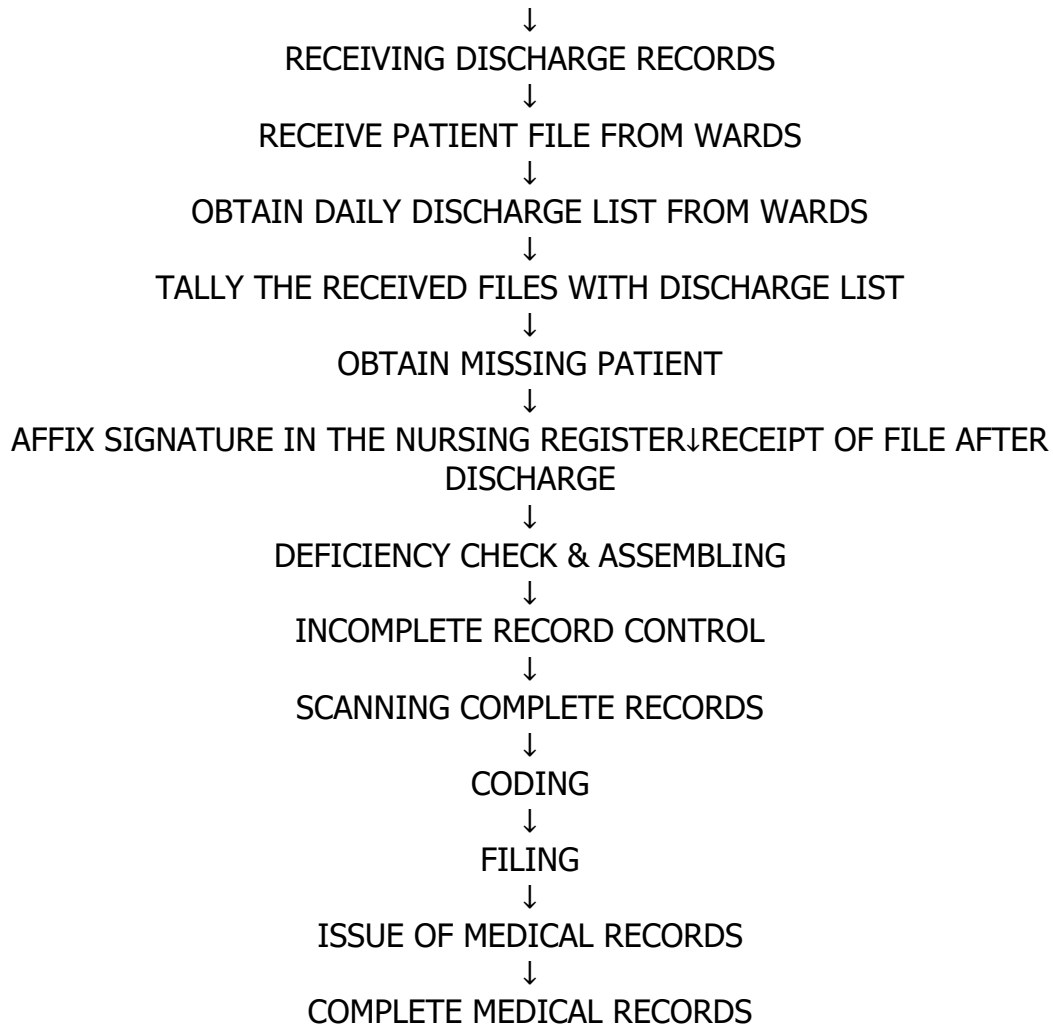
(D) Provide training on privacy and security policies and practices to all members of the workforce.

(E) The privacy of the patients information must be ensured during transportation process.

(F) The location of MRD must not be accessible by all.

(G) The Medical Record cannot be moved out of the hospital except in the case of order by the court.

### **DEPARTMENT FLOW CHART**



### **MONTHLY CENSUS**

1. Ward Census Reports from each ward is generated by nursing staff at duty and sent to the MRD. The MRD technician compiles the same for preparing the census report. The census report is submitted to the CEO/ VCEO/ Administrator of the hospital on a regular basis by the medical record Technician.
2. Development of Hospital Performance Statistics. Statistical and epidemiological Data are needed to implement and manage medical care planning and to obtain Health Indicators to monitor and evaluate their effectiveness for Hospital Management as follows:
3. Hospital / Health Statistics and Method of Collection. The following are the different types of Health / Hospital Care Statistical Information:-  
Administrative Statistical Information  
Financial Statistical Information.  
Hospital Performance Statistical Information.
4. Uses of hospital statistics. This information is useful to Hospital Administrator for Establishing administrative Control over the functional activities.

### **Planning of Hospital growth**

- ✓ Staff in different Departments

- ✓ Equipment required.
- ✓ Training Program
- ✓ Operating Budget
  
- ✓ Increasing the quality of Care rendered to the Patients
- ✓ Medical Audit
- ✓ Additional facilities.

#### 5. Census Officials and Demographers

Establishing mortality of Population.

Predicting Population growth etc. of the Country

#### 6. Public Safety Officials

Developing Preventive measures

Launching Educational Safety Campaigns by the Country and local Body's in receipt of Information from the Hospital.

#### 7. Research Workers

Planning and conducting research in Medical fields for the advancement in Medical Science by having morbid events from the hospital level.

#### 8. National & International Health Agencies

Planning of better Health Services in the Country.

Taking suitable measures for control and prevention of Diseases.

#### 9. Financial Statistical Information. The information is useful to calculate:-

The average cost of bed per day, per patient.

The average cost of Diet per day per patient.

Control over Hospital Budget and spending the same for useful purposes.

## **NEED FOR STUDY**

1. Information in the medical record is very sensitive. Medical record management has become an integral activity of any hospital. Medical record department provides multiple benefits not only to the patients but also to run a hospital more efficiently.
2. Hospitals should have proper system for the management and maintenance of medical records so as to have a quality medical record retrieval system. This system should be standard based that assures the documentation of consistent data in a structured and timely manner.
3. There are different filing systems which can be considered so as to allow for easy storage as well as easy retrieval.
4. Coding and indexing system should also be assessed as there are various standard & internationally accepted practices for the same. For the successful rate of retrieving the medical record numbering is the key factor in avoiding duplication of medical record generation.
5. The success or failure of the medical record department depends upon how quickly and accurately the records can be retrieved for usage.
6. Thus, there is a need to know the status of medical records in accordance with the standards laid down by NABH, NHS -UK and parameters given in the text book of hospital administration by C.M. Francis which have wide and tested acceptance so as to do the gap analysis of retrieval process at LBSH in compliance with the standards through a check list based on above mentioned standards and to give recommendations which can be helpful in improving and making retrieval process more effective and efficient.



## **PART II**

### **Review Of Literature**

## **REVIEW OF LITERATURE**

1. **Background:** - Medical record is a logical and systematic storing of the required medical data or information and other relevant documents of the patients with the aim of making such details available with ease when required.

### **2. Definition of Medical record:-**

(a) Medical record has been defined as a "clear, concise and accurate history of patient's life and illness, written from the medical point of view". It is also defined as a "clinical, scientific, administrative and legal document related to patient care, in which is recorded sufficient data written in sequence of events, to justify the diagnosis, and warrant the treatment and end results".(Gupta, Shakti Kumar, Modern Trends In Planning and Designing of Hospitals. Jaypee publications')

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(c) Medical record is a scientific, clinical, administrative and legal document relating to patient care in which is recorded sufficient data to justify diagnosis, treatment and results. (McGibony JR.: Principles of Hospital Administration. GP Putnam's son's. New York, 1969)

### **Importance and purpose of Medical records:-**

3. Importance of Medical record is

Aid to treatment

Eyes and ears to hospital administrator.

Generates hospital statistics

Very important in today's environment.

Legal issues

Evidence based practice.

Medical audit.

Quality certification and accreditation.

4. Purpose/benefits of the medical record

Medical record serves different purpose for different people and is as under:-

To the patient:-

Document the clinical story of the patient's illness. o Avoid omissions or unnecessary repetition of diagnostic/treatment procedures.

Assist in follow up case.

As evidence in legal cases.

Provide necessary information for insurance contributory health schemes or for the employment purposes. To supply information or issue certificates to patients e.g. disability certificates, sterilization certificates etc.

To the Doctor:-

Medical record serves as:-

Assurance of diagnosis

Continuity of medical care provided to the patient.

Assessment of medical practice undertaken.

Assists in research and education of health professionals.

Aids teaching.

Legal security

To medical education and research:-

Recorded observations are the basis for all clinical research.

Group studies of records by medical staff serves to further education of doctor and other health personnel.

### **5. Characteristics of good medical record:-**

- Complete: It should contain sufficient details to identify the patient, treatment administered and the outcome.
- Adequate : It should have all necessary forms duly filled
- Accurate: The accuracy should facilitate clinical analysis.

