

Proposed theme: 3.2 or 1.4 Prefer to have it as a poster: No

Measuring end user satisfaction in CPOE implementation

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Background

One of the important applications of informational technology in medicine is computerized physician order entry (CPOE), (1-3). In CPOE, physicians enter orders directly into the computer instead of using a paper-based system. Through rapid information retrieval and efficient data management, CPOE systems have the potential to improve quality and safety of patient care (4). There are four specific areas in which CPOE can have specific advantages over traditional paper-based systems: process improvement; resource utilization; clinical decision support and guideline interpretation (2, 4). According to some authors (3, 5) the greatest area of potential is the opportunity to receive online information support. Despite the advantages, many attempts of implementing CPOE have failed or met with high levels of user resistance (2, 3, 5). CPOE implementation efforts have stumbled for a variety of reasons, including lack of sensitivity to user's suggestions and the large work flow change that CPOE requires (6, 7). Currently, only a relatively small percentage of hospitals use CPOE. Results of a survey in 2002 (8) show that CPOE was not available to physicians in 84% of the hospitals; completely available to 10% of the physicians and partially available to 6% of physicians. In our research project we will evaluate the implementation of a CPOE system in a large hospital in the United States.

Methods

We are using different methods to evaluate the CPOE implementation, ranging from observations, task analysis, focus groups, interviews and a questionnaire survey. In this paper we focus on developing criteria for selecting an appropriate instrument to measure end-user satisfaction of the implementation of the CPOE system. We developed the following criteria to select an instrument to measure end-user satisfaction: use (general vs. specific); development based on theoretical or empirical backgrounds (T/E); internal consistency (α), validity; availability of reference scores; use of instrument in a replication or follow-up study; use of instrument for CPOE implementation; and tested in a paper & pencil vs. web based survey (WBS) equivalence study.

Results

	Name	Use	T/E	α	Validity	Ref. Score Available	Repl. Study	CPOE	WBS
1	CSUQ	G	E	0.95	Discriminant	N	Y	N	Y
2	EUCSQ	G	T	0.94	Criterion	N	N	N	N
3	POESUS	S	E	0.85	Discriminant	Y	Y	Y	N
4	PUPEU	G	T	0.98 0.94	Predictive Discriminant Factorial	N	Y	N	N
5	QUIS	G	E	0.94	Discriminant	Y	Y	Y	Y
6	SUS	G	E	N/A	Criterion Discriminant	N	Y	N	Y
7	USE	G	T/E	"high"	Factorial	N	N	N	N

G=General, S=Specific; T/E=Theoretical/Empirical; Repl. Study= Replication/follow-up study available; WBS=Web Based Survey

Discussion/Conclusions

Results show that, using the criteria we developed, it is possible to select an instrument that has proven to be reliable and valid in previous use and will allow for benchmarking. The criteria we developed can also be used to select an instrument for measuring end-user satisfaction with other computer systems than CPOE.