

H-M. Hua, T. Lee. A data mining system for chronic diseases surveillance for primary care unit in Taiwan. *Gerontechnology* 2008; 7(2):124. Chronic diseases affect a large proportion among elderly and cause a major public health burden in Taiwan. Complications of hyperlipidemia, hypertension, triglyceride and diabetes highly increase the risks of medical treatment and long-term care for the elderly. In this study, we provide a data mining system for chronic diseases surveillance to assist clinics doctors in medical treatment concerns for their patients. It is not only able to reduce the cost of national health insurance but also to afford the better quality of life for elderly people. **Methods** In this study, we provide a machine learning approach to data mining and knowledge discovery based on the induction of clinical classification and sequence rules. The digital data set in the database has been obtained from a local clinic in Taipei, Taiwan from 1999 to 2007. The central role of data mining uses database and statistical methods including structured patient information with diagnosis, drugs and biochemical tests or physical examinations. The domain knowledge of chronic diseases is classified according to the internationally accepted standards, ICD-9 (International Classification of Diseases, 9<sup>th</sup> Revision. A decision tree is regarded as a hierarchically organized set of clinical rules. Both genetic algorithm and case base reasoning in hybrid data mining technology are used to acquire of knowledge from database. These techniques also map personal, familial, and professional values to meet clinical diagnosis requirement and long-term care decisions. A remind mechanism on multi-source data based on prior medical knowledge is processed with observations for patients. **Results and Discussion** Chronic medical data is highly complex and difficult to analyze. However, our chronic diseases surveillance is built on structured information in the clinical repository, typically as unstructured free text in patient history and physicals, discharge summaries, progress notes, radiology reports, etc. (Figure 1) To treat and monitor these patients with chronic diseases complications, such as diabetic patients with hyperlipidemia or hyperlipidemia patients with triglyceride, highly improve the quality of clinical care.

References

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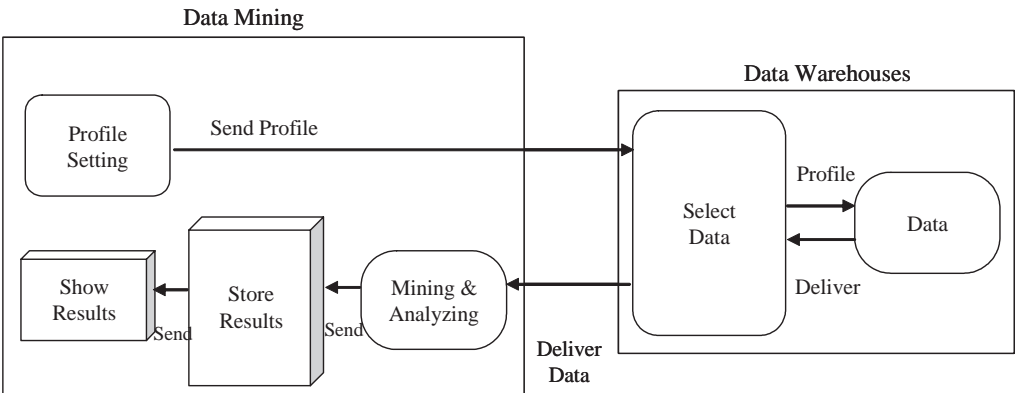


Figure 1 The system structure of chronic diseases surveillance