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A Study on Chronic Disease Detection by Clinical Rule

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Abstract: - *Data management and decision making is one of the essential tasks in medical industry. Data mining accuracy is better in any kind of big data if the quality of the data is improved. To improve the quality of the data, preprocessing, data cleaning by error elimination, redundancy removal and store it in a standard format are some of the sequences of data-processing methods applied on the data. Almost, all of the IT companies need data processing and data mining process efficiently. One of the main task in data mining in decision making where it selects a particular constraint-based data using logical relationship. The main aim of this work is to enhance the quality of care by reducing the turnaround time of reminder and maintenance.*
Keywords: - *Data Cleaning, Preprocessing, Clinical Information System, Knowledge Extraction, Knowledge Acquisition.*

I. INTRODUCTION

Data mining accuracy is better in any kind of big data if the quality of the data is improved. To improve the quality of the data, preprocessing, data cleaning by error elimination, redundancy removal and store it in a standard format are some of the sequences of data-processing methods applied on the data. Almost, all of the IT companies need data processing and data mining process efficiently. One of the main task in data mining in decision making where it selects a particular constraint-based data using logical relationship. A human can take best choice of decision for a specific condition based on the user requirement or certain constraints for efficient decision making. In other words, decision making helps the managing people in a company to solve problems by verifying the choices and decide a better route.

II. PROBLEM STATEMENT

The Clinical decision support systems (CDSSs) provides best support to make decisions with good knowledge gaining and making foremost role to play in the support systems. There are limitations in the enhancement of these support systems to make convenient for the medical practitioners. The growth of medical knowledge and rules of the government imposes a constant edition of the CDSS that completely justifies the use of the proposed method in blood transfusion.

Reuse or recycle by others may be in various aspects:

- During common abstractions - Lexicons, ontologies, and problem-solving methods are developed and then tailored to fit the precise needs of a typical medical domain application.
- During the standardization of the knowledge representation. KIF,6 Ontolingua,7 and Arden Syntax are the various standards proposed.
- During precise models, such as GLIF 9 or PROFORMA 10 to symbolize definite types of clinical guiding principle and hold up their propagation.

III. METHODOLOGY

Clinical decision support (CDS) systems provide clinicians, staff, patients, and other individuals with knowledge and person-specific information, intelligently filtered and presented at appropriate times, to enhance health and health care.

First step is to develop the ontology that is the expert chooses the entities and relations there in UMLS that are related to constructing the domain ontology, and introduces new terms and relations if they are required. Second step is to construct the domain knowledge that is according to the pre-established domain ontology, the expert is motivated to create the knowledge base via condition–action rule templates. Equivalent MLMs are ultimately generated automatically.

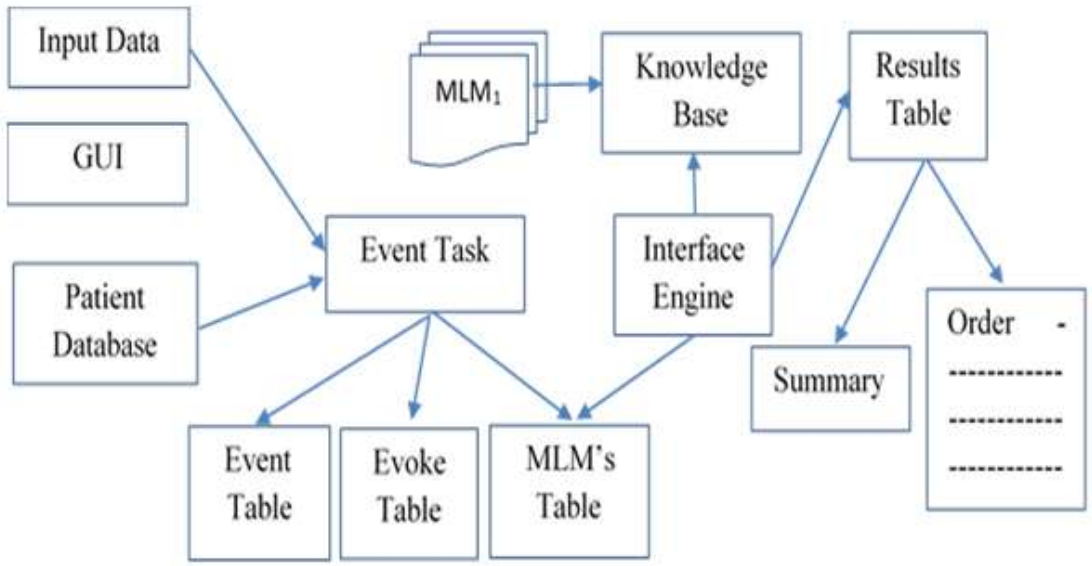

Figure-1 (a). Overall Process of the Proposed CDSS

Knowledge acquisition process and decision support system design. Top left, the domain ontology is built via the UMLS browser. Top right, the knowledge acquisition interface allows the instantiation of a general problem-solving method using the domain ontology. Medical logic modules (MLMs) are automatically created and organized by the knowledge manager.

