應用 MedLEE 程式於台灣醫學文字報告

Application of MedLEE to Process Medical Text Reports in Taiwan

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Computerized clinical information is extensively stored as free-text reports. However, information stored in text reports is not computable and it is difficult to access these data for clinical, teaching, or research purpose. Medical language processing (MLP) offers a good opportunity to extend the use of the electronic medical record (EMR) by converting narrative text into coded data. The purpose of this study was to apply the MedLEE program, which was an MLP system developed at Columbia University, to automate extraction of clinical information from medical reports produced at Taipei Veterans General Hospital (VGH). In this study, we used MedLEE to develop a system to determine the patients with congestive heart failure (CHF) from discharge summaries, chest x-ray reports and nuclear medicine reports. We used 50 cases to train the system for adding terms to the lexicon and developing the inference rules. Then we used another independent set of 300 patients to test the system to compare with the administrative data (ICD-9 codes). The recall, specificity, and precision for the automated abstraction system/ICD-9 codes in the testing set were 0.74/0.52, 0.99/0.99, and 0.97/0.97, respectively. We conclude that although the MedLEE program was developed in USA, it is feasible to apply it to process and analyze medical text reports produced in Taiwan with good performance.

Key Words: medical language processing, congestive heart failure