

Rational Design of a Computer-Based Decision Support System for Primary Care Settings

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Objective: To design and implement a computer-based decision support system¹ (CDSS) for primary care settings based on the rational analysis of clinician data.

Setting: The C.O.M.P.E.T.E. Study (Computerization of Medical Practices for the Enhancement of Therapeutic Effective-ness) is an electronic medical record (EMR) project based in a primary care setting in Southern Ontario, Canada.

The Clinical Research database consists of data extracted from the EMR as described below in the Methods section. Interpretation of the data has proven challenging due to factors such as variability in physician recording behavior, ambiguities posed by data entered as text and discrepancies between administrative and EMR data.

Methods: 18 family medicine clinics, with a total of 32 Family Physicians, were recruited, fitted for, installed and trained in the use of an EMR (Purkinje Inc.'s Dossier of Clinical Information (DCI)). Physicians chart an average of 76% of their patient information into the EMR on any particular day (range 0-100%). Data was extracted and collected using Remote Access System (RAS) by modem dial-in. Data was characterized and analyzed from each site.

The Centre for Evaluation of Medicines has also been developing an Appropriateness of Prescribing Evaluation Questionnaire (APEQ). This is an explicit, evidence-based tool for measuring appropriateness of prescribing in 10 different domains of prescribing². We aim to develop a CDSS that supports physicians in decisions that currently are not made as effectively as possible.

Results: Analysis of the C.O.M.P.E.T.E. research database indicates that physicians'

prescribing problems fall into one of four categories: 1) lack of documentation about prior choices, creating an impression of inappropriateness; 2) oversight of contra-indication for a medication; 3) lack of access to key decision-making information; 4) lack of awareness of evidence for use or non-use of a medication. In general, most cases of inappropriateness were related to poor documentation of prior treatments.

Surprisingly, there were few examples of oversight, lack of awareness of evidence or lack of access to key decision-making information.

We are currently in the process of designing our CDSS based on the information obtained from actual prescribing practices of physicians in the C.O.M.P.E.T.E. network.

Conclusions: Careful analysis of weaknesses in current prescribing patterns can yield type and magnitude of prescribing problems.

References

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