IV. UML NAVIGATOR

The theoretical part of the proposed navigator is based on two components of the UMLS—the Meta thesaurus and the Semantic Network.

A local identifier is automatically formed for each acquired concept in the ontology design. The slot data of the MLM through the knowledge acquisition process carries this identifier. To relate and translate these local identifiers to the clinical database identifiers, a local table is designed.

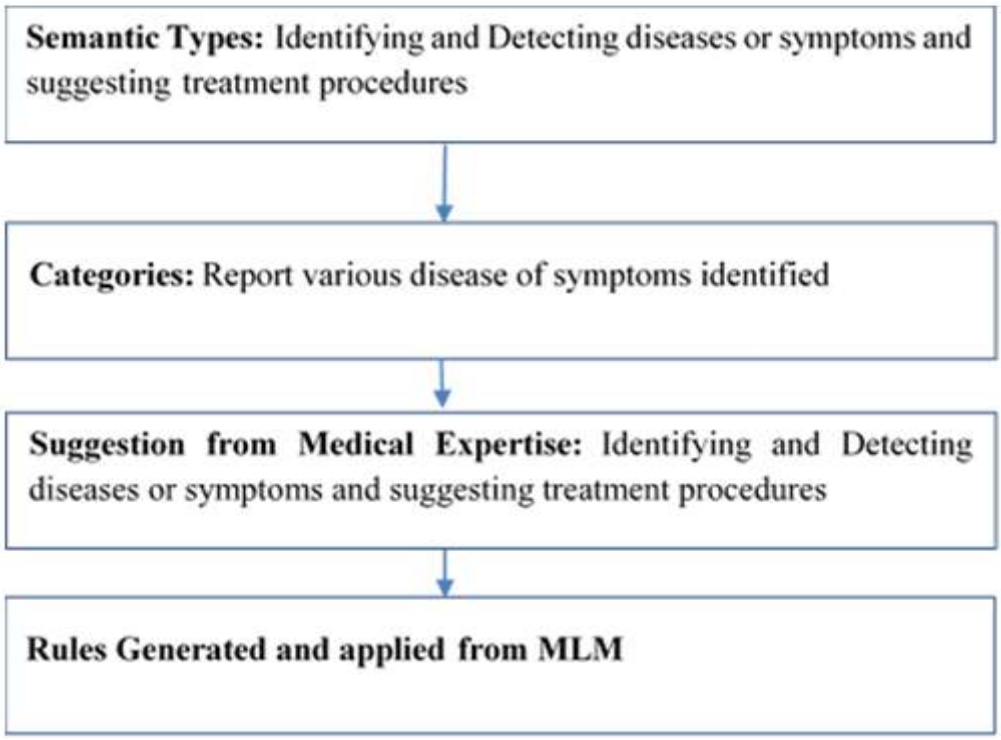

Figure-2: Procedures Followed in CDSS

This domain used extremely expert terms, such as "transfusion of red blood cell plasma depleted," "transfusion of red blood cells phenol typed," and "patient erythrocyte alloimmunized, "which were not present in the version of the Meta thesaurus used. The exposure of disease terms practiced by such adjectives as minor, severe, or chronic was irregular.

V. SIGNIFICANCE

Depending on the significance of the diagnosis, an alarm signal could be set for the system. Following are some significance:

1. while biological data are automatically sent into the patient database
2. the event procedure is triggered
3. this activates several MLMs
4. execute by the inference engine
5. Actions are performed, and a table of results is generated.

VI. CONCLUSION

To describe an exact knowledge representation language for clinical concepts, the UMLS offers a practical way to facilitate knowledge sharing and reuse in parallel. There are several attempts made to measure the content coverage of the UMLS in various fields - clinical radiology, laboratory terminology, surgical procedures, and in hypertension notes. It is shown that boundaries of Meta thesaurus terms in precise areas, representing the necessity to add new terms and relations for particular uses of the UMLS.

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