When we look it up: Exploring determinants of information use

Grad RM, Pluye P, Granikov V, Johnson-Lafleur J, Moscovici J, Vandal A, Bartlett G, Marlow B.

CONTEXT

Grounded in a framework from Information Science, we developed the Information Assessment Method (IAM) to better our understanding of how health professionals use clinical information for specific patients

OBJECTIVE

To explore determinants of information use, by examining searches for clinical information conducted by family physicians

DESIGN

Prospective observational component of a mixed-methods study

SETTING

Canada

PARTICIPANTS

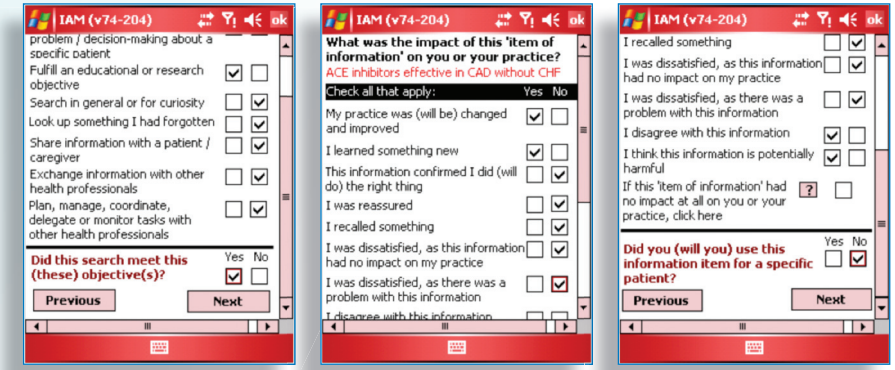
41 family physicians

DICHOTOMOUS OUTCOME

Information use for a specific patient.

INTERVENTION / INSTRUMENT

IAM questionnaire linked to clinical information retrieved from Essential Evidence Plus® on handheld computer. Using IAM, family physicians rated the information they retrieved in terms of its (a) situational relevance, (b) types of cognitive impact, and whether the retrieved information was (c) used for a specific patient. The situational relevance of retrieved information is judged in relation to the reasons for searching (search objectives).



ANALYSIS

Given the dependency of physician ratings and of hits within searches, random effects logistic regression models examined associations between information use (the outcome) and covariates: search objectives, achieving these objectives (situational relevance) and the type of cognitive impact arising from the retrieved clinical information.

RESULTS

83% of 2,131 searches were rated. 74% of all rated searches were done to address a clinical question / decision about a specific patient; however 75% were done with more than one objective in mind. At least one search objective was successfully met 76 % of the time.

Rated searches resulted in 1.9 information hits on average (range 1-22). Information hits were opened pages, derived from one of six resources: InfoPOEMs®, EBM or Selected Practice Guidelines, Cochrane Review abstracts, Clinical Decision Rules or Calculators, Evidence Summaries. Over 320 days of follow-up, each FP rated an average of 83 information hits (range 6 – 148) within 44 searches. 52% of rated information hits (n=1,708) were used for a specific patient.

Search objectives, achievement of these objectives and information use: The odds that clinical information was (will be) used for a specific patient increased by an estimate of 10-fold when search objectives were achieved (adjusted OR 10.3, 95% CI 7.0 – 15.2). The odds that clinical information was used for a specific patient increased by an estimate of 13-fold, when the search objective was "address a clinical question" (adjusted OR 13.4, 95% CI 9.4 – 19.1).

Cognitive impact and information use: An initial model included all nine types of cognitive impact. In our final model, three types of cognitive impact were positively associated, and one type was negatively associated with the use of that information for a specific patient.

Random Effects (Logistic Regression) Model

	Use of information ~ Cognitive Impact		
Type of cognitive impact	*Parameter estimate (SE)*	*P Value*	*Odds Ratio [95% CI]*
My practice was (will be) changed and improved	1.2136 (0.1346)	<0.0001	3.4 [2.6 – 4.4]
This information confirmed I did (will do) the right thing	0.8119 (0.1220)	<0.0001	2.3 [1.8 – 2.9]
I recalled something	0.3028 (0.1202)	0.0119	1.4 [1.1 – 1.7]
I learned something new	-0.4256 (0.1335)	0.0015	0.7 [0.5 – 0.9]

CONCLUSION

Searching to address a clinical question or achieving the search objective(s) is highly and positively associated with information use for specific patients. Three types of cognitive impact are positively associated with use of information. However, in the context of information retrieval, learning something new is negatively associated with the use of information for a specific patient. This supports the CME outcomes framework[1] which places learning and physician behaviour on separate levels.

[1] Moore DE et al. Achieving desired results and improved outcomes: Integrating planning and assessment throughout learning activities. Journal of Continuing Education in the Health Professions 2009;29:1-15.

Contact information:
roland.grad@mcgill.ca

ITPCRG Information Technology Primary Care Research Group

McGill

CIHR IRSC Canadian Institutes of Health Research / Instituts de recherche en santé du Canada