

Predictors of Success in Electronic Decision Support for Prescribing

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Background: A recent systematic review of randomized controlled trials (RCTs) concluded that electronic clinical decision support systems (CDSS) can improve physician prescribing and resultant patient outcomes. Since CDSS is expensive to develop, it should be designed with predictors of success in mind. We have completed a follow-up systematic review of the literature examining key predictors of success versus failure for CDSS aimed at influencing prescribing towards best evidence.

Methods: MEDLINE, EMBASE and the Cochrane Library were searched from 1976 to 1999 using terms related to therapy, computers and decisions. Levels of evidence were developed, tested for face validity, and applied. Data were extracted on study design, type of CDSS, medical specialty target, clinical setting, users, evaluation quality, reported barriers to or predictors of success.

Results: No RCTs have addressed this issue. A large number of predictors and barriers have been noted (see table). Level 1A evidence, meaning that based on empiric, quantitative data, favoured:

Evidence Ranking	Number of Studies	# of Predictors/Barriers
1A	20	81
1B	80	500
2	60	513
3	54	716

a) active, real-time decision support based on patient-specific data (i.e., Mrs. X's Hg last week was 74, do you want to continue her ASA at 650 mg/day?); b) display of costs of tests and therapies to clinicians, c) availability (few clicks) of guidelines, general drug information and patient education materials. Clinicians needed flexible, fast interfaces, convenient access to computers and organized charting forms.

Conclusion: Future trials of CDSS should evaluate predictors of success/failure of the system. Evidence to date suggests the main principles are point-of-care advice well integrated into clinical workflow with easy access to more information as needed