### **6. Sections of medical record :-**

The medical record has five major sections:

- Administrative: This contains demographic and socio economic data of the patient in sufficient details
- Legal: This part ensures the execution of informed consent to ensure there are no legal hassels later on.
- Financial: This contains the payments for medical sevicees and the accommodation charges.
- Clinical: This indicates whether the patient was treated as OPD or IPD etc
- Scientific: This is used to study the patients progress based on scientific research

**7. Location:** -Generally the location of the three main divisions of medical record department is different in relation to the hospital. The admission and enquiry office should be near the main entrance to the hospital, OPD and emergency department, so that patients requiring admission do not have to travel long distance.

(a) The file room and the staff rooms in Medical Records Department should be located in one place so that there is easy accessibility to the Medical Records, which is a very important factor in efficient operation of the department. The room must be airy, dry and maintained at a moderate temperature, with no steam pipes overhead as paper will be deteriorated when filed in a damp, poorly aired place. It should be well lit, with the lights so placed that the numbers on the chart folder can be easily read. In addition, a well lighted workable area should also be provided.

(b) For the nursing station /indoor wards, specific requirement from medical record point of view is that the nursing station should have provisions for easy entry of information in the records.

(c) The medical record office should be within the hospital building, near to business office/ administration and not very far from the entrance. The general tendency to

locate medical record department in the basement is fraught with risk of fire / water logging / seepage and should be avoided. The storage wing of the office used for inactive records can be located relatively distantly from the hospital building.

**9. Physical Layout.** The admission and enquiry office should be of adequate size, with counters and space for patients/ attendants. A unidirectional flow of patients and attendants is recommended to avoid criss crossing. The medical record office should have provision for the following areas/rooms:

Office of medical record officer

Office of assistant medical record officer

Modular workstations for different functions with scope for expansion

A conference / seminar room for doctors

Issue desk/ counter with photocopying equipment

Storage room / area for active records

Storage area / room for inactive records in a contiguous area or remote area with proper communication.

Waiting space/ lounge

#### **10. Basic Records:-**

(a) Summary Sheet or Face Sheet It is the top sheet of the medical record and contains the patient's identification data, social data, provisional diagnosis, final diagnosis, name of the physician, date and time of admission and discharge and signature of the physician.

(b) Admission Record Card- This should show

The full name, address, nationality, age, marital status , religion and occupation of the patient.

Name, address, phone number of the nearest relative or friend and of the attending physician.

Name of father /guardian and address.

Name, address, phone number of the employer.

Authorization of medical /surgical treatment

Discharge summary

History

Physical examination

Laboratory report

Progress notes

Physician's order

Graphic chart

Nurses' bed side record

**11. Unique patient identification.** Every country has to decide on certain unique characteristics to identify the patients. Some of these are as follows:-

A social security number

A national identification number

Health insurance number

Mother's maiden name

Mother's first name

Date of birth

Father's first

**12. Master patient index:** - It is an adjunct to the filing and storage system maintained by medical record department. This index has no medical information but only the name, address, MRN, DOB, sex, unique patient characteristics, DOA and DOD per episode maintained on a 7.5x12.5 cm card and filed in card drawer. The cards are stored in alphabetical manner with family name first and having a guide at every 10 cms.

The Master Patient Indexsystem (MPI) is an electronic medical record system. It is a computerized version of the traditional paper model used to store patient medical information. The MPI system is characterized by a structured format that permits instantaneous access to medical patient records and eliminates all paper medical records allowing accurate, quick documentation and retrieval of patients' visits.

An MPI will typically provide an Application Programming Interface (API)for searching and querying the index to find patients and the pointers totheir identifiers and records in the respective systems.

A key component of an MPI is the match engine. A match engine typically includes name, date of birth, sex, social security number, address and more. The match engine must be able to give consideration to typos, misspellings, transpositions, aliases.

**13. Medical Record Numbering:** - The aim of numbering medical record is for systematic storage and easy retrieval. After identifying the patient his MR is found out. Identification of the patien and his MR is very essential before proceeding for the admission. On the basis of the size of the hospital and the space available the numbering system is of three types:-

- A. Unit numbering system
- B. Serial numbering system
- C. Unit - Serial numbering system

A. Unit Numbering System-In this method, the patient on his first admission receives a number, which becomes the identification of his/her document in all subsequent visits to the hospital. He retains that number on all subsequent admission to any department of the hospital. All admissions are filed together in one folder and under one number.

B. Serial Numbering System- The patient is assigned a new number on each admission regardless of the number of readmissions, the number always being the next unused number in either the patients' register or the number index. The previous record is brought forward and filed together in a folder of most recent admission. The admission number given at the time of each admission is common to all departments of the hospital and furnishes a check by which the loss of a record may be discovered or duplication in numbering avoided. If the patients index card is lost , the admission number can be found on the alphabetically arranged ledger sheets in the business/ medical record office; if the approximate date of admission is

known, the number may be found in the patients' register or number index. The use of a serial number for filing results in the filing of a patient's records in one or more places in the file depends on the number of times he was admitted. The advantage of this system is that filing takes less time as it is not necessary to look up and bring forward the records of previous admissions. However, this advantage is far outweighed by a disadvantage to the patient because this makes physicians reluctant to ask for all the records by himself. In such cases the patient may not receive the complete treatment because the physician may miss some previous findings which may be there in the previous records,

C. Unit - Serial Numbering System - Many hospitals begin a new series of numbers at the beginning of each fiscal year e.g. 3478 - 85, 634986. The patient is assigned a new number on each admission and all previous records are brought up under the latest number on each readmission. When such a procedure is followed, the accordion fastener (file binder) or one similar to it may be used. Such a fastener binds the charts of the various admissions together securely and is easily taken out when the charts are to be microfilmed. If, in addition, some method of tabbing or indexing is used, it is possible to turn at once to any particular chart in the group. In the unit-serial numbering, care must be exercised while bringing old records forward. A tracker of some type or marker must be left in the file when the record is taken out and moved forward. The marker must indicate the location of the record. This is necessary because all cross indexes are compiled from the serial numbers and unless each previously used folder shows both old and new numbers, there is no way to find a particular record. A simple method is to leave the original folder in the file on readmission, indicating the new number on it.

Note: If this method of numbering is employed, the file drawers or shelves must not be filled to more than 75% of capacity as the record is continuous and additions will be made on each readmission.

#### **14. Master summary sheet:-**

A master summary sheet provides, at a glance, a picture of the medical history of the patient during all hospitalizations as it lists the dates of all admissions and discharges, the final diagnosis made and operations performed. If any, during each separate hospitalization, together with the end results. In addition, it provides a record of the hospital numbers for each hospitalization if the unit -serial numbering method is followed.

A master summary sheet saves considerable time for physician and others who have occasion to refer to the unit record of a patient after discharge regardless of whether the unit-serial or unit numbering system is used for filing. Only one master summary sheet should be used for any unit record regardless of the number of times the patient is hospitalized. It does not require a signature because it is a summarization of information from the individual summary sheet and is kept only for the convenience of those using the records. It is of value in hospitals using the unit -serial method of attaining a unit record or in hospitals using a unit numbering system.

13. Indexing. Depending upon the purpose, the various types of indexing done are :

- (a) Alphabetical index / Master patient index.
- (b) Disease index.

- (c) Operation index.
- (d) Physician's index.
- (e) Unit index.

Alphabetic/ Master Index. Patient's name is sequenced in alphabetical order. . The index card is approximately 7.5x12.5 cm card. It gives patient's identification, his registration number, address, date of admission, date of discharge, diagnosis and admission department.

Disease index. Disease index is a catalogue of cards maintained to find out similar groups of clinical records of patients with same diagnosis.

Operation index. It is a catalogue containing the details of patients who have undergone the operations.

(d) Physician's index. Catalogue containing the details of all patients treated by particular physicians.

(e) Unit index. This contains details of patients treated in a particular unit, Name and place wise.

## 15. **Filing procedure:-**

### Types of Filing

(a) Decentralized system Decentralize system means that the filing system for OPD and IPD are separate and are maintained by the respective departments. There is no connection between the two sets of files. If a patient is transferred from one department to another, the records can be seen only through a loan. This duplication of records increases the amount of labour and operating cost. For these reasons, this system is being rapidly replaced by the centralized system.

(b) Centralized system. This is an arrangement in which all the case records of a patient whether in-patient or out-patient are filed together within a central department. Under this system, both inpatient and outpatient are filed together under one unit number.

• **Filing System**- Medical record should be filed in such a manner that retrieval is easy and quick. A hospital can adopt one of these systems:-

(a) Numerical filing system- In this system, the files are arranged sequentially by medical record number. It begins with the lowest number and ends with the highest number.

(b) **Terminal Digit Filing**. The system is based on the last two digits of the medical record number. The filing area can be divided into 100 sections starting with terminal digit 00 and ending with 99. The last two numbers are the primary digits, next two secondary and first two are tertiary. This will be the first order of filing. In the second order, the next two digits are taken. Example- a medical record with number 897620 is to be filed. So this record will be filed area earmarked for 20. In this area, shelves are labeled with two middle order digits. So the file number 897620 will be filed in the shelf marked as 7620 along with other record in an ascending order with the same four terminal digits.

(c) Alphabetical and Chronological order. The filing is done in sequence of their alphabetical names and based on the sequence of their date of admission respectively. The system requires maintenance of indexes to allow access to the documents as maintained in the libraries.

