

The Feasibility of Using Electronic Medical Records to Advance Evidence-based Prescribing

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Purpose:

Electronic medical records (EMRs) are a new technology in Canada. High quality EMRs have excellent potential to become the “gold standard” of educational intervention as feedback and suggestions can be made in real time during clinician-patient interaction. The COMPETE (Computerization of Medical Practices for the Enhancement of Therapeutic Effectiveness) study is the first comprehensive evaluation of the feasibility and impact of implementing an EMR in community primary care in Canada and includes a randomized trial of computer-based interventions to improve prescribing. We present here our results on feasibility of using EMR to capture high quality data for research on use of medicines in community family practices.

Methods:

The EMR (Purkinje-York Med) in the COMPETE study uses a Pen Windows interface with point-and-click chart entry into a structured template. Fields including descriptors are coded. Prescription data includes drug interaction warnings, reasons for stopping medications and dosing information. The entire chart minus patient identifiers is downloaded to a secure research centre server into an extraction research database for analyses.

Results:

Implementation of a full EMR in primary care offices involving 32 physicians and > 100 staff has required a major effort on technical, human factor and practice management issues. Our success rate to date is 85% compared to rates in the literature of < 30%. Ratings from sites on implementation quality are higher for the project's implementation team than for the private vendors involved. The pilot research database contains >160,000 notes, 156,000 diagnoses and 128,000 prescriptions for 36,500 patients. The quality of data improves steadily through the ramp-up period (range 1 day to 3 months) at each practice and after case management visits. After ramp-up, 70-90% of patients seen are charted, a mean of 85% of diagnoses are ICD-9CM coded, 95% of medications are coded by GPI or DIN codes. These data combined with a rich variety of symptoms, signs, concomitant diagnoses and laboratory data allow for a detailed evaluation of quality of prescribing and form the basis of a patient-specific, real-time decision support messaging algorithm.

Conclusion:

Successful implementation of EMRs in community primary care in Canada is feasible but requires significant expertise, time and finances. Ongoing data quality management appears to be necessary to achieve high quality data required for research. The additional detail available in EMR data compared to claims databases allows for rigorous appropriateness of prescribing measurement and high quality feedback to prescribers.