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Integration of disease diagnosis using machine learning concept and best drug identification using data analysis

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ABSTRACT

The idea is that the derived knowledge that we separate from the large data into individual sets in healthcare. In this approach, the VPH researches to build the entire model related to physical forces for individual patients. In this paper we considered VPH technologies to propose silico medicines. This requires the datasets such as sensitive data, distributed data under security constraints, bio information data with clinical observation for each patient. Moreover, this system targeted for funding in silico medicines to become the research priority.

KEY WORDS: Big data, Virtual physiological Human, healthcare.

1. INTRODUCTION

Big data technologies were developed by the inspiration of business intelligence and big science. In 2005, the term Virtual Physiological Human (VPH) was imported to indicate that a framework of methods and technologies, once established, will make possible the cooperative investigation of the human body as a single complex system. The idea was quite simple to reduce the complication of living organisms; we decompose them into parts such as cells, tissues, organs, organ systems and investigate them as one part in isolation from the others. This approach has produced segregations. For example, the medical specialties, where the nephrologists look only at your kidneys, and the dermatologist only at your skin. This makes it very critical to cope with multi-organ or systemic diseases, to treat multiple diseases and in general to unravel systemic emergences due to genotype and phenotype interactions. But if we can recompose with computer models, all the data and the practical methods we have obtained about each part, we can use simulations to investigate how these parts collaborate with one another, across space and time and across organ systems. Though this may be conceptually simple, the VPH vision contains awful challenge, namely the development of mathematical models capable of exactly concluding what will happen to a biological system. To tackle this huge challenge, multifaceted research is needed around medical imaging and sensing technologies, data processing to extract from such data information that in some cases is not instantly available, biomedical modeling to capture the available knowledge into predictive simulations, hence computational science and engineering to run huge hyper models under the operational conditions imposed by clinical usage and also the special issue entirely committed to multi scale modeling is required. But the real challenge is the production of the mechanistic practical methods, quantitative, defined over space, time and across multiple space time scales, capable of being predictive. After ten years of research this has produced a complex impact scenario in which a number of aimed applications, where such knowledge was already available, are now being tested clinically.

Related Work: Improving patient safety has become a major focus of clinical care and research over the past two decades. An institutions patient safety climate represents an essential component of ensuring a safe environment and thereby can be vital to the prevention of adverse events. Covering six patient safety related factors, the Safety Attitudes Questionnaire (SAQ) is a validated and widely used instrument to measure the patient safety climate in clinical areas. The objective of this study was to assess the psychometric properties of the German language version of the SAQ.

(SAQ), German language version in Swiss university hospitals - a validation study Evidence is said to be the new bright star of health care. A growing chorus of voices is thus calling for physicians and other health care practitioners to follow evidence-based medicine (EBM), or so-called "best practices." To practice EBM, supporters say physicians must follow evidence-based clinical practice guidelines. Despite being painted as scientifically sound, there are more than a few detractors of EBM, including physicians, patients, and researchers. Even those who support evidence-based medicine and practice guidelines worry about how it may play out in real-life patient care. This paper will introduce the concepts, note the assertions of supporters, highlight the concerns of critics, question the emphasis on evidence and clinical guidelines for the practice of medicine, Identify the costs of guidelines, and show how EBM is making its way into state and federal laws, including medical malpractice reform initiatives. A word about terminology: this report uses guidelines, best practices, algorithms, and protocols interchangeably.

It's about integrating individual clinical expertise and the best external Evidence based medicine, whose philosophical origins extend back to mid-19th century Paris and earlier, remains a hot topic for clinicians, public health practitioners, purchasers, lanners, and the public. Now frequent; undergraduate and postgraduate training program are incorporating it.