● **Methods of filing**

(a) Horizontal filing –this method is of inserting the papers in files or folders and are kept in horizontal position one upon the other in chronological order.

(b) Vertical Filing - This is the most modern method of filing in which the files are placed vertically or in a standing upright position.

16. Deficiency check. While assembling and analyzing the record, a note should be made of all the deficiencies by entering into the deficiency check list or on the top of the medical audit sheet or on the use of a rubber stamp form. If there are any deficiencies the medical record should be labeled as "incomplete file" until completed.

17. Coding. This is done according to the "International Classification of Disease -10 (ICD-10) by WHO" Coding of disease/injury/operation.

It should be done by properly trained staff.

Should be based on International Classification of Disease (ICD-10).

It is for use of hospital as well as health intelligence agency/ government.

Storage should continue to be as per medical record number.

18. Storage and retrieval of medical records: -Medical documents complete in all respects are kept in the main medical records by adopting a particular filing system. The following is ensured:

- ✓ Compactness for space management.
- ✓ Easy accessibility for prompt identification and retrieval.
- ✓ Simplicity to ensure easy understanding by all.
- ✓ Economical for installation and usage.
- ✓ Elasticity to meet future requirements of expansion.
- ✓ **Color Coding.** Color coding should be used to facilitate sorting and minimizing misfiling of medical records. Depending upon the needs of the hospital, the color coding scheme can be simple or detailed. Colored tapes in different combinations can be used to denote numbers. Often color coding is used along with terminal digit filing system.

**Forms:**

Use of files of different colors for different years is useful for easy identification and retrieval.

Size should be of uniform standards so that these can be easily filed (8 X 11).

Retrieval of Medical Records For successful rate of retrieving the medical records, numbering is the key factor in avoiding duplication of medical record generation. The success or failure of the medical record department will depend upon how quickly and accurately the records can be retrieved for usage. If recurrent patients fail to provide medical record number, the registration clerk searches the medical record number by the registration date provided by the patients. This is important, as patients are not likely to remember the exact date of their last visit. A tracer or tracker card system should be used for easy accessibility of data. The tracer card

should be used as a place marker whenever the record file is retrieved for any of the following purposes:

- (a) Patient attending as a follow up of the treatment.
- (b) On patient being admitted.
- (c) On issue for research or academic teaching requirements.
- (d) On demand by TPA for medical expenses reimbursements.
- (e) On demand for medico- legal case.

### **METHOD OF RETRIEVAL**

To retrieve any medical record a very simple and standard procedure is followed as under:-

- (a) Patient / authorized person reports to the MRD with a relevant authority.
- (b) The attendant in MRD on receipt of orders from the competent authority searches the patient's medical record through his medical record number.
- (c) The same is filled in the tracer card with the name of the borrower, purpose, identification data of the documents, date of issue, and the signature of the individuals issuing and receiving the document.
- (d) The tracer card is placed in place of the document till the file is returned

19. Actions on discharge. The concerned doctor who has attended to the patient makes all the entries in the medical case documents which includes preparation of discharge summary and discharge slip. These medical documents complete in all respects are then sent to MRS. Following actions are taken at the MRD by various handlers:-

(a) Initial check desk:

Patient's records are received from census desk.

Records are put in standard sequence as per the laid down format. Same are then properly stapled.

Checks all the relevant entries and marks any discrepancies.

Records are then sent to incomplete control desk.

(b) Incomplete record control desk:

Records of the discharged patients are received from the assembling desk.

Index card is received from admission check desk.

"In hospital" file of index cards of patients are maintained till discharged.

Gone "home file" of index cards of patients discharged are maintained as their records are incomplete.

Reminders of incomplete records are sent to the concerned doctors.

Patient's index card are prepared for the patients who are discharged and whose records are complete.

Index cards are sent to admission check desk for filing.

Records are sent to discharge analysis desk.

(c) Vital statistics desk:

Receives birth reports and the data is entered into the birth register.

On receipt of death reports, the data is entered into the death register and submitted to corporation authorities.

Infectious disease reports reentered into the register.

(d) Discharge and administrative statistics analysis desk:

Receives records from incomplete records desk.

Enters discharge date in accession register.

(e) Coding and indexing desk:

Record from discharge analysis desk is received.

Diagnosis and operation are coded on medical records with international classifications.

Enters data into diagnostic and operation index cards,

Medical statistics are prepared.

(f) Completed records control desk:

Records are received from the coding desk.

Processing details are checked.

Places records in folder and stores vertically in permanent file shelves for quick and easy accessibility.

**20. Problem oriented medical record.** The Problem Oriented Medical Record (POMR) is a legacy of the late 1950s' developed by Dr. Lawrence Weed. In this, the record is divided into four sections. These are:-

Data base

Problem list

Initial plan

Progress list

The information is recorded as per the problem of the patients. All problems of the patient whether medical, social, psychological, financial, familial or work related are enumerated. In the database portion, the problems as enumerated by the patient are recorded in his or her own words. This part of the record more or less follows the traditional pattern of medical information recording.

In POMR, non medical problems are given more importance than any other forms of medical record. All listed problems are numbered and dated. A resolved problem is dated and the fact is noted. The problem list is developed by the doctor from the database.

In the third part, the physician indicates the diagnostic and the therapeutic plan.

In the fourth part, the progress notes are written in the format of.

S- Subjective information as given by the patient.

O- Objective information as observed by the physician.

A- Assessment of current condition of the patient and the changes that have taken place.

P- Plan indicates the actions that are to be taken immediately on these actions that are part of the long term plan.

The POMR is a logical and structured recording of information pertaining to a patient. The recording system captures more complete information than when a source base recording system is used. It enables one to judge why a particular test is ordered or why a particular treatment has been advised. It becomes easier to follow the patient's course of progress. This recording system helps in self -

assessment and this also facilitates medical care evaluation process. Further POMR system of recording is amenable to computerization of records.

In order to implement involvement of physicians, the medical record department and administrative support is necessary. Careful planning is necessary so that cost of the system and the time required for documentation activities are thoroughly considered'

## **21. Space requirement;-**

### **(a) Space**

Outpatient registration - Average space is 2 - 3 square feet per bed

For 50 beds, 150 square feet For 500 beds, 1200 square feet

Central Admitting Office- 125 - 175 square feet

Main Medical record – For 50 bed , 175 square feet

Department For 100 beds, 240 square feet

For 200 beds, 500 square feet For> 500 beds, 1200 square feet

### **(b) Storage**

120 - 500 square feet with shelving for vertical storage

125 in-patient or 300 out-patient records in 1 standard 36" shelf

One can adopt the following means for decreasing space for storage :

Microfilming

Comprehensive summary

### **(c) Storage of Medical Record : ( Retention )**

The length of time for how long the medical records will be preserved depends upon the hospital or the government policy. Clinicians want the records to be kept for indefinite periods. It is considered desirable to retain these as follows:

a) Medico- legal: In-patient - Life Long

Out-patient- Life Long

In-patient- 05 years

Out-patient -03 years

Teaching / research - 10 years

The record older than 10 years seldom required to be retrieved.

**22. Arrangement Of Documents In IPD Files.** An acceptable arrangement of placing records in IPD files in the ward is the following:

- ✓ Graphic chart
- ✓ Nurses' bedside record
- ✓ Physician's notes
- ✓ Progress notes
- ✓ Reports of special examination (radiology, clinical laboratory, consultation and others)
- ✓ Reports of special treatment (anesthesia , operation, surgical pathology and others)
- ✓ Medical section (history, physical examination)
- ✓ Record of admission
- ✓ Summary

In the medical record department records should be rearranged as soon as received as follows:

- ❖ Summary sheet
- ❖ Record of admission
- ❖ History
- ❖ Physical examination
- ❖ Reports of special examination and treatment (radiology, clinical laboratory, consultation, anesthesia, operations, surgical pathology and others)
- ❖ Progress notes
- ❖ Physician's orders
- ❖ Graphic chart
- ❖ Nurses' bedside record

**23. Confidentiality of medical record.** Medical records should be maintained in the strictest confidence, as they contain personal and private information about patients, including their health status, personal family and contact information. The information which is transmitted by the patient to the physician, nurse and other related health staff is confidential and should be protected from disclosure. This information can be divulged only under the following situations:

If patient authorizes disclosure

Court orders its revelation

In the public interest so as to avoid harm / injury.

**24. Summoning Medical Records by Courts.** Medical records are an essential legal document and are acceptable as a vital evidence as described in Section 3 of the Indian Evidence Act, 1872 (was amended in 1961) in a court of law. Medical Records which are completed after the discharge or demise of a patient do not have any legal value. Entries erased or overwritten do not stand to acceptance in the court of law. Medical records are generally summoned in a court of law in the following cases:-

- (a) Criminal cases for proving evidence to the, timing and gravity of the injuries and the weapon used and the possible cause of death.
- (b) Road accident cases for deciding the compensations under the MACT acts.
- (c) Labor courts summon the Medical Records for deciding the compensation under the Workmen's Compensation Act.
- (d) To finalise the Insurance .
- (e) For Medical negligence cases-

**25. Laws binding medical record information.** The following acts necessitate production of medical records as evidence in the court of law:

Registration Of Births (Act 18 of 1969) and Deaths Act.

