Continuing Medical Education for Rural Public Health Centers

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   Abstract- CME (continuing medical education) is a key concept of national strategies in health. A study was undertaken of the current knowledge and continuing future training requirements of nurses, Inspectors CME to inform policy to meet national goals of healthcare. Questionnaire distributed to nurses, pharmacist, doctors and health inspectors in rural hospital who practice Traditional Indian Medicine Technologies were used by 221% of respondents as part of their work-related activities. This paper describes health in India that increase provider and patient access to health information.

   Index Terms: CME, M-health, P2P, Public health

I.   INTRODUCTION

Before the development of Information technology, generally in every hospital they were maintaining their patient recodes in a paper based format. There were serious drawbacks encountered in traditional paper based patient records management systems, such as that the record can only be stored at one specific location in a hospital. A lot of storage space and personnel were needed to take care of the patient records. Moreover, it can only be accessed by one person at a time. There was a big risk of losing the records because those records were not well organized. Sometimes patient information was often incomplete and it was very difficult to understand for other medical practitioners. Finally, the doctor had to collect all the paper based patient record to write a discharge summary report manually about a particular Later due to the rapid development of technology like fast internet access and massive storage capacity. Most of the hospitals maintain their patient records in electronic format which is usually represented in semi-structured or free text form. The medical practitioner, who has permission to access the system, can easily store the patient records without any lose of data and also facilitates ease of access to patient records. But still medical practitioners have to spend significant amounts of time to write discharge summary report manually for a particular patient data, even though all patient record stored electronically. It is a time consuming job for physicians. Computer based techniques can used as an alternative method to overcome the above problem by creating system which can produce automatic discharge summaries. Discharge summary is a clinical report produced by the doctors or other medical practitioners after the end of patients stay at the hospitals. Discharge summaries are constructed by medical practitioners by aggregating important information during the period of patient stay at the hospital. Some of the information which is usually found in the discharge summaries is the patient's medical condition, disease finding, medicines administered and the response of the medicine to the patient. The discharge summaries are used as a tool to obtain patients background medical information when a patient comes again to the hospital for some other medical conditions.Text summarization is the process to produce a shortened version of the original document preserving its information content and overall meaning in a form readable by humans. When this is done by means of computer, automatically, we can call this automatic text summarization. Input to a summarization process it can be one or more text documents. When the system takes only one document as an input, it is called single document text summarization and when the system takes a group of related text documents as an input, it is called multi-document text summarization. Depending upon on the text representation of the output summary, it can be categorized as an extract and an abstract. An abstract is a summary, which are generated by reformulating the salient text units selected from the input text document and it may contain some text units, which are not present in the input text document. An extract is a summary consisting of a number of salient text units selected from the input text document (Mani, I., 2001).From 1950's, various automatic text summarization system has been applied in different domain like news articles, scientific articles etc whereas it has not been applied extensively in medical domain. Most recently many researchers focusing more on medical domain there are lot of information in electronic format which could be exploited in better manner to understand patient's records.
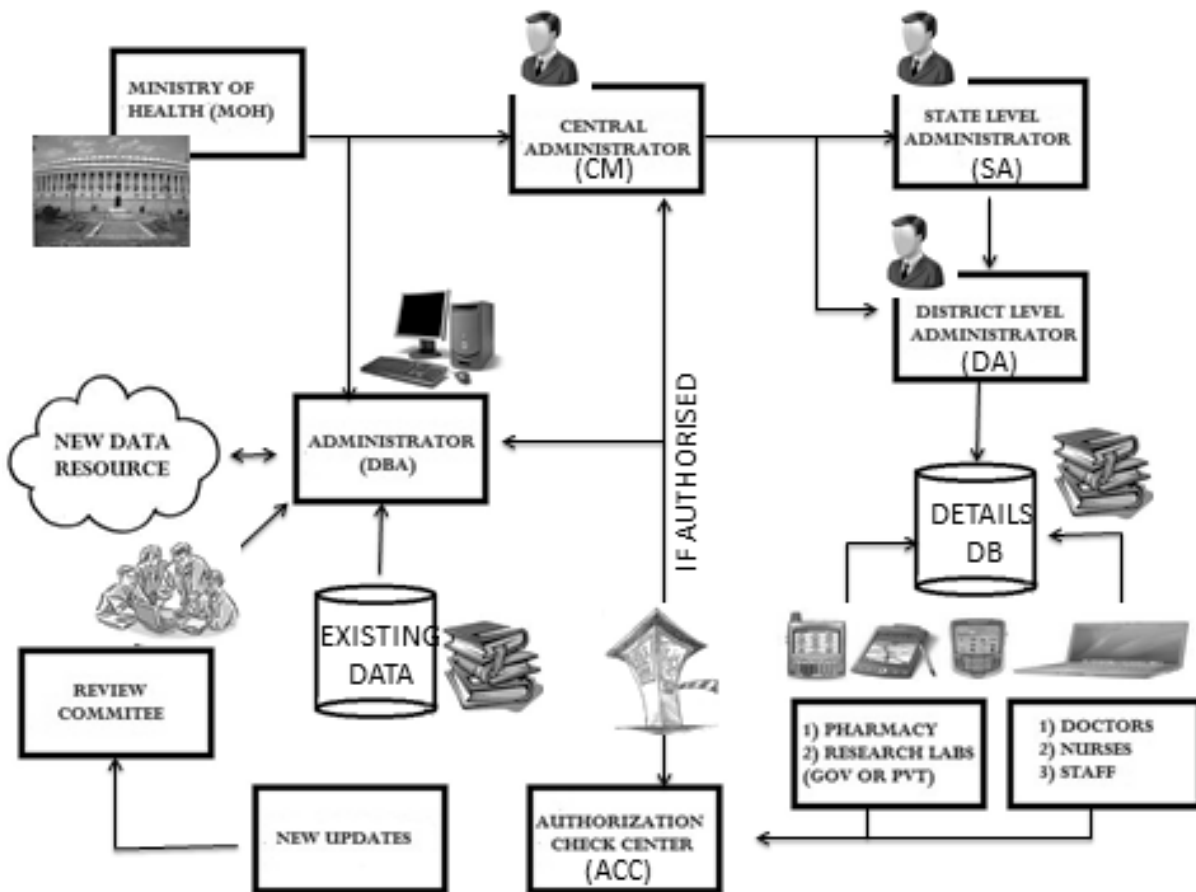
Continuing Medical Education:

