HOSPITAL RECORDS MANAGEMENT – BEYOND ELECTRONIC XEROXING

Dr. Jenevia FARGOES,
Specialist in Health Management,
Mumbai, India

INTRODUCTION

Hospital is a big complex system encompassing a wide range of departments and performing several time-bound activities. Management of various functional departments together with scheduling surgical operations and support services, maintaining optimal inventory of medicines & other consumables and efficient billing and accounting operations are some of the major tasks. The situation becomes further involved if teaching and research activities are also attached to such an institution. Each department generates huge amount of data and that too on daily basis. No wonder, an efficient running of a hospital demands need-based and timely processing of such voluminous data for pertinent retrieval and to support informed decisions.

Though, of late, several online systems are introduced to capture such data in digital format itself to facilitate the processing, yet a legacy, that is big chunk of data of the bygone print era fills the record rooms of many hospitals. Conversion of the hand-written or print records in the digital form and meshing them with the current born-digital records emerges as the prerequisite for seamless processing for timely and comprehensive retrieval. This crucial step needs manual input of numerous kinds like scanning, cleaning, collating and indexing of millions of records. It no doubt demands considerable human resource and variety of expertise that is usually not the part of the mainstream hospital staff.

Records Galore

Hospital records abound in different types. An illustrative sample of them is given below.

Core medical: Patient case papers, opinion and notes of attending doctors, medical treatment prescriptions, x-rays, cardiographs, CT scans and other scanned documents and hospital discharge card, clinical trials

Finance and administration: Stock invoices, suppliers’ bills, patients’ bills, insurance claims, staff salary and legal cases

Human resource: Basic records of all the staff on the hospital rolls, visiting experts, students, training and publications

It is clear that such records are generated daily and they go on piling relentlessly. Very often these records require processing to address a variety of subject matters. They could be related to say, medical treatment and procedure issues, filing statutory government returns and audit queries to state a few. Extended manipulation or cross tabulation of these records across several fields can bring out many associations and relations that would be of significant nature for the hospital functioning and management.

Hospital management and services are generally guided by factors like the best utilization of resources or obtaining the maximum return on investments along with extending a top class service and full attention to the needs of the patients. Implementing a program for digitization and organization of hospital records along with installation of a dynamic and wide-ranging information retrieval system should thus receive due attention by a hospital to enhance its reputation in the field of medical service and care. Outsourcing these services is a feasible solution; a number of solution strategies are available for this purpose.

Keywords: data management, software, hospital services

What is involved?

Converting old printed or hard copy of records into digital form is a involved task and is to be executed professionally so that they get suitably linked to the current born-digital records. Arranging papers and preparing them for scanning, cleaning and editing the scanned images, and indexing them suitably for efficient retrieval are the basic steps.

In this sense digitization of records is not akin to simple scanning or electronic Xeroxing alone. Organization of these digitized records incorporating suitable links, tagging and indexing for accurate and relevant processing to match the query is equally important in conjunction.

Outlined below are select areas where such a database coupled with suitable information retrieval system can meet adequately the demands of general administration, human resource and accounting wings, medical & technical departments and teaching and research activities of hospital. Such database can be subjected further to the special data mining techniques to obtain advanced associations, if necessary.

Select Applications

Patient’s History: Record of every patient treated by the hospital forms a central part of the database. Right from the Admission card, Case papers to the Discharge card along with the actual X-rays and scans provide basic information for retrieval either individually or for a group according to a specified condition like gender, age, blood group and type of disease.

Life-threatening allergy issues in respect of each patient would be available to the emergency staff to administer the treatment correctly even if the patient is not in a position to recall those.

Details regarding medical or health insurance policies of the patients could be tracked to facilitate paperwork for making the claims off the insurance service providers.

Average stay in ICU and other Wards for different categories of patients could be obtained and utilized for capacity projecting and planning purposes.

Prognosis and Diagnosis: A trend analysis regarding occurrence of certain disease can be determined say, according to the time of the year. Effectiveness of various medicines and their side effects can be monitored.
Relation between the final outcome and treatment line employed could be established and validated for the patients of different age groups and pathology conditions.

**Stock Verification:** Data about medical stock and other items consumed by each department could be aggregated and tallied with the central records to monitor the consumption pattern. It could be further used to formulate a replenishment policy. Performance of the suppliers can be evaluated to revise the ordering policy, if found necessary.

