Assessing and improving clinical information

Drs Pierre Pluye and Roland Grad developed the Information Assessment Method to promote lifelong e-learning and the use of clinical information in routine practice for better healthcare and patient health.

To begin, can you provide an overview of your work and explain how you both came to research health professionals’ application of clinical information?

PP: While we live in an information society, there is surprisingly little research on the value of information or how information is valuable from the users’ viewpoint. I met Roland while working on an IT project in 2001, and we began by studying the cognitive impact of clinical information retrieved by family physicians from knowledge resources. Subsequently, we researched the ‘value’ of clinical information received via email from the family physicians’ viewpoint. Value has several aspects to it: we have looked at the cognitive impact of information, its relevance for the task at-hand, its use in clinical practice, and the benefits it can bring to patients.

RG: In primary healthcare and family medicine, the application of research-based clinical information has a huge impact on decision making and patient health. Given that encounters involve a very broad set of problems, primary healthcare professionals increasingly use sophisticated knowledge resources to answer their clinical questions. My longstanding interest in evidence-based medicine led me to graduate studies in Clinical Epidemiology, and then to study the application of research-based clinical information.

What exactly is research-based clinical information?

RG: Research-based clinical information is the information we need to answer clinical questions about the prevention, diagnosis, treatment or prognosis of disease. It comes from synopses or syntheses of clinical research, and may also be presented as a clinical decision rule where you enter patient-specific data (eg. no bone tenderness on clinical exam) and obtain a recommendation (eg. X-ray not needed).

PP: The use of information can contribute to increasing patient satisfaction and knowledge, preventing disease or health deterioration, avoiding unnecessary or inappropriate diagnostic procedures or treatment, and improvements in patient health or functioning or resilience. For example, a quick search can lead a clinician to discover that a drug may cause urinary incontinence, and then replace it with another medication to reduce urinary incontinence. The outcome of this search is improved patient health. For this patient and the healthcare system, this search eliminated the need for referral or multiple diagnostic tests to look for other causes of incontinence.

What is the Information Assessment Method (IAM) and in what context is it used by health professionals?

PP: IAM systematically documents reflection on information objects, eg. a webpage. Our research has found that IAM can effectively stimulate an evaluation of the relevance, cognitive impact, use and health benefits of clinical information retrieved from (pull) or delivered by (push) electronic knowledge resources. Through literature reviews and studies involving qualitative, quantitative and mixed methods, we have documented the usability and validity of the IAM questionnaires.

RG: IAM enhances continuing education (CE) by stimulating reflection and two-way knowledge exchange between information users and providers. In North America, the process of using IAM to rate clinical information is an accredited individual reflective e-learning activity. IAM is used by multiple types of health professional such as librarians, nurses, pharmacists, physical therapists, and of course physicians.

Have free-text feedback comments linked to IAM ratings been forwarded to knowledge providers to improve their resources? Have there been any common criticisms and/or praise of knowledge resources?

PP: Free-text feedback comments linked to IAM ratings can help knowledge providers. This becomes more apparent if one considers that timely handling of IAM-based user feedback can optimise the editorial process to provide ‘better than best’ evidence (evidence reviewed and eventually modified based on user feedback). Benefits for knowledge users include a mechanism to facilitate how their voices are heard, thus raising the potential for enhanced information for all. In terms of relational marketing, IAM can improve knowledge resources and sustain relationships with users.

RG: In one of our studies, IAM-stimulated feedback from family physicians was used to optimise this clinical information within a knowledge resource called e-Therapeutics+. In 2010, more than 5,000 family physicians rated at least one Highlight from e-Therapeutics+, thus, we received 31,429 completed IAM questionnaires. Of those, 682 included constructive feedback in the form of free text comments. 121 constructive feedback comments led to a change in e-Therapeutics+. Comments contained suggestions for additional content, for clarification of content, or for consideration of contradictory evidence. In addition, we are looking at ways to automate the sharing of valuable comments with the IAM-rater community.
As researchers advance medical science, a team at McGill University in Canada seeks to understand the value of clinical information and promote its use by professionals at the front line of healthcare everyday practice.

