

An Evidence-Based Approach to Electronic Medical Record Software Selection for Primary Medical Care: The C.O.M.P.E.T.E. Study.

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Introduction: It is estimated that fewer than 5% of medical practices in Canada are using full electronic medical records (EMR). In contrast to the U.S. HMO administration-driven computerization agenda, physician participation in Canada is entirely voluntarily. We have undertaken the first pilot project to fully computerize family practices in the province of Ontario, the largest single-payer health jurisdiction in North America.

The COMPETE project aims to computerize approximately 100 office-based family physicians; upload anonymized data to the research centre to study the quality of charted data and the appropriateness of prescribing; and to provide patient-specific therapeutic advice via the EMR.

Methods: In order to optimize the combined research and clinical requirements of the selected software, we undertook a systematic review and evaluation of EMR software products. These methods included a systematic review of the literature; generation of a software list from attendance at relevant conferences, scanning advertisements and the literature; development of specific evaluation criteria; review by clinical, technical and research experts in a step-up, "fatal flaw" design from vendor demonstrations of product to vendor site and EMR user site review to in-house testing of the software.

Results: We found no reports which detailed a rigorous process of EMR software review or the process of computerization itself for a medical population similar to ours – volunteer, small, mainly fee-for-service, office-based family practices. Our review revealed that, while EMR usage is low, over 60% of Canadian family physicians surveyed were interested in computerizing. Physicians are very consistent in perceived benefits and concerns regarding EMRs in practice, the main benefit being increased efficiency of practice, the main barrier being cost of computerization in money and time. Our systematic approach to EMR evaluation for clinical and research use quickly reduced the eligible vendors from approximately 50 products to 4. The selection of the finalist software from amongst these four was difficult, prolonged and necessitated "triangulation" of evidence from multiple sources. None of the 4 finalists met all of our criteria for the optimal EMR.

Conclusions: Rigorous evaluation of available office-based EMR products is difficult, time-consuming and expensive. Further development of the best software is required to meet current expectations to support evidence-based practice.