(b) Indian Evidence Act Amended (Act 1-1872) up to date.

(c) Suppression of Immoral Traffic (Act 104) in Women and Girls Act.

(d) Maternity Benefit Act (No. 53 of 1961).

(e) Code of Civil Procedure.

(f) Indian Penal Code.

(g) Code of Criminal Procedure (1973).

**26. Life Insurance Corporation of India.** Information can be divulged to LIC as the patient has given a signed declaration at the time of acquiring the policy that any physician who has attended upon or examined or treated him for any illness shall be at liberty to divulge any information regarding any state or health to the corporation, its officers and legal advisers or in any court of law.

(a) Indian Income Tax Act (1922).

(b) Workmen's Compensation Act (1923).

(c) Consumer Protection Act (1993) as Amended.

## **METHODOLOGY AND APPROACH**



## **METHODOLOGY**

### **1. Methodology and Approach.**

A preliminary review of relevant literature was carried out referring to various journals, articles, books, keyword search in various search engines and online referral sites.

### **2. Study Design**

- ❖ Study Place. Lal Bahadur Shastri Hospital, Khichripur, Mayur Vihar, Delhi
- ❖ Study Duration. Three Months (01 Feb to 30 Apr 2018)
- ❖ Study Design - A Retrospective, Cross sectional, Descriptive was conducted of the Medical Record to arrive at conclusion pertaining to the title of study. Observational study-observed the process medical record management and retrieval at LBSH
- ❖ Check list : Checklist was used for collection of information and was devised based on Standards taken from three sources
- ❖ NABH guidelines
- ❖ NHS-UK guidelines
- ❖ Text Book of- Hospital Administration by C.M. Francis.

### **DATA COLLECTION AND METHODOLOGY FOR ASSESSMENT OF PARAMETERS**

Percentage compliance for each standard was arrived at after the assessment Scoring of the standards done in NABH was also done to arrive at conclusion after the assessment.

Requirement	Results of assessment	Scores
Always/ Almost always	Compliant	10
Frequently	Partial Compliant	5
Infrequent / never	Non Compliant	0

### **UNSTRUCTURED INTERVIEW WITH KEY INFORMANTS**

Medical record officer/Ward sister in charge Medical record technician \*\*\* Hospital attendant/Sister

## **OBSERVATION & FINDINGS**



## **OBSERVATIONS AND FINDINGS**

General. The medical record department of the LBSH hospital is not very well established. There are only two rooms of the size 12x14ft, located on 2nd floor, near the office of Medical superintendent allotted for medical records. Observation and Findings were recorded under the following heads:

- ✓ Activities of medical record department the hospital.
- ✓ Admission procedures
- ✓ Retrieval system of OPD and IPD files
- ✓ Various Registers maintained at MRD
- ✓ Index Card

### **1. Activities of medical record department at the Lal Bahadur Shastri Hospital, Mayur Vihar, Delhi**

- (a) Maintaining the OPD and Indoor records starting from admission till discharge of a patient.
  - (b) Collecting OPD and IPD files
  - (c) Tagging the IPD files and putting according to serial number.
  - (d) Checking the records for completion and getting the incomplete record completed.
  - (d) Indexing the records as per patient's name, disease, diagnosis, physician and the surgical procedure done.
  - (e) Monthly reporting is done according to the code number.
  - (f) Analysis of records and generation of statistics.
  - (g) Submitting the periodic reports (Births, death notification, morbidity statistics as required.
  - (h) Daily ward census and monthly bed utilization statistics is made.
  - (j) Filing and storage of records is done.
  - (k) Retrieval of records for issue to the physician for reference/ review and research work.
  - (l) Production in the court of Law, when summoned and supplying copies to the insurance and other agencies when required.
  - (m) Maintenance and safe/ secure preservation of records for the period mandated by the law.
  - (n) Destroy files after a specific time period in a proper manner.
- Recording:  
Tagging the IPD files  
Serial Numbering  
Put the number in ascending order & properly filling up of the files & keeping in the Racks

### **2. Registration Procedures LBSH, Mayur Vihar, Delhi There are two separate processes for registration in place:-**

#### **(a) Process for OPD registration**

New cases are registered at the OPD counter

Patient sent to respective departmental OPD according to their illness

For New Cases For old Cases

Files prepared according to- Files are generally not retrieved, in case their problem

and sent to the doctor needs file of old case then OPD file is clinics by medical record personnel retrieved and given to the patients themselves Files forwarded to MRD person after the clinic and arranged in shelves

(b) For admission process in the ward

- Patient comes to OPD and consults the doctor
- Doctor diagnosed the patients and decides about admission
- Admission slip filled by the doctor with diagnosis
- Patient sent to Room to IPD Admission & file is made, CR No given
- Patient sent for common IPD registration
- File and patient sent to the ward
- Sister allots the bed and completes the admission process

3. **RETRIEVAL SYSTEM OF OPD AND IPD FILES AT THE HOSPITAL).** The Retrieval system for OPD and IPD files is as follows:-

A. RETRIEVAL OF OPD FILES

(a) **Color Coding of OPD Files.** There are two different colors of OPD files White for general patients and Yellow For senior citizens.

(b) Purposes to retrieve OPD files. For two purposes OPD files are retrieved for research purpose or for clinic appointments.

Near about more than 50 files are retrieved daily for clinic purposes. This depends upon the number of appointments for clinic which needed their OPD files. But all are retrieved in between 9:30 am - 1:30 pm. It is necessary for new clinic registration to retrieve OPD files, so that clinic card can be attached to it. For old clinic cases, files are retrieved only if doctor needs it.

4. Process of Retrieval of OPD Files for Clinic Appointment.

- ❖ OPD files mainly retrieved for clinic purpose for new cases.
- ❖ Patient comes to OPD & visit the doctor.
- ❖ Doctor refers the patient to the specific clinic. Patient goes for appointment date.
- ❖ Appointment Date for new cases.
- ❖ For Old Cases Patient registered at the specified Counter.
- ❖ Submits the OPD card on counter.
- ❖ Sent to respective clinic.
- ❖ All OPD cards brought back to the medical record department.
- ❖ If doctor needs to see old file he writes on the OPD card.
- ❖ OPD files are retrieved.
- ❖ There after the patient comes to medical record department.
- ❖ All files are sent to the clinics before 2 PM.
- ❖ File is retrieved by OPD number written on OPD card.
- ❖ Files brought back in the morning by the orderly from medical record department.
- ❖ Arranged according to OPD number in the racks Tracer card is not put in place of OPD file when retrieved for clinic purpose. Tracer card is put if doctor wants an OPD file for research purpose.

## **B. RETRIEVAL OF IPD FILES**

No color coding of IPD files are done, all are white in color. MLC and Death Files kept separate with medical record in-charge.

1. **Purposes to retrieve IPD files.** IPD files are retrieved for three purposes:

(a) If doctor needs old files to see the history of the patient.

(b) For research purpose.

(c) For Medico Legal cases.

To retrieve IPD files, nurse writes the CR No., date and ward name on the file and sends it with the patient to M S Office for permission, then only a file can be retrieved from the MRD.

For research purpose doctors cannot take file directly, first they have to take permission from M.S. of LBSH and after that they can get file from the medical record department.

### **2. Process of retrieval of IPD files.**

(a) **For doctor's use-** If doctor wants to know the history of patient then Sister writes on treatment sheet in the new file : CR no. of old file Send patient or attendant of patient to the MRD. They see the CR No. and search for the file (30 min on an average)

Write on tracer card CR No. of old file, ward no. and date

Put tracer card in place of file below the nursing note of old file write the old file CR No. ward no. and date File handed over to the patient

### **3. For Research Purpose**

Doctors need to have an application signed by faculty guide of their unit if they want to take file with them

Then only they can ask for the file from the MRD.

**4. For MLC Cases.** Medico legal files are kept separately in separate room under lock and key with medical record incharge. If somebody wants to have that file then he has to take permission from the M. S., then medical record incharge find the file by CR no. and handed over to the concerned person in duplicate by taking proper signed application.

## **IV. REGISTERS**

Following registers were observed in the Medical Record Section at the Hospital

### **A. Registers in Medical Record Section**

**A. Discharge Register.** When files are returned from the wards for the first time, entries are made in discharge register. It accounts for the number of files sent to medical record section from the wards. Accountability of files transferred from wards to the medical record section is fixed to ward sister incharge. It also provides the record of all files received in Medical Record Section as well as total number of in-patients. It also helps in retrieval, if the patient forgets his CR No., then record can be identified.

CR	Age	Type	of	Date	and	Department	Diagnosis	Results
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No.	group	Admission	Days	Wise		

#### Age Group

1 year &Below one year	1-5	5-12	12-18	18-35	35-55	55 year and over

#### TYPE OF ADMISSION

Routine	Emergency	MLC

#### DATE AND DAYS

Admission	Discharge

#### DEPARTMENT WISE


#### B 1. REGISTERS ON REGISTRATION COUNTER/ADMISSION COUNTER ADMISSION REGISTER (FOR CLINIC)

Admission register is maintained for clinic appointments every day. The purpose to maintain this register is to have statistics that how many patients visited the clinic and after clinic hours to check that all files from clinics have been received or not.

