Electronic Medical Record - Essential For Healthcare System

Dr. Himanshu A. Joshi

Associate Prof. In Pediatrics, GMERS Medical College, Gandhinagar.

Abstracts: In recent years, medical record-keeping has evolved into a science which is increasingly using computers and digital technology to fulfill the needs of clinicians, researchers, administrators, legal regulatory agencies and insurance companies. Medical records are important because 'people forget and record remembers. The Medical Record Department, which is entrusted with storage, analysis and retrieval of records, plays a key role in management, planning, medical audits, policy decisions and research in any institution. Further, the information provided by this department to the health authorities of the city, state and country forms the basis on which several health-related decisions are taken at those levels. Medicolegally these records are to be preserved for, fix time periods depending on type of cases, so proper storage and damages to the conventional paper based records is emerging as a big issue to institutions. A hospital should follow well established procedures meticulously; update them regularly including the use of Information Technology for having sound Electronic Medical record Department. The transformation of conventional medical records to electronic medical records, certain Technical features and standard are to be observed strictly. In turn, this will provide more reliability, Transparency and accuracy in Medical Records. This will generate great amount of confidence in our patients, Insurance Companies, TPAs and Accreditation bodies. Electronic Medical record will be first step towards "Paperless Hospital". [Joshi H et al NJIRM 2012; 3(3) : 176-181]

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Author for correspondence: Dr. Himanshu A. Joshi, Associate Prof. In Pediatrics, GMERS Medical College, Gandhinagar ,India. Email : drhimanshu.joshi60@gmail.com

Introduction: Record management is a programme that involves the function of creating, administrating, retaining, submitting and destroying the record. Herbert Hoover has rightly mentioned the advantages of proper record keeping when he says, "A business decision is only as good as the facts on which it is based."[1]

Records are memory of the internal as well as external transaction of an organisation. By external transaction we mean the correspondence between the organization and its client, beneficiaries as well as supporters by internal transaction. We mean the detailing on external traction by persons in the organization at all levels. Records contain a written evidence of the activities of an organization in the form of letters, circulars, reports, contracts, invoices, vouchers, minutes of meeting, books of accounts, etc. It is recommended that more efforts should be made by the hospital management, all clinicians as well as medical record officer should move towards improving the standard of maintenance and preservation of medical records. The management and preservation of hospital records in the Indian context presents a very gloomy picture. Of course, the private hospitals have been found establishing an edge over the government hospitals even in respect of records management. [2]

Despite intensive endeavors at national and international levels the fundamental health care needs of the population in developing countries are still unmet and the underprivileged in these countries scarcely have excess to health services. The lack of basic health data renders difficulties in formulating and applying a rational for the allocation of limited resources that are available for patient care and disease prevention.

Prior to last four decades, the status of medical record administration and technology in developing countries was deplorable. The medical staff only vaguely appreciated the value of the health care record, record completion

task and its maintenance remains a low priority. Within last thirty years, significant progress has been occurred in the field of medical records in developing countries. Medical record departments in teaching and research hospital have planned and organized efficacious system for record completion and retention. Yet by international standards much remains to be done, especially in the vast majority of hospitals where medical record services are sometimes considered as an administrative burden.

Electronic Medical record system lies at the centre of any computerized health information system. Without them other modern technologies such as decision support systems cannot be effectively integrated in to routine clinical workflow.

The paperless interoperable, multispecialty, multidiscipline computerized medical records which has been a goal for many researchers, healthcare professionals, administrators & politicians for the last 20+ years, is however about to become reality in many countries like U.S.A, Australia, U.K. Canada, Denmark, France and Newzeland.

Implementation of Electronic Medical record system will be in turn leading towards the "Paperless Hospital Model" and raising the confidence of Accreditation Bodies, TPAs and Insurance Companies.

Medical Record

- A medical record is defined essentially as a document which supplies. [3]
- A basis for continuity of patient care.
- A fundamental means of communication among healthcare personnel.
- A source of comparative studies and research.
- A medium of education for medical and paramedical personnel.
- A legal protection for institutions, practitioners and patients.

According to McGibony, a chronicle of Pagentory of Medical and Scientific progress is found in hospital records.[4]

Need of Medical Records : Hospital medical records is a documentary evidence as per the Indian Evidence Act, 1872,[5] as amended up to August 1, 1952 & 1961 and medical records are generally summon to the court of law in the following types of cases in our country.

Insurance Cases: Frequent requests come from the life insurance corporations regarding details of the hospitalization of a patient. This is for the purpose of disposing claims that may have arisen for settlement as the patient is insured with the corporation. With the help of the hospital medical record, various life insurance forms are completed. Though the information made available from the hospital medical record is a privileged communication and the document in this respect is used as a personal document, yet the release of such information without the prior consent of the patient is permissible because the patient had waived his claim of this privilege at the time of taking out a policy with the corporation.

