Data Mining and Querying in Electronic Health Records

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Medical data is accumulated for patients in health organizations in large quantities based on various health related issues. By using data mining techniques and querying the data we can determine patterns and apply data analytics techniques to Electronic Health Records (EHR). This will help to understand the progress diseases better and to provide personalized treatment. By applying data mining techniques on clinical data we can customize treatment for individuals based on a large spectrum of parameters, including family history, socio- demographics and genomic profile. Applying data mining to molecular, genetic, clinical, proteomic and imaging data, in large patient record databases, helps in understanding disease patterns. This opens the door to pharmaco-genomics for drug related research as well as healthcare cost modeling. Data mining of health related data for the purpose of treatment personalization involves data warehousing, data query/cleaning and data analysis. Technology needs to be developed for querying and data mining EHRs to enable healthcare professionals to pose complex queries to retrieve data at the point of care. We have applied data mining techniques on clinical-genomic data for Type 2 Diabetes.