CR No.	Age group	Type of Admission	Date and Days	Department Wise	Diagnosis	Results

#### B.2 ADMISSION REGISTER FOR IPD (COUNTER NO-1, ROOM NO. 215)

Admission register maintains information of all admissions in the wards. It is the first register of entries of in-patients.

Date of Admission	CRNo.	Name	Father/Husband	Sex(M/F)	Department
Address	Occupation	Diagnosis	Bed No.	Amount	
				Charged on A/C	

### C. REGISTERS MAINTAINED IN WARD C.I ADMISSION REGISTER

It is maintained in the ward as a record of in-patients admitted for the use of ward sister.

Sr. No.	Year No.	Month No.	CR No.	Name	Fath\ [ ]P IYTRU 'er/Husband name	Sex	Department
						M   F	Signature
Address	Occupation	Diagnosis	Bed No.	Amount Charged on A/C	DOA	DOB	

### C.2 Treatment Register

All treatment in the form of eye drops, medicines, injections etc given to the patients is recorded in the register

Bed No.	Ward No.	CR No.	Name and Diagnosis	Medicine	Time	Treatment

### C.3 IPD DISPATCH REGISTER

When files sent or returned to the medical record department, entries are made in dispatch register and signed by the medical record personnel who came to collect the files. This is a movement register of the files.

Sr. No.	Bed No.	Ward No.	CR No.	OPD No.	Name of Patient	DOA	DOD

### D. DAY CARE SURGERY REGISTER D.I ADMISSION REGISTER / PRE OPERATION REGISTER

Entries of all admission for day care surgery are done in this register. It is a record for wards nurses about their patients.

Date of admission	CR No.	Name	Father/ Husband Name	Sex	Department
Address	Occupation	Diagnosis	Bed No.	Amount charged a/c	

### D.2 POST OPERATION REGISTER

All details after the performed operations are recorded in this register.

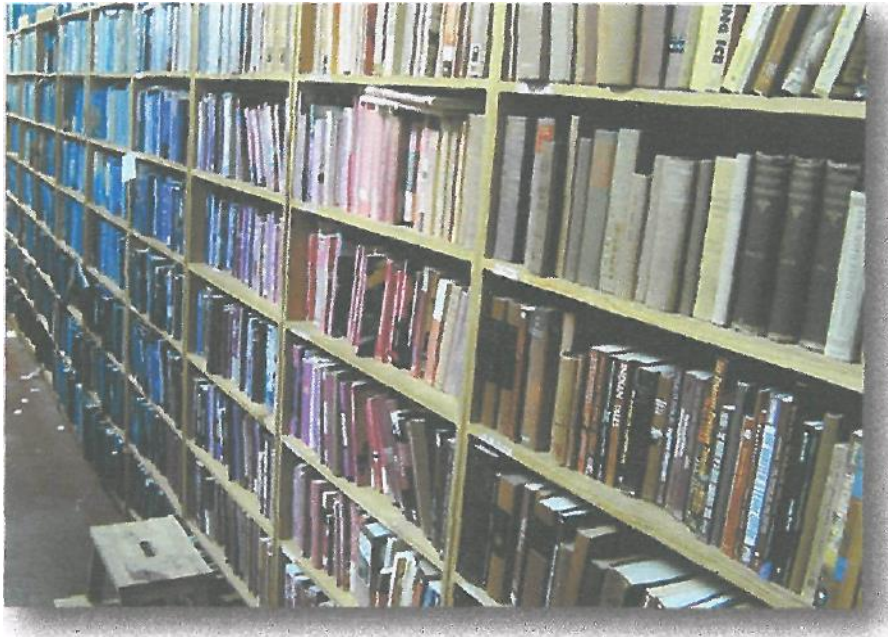
Yearly Sr. No.	Monthly Sr. No.	CR No.	Dale	Name	Age	Sex	Weight	Disease
Surgery	Operation	Anesthesia techniques	Duration	Anesthesia	Surgeon	Associated illness	Complications	Remarks

### D.3 DAY CARE DISPATCH REGISTER

This register contains information of all files went to the medical record department and signed by the medical record personnel when he collect the files from the day

care surgery ward.

SNo.	OPD No.	Bed No.	Patient name	Age and Sex	Department



# *Discussion* & Gap Analysis

## **OBSERVATION-DISCUSSION & GAP ANALYSIS**

1. The observations and gap analysis was done against the parameters as in:-  
NABH, NHS – UK & Text Book of Hospital Administration by C. M. Francis

NABH, NHS -UK and Text Book of Hospital Administration by C.M, Francis had the following number of objective and elements relevant to the study against which the gap analysis is done:-

S. No.	Sources	Objective	Elements
A	NABH	3	18
B	NHS –UK	3	23
C	Hospital Administration book by C. M. Francis	6	22
	Total	12	63

2. In the subsequent detail of objective and elements, compliance, partial compliance and non compliance is given with the total score of the particular objective under each subsequent table on the following pattern:-

Requirement	Results of assessment	Scores
Always/ Almost always	Compliant	10
Frequently	Partial Compliant	5
Infrequent / never	Non Compliant	0

3. Gaps analyzed against each objective are also reflected under each table of objectives shown in subsequent pages.

## NABH STANDARD A.I OBJECTIVE - COMPLETENESS AND ACCURACY

A.1,1	Every medical record has a unique identifier.	Partially Compliant	
A. 1.2	Organization policy identifies those authorized to make entries in medical record.	Partially Compliant	
A. 1.3	Every medical record entry is dated and timed,	Partially Compliant	
A. 1.4	The contents of medical record are identified and documented	Partially Compliant	
A. 1.5	Provision is made for 24-hour availability of the patient's record to healthcare providers to ensure continuity of care.		Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	20	0	4	1

Gaps — Record completed by doctors and nurses. Arrangements of record in the files are not as per standards and not arranged in a proper manner. Normally files were signed by the doctor but when needed for legal purpose, respective doctors come and complete the records. Records are not available 24 hour.

Completeness and Accuracy

Non Compliance 20%

Compliance 0%

Partial Compliance – 80%



## A.2 OBJECTIVE- CONTINUITY OF CARE

A.2.1	The medical record contains information regarding reasons for admission, diagnosis and plan of care.	Compliant		
A.2.2	The medical record contains the results of tests carried out and the care provided.	Compliant		
A.2.3	Operative and other procedures performed are incorporated in the medical record	Compliant		
A.2.4	The medical record contains a copy of the discharge note duly signed by appropriate and qualified personnel		Partially Compliant	
A.2.5	In case of death, the medical record contains a copy of the death certificate indicating the cause, date and time of death.	Compliant		
A.2.6	Care providers have access to current and past medical record		Partially complaint	

No. of element	Total score	Compliant	Partially compliant	Non compliant
6	50	4	2	0

Gaps — In case of death, file contains time of death but not in the death certificate. For care providers they can have access to patients' records. Discharge notes are included in the file but sometimes filled and sometimes not filled. Care providers have not fully facilitated access to record.

Continuity of Care



Compliance  
Partial compliance  
Non Compliance

### A.3 OBJECTIVE-THE ORGANIZATION REGULARLY CARRIES OUT REVIEW OF MEDICAL RECORDS- MEDICAL AUDIT

A.3.1	The medical records are reviewed periodically	Non Compliant
A.3.	The review uses a representative sample	Non
A.3.3	The review is conducted by identified care providers.	Non
A.3.4	The review focuses on the timeliness, legibility and completeness of the medical records	Non Compliant
A.3.5	The review process includes records of both active and discharged patients.	Non Compliant
A.3.6	The review points out and documents any deficiencies in records.	Non Compliant
A.3.7	Appropriate corrective and preventive measures undertaken are documented.	Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
7	0	0	0	7

Gaps- No medical audit has been done. None of element is compliant to medical audit of records. They are not reviewed for deficiency check. Measures for deficiency check have not been undertaken.

The organization regularly carries out review of medical records-medical audit

Non compliance 100%



### **NHS STANDARDS RECORD MAINTENANCE**

No. of element	Total score	Compliant	Partial compliant	Non compliant
<b><u>6</u></b>	<b><u>10</u></b>	<b><u>0</u></b>	<b><u>2</u></b>	<b><u>4</u></b>
B.1.1	The movement and location of records should be controlled to ensure that a record can be easily retrieved at any time, any outstanding issues can be dealt with and that there is an auditable trail of record transactions.			Non Compliant
B.1.2	Storage accommodation for current records should be clean and tidy			Non Compliant
B.1.3	Prevent damage to the records		Partially Compliant	
B.1.4	Provide a safe working environment for staff.		Partially Compliant	
B.1.5	When records are no longer required for the conduct of current business, their placement in a designated secondary storage area may be a more economical and efficient way to store them.			Non Compliant
B.1.6	Equipment used to store current records on all types of media should provide storage that is safe and secure from unauthorized access and which meets health and safety and fire regulations, but which also allow maximum accessibility of the information commensurate with its frequency of use.			Non compliance

Gaps —No parameter is fully compliant, there are no proper safety measures of records, because of improper maintenance of records retrieval process is also affected. No fire safety measures are there, health and safety measures have to be undertaken.