British centre for evidence based practice have established in adult medicine, child health, surgery, pathology, pharmacotherapy, nursing, general practice, and dentistry; But enthusiasm has been mixed with some negative reaction. Criticism has ranged from evidence based medicine being old hat to it being a dangerous innovation, perpetrated by the arrogant to serve cost cutters and suppress clinical freedom. As evidence based medicine continues to evolve and adapt, now is a useful time to refine the discussion of what it is and what it is not.

Existing Methodology: Usually Data Mining based Disease Learning Analysis is very much available from a Structured Data and there was no Evidence Based Medicine analysis and big data analysis is not available yet.

2. PROPOSED METHODOLOGY

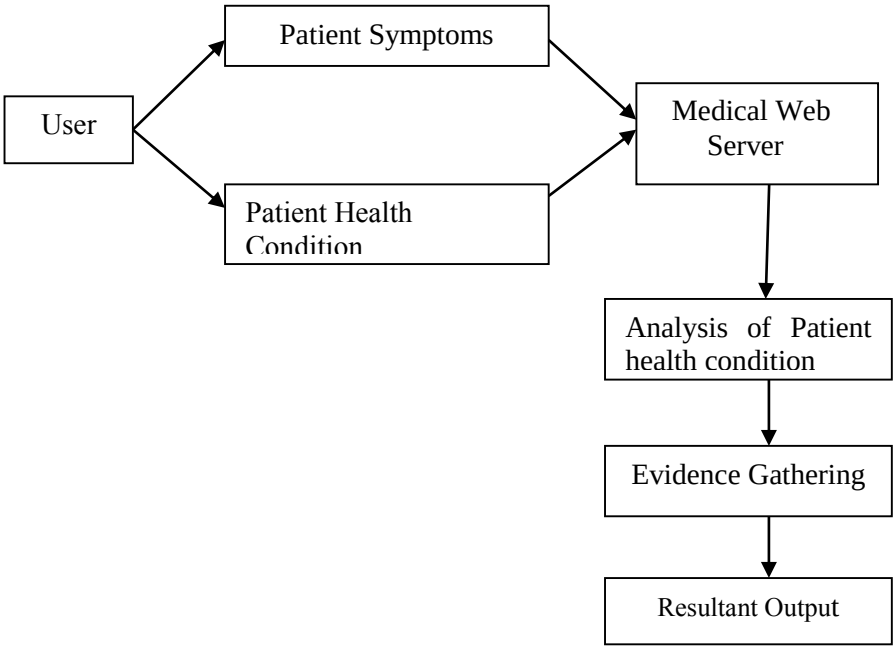

Figure.1. Proposed methodology diagram

Procedure of Proposed Methodology: Evidence Based Medicine Analysis is executed using Big Data Technique. This Process is achieved by, a) Analysis of Patient Health Condition, b) Patient Symptoms, c) Evidence Gathering & Analysis, d) Resultant Output.

In the MODIFICATION, the Machine learning Technique is used for Disease Discovery and its Appropriate Evidence based Medicine Analysis is achieved. It is not yet Diagnosis Evidence based Medicine Analysis is of no use. Advantages are, a) Waiting time is decreased, b) Reliable & High data transmission rate, c) More effective.

Proposed Work:

Patient Data Gathering Patient Data Gathering: When the patient visits the clinic, users are requested to register which includes information such as birth date, gender, blood pressure, diabetics, route of infection. Data which includes the clinical data are collected on a continuous basis every time the patient visits the clinic for treatment. The information including the treatment, symptoms of diseases and laboratory results are also collected.

Multi Access Control: In this module we design to implement the three different type of account .Because we designed retrieve three different type information from the user side and they are in the below list. Once the User creates an account the user can login and request the service provider. Based on the User's request, the Service Provider will process the User requested Job and respond to them.

Patient Account: In this module, the user can give their Symptoms & Diagnostic reports to the system for the diagnosis of the disease. This method helps the user to know the prescribed medicine for the particular disease.

Research Account: In this research module, we designed to deploy the big data analysis. Big data is nothing but vast amount of data with unstructured format; in this unstructured format data we can valid information. So we used this concept of get vast of information from the insurance domain to get useful information in the domain of health care.

