Medical Expert System For Drugs Interactions For Safe And Effective Use Of Drugs[*]

Eng. Ramona Al Dreihi[**]   **Dr. Ammar Joukhadar**[***]

Abstract

This paper presents a new solution that allows the doctors to know drug interactions, considering other affecting factors such as the patient's age, weight, physiological and pathological condition. This solution is characterized by being incremental, not only by enriching the database with drug interactions information, but also by its ability to conclude other interactions through a built-in expert system. The system concludes drugs interactions based on its active substrates and the potential interactions between them or between the drugs families. The system serves in three ways; it determines whether the patient illness is possibly due to the medications he is on. It alerts the doctor to the interaction of the newly prescribed medication with the patient's medications, and to its influence on the patient's physiological or pathological condition. Besides, it suggests alternative drugs when needed. The solution offers additional services such as binding between the brand name and the generic drug, and between drugs and diseases.

Key words: Expert Systems ‹Drugs Interactions ‹Indications ‹Cautions ‹Contraindications ‹Side Effects ‹Medical Group ‹Active Substrate ‹Genuine Name ‹Trade Name ‹physiological condition, pathological condition.

References:

1- I.H. Ahmed-Jushuf, K.W. Ah-See, S.P. Allison, M.N. Badminton, et al; British National Formulary BNF; 2010; edition 59; London; Published by BMJ Group Tavistock Square, London C1H 9JP, UK and RPS Publishing.

2- Robert A. Raschke, MD, MS; Bea Gollihare, MS, RN; et al. A Computer Alert System to Prevent Injury From Adverse Drug Events 1994; 1317-1318.

3- P G Nightingale, D Adu, N T Richards, M Peters; Implementation of rules based computerized beside prescribing and administration: intervention study 2000; 750-752.

4- Indermitte J, Beutler M, Bruppacher R, Meier CR, Hersberger KE; Management of drug interaction alerts in community pharmacies 2007;

5- T Bertsche, J Pfaff, P Schiller, J Kaltschmidt, MG Pruszydlo, W Stremmel, I Walter-Sack, WE Haefeli, J Encke. Prevention of adverse drug reactions in intensive care patients by personal intervention based on an electronic clinical decision support system. Intensive Care Medicine 2010; (Computer System Helps Reduce Adverse Drug Side Effects and Interactions in ICU Patients)

6- Helen L. Figge, RPh, PharmD, MBA, Lean Six Sigma Certified; Computerized Clinical Decision Support and Drug Interaction Database 2012; 47-49.

7- Daniel C. Malone, R.PH, PH.D; The Arizona CERT: A Health Systems Approach to Drug-Drug Interactions 2007; 45:456-462.

8- Maarten Menken; Jess Tutorial; 2002.

9- I.M. Puspitasari, S. Soegijoko, et al; Development of an Integrated E-Prescription System With Adverse Drug Events Alert For Community Health Center in Indonesia; 2006.

10- ArcMesa Educators; Clinically Significant Drug Interaction with The Cytochrome P450 Enzyme System, Indiana University; 2009;

11- Thomson Reuters; Drug-Reax System; 2010.

12 -BenjamasJanchawee Wibul Wongpoowarak; Development and trial of the drug interaction database system; 20