## B.2 OBJECTIVE - RETRIEVAL OF MEDICAL RECORD

B.2.1	Medical Records should be securely held		Partially Compliant	
B.2.2	Medical Records are available for retrieval by authorized members of staff		Partially Compliant	
B.2.3	Requests for records (both routine and urgent) should be directed towards the appropriate departments who are responsible for their storage.	Compliant		
B.2.4	The physical movement of records should be undertaken in a safe and secure way. Clinical records must always be tracked when moved.			Non Compliant
B.2.5	Medical records or other confidential information for transportation between hospital sites/departments must be enclosed in sealed bags/envelopes and labeled appropriately i.e. 'Confidential'. For specific situations i.e. child protection, a further statement should be included i.e. 'to be opened by addressee only'.			Non Compliant
B.2.6	Medical records must be carried between hospital sites /departments by authorized staff only.			Non Compliant
B.2.7	In extenuating circumstances, where medical records accompany patients, they must be sealed in an envelope and handed personally to the patient,			Non Compliant
B.2.8	Records should be transported using appropriately designed equipment. The use of wheelchairs or any such similar is not to be used to transport patient records.			Non Compliant
B.2.9	Staff should not use their own equipment to process or store any identifiable data.	Compliant		
B.2.10	Items should be sent to a named individual and the outer envelope must be marked 'private and confidential'.		Partially Compliant	

No. of element	Total score	Compliant	Partially compliant	Non compliant
10	35	2	3	5

Gaps-Retrieval of medical record is compliant to 2 elements out of 10 elements. 5 are non compliant, no proper confidentiality and privacy is maintained. Transportation process is also not safe and secure.  
Retrieval of Medical Record

Compliance 20%

Non Compliance -50%

Partial Compliance-30%

compliance

Non Compliance

Partial Compliance



### B.3 OBJECTIVE - TRACKING SYSTEM

B.3.1	Tracked appropriately using the patient / hospital information system		Non Compliant
B.3.2	Returned to its filing location as soon as possible after use.	Partial Compliant	
B.3.3	Records should store securely within the clinic, ward or office environment, arranged so that the record can be found easily if urgently needed.		Non Compliant
B.3.4	Records should stored closed when not in use so that contents are not seen accidentally		Non Compliant
B.3.5	Inaccessible by members of the public and not left even for short periods where they might be viewed by unauthorized' persons.		Non Compliant
B.3.6	All information relating to unavailable health records is collected by the Medical Records officer (Manager) on a monthly basis		Non Compliant
B.3.7	The Medical Records officer holds a record of all case notes that have been reported unavailable, which includes a log of the reasons behind the non - availability.		Non Compliant

No. of element	Total score	Compliant	Partial compliant	Non compliant
7	5	0	1	6

Gaps - No proper tracking system of records after retrieving. Records handed over to the patients and then no tracking of records have been done. So loss of records is a possible threat and department would come to know about a lost record only when it is needed by another person or for some other reason else no track of the records going outside leaving tracer card.

Tracking System

Partial compliance

14%

Non Compliance 86%

## B. STANDARDS BY BOOK OF C.M. FRANCIS C.I OBJECTIVE – REGISTERS

C.I.I	Central patient admission and discharge register	Compliant		
C.I. 2	Ward admission and discharge register	Compliant		
C.1.3	Operating room register	Compliant		
C.1.4	Emergency service/ casualty register	Compliant		
C.I. 5	Medico legal case register	Compliant		

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	50	5	0	0

Gaps- Registers are properly maintained but medico legal case register which is important is not properly maintained.

Registers



## C.2 OBJECTIVE- INDEXING PROCEDURES

C.2.1	Master patient index		Non Compliant
C.2.2	Disease and operation index		Non Compliant
C.2.3	Physician index		Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
3	10	0	0	3

Gaps-Indexing procedures are not followed in the department and disease index is neither made nor stored.

Indexing



non compliance

### C.3 OBJECTIVE - FILING METHOD

Decentralized filing method is used, in which OPD and IPD files are kept separate, initially, they are kept separate and later on after one and half year OPD files are transferred to room no. 419 with IPD files.

### C.4 OBJECTIVE - NUMBERING METHOD

straight numeric filing is used for numbering method. for example 341 number is issued then 342 then 343 and so on and the number increases for the next patient.

### C.5 OBJECTIVE - MEDICAL RECORD RETENTION POLICY

C.5.1	OPD - 5 years	Compliant		
C.5.2	IPD -10 years	Compliant		
C.5.3	Nurses' bedside records- 2 years	Compliant		
C.5.4	Admission / discharge permanently	Compliant		
C.5.5	Medico legal cases registers-permanently	Compliant		
C.5.6	X-ray report 1-2 year	Compliant		
C.5.7	Daily statistics /monthly report - 1-2 years	Compliant		

No. of element	Total score	Compliant	Partial compliant	Non compliant
7	70	7	0	0

Gaps - Retention policy is followed properly. But they retain registers so long, not according to the standards. Medico legal case register is not maintained and so no separate retention policy is applied for them.



Medical Record retention Policy

### C.6 OBJECTIVE - HEALTH CARE STATISTICS

C.6.1	Daily analysis	Compliant		
C.6.2	Monthly report	Compliant		
C.6.3	Census	50% compliant		
C.6.4	Death rate	Compliant		
C.6.5	Infection rate	Compliant		

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	50	5	0	0

Gaps — Health care statistics is maintained properly. All required statistics are made but manually.



Health Care Statistics

100% compliance

## NABH STANDARD

### A.I OBJECTIVE - COMPLETENESS AND ACCURACY

A.1.1	Every medical record has a unique identifier.	Partially Compliant	
A.1.2	Organization policy identifies those authorized to make entries in medical record.	Partially Compliant	
A.1.3	Every medical record entry is dated and timed.	Partially Compliant	
A.1.4	The contents of medical record are identified and documented	Partially Compliant	
A.1.5	Provision is made for 24-hour availability of the patient's record to healthcare providers to ensure continuity of care.		Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	20	0	4	

Gaps — Record completed by doctors and nurses. Arrangements of record in the files are not as per standards and not arranged in a proper manner. Normally files were signed by the doctor but when needed for legal purpose, respective doctors come and complete the records. Records are not available 24

#### Completeness and Accuracy



Non Compliance 20%  
Partial Compliance 80%

## A.2 OBJECTIVE- CONTINUITY OF CARE

A.2.1	The medical record contains information regarding reasons for admission, diagnosis and plan of care.	Compliant	
A.2.2	The medical record contains the results of tests carried out and the care provided.	Compliant	
A.2.3	Operative and other procedures performed are incorporated in the medical record	Compliant	
A.2.4	The medical record contains a copy of the discharge note duly signed by appropriate and qualified personnel		Partially Compliant
A.2.5	In case of death, the medical record contains a copy of the death certificate indicating the cause, date and time of death.	Compliant	
A.2.6	Care providers have access to current and past medical record		Partially compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
6	50	4	2	0

Gaps — In case of death, file contains time of death but not in the death certificate. For care providers they can have access to patients' records. Discharge notes are included in the file but sometimes filled and sometimes not filled Care providers have not fully facilitated access to record

Continuity of Care



Compliance 66.67%

Partial  
Compliance-  
33.33%

### A.3 OBJECTIVE-THE ORGANIZATION REGULARLY CARRIES OUT REVIEW OF MEDICAL RECORDS- MEDICAL AUDIT

A.3.1	The medical records are reviewed periodically	Non Compliant
A.3.2	The review uses a representative sample	Non Compliant
A.3.3	The review is conducted by identified care providers.	Non Compliant
A.3.4	The review focuses on the timeliness, legibility and completeness of the medical records	Non Compliant
A.3.5	The review process includes records of both active and discharged patients.	Non Compliant
A.3.6	The review points out and documents any deficiencies in records.	Non Compliant
A.3.7	Appropriate corrective and preventive measures undertaken are documented.	Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
7	0	0	0	7

Gaps- No medical audit has been done. None of element is compliant to medical audit of records. They are not reviewed for deficiency check. Measures for deficiency check have not been undertaken.

The organization regularly carries out review of medical records-medical audit

Non Compliant 100%

### A. NHS STANDARDS

#### B.I OBJECTIVE - RECORD MAINTENANCE

B.I.1	The movement and location of records should be controlled to ensure that a record can be easily retrieved at any time, any outstanding issues can be dealt with and that there is an auditable trail of record transactions.		Non Compliant
B.I.2	Storage accommodation for current records should be clean and tidy		Non Compliant
B.1.3	Prevent damage to the records	Partially Compliant	
B.1.4	Provide a safe working environment for staff.	Partially Compliant	
B.1.5	When records are no longer required for the conduct of current business, their placement in a designated secondary storage area may be a more economical and efficient way to store them.		Non Compliant
B.1.6	Equipment used to store current records on all types		Non

	of media should provide storage that is safe and secure from unauthorized access and which meets health and safety and fire regulations, but which also allow maximum accessibility of the information commensurate with its frequency of use.		compliance
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No. of element	Total score	Compliant	Partial compliant	Non compliant
6	10	0	2	4

Gaps —No parameter is fully compliant, there are no proper safety measures of records, because of improper maintenance of records retrieval process is also affected. No fire safety measures are there, health and safety measures have to be undertaken.