Disease Based Data Grouping: In this module, the big data analyst is going to collect the information about the disease form the insurance server. This can be done once the insurance company accepts to allow their customer information to the big data analyst. Thus big data analysts will categories the data based on the disease. By doing this we can easily get the disease information and list customer applied for which disease can be identified and they can be analyzed for the future use.

Machine Learning Algorithm: In this machine learning algorithm, we used for auto diagnosis of the disease with reference to the user input of symptoms and reports. The System will automatically identify the disease using machine learning algorithm and server stores a set of trained dataset and its relevant diagnosis pattern.

Mapping of Disease Data Set and Medicines: In this module, disease related data are mapped using user's input of symptoms and its related reports. Once the system identifies the user gives the input of the system is designed to represent data that exactly captures the state of the patient at all times. It allows for a whole patient history to be viewed without the need to track down the patient's previous medical record volume and assists in ensuring data is exact, appropriate and legible. It reduces the chances of data replication as there is only one changeable file, which means the file is constantly up to date when viewed at a postdated and eliminates the issue of lost forms or paper work. Due to all the information being in a single file, it makes much more effective when expressing medical data for the examination of possible trends and long term changes in the patient.

Big Data Extraction of Useful Information: In this module, that will have huge amount of unstructured big data. So in this module the insurance server is going allow permission to access the server by the big data analyst .The big data analyst get the all the information which mention above and extract the information by the technique of map reducing formation to get useful information .which is useful for both insurance and patient.

3. RESULTS

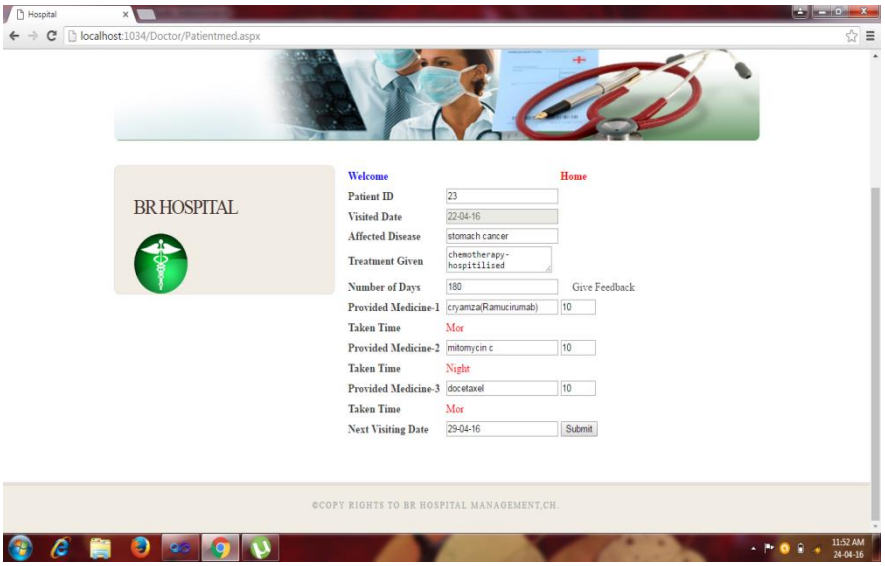

Figure.2. Screen shot of patient's feedback

In the figure 2, it is shown that,the doctor is giving their prescribed medicine to the patient.The patient are regularly using the medicine so that the patient can realize the effectivness of medicine and give their valuable feedback**.**