In one study, practising family physicians searched Essential Evidence Plus, a knowledge resource that combines multiple databases. In this study, family physicians needed to retrieve clinical information for about 14 patients to report health benefits for one. In another study, nurse practitioners, medical residents, and family health team pharmacists searched e-Therapeutics+. Here, it was found that the professionals needed to retrieve clinical information for seven patients in order to report health benefits for one.

In spite of these benefits, health professionals only spend about half of the time they deem necessary searching for complementary information. This might be attributed to a perceived lack of time or lack of financial incentive. It also implies that some physicians are ordering tests or referring patients to specialist colleagues instead of searching for an answer to their question. This contributes to the overuse of tests and medical procedures. It is hoped that these recent findings will encourage health professionals to search more often when they feel the need.

EMAIL SUCCESS

Furthermore, the IAM-based CE programme delivered in a push context is very popular in Canada, as Pluye outlines: “Our work suggests physicians associate email alerts with anticipated benefits for the health of their patients”. For example, in the first two years of the programme, more than 5,500 family physicians gained CE credits by using IAM to rate Highlights, weekly email alerts produced by the CPhA for 17,000 members of the College of Family Physicians of Canada. In more than 40 per cent of all ratings, physicians anticipated health benefits (for example, the avoidance of an unnecessary treatment, diagnostic procedure, preventive intervention, or referral) for at least one of their patients after using Highlights.

As a result of this success, a national programme for clinical pharmacists, which links IAM to Highlights, has been implemented. Further plans are in place for a system where clinicians will be reminded of email alerts that they rated
as having the potential to benefit their patients. This will enable them to use information tailored specifically to their needs at the point-of-care.

LOOKING AHEAD

Drs Pluye and Grad are also working on a book to share the clinical vignettes they have collected from their studies. Pluye believes these would be of huge practical importance: “These are real stories from the frontlines of practice about the use and benefits of information in an everyday clinical context. We will use easy-to-read stories to reach a broad audience including health consumers, patients and primary care clinicians”.

Moreover, the scientists are looking at the potential for IAM to be integrated into the Electronic Medical Record (EMR). As Grad asserts, “this will stimulate searches directly within the patient chart and further promote the use of knowledge resources. In one seamless system, we see the potential for clinicians to search for information at the point-of-care through their electronic medical records (EMRs), use this retrieved information for their patient, rate it, and document their reflective learning”.

Furthermore, IAM will eventually be used by a wider spectrum of audiences, including patients, for evaluating online consumer health information. For example, the researchers were recently funded to adapt the IAM questionnaire to help health administrators assess information about healthcare system changes. With governments struggling to control healthcare costs, this has raised significant interest. Grad concludes: “Since answering clinical questions can result in better use of diagnostic tests or treatments in primary healthcare, and more judicious referral of patients to secondary and tertiary care, scaling up our IAM-EMR system could help sustain publicly funded healthcare”.

INTELLIGENCE

HOW HEALTH PROFESSIONALS APPLY INFORMATION FROM ELECTRONIC KNOWLEDGE RESOURCES IN EVERYDAY CLINICAL PRACTICE

OBJECTIVES

To systematically scrutinise physicians’ use of information in routine clinical practice, and subsequent patient health benefits.

KEY COLLABORATORS


FUNDING

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PIERRE PLUYE, MD PhD is CIHR New Investigator and Associate Professor, Department of Family Medicine at McGill University. He has expertise in mixed methods studies and mixed studies reviews. His work revolves around the application and benefits of information derived from electronic knowledge resources; he has co-developed the Information Assessment Method (IAM).

ROLAND GRAD, MDCM MSC CCFP FCFP is Associate Professor of Family Medicine at McGill University and a family doctor at the Herzl clinic in Montreal. Following an interest in research-based information, Roland studies how health professionals use evidence in everyday clinical practice. Since 2001, he has co-developed the Information Assessment Method (IAM).