## B.2 OBJECTIVE - RETRIEVAL OF MEDICAL RECORD

B.2. 1	Medical Records should be securely held		Partially Compliant	
B.2.2	Medical Records are available for retrieval by authorized members of staff		Partially Compliant	
B.2.3	Requests for records (both routine and urgent) should be directed towards the appropriate departments who are responsible for their storage.	Compliant		
B.2.4	The physical movement of records should be undertaken in a safe and secure way. Clinical records must always be tracked when moved.			Non Compliant
B.2,5	Medical records or other confidential information for transportation between hospital sites/departments must be enclosed in sealed bags/envelopes and labeled appropriately i.e. 'Confidential'. For specific situations i.e. child protection, a further statement should be included i.e. 'to be opened by addressee only'.			Non Compliant
B.2.6	Medical records must be carried between hospital sites /departments by authorized staff only.			Non Compliant
B.2.7	In extenuating circumstances, where medical records accompany patients, they must be sealed in an envelope and handed personally to the patient,			Non Compliant
B.2.8	Records should be transported using appropriately designed equipment. The use of wheelchairs or any such similar is not to be used to transport patient records.			Non Compliant
B.2.9	Staff should not use their own equipment to process or store any identifiable data.	Compliant		
B.2.10	Items should be sent to a named individual and the outer envelope must be marked 'private and confidential'.		Partially Compliant	

No. of element	Total score	Compliant	Partially compliant	Non compliant
10	35	2	3	5

Gaps-Retrieval of medical record is compliant to 2 elements out of 10 elements. 5 are non compliant, no proper confidentiality and privacy is maintained. Transportation process is also not safe and secure.  
Retrieval of Medical Record



### B.3 OBJECTIVE - TRACKING SYSTEM

B.3.1	Tracked appropriately using the patient / hospital information system		Non Compliant
B.3.2	Returned to its filing location as soon as possible after use.	Partial Compliant	
B.3.3	Records should store securely within the clinic, ward or office environment, arranged so that the record can be found easily if urgently needed.		Non Compliant
B.3.4	Records should stored closed when not in use so that contents are not seen accidentally		Non Compliant
B.3.5	Inaccessible by members of the public and not left even for short periods where they might be viewed by unauthorized persons.		
B.3.6	All information relating to unavailable health records is collected by the Medical Records officer (Manager) on a monthly basis		
B.3.7	The Medical Records officer holds a record of all case notes that have been reported unavailable, which includes a log of the reasons behind the non - availability.		

No. of element	Total score	Compliant	Partial compliant	Non compliant
7	5	0	1	6

Gaps — No proper tracking system of records after retrieving. Records handed over to the patients and then no tracking of records have been done. So loss of records is a possible threat and department came to know about a lost record only when it is needed by another person or for some other reason else no track of the records going outside leaving tracer card.



### B. STANDARDS BY BOOK OF C.M. FRANCIS C.I OBJECTIVE

C.i.1	Central patient admission and discharge register	Compliant	
C.1.2	Ward admission and discharge register	Compliant	
C.1.3	Operating room register	Compliant	
C.I. 4	Emergency service/ casually register	Compliant	
C.I. 5	Medico legal case register	Compliant	

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	50	5	0	0

Gaps- Registers are properly maintained but medico legal case register which is important is not properly maintained.  
Registers



## C.2 OBJECTIVE" INDEXING PROCEDURES

C.2.1	Master patient index		Non Compliant
C.2.2	Disease and operation index		Non Compliant
C.2.3	Physician index		Non Compliant

No. of element	Total score	Compliant	Partially compliant	Non compliant
3	10	0	0	3

Gaps-Indexing procedures are not followed in the department and disease index is neither made nor stored.

Indexing



## C3 OBJECTIVE - FILING METHOD

Decentralized filing method is used, in which OPD and IPD files are kept separate, initially, they are kept separate and later on after one and half year OPD files are transferred to room no. 419 with IPD files.

## C.4 OBJECTIVE - NUMBERING METHOD

Straight numeric filing is used for numbering method. For example 341 number is issued then 342 then 343 and so on and the number increases for the next patient.

## C.5 OBJECTIVE - MEDICAL RECORD RETENTION POLICY

C.5.1	OPD - 5 years	Compliant		
C.5.2	IPD -10 years	Compliant		
C.5.3	Nurses' bedside records- 2 years	Compliant		
C.5.4	Admission / discharge permanently	Compliant		
C.5.5	Medico legal cases registers-permanently	Compliant		
C.5.6	X-ray report 1-2 year	Compliant		
C.5.1	Daily statistics /monthly report- 1-2 years	Compliant		

No. of element	Total score	Compliant	Partial compliant	Non compliant
7	70	7	0	0

Gaps — Retention policy is followed properly. But they retain registers so long, not according to the standards. Medico legal case register is not maintained and so no separate retention policy is applied for them.



Medical Record retention Policy

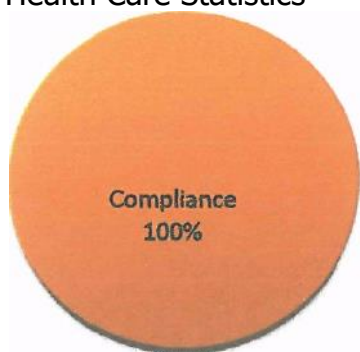
#### C.6 OBJECTIVE - HEALTH CARE STATISTICS

C.6.1	Daily analysis	Compliant		
C.6.2	Monthly report	Compliant		
C.6.3	Census	Compliant		
C.6.4	Death rate	Compliant		
C.6.5	Infection rate	Compliant		

No. of element	Total score	Compliant	Partially compliant	Non compliant
5	50	5	0	0

Gaps — Health care statistics is maintained properly. All required statistics are made but manually.

#### Health Care Statistics



Objective and elements	Findings
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	Compliance	Partially Compliance	Non Compliance
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A.NABH STANDARDS
A,L OBJECTIVE - COMPLETENESS AND ACCURACY

A.I.I	Every medical record has a unique identifier.		Partially Compliant	
A. 1.2	Organization policy identifies those authorized to make entries in medical record.		Partially Compliant	
A. 1.3	Every medical record entry is dated and timed.		Partially Compliant	
A. 1.4	The contents of medical record are identified and documented		Partial Compliant	
A.I. 5	Provision is made for 24-hour availability of the patient's record to healthcare providers to ensure continuity of care.			Non Compliant

A.2 OBJECTIVE - CONTINUITY OF CARE
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A.2.1	The medical record contains information regarding reasons for admission, diagnosis and plan of care.	Compliant		
A.2.2	The medical record contains the results of tests carried out and the care provided.	Compliant		
A.2. 3	Operative and other procedures performed are incorporated in the medical record	Compliant		
A.2.4	The medical record contains a copy of the discharge note duly signed by appropriate and qualified personnel		Partial Compliant	
A.2. 5	In case of death, the medical record contains a copy of the	Compliant		

	deathcertificate indicating the cause, date and time of death.			
A.2.6	Care providers have access to current and past medical record		Partially Compliant	

A.3 OBJECTIVE-THE ORGANIZATION REGULARLY CARRIES OUT REVIEW OF MEDICAL RECORDS- MEDICAL AUDIT				
A.3.1	The medical records are reviewed periodically			Non Compliant
A.3. 2	The review uses a representative sample.			Non Compliant
A.3.3	The review is conducted by identified care providers.			Non Compliant
A.3.4	The review focuses on the timeliness, legibility and completeness of the medical records			Non Compliant
A.3.5	The review process includes records of both active and discharged patients.			Non Compliant
A.3.6	The review points out and documents any deficiencies in records.			Non Compliant
A.3. 7	Appropriate corrective and preventive measures undertaken are documented.			Non Compliant

B.NHS-UK STANDARDS			
B.OBJECTIVE - RECORD MAINTENANCE			
B.1.1	The movement and location of records should be controlled to ensure that a record can be easily retrieved at any time, that any outstanding issues can be dealt with and that there is an auditable trail of record transactions.		Non Compliant
B.1.2	Storage accommodation for current records should be clean and tidy		Non Compliant
B.1.3	Prevent damage to the records		Partially Compliant
B.1.4	Provide a safe working environment for staff When records are no longer required for the conduct of current business, their placement in a designated secondary storage area may be a more economical and efficient way to store them.		Partially
B.1.5	Equipment used to store current records on all types of media should provide storage that is safe and secure from unauthorized access and which meets health and safety and fire regulations, but which also allow maximum accessibility of the information commensurate with its frequency of use.		Non Compliance
B.2.1	Medical Records should be securely held		Partially Compliant
B.2.2	Medical Records are available for retrieval by authorized members of staff		Partially Compliant
B.2.3	Requests for records (both routine and urgent) should be directed towards the appropriate departments	Compliant	
B.2.4	who are responsible for their storage. The physical movement of records should be undertaken in a safe and secure way. Clinical records must always be tracked when moved.		Non Compliant