Workmen's Compensation Cases: The workmen's compensation Act of 1923 as amended up to 1942, provides for the payment, by certain classes of employees to their workmen, of compensation for injury caused by accident arising out of and in the course of employment.

Personal Injury Suits: In this type of suit, the claim is made by the individual for damages sustained as the result of injuries, which were due to the fault or neglect of another. The patient may show the extent of the injuries, the treatment rendered and the duration of the care required. The medical record is used to obtain the required data for this purpose.

Malpractice Suits: Malpractice is defined as want of reasonable care and skill or willful negligence on the part of a doctor, nurse or

other staff of hospital in the treatment of a patient so as to lead to bodily injury or loss of life. An action for malpractice may be brought against the hospital and its employee in a civil or criminal court. The hospital medical record is used to show whether there was negligence and whether the treatment rendered was adequate and proper or otherwise.

Will Case: The patient may have made a will during his hospital stay. After the death of the patient an attempt may be made to set the will aside by seeking to prove that the patient was not competent to make a will at that time.

The Income Tax Act: Request for confidential information concerning a patient is frequently required by the income tax officer from the hospital. This information is available in the medical record. Here, again the medical record is used as a personal document and yet the information has to be made available to the income tax officer by virtue of the power conferred on him under the section 38(5) of the Income Tax Act 1922 and no prior permission from the patient is necessary.

Criminal Cases: Cases which are tried under the Indian Panel Code and related with criminal cases are generally limited to the medico-legal report and postmortem examination report.

Human Organs transplant Cases: The transplantation of human organs act, 1994 is meant to 'provide for the regulation of removal, storage and transplantation of human organs for therapeutic purposes and for the prevention of commercial dealings in human organs.' The central act illegalizes the buying and selling of human organs and make cash for kidney transaction a criminal offence.[6]

Important Medico Legal Facts : Certain practices should be determined by the hospital administration and MUST be followed by the medical record staff. The attending doctor should be responsible for checking legal requests and release of information to ensure that only information relevant to the request is released. Except for providing ongoing care and treatment for the patient. All photocopying of the patients' medical records requested by the patient or the patient's authorized nominee should be at the expense of the patient and not the hospital.

As a general rule, access to medical should be restricted to health professionals involved in the continuing care of the patient. Medical records may be used for research and statistics without the patient's consent as long as the patient is NOT identified.

Legal Limit (Period) for Preservation of Medical Records. Where there is chance of litigation arising for medical purpose of negligence, record should be preserved for at least 25 years, specially because there are rules where the minors have the rights to sue the doctor within three years from the date of majority, for the injuries sustained due to negligence of the doctor during the period of his minority.

Other medicolegally important records should be preserved upto 10 years after which they can be destroyed after making index and recording summary of the case.

Routine cases records may be preserved upto 6 years after completion of treatment and upto 3 years after the death of the patient.

There are certain records in hospital, which are of public interest and are transferred to public records library after 50 years for release to public.

Essentials of Records Management:

Comprehensive: The records should be such as can be easily understood when retrieved back for planning, policy making and decision making. The languages used should be simple and understandable.

Properly planned : The records are to be screened at regular intervals of time to weed

out the information not required for future. In this way we can reduce the paper work to 25%. This would indirectly help us in locating the desired information quickly.

Economical : We should manage the records economically so that we may achieve more with minimum efforts.

Accurate : The records should be accurate otherwise its utility would be doubtful.

Timely : The time taken in retrieving the information should be as short as possible. Reducing retrieval time is essential for effective material management.

Classification : Records must be classified to be of practical use. The classification is done either on the basis of subjects or chronology.

Issues and Problems of Paper Records Management and its Preservation in Hospitals

Based upon observation, discussion and analysis, the main problems faced by hospital authorities in preservation and management of records are as follows :-

Use of outdated forms : It will provide false & incorrect medical records and hence constant revision of forms is needed.

Shortage of experience personnel : For proper management of medical records a qualified and experience person is required to facilitate the storage & retrieval of data.

Lack of planning in storage of in-active records : Need of effective storage and control of in-active records.

Lack of determination of records retention period: Need of determination of records retention period. The unwanted records should be destroyed to save the time and resources.

Delay in transfer of records : transfer of record entail two stages i.e. i) Dating of unimportant records for destruction and ultimate disposal. ii) Moving the records from active to in-active files and from there to the storage area.

Shortage of Storage Space : The lack of planning in storage of inactive and old records and the less knowledge about exact record retention period leads to unnecessary accumulation of medical records. It occupies the storage space identified for the record department in turn it leads to shortage of storage space for actually required medical records.

Damages to the paper documents: As time passes paper becomes weak & sometimes broken into pieces.There may be colour alteration & it may become yellow. Dust & dirt may be present on surface.

