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CMSC691

Medical Software Engineering

Homework 4

Summary of "Computerized clinical decision support for prescribing:

provision does not guarantee uptake"

Moxey et al conducted a study evaluating clinical decision support system studies from 1990 to 2007. Their goal was to identify barriers and facilitators of uptake by physicians to guide decision making. Participants of their study were selected from the following databases: Medline, PreMedline, Embase, CINAHL, PsycINFO, INSPEC, and the Cochrane Database of Systematic Reviews. There were a number of criteria used to whittle down the matches to only the ones determined to be relevant for their study. They only bothered with English-language studies, and further narrowed down the studies by only those studies that examined a decision support system. It was possible that some results from their queries provided articles unrelated to decision support systems. Of the 1,598 studies retrieved, only 58 survived the reductions.

The researchers extracted data manually and entered it into an Excel Spreadsheet file. They extracted three primary characteristics: general information about the study, the features of the decision support system, and any issues there were with the clinical decision support system. The features extracted related to the system interactions, such as whether it prompts the user, how it is accessed, whether or not it was a stand-alone application, and what type of advice it gave. An effort was also taken to extract changes in information over time.

The studies measured the effects of their varying CDSSs via questionnaires, interviews, computer log files, focus groups and observations. Most of the 58 studies used self-report questionnaires. There was no evaluation of how well the studies gathered their information. These studies also varied in their clinical area, a majority of them were for cardiovascular disease.

The researchers identified four domains for organizing the key factors reported. The domains are organizational, provider-related, patient-related, and special issues. Organizational factors affecting uptake of CDSSs are based on the available infrastructure, the implementation, training, and current preferences. An important facilitator was the endorsement of the system by the senior clinicians and hospital management. An important and, in my opinion expected, barrier to usage of CDSSs is the lack of training and limited computer skills. The following concern was also found in other literature on the matter, the fear that users of a CDSS will become dependent on the system. Also, that the users will become very good at using the system, and become lesser clinical decision makers. Their study found that there was a general resistance to changing current practices, however if the CDSS fit in well with the current work-flow then it did well. Also noted in Shortliffe, there were reports that some people felt the system lessened patient interaction because the physicians have to look at the computer screen. Also, overwhelming the user with alerts detracted from usability.

Although their study was very limited in size, their results appear to match what I would anticipate. A system which provides guidance can be useful in a clinical setting. A lot of the issues with using a computer system to aid a physician were reported by the studies they evaluated. Therefore, the results of their study appear valid. Also, the researchers did comment that the role of clinical decision support system was still being discovered.