Fig:1 CME for Rural Health centers

The central administrator will control the data exchange at the country level. He will be appointed by the MOH (Ministry Of Health). Roles and Responsibilities: He will be responsible for keeping a record and track of activities performed by the SAs'. He will also be officially responsible for checking the authentication of data forwarded by the SA and will authorize them access (as and when the request for accession is received). He will also be in-charge of sending periodic reports to MOH for license renewal and cancellation (as per the credit system).:The State Administrator will be responsible for the maintenance of data in all the districts of the state. There will be one SA for each state and each SA will be appointed by the CA.Roles and Responsibilities: The state Administrator or the SA will be responsible for keeping a record and track of activities performed by the District Administrators (DAs). He will appoint the DAs' and will check the data/information forwarded by them for further authentication by the CA. The SAs' will be eligible for defining and following a protocol for data exchange between the DAs of the state and between the DAs and the CA.

District Level Administrator they are the smallest but the most important part of the hierarchy as they will be in direct contact with the database containing the details of all the registered users (doctors) in the district.Roles and Responsibilities: They will be approachable by the users for registration. They will lay down the format for information intake and will act as a bridge between the SAs and the users of the district. They will ensure the enforcement of protocols in hospitals and will forward license renewal/cancellation reports (as per the credit system; 'n' credits in 'x' years) to the respective SAs.

Details Database a database that will be maintained for storing user's personal information including the ID, password, credit bank (as per time period decided by the review committee) and personal information (eg. Name, age, sex, qualification, experience, etc.)
 For example: if a neurologist wants to access some information regarding the There can be a wide range of users for CME which may include doctors, staff, nurses, lab technicians and will cover pharmacies, research laboratories, pathology laboratories, etc. These registered users will be allowed access to the Data Warehouse containing existing data and also the cloud with latest updates available. They will have a username and a password that would authenticate their access (ACC).

Authorization Check Centre This centre will be responsible for the security of the information on the cloud. The centre will check for authorization of the users who are trying to access the data on the cloud. The user name and password will be verified for authorization by the CA and only registered users will be granted access to the next level i.e the Data Base Administrator (DBA).

