Abstract

Facilitating Quick and Better Text Searching for ICD-10-CM Codes

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Abstract

Background: The Center for Medicare & Medicaid Services (CMS) published ICD-10-CM files in xml format in addition to pdf format. The coding guidelines recommend using both tabular and index files for efficient and accurate coding of the medical conditions. It would be a challenge for clinicians not only to correctly diagnose and provide appropriate treatment to their patients, but also to search and select a right term and right ICD code. The traditional text search involves querying using key words and browsing for answers. In the context of text search for an ICD-10 diagnosis code, browsing through irrelevant results or finding no results may frustrate busy clinicians. Ideally a search for ICD-10 code should lead them to a correct answer in a quick and easy fashion. Therefore when building a search application for ICD-10 coding, considering these issues would be the key to a good design.

Objective: This paper focused on the user interface that had an improved search functionality when querying ICD-10 codes and diagnoses for a medical condition.

Methods: In our first step we pre-coordinated 'terms' nested in the 'mainTerm' in the ICD-10 Index xml file and made the relations between them explicit in the <title> elements using a commercially available transformation tool. The values for the 'level' attribute in the <title> ranged from 1 to 9 representing the levels of nesting. In our next step we joined the tabular and the modified index files based on their code as the key and combined into one xml file. We then loaded this combined file into the database present at the back end. The original tabular xml file from CDC was also loaded in the database for the sake of a comparative study. We understand that both tabular and index files complement the full set of ICD-10-CM. But in this study we wanted to use the original files as they are and querying against the original index file wasn't helpful. We requested clinicians to use our search tool running with one instance of combined xml and another instance of original tabular xml file at their back end. We then did a statistical analysis of the sensitivity and specificity of both result sets for clinical relevancy using their judgment as the gold standard.

Results: Our preliminary results showed that querying against the database containing our combined xml file resulted in a more comprehensive and accurate diagnoses set compared to querying against to the one that contained the original tabular file. In some cases querying against the original tabular file resulted in null results.

Conclusions: We conclude that the combined tabular and index file loaded into the database results in higher precision and recalls upon querying. Our next step is to develop a faceted search to help in navigating to a highly granular ICD-10-CM code.

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KEYWORDS

ICD-10-CM; index file; precoordination; tabular file

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Multimedia Appendix 1

Extended abstract.

[PDF File (Adobe PDF File), 809KB - iproc_v1i1e4_app1.pdf]

References

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