A Medical Multimedia based Decision Support System for Industrial/Operational Lung Diseases Diagnosis and Training

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Abstract

In clinical practice, making decision involves a careful analysis of harms and benefits associated with different treatment options. These decisions, often associated with high stake and important long term consequences, are frequently made in presence of limited resources and information; and an incomplete clinical picture. Under such circumstances, a rigorous and objective analysis of outcomes and probabilities is essential to achieve the best possible decision given a specific clinical situation. This paper presents the use of Case Based Reasoning methodology to develop a Multi Media based Medical Decision Support System for supporting diagnosis of 14 Industrial/operational chronic lung diseases, which consists of 26 symptoms: asbestosis, asthma, bronchitis, byssinosis, emphysema, histoplasmosis, hypersensitivity pneumonitis, influenza, lung cancer, mesothelioma, pneumoconiosis, pneumonia, silicosis and tuberculosis. 173 diagnosed lung disease cases were collected for fourteen major lung diseases, which contains 26 symptoms. After removing the duplicated cases from the database, the system has trained set of 94 cases for lung disease patients. The retrieval strategy using nearest-neighbor approaches is investigated. A Consultant physician's interpretation was used to evaluate the system. The result showed that the
system is capable of assisting an inexperience physician in making accurate, consistent and timely diagnoses, also in the study of diagnostic protocol, education, self-assessment, and quality control. In this paper, medical multimedia based clinical decision support system (MM-CDSS) is developed for supporting diagnosis of lung diseases from their symptoms and signs through employing Microsoft Visual Basic .NET 2005 along with Microsoft SQL server 2005 environment with the advantage of Object Oriented Programming technology.

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Index Terms

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