

Controlled Comparison of Emergency Department Charting Software with a Case Simulation Comparator Model

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Background. A system for controlled comparison of a number of commercially available charting software programs is demonstrated in a pilot study. Approximately twenty commercial systems exist which include modules for physician and nursing chart entry of an electronic medical record (EMR) of emergency department (ED) visits (Walker 98). Comparison of these complex and varied systems represents a formidable task for an ED interested in the decision to convert from traditional charting methods.

Methodology. The comparator model uses a case simulation technique similar to that by which all boarded emergency physicians are tested in the last stage of certification. This technique holds constant the clinical details of a set of typical emergency department (ED) patient cases to use for each different electronic medical record (EMR) program being compared.

The simulation and the physician-computer interaction are videotaped for analysis in the study. Pre-established criteria are applied to each resulting chart to measure a number of parameters which represent the quality of the resulting chart, the efficiency with which it was produced and the adequacy in meeting CPT criteria for billing. An emergency physician completely trained and experienced with the particular program will produce a chart for each simulated case-visit by operating the software program being compared. The cases are unknown to the operator.

In this manner, the computer-physician team is evaluated in its performance without the variables resulting from patient presentation. Confidentiality issues as well as learning curve issues are avoided. Charts for corresponding cases are evaluated blinded to the source of the chart. Charts are also available for viewing side by side for additional, retrospective, subjective

comparison for the same simulated cases. Techniques of cognitive science such as those described by Patel are employed (Patel 98).

Comparison of software charting to traditional handwritten charting, dictation and transcription and paper-templated charting is also feasible using the model.

Conclusions. The capabilities of a case-simulation scheme to evaluate complex emergency medicine software systems are demonstrated in a pilot study.

The pilot is prepared and presented for discussion and peer review and vendor review before being applied to the complete set of the emergency physician charting programs. The data obtained should be helpful to the support the decision by ED managers to computerize the ED EMR.

References

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