ADMINISTRATOR (DBA)

As the name suggests, administrator acts as a link between the resources and rest of the system. Any request which is been processed and sent from the ACC with a positive review is processed by the administrator and the immediate response is carried out. Administrator can be a group of authority which has the complete control over the information resources. For instance three universities act as administrators. All these three university will have the authority to update or delete or modify the information present in the data storage area. The further points will clarify the exact purpose of an administrator.

EXIXTING DATA

The design proposed is new to the community. Many of the researches have already been performed. Hence to facilitate the user, in a way not to surf the internet for different data; this system has a provision of linking up with existing data on the web. For example, a neurobiologist wants to search a research article on Alzheimer's disease, instead of searching it in any of a general search engine; the system designed can be used. The system will immediately surf through the existing data and display the result.

NEW UPDATES

Any new research performed or any new article which is to be published can be updated to the data storage area though a different and very simple method. The information in along with a set of protocols can be submitted directly on the site of the system. These information need not be given by a authorized person but anyone can update the new work done by them. Moreover hospital's authorities will be having a compulsory updating policy, under which the hospital authority for example the chief medical officer will have to update the new cases registered in their respected hospitals for further reference of other doctors throughout the web.

The new updates can be for example a research paper, a mandatory protocol for the completion of the submission of the paper is that the author will have to frame a set of minimum n multiple choice questions based on his article or paper. This will have its role in the credit system for the authorized health workers like doctors, nurses etc

REVIEW COMMITTEE

The all new updates are sent to the review committee for validation. Review committee can be at different locations. For instance in India, each state has its own review committee. For example a update of a research article is give by XYZ university in Vellore,

This data will be sent to the Tamil Nadu review committee. After the validation of the data provided and checking whether the submission is done without violation of any of the protocol, the data is forwarded to administrators or else is rejected.

NEW DATA RESOURCE

The all new data is stored here, in the cloud. Cloud computing is the latest technology which is catching fire on ground in the field of web technologies. It is a space taken up on the internet in a definite amount and all the information is stored here itself. Cloud computing is implemented here for its durability and fast access capabilities. As it is difficult to send and resend the data from a server which is located far of, cloud is used to fasten the access speed.

The administrator hence has the following functions:

   I.   To maintain the new data resource, i.e., any new data from two different review committees are not the same or the new updating is not present as such in the existing data. In other words it checks that the data is not repeated in the data base.

  II.   It manages the access given to any of the user to the information present in the cloud.

 III.   It also acts as a link between the MOH and the data information. This is a legalized procedure through which the government is given access to the information.

CASE STUDY

India has 28 states and each state has many pharmacists, research labs, doctors, nurses and medical staff. CME is a legalized forum which is implemented on all the medical workers as mentioned above, to update their knowledge according to the development of technology.For instance, Dr. X is a cardiologist. He has been given a target of completion of 50 credits in 1 year under tech CME program system. Dr. X has to collect at least 20 credits of his specialization and rest is general credits. Dr. X supposes requests for an article named "effect of Cadmium on heart attack by abc ". This request id forwarded to the ACC. The ACC asks the personal details of the Dr. X corresponding to his user ID and password, from the CM. the CM will extract the data from DETAILS DB through the state or district data and return the information to ACC. If the ID is found out to be genuine the request is forwarded to DBA or else is rejected. The DBA grant access to the user to search the information in the EXIXTING DATA as well as in the NEW DATA RESOURCES. Eventually the article where ever if found is sent back to the user i.e., Dr. X. Now after reading the article Dr. X

answer to the questions along with it. The answers again is sent back to the ACC and then to the administrator. The answers along with the response are directly transferred to the CM, which will match the answers to the response and decide whether to award credit to Dr. X or not. In case yes, the DETAIL DB section that contains credit option for each account is updated. a monthly webcast series designed to provide continuing education opportunities on public health issues. Broadcasts are free and available to all who are interested in furthering their knowledge of public health. The live webcast is always held from 9:00 - 10:00 a.m. ET on the third Thursday of each month.

CONCLUSION

In this paper, we proposed a CME for rural health centers based on the drawbacks we have analyzed the performance with the existing system. The proposed system give a good performance measures when compared to the traditional

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