**Billing Report:** Cross checking of billing details with the stay of patient and services provided is assisted at any point of time.

**Audit Reports:** Meeting the audit requirements in respect of primary and secondary parameters is facilitated because records can be retrieved according to heads like hospital department, any patient or treatment item, specific time-period and purpose.

**Government Reporting:** Several statutory returns are to be filed with the government agencies from time-to-time. Moreover, supplying information for medical and healthcare surveys, disease incidences and many non-standard items is often required. Older records required in prolonged legal cases are to be maintained and processed as per the need. All such labor intensive and time consuming activities can be completed with a greater ease and accuracy by multi-purpose processing of the total digital record database thus created.

**Easy Access for Medical Experts and Consultants:** Access to all the records of a given patient by the personal digital devices irrespective of time and location could be extended to the designated medical experts and consultants of the hospital with suitable privacy protection. More informed guidance can therefore be extended by them to the hospital staff in any emergency situation.

**Teaching and Research:** An exhaustive database of real life cases provides an opportunity to undertake in-depth research studies besides using it for the teaching and guiding the medical students. Study of the effects of specific medicines or a line of treatment for a given disease can be effectively evaluated under different conditions is one example.

In addition inspecting large size ICU charts converted in the digital form would help students and researchers in understanding the effects and response by a patient under study on day-to-day basis. This would enrich their knowledge by understanding the intricacies and finer aspects of the healing process. The logic and approach of the doctors reflected in diagnosis in real life conditions could be brought out by suitable analysis of the patients' history records without revealing the identity of both the doctors and patients as the records would be encrypted. Teaching based on live cases data would thus be adding value. It is likely that students would be inclined to join institution that imparts training based on the local real life data all the time.

**Solution Strategies**

It is clear that purchase and installation of a software package alone is not a solution in such a situation. It needs considerable support for data preparation component too. The following three strategies could be considered: In-house digitization and software development; In-house outsourcing; Turnkey solution from the practical point of view the first strategy above would not be obviously feasible in the modern hospital environment. Tasks involved are entirely of different kind and do not fall in line with the normal hospital and medical routines.

The second strategy above suggests provision of the infrastructure and scanned images by the hospital and rest of the steps like editing and processing to be carried out by an outsourced agency. It ensures full supervision by the hospital staff on the scanning process. This solution can reduce the outsourcing billing to a sizeable extent, but would demand time of the hospital staff besides training.

The third solution strategy envisages that an outsourced agency would perform all the operations right from the scanning to the retrieval part. This could be attractive because the hospital staff is not burdened with extra work, but would require a budget. However, this burden could be managed by administrative fees.

**A Way Out**

How to implement such old record conversion, merging them with born digital records and organizing the database for que-rying by a hospital in real life is the moot point. Since the tasks require considerable manual processing the option of total outsourcing emerges the best one in our context.

While exploring the possible agencies that have developed such expertise, especially in the developing countries where manual processing rates are the most competitive, some informatics firm offering such turnkey solution and comprehensive services was noticed. Such services benefit developed expertise in delivering the total solution outlined above (eg: MedDOER provided by Noetic Technologies etc).

**CONCLUDING REMARKS**

Hospital management and services are generally guided by factors like the best utilization of resources or obtaining the maximum return on investments along with extending a top class service and full attention to the needs of the patients. Implementing a program for digitization and organization of hospital records along with installation of a dynamic and wide-ranging information retrieval system should thus receive due attention by a hospital to enhance its reputation in the field of medical service and care.

A number of solution strategies are available for this purpose. A solution could be implemented in phases, if the need be. First phase covering records of the last two years and current year is suggested for testing the results and utility. Backlog for the rest of the previous data could be digitized and dealt with in due course. Hospitals that are currently in the midst of such operations or are planning to do so, could examine the outsourcing option stated above. It is our belief that cure, care and cost could be professionally managed by such a solution strategy.

The author of this article is Dr. Jenevia Fargoes, she belongs to the Medical fraternity and is also a qualified Management professional. In her pursuit of advancing Medical Management, she researches into the realms of Technology application and has authored this article for purpose of knowledge that has immense relevance in this digital age.

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