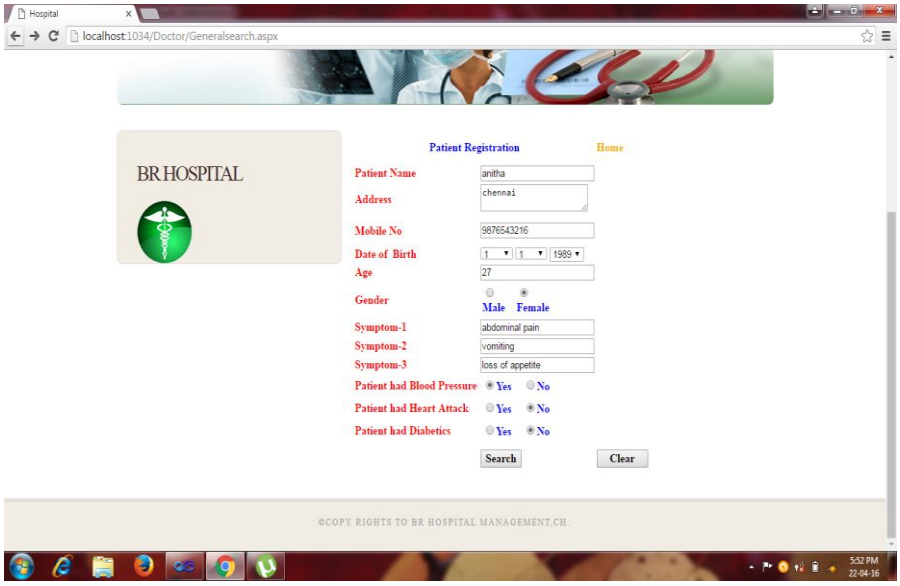

Figure.3. Screen shot patient's input data

In the above figure 3, the user can give their date of birth, gender level, disease symptoms, blood pressure, and heart history and diabetes details. Using the above particular, the system analyzes the patient health condition and find out the disease.

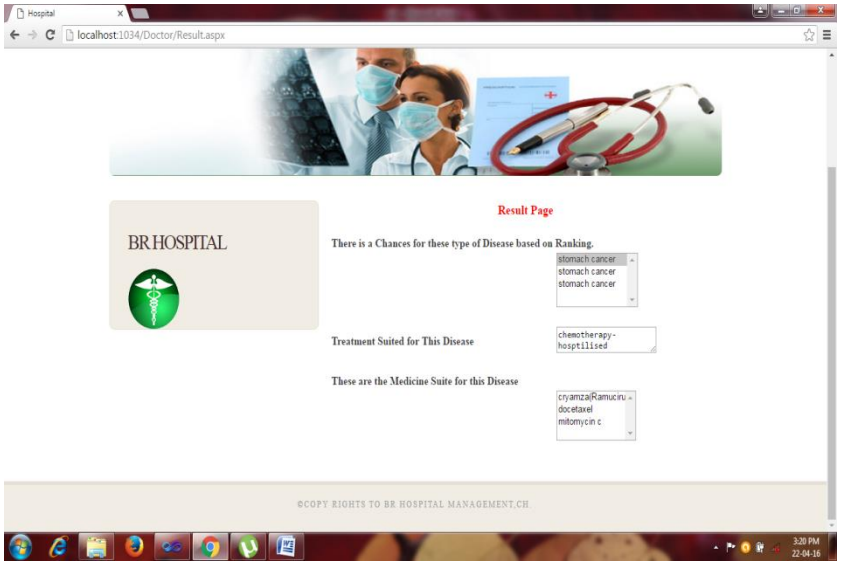

Figure.4. Screen shot of result analyse

In the figure 4, it is result based on the evidance gathering analysis.In this system the analyse exiting patient ranking and it can be produced the exact type of disease and produce suitable medicine for the disease.

4. CONCLUSION

Big data technologies has great potential in computational biomedicine and their development should take place in combination with modeling strategies and will minimize the risk of research investments to ensure a constant improvement of silico medicine. Five major problems that need to be challenged in order to have effective integration of big data analytics, and VPH modeling in healthcare. The technological research must be conducted at least in part in the context of all application domains. It is very important that the big data research community does not repeat the same mistake. There is clearly an important research space examining the fundamental methods and technologies for big data analytics.

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