Advantages of EMR over paper based records :

The majority of Doctors/hospitals still find their ease of data entry and low cost of paper based medical records and prefer it. As most states in U.S. & other part to world require physical records be held for a minimum of seven years. [7] The cost of storage media, such as paper and film, per unit of information differ dramatically from that of Electronic Storage Media.

When paper records are stored at different locations, collecting them to a single location for review by a health care provider is time consuming and complicated, while this process can be simplified with electronic records.

As and when need arises paper based records are required in multiple locations, copying, faxing and transporting cost are significantly high as compared to duplication and transfer of Digital records. We can say that "EMR provides a single, shareable, up to date, accurate, rapidly retrievable source of information, potentially available anywhere at any time, requires less space and administrative resources."

Potential for automation structuring and streamlining clinical workflow, is more. Because of these many "After entry" benefits governments, insurance companies and large institutions are heavily promoting the adoption of Electronic Medical record.

Event Monitoring : EMR system automatically monitor clinical events, by analyzing patient, data forms an electronic health record to predict, detect and potentially prevent adverse events. This can include discharge/ transfer orders radiology results, laboratory findings and any other data from availing services or provider note.

Role in Electronic Research Network : The Internet based infrastructure provides the researcher with electronic medical records and standardized clinical report forms, shifting away from the paper based data collection tools that are not standardized. This type of communication improves the quality and number of clinical research opportunities.

Transfer of Data : It provides significant help when in emergency or serious patients are to be transferred to higher centres, the treating doctor team there receives exact medical records of the patient immediately.

Technical Features: The whole hospital is linked with network system & computerized and the data should be stored on daily basis & patient wise. The network of Hospital Information System (HIS) attempts to integrate & communicate the reports to patients (online) and easy flow of information within the hospital. The Government of Gujarat has identified quality health services and the efficiency of Government Managed hospitals as key contributors for building trust and confidence for the general hospitals in the heart of the citizen of the state and introduced HMIS.[8] In Govt. hospitals of Gujarat HMIS is successfully performing since July 2007 by connecting of the hospital internally through intranet & to the health department by internet. This HIS has helped in developing EMR and medical record department enormously as :

Coding of all diagnosis is through HIS.: Due to Unique ID Number tracking of Patients disease and treatment is possible. Data extraction and analysis is immediate & easy. Demographic analysis is automated. Reports can be generated to provide information to Government bodies, e.g. Notification of Disease. Retrieval of report is possible for an infinite number of times as the data is store permanently. Scanning (digitalization) of Document is done for the convenience of doctors, research fellows & insurance claim process.

Using an Electronic medical record to read and write a patients record is not only possible through a work station but depending on the type of system and health care settings may also be possible through Mobile devices that are handwriting capable.

Technical Standards : Though these are few standards for modern day EMR system as a whole. There are many standard relating to specific aspect of Electronic Medical records formulated by Health Secretary of India.

These includes : [9]

HL-7 : Message format for interchange between different record systems and practice management system.

ANSIx12(EDI) : A set of transactions protocols used for transmitting virtually any aspect of patients data.

CEN –Contsys : A system of concepts to support continuity or care.

CEN : Standard for the communication of the information from other reporting systems.

HL7 CDA : Clinical document Architecture.

CCD/CCR : Continuity of care documents /Records. Services standards for inter system communication.

DICOM : A standard for representing and communicating radiology images & reporting.
ICD – 10 : Coding of all diagnosis is done through the HIS.

The recent guideline of Indian court and DGHS vide letter No.10-3/68-MH dated 31-8-1968 states that responsibility of hospital to keep medical records is up to duration of 5 years for outpatient department and inpatient medical record (case sheet MLC and Non MLC) is up to 10 years.

In the Medical Record department's where workload is high (nearly 150 admissions and 150 discharges per day), microfilming of medical records is being undertaken. The advantages of microfilming are :

- About 90% of space can be saved.
- Accessibility is better due to easy storage in a smaller area.
- It provides protection as the records cannot be tampered with easily.
- It ensures elimination of misfiling.
- Records can be easily classified and stored.
- It leads to saving of time and manpower, and is economical in the long run.

Conclusion : The Medical Council of India guidelines of 2002 state that efforts should be made to computerize medical records for quick retrieval.[10] Healthcare systems around the globe are experiencing tremendous pressure to improve services while containing costs. There is a trend towards real time, paperless and film free patient monitoring, nursing care and medical record tracking. E-health records can lead to better care and are more environment friendly.

However, following a system of e-medical records has many pros and cons. It requires a computer savvy staff, which means spending more time and money on their training. The advantage is that a lot of the physical space being used for the storage of paper medical records can be utilized for other medical purposes. Data are stored in a central repository in an environment-friendly manner, transfer is easy, and continuity is maintained with indefinite data storage facility with automated insurance link.

This HIS & EMR implementation in hospital would be blessings for the institutions & will be one step ahead towards paperless hospital.

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