B.2.5	Medical records or other confidential information for transportation between hospital sites/departments must be enclosed in sealed bags/envelopes and labeled appropriately i.e. 'Confidential'. For specific situations i.e. child protection, a further statement should be included i.e. 'to be opened by addressee only'.		Non Complaint
B.2.7	In extenuating circumstances, where medical records accompany patients, they must be sealed in an envelope and handed personally to the patient,		Non Compliant
B.2.8	Records should be transported using appropriately designed equipment. The use of wheelchairs or any such similar is not to be used to transport patient records.		Non Compliant
B.2.9	Staff should not use their own equipment to process or store any identifiable data.	Compliant	
B.2.10	Items should be sent to a named individual and the outer envelope must be marked 'private and confidential'.		Partial Compliant

.3 OBJECTIVE - TRACKING SYSTEM				
B.3.1	Tracked appropriately using the patient/hospital information system			Non Compliant
B.3. 2	Returned to its filing location as soon as possible after use.		Partial Compliant	
B.3. 3	Records should be stored securely within the clinic, ward or office environment, arranged so that the record can be found easily if urgently needed.			Non Compliant
B.3.4	Records should be stored closed when not in use so that contents are not seen accidentally			Non Compliant
B.3.5	Inaccessible by members of the public and not left even for short periods where they might be viewed by unauthorized" persons.			Non Compliant
B.3.6	All information relating to unavailable health records is collected by the Medical Record officer (Manager) on a monthly basis			Non Compliant
B.3.7	The Medical Record officer holds a record of all case notes that have been reported unavailable, which includes a log of the reasons behind the non -availability.			Non Compliant

C. STANDARDS TAKEN FROM- HOSPITAL ADMINISTRATION BY C. M. FRANCIS				
C.I OBJECTIVE- REGISTERS				
C.I.I	Central patient admission and discharge register	Compliant		
C.I. 2	Ward admission and discharge register	Compliant		
C.I. 3	Operating room register	Compliant		
C.I. 4	Emergency service/ casualty register	Compliant		
C.1.5	Medico legal case register	Compliant		
C.2 OBJECTIVE- INDEXING PROCEDURES				
C.2.1	Master patient index			Non Compliant
C.2.2	Disease and operation index			Non Compliant
C.2.3	Physician index			Non Compliant
C.3 OBJECTIVE - FILING METHOD				
	Centralized/ decentralized	Decentralized		
C.4 OBJECTIVE - NUMBERING METHOD				
C.4.1	Straight numeric filing/ Terminal digit filing/ middle digit filing/ Alphabetical method/ Chronological order	Straight numeric filing in Chronological order		
C.5 OBJECTIVE - MEDICAL RECORD RETENTION DOLICV				
C.5.1	OPD-5years	Compliant		
C.5.2	IPD- 10 years	Compliant		
C.5.3	Nurses' bedside records- 2 years	Compliant		
C.5.4	Admission / discharge permanently	Compliant		
C.5. 5	Medico legal cases registers- permanently	Compliant		
C.5.6	X-ray report 1 -2 year	Compliant		
C.5. 7	daily statistics /monthly report - 1 -2 years	Compliant		
C.6 OBJECTIVE - HEALTH CARE STATISTICS				
C.6.1	Daily analysis	Compliant		
C.6.2	Monthly report	Compliant		
C.6.3	Census	Compliant		
C.6.4	Death rate	Compliant		

## **CONCLUSION AND RECOMMENDATIONS**



1. Medical records are the key facilitators for delivery of scientific medical care in hospital. In this project report the retrieval process of medical record LBSH has been assessed. The observations and findings were recorded under: activities of medical record department, admission procedures, retrieval system of OPD & IPD files, various registers and charts are maintained with standard guidelines.

2. Check list was used for collection of information and was devised on standard guidelines taken from three sources i.e. NABH, NHS-UK and text book of hospital administration by CM Francis.

3. Percentage compliance for each standard was arrived at after assessment. Scoring of standard as done in NABH was also done to arrive at conclusion after the assessment.

4. The planning consideration of medical record department and retrieval system has been analyzed critically with importance of planning for future improvement.

5. The success or failure of medical record department will depend upon how quickly and accurately the records can be retrieved for uses. The factors affecting determination of retention of medical records were also observed.

6. Proper maintenance and retrieval of medical record department is most vital. Factors affecting its space requirement and storage have been observed.

7. Proper maintenance and retrieval of medical record department is most vital. Factors affecting its space requirement and storage have been observed.

## **RECOMMENDATIONS**

1. Earlier medical records were maintained by the concerned medical officer but now with the increasing clinical as well as legal importance of the medical records, a full-fledged medical record department has been established with required strength of staff as per standard guidelines. The strength of staff is inadequate and needs to be enhanced. The weaknesses, opportunities should be reviewed periodically and taken care of for continuous quality improvement of medical record department at LBSH, Mayur Vihar, Delhi.
2. Standard guidelines should be followed for maintenance of medical records. Standard procedures should be made for proper retrieval and safety of files.
3. There should be a proper procedure for tracking the records after retrieval. Medico legal record should always be kept in safe custody i.e. under lock and key with responsible person.
4. Computerization is the accepted mode of medical record storage. Computerization of medical records is being done by digitizing rather than directly entering into the computer. There is a need to have a proper HMIS.
5. Policy should be made so that records should not be handed over to the patients directly.
6. Compactors should be used to safeguard the files. Proper fire safety measures should be undertaken. There should be adequate light and ventilation in the working area. Plan should be developed and designed including estimates, personnel, equipment and material deal with diverse technical and administrative advances in quality assurance in service education, or programme development, establishing new criteria for evaluating medical record programmes.
7. Computerization is the accepted mode of medical record storage. Computerization of medical records is being done by digitizing rather than directly entering into the computer. There is a need to have a proper HMIS.

### **Advanced Technology**

Adopting advanced technology in the form of electronic hospital information system. The objective of process of computerization to create an integrated electronic hospital information system. This will enable to have retrieval and data management at the click of the button.

Medical record staff should be trained in data entry and to use software.

Medical audit should be done periodically to see the non compliant of the standards and remove the loop holes.

## **BIBLIOGRAPHY**

1. Medical record guide (internet) 2003 Available  
[http://w\\w.ifebp.org/pdf/harker/Medical\\_Records\\_Guide.pdf](http://w\\w.ifebp.org/pdf/harker/Medical_Records_Guide.pdf).
2. Smith -information : Information retrieval in medicine: The electronic medical record as a new domain (internet) Available from:[http://eprints.rclis.org/bitstream/!0760/857!/I/Smith\\_Information.pdf](http://eprints.rclis.org/bitstream/!0760/857!/I/Smith_Information.pdf).
3. Medical record and its importance (internet) Available  
[romhttp://www.healthnetorg.np/reports/bpkllcos/mrecord.html](http://www.healthnetorg.np/reports/bpkllcos/mrecord.html)
4. Gupta Shakti Kumar, modern trends in planning and designing of hospitals principles and practice, Jaypee publications, chapter -17, medical record services,P-117.  
 Joshi S.K. quality management in hospital, 1st edition 2009. Jaypee Brothers Medical Publishers. Pvt. Ltd., New Delhi, Chapter no-, medical record department .P-171-172  
 Thomas Joseph , Medical records and issues in negligence(internet) Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2779965/>  
 Huffman ednak , Manual for medical record librarian .4thedi. 1960. chapter no 7 Availablefrom:[http://www.yale.edu/ghli/Blueprint\\_for\\_Hospital\\_Mgmt\\_Ethiopia.pdf](http://www.yale.edu/ghli/Blueprint_for_Hospital_Mgmt_Ethiopia.pdf)  
 Medical record manual : a guide for developing countries (internet) 2002(updated 2006)  
 Available  
 from:<http://www.wpro.who.int/publicatioBS/docs/MedicalRecordsManual.pdf>
9. Master Patient Index Module Available From:  
[http://www.ogersystems.com/pdf/Master\\_Patient\\_Index.pdf](http://www.ogersystems.com/pdf/Master_Patient_Index.pdf)  
 Wikipedia, Available  
 From:[http://en.wikipedia.org/wiki/Enterprise\\_Master\\_Patient\\_Index](http://en.wikipedia.org/wiki/Enterprise_Master_Patient_Index)  
 Kunders, G D , hospital facility planning and management.2nd ed,2004.Tata Me. Grow Hill Education Pvt. Ltd. Chapter no-, medical record department .P-337-344 Ignou notes  
 Francis C M , hospital administration .3rd edition. 2000. Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi, chapter no-7, specialized service area-medical record. P-185-203 Mac eastern Malcolm t. hospital organization and management, 1957 . Chapter no 13- the medical record management. P-749-750  
 Self Assessment Toolkit (internet) Available From:  
<http://www.nabh.com/main/hospitals/documents.asp>  
 Health Record Management Policy Available From: [http://www.ruh.nhs.uk/about/policies/documents/non\\_clinical\\_policies/black\\_info](http://www.ruh.nhs.uk/about/policies/documents/non_clinical_policies/black_info).
- 17.Record Management- NHS Code Of Practice Available  
 From:[http://w\\w.dli.gov.uk/prod\\_consum\\_dh/groups/dh\\_\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_4133196.pdf](http://w\\w.dli.gov.uk/prod_consum_dh/groups/dh__digitalassets/@dh/@en/documents/digitalasset/dh_4133196.pdf).