

# In Pursuit of a Valid Information Assessment Method



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## CONTEXT

The Information Assessment Method (IAM) contains a questionnaire that determines:

- Why doctors search for information
- What are the associated cognitive impacts
- How the information is used for a specific patient
- What are the associated patient health outcomes

Stakeholders and users are:

- Researchers: To study the value of clinical information
- CME planners: To promote reflective learning
- Information providers: To sustain the quality of electronic knowledge resources
- Health professionals: To document brief individual e-learning activities

## PROBLEM

IAM has not been validated in the context of clinical Information Retrieval.

## OBJECTIVE

To evaluate the content validity of IAM in the context of Information Retrieval.

## BACKGROUND

- Content validity is the degree to which elements of an assessment instrument are **relevant to** and **representative** of the targeted construct for a particular **assessment purpose**. (Haynes et al, 1995)
- Four constructs: Reason for search (7 items), Cognitive impact (9 items), Information use (4 items), and Health outcomes (5 items)
- 'Unit': an explanation of one rated IAM item
- FIT: when a UNIT matches the developers' definition for a particular item
- MISFIT: when a UNIT does not match the developers' definition for a particular item
- UNCLEAR: when a UNIT is unclear
- NONE: when no explanation is given

## METHODS

### Design

Mixed methods research, triangulation – convergence design (Creswell & Plano-Clark, 2007)  
A quantitative prospective observational study combined with a qualitative multiple case study



### Setting, Participants & Intervention

Essential Evidence Plus™ provided to 40 family physicians and used for over an average of 320 days

### Data Collection

**Quantitative:** For each search, participants were asked to rate retrieved information using the IAM questionnaire  
**Qualitative:** Participants were asked to explain a purposeful sample of their rated searches

### Data Analysis

**Quantitative:** For each construct, item Relevance (R)

$$R = \frac{\text{Number of times the item was rated or explained}}{\text{Total number of ratings or explanations}}$$

*Item considered relevant if  $R \geq 10\%$*

#### EXAMPLE

Number of times the item "Address a clinical question" was rated = 1310  
Total number of ratings for all '7 reasons' = 4253

$$R = \frac{1310}{4253} \times 100 = 31\%$$

**Qualitative:** Number of units analyzed to date: 3042 (94% of all units)

**Representativeness:** When a unit (participant's explanation) FITs the researchers' definition of the item.

*Item is representative: when the number of FIT Units  $\geq 80\%$  of total responses (FIT + MISFIT + UNCLEAR + NONE).*

## RESULTS

RESULTS	Relevant?	Representative?	Content Validity
<b>REASONS for Information Search</b>			
No. of ratings = 4253			
1. Address a clinical question/problem/decision-making about a specific patient	YES 31%	YES 98%	😊
2. Fulfill an educational or research objective	YES 10%	YES 98%	😊
3. Search in general or for curiosity	YES 12%	YES 96%	😊
4. Look up something I had forgotten	YES 16%	YES 88%	😊
5. Share information with a patient/ caregiver	YES 15%	YES 92%	😊
6. Exchange information with other health professionals	YES 12%	YES 97%	😊
7. Plan, manage, coordinate, delegate or monitor tasks with other health professionals	NO 5%	YES 90%	😢
<b>COGNITIVE IMPACT</b>			
No. of ratings = 6329			
Items of Positive Impact			
1. My practice was (will be) changed and improved	YES 15%	YES 81%	😊
2. I learned something new	YES 30%	YES 80%	😊
3. This information confirmed I did (I am doing) the right thing.	YES 24%	YES 82%	😊
4. I was reassured	YES 23%	YES 91%	😊
5. I recalled something	YES 18%	NO 75%	😐
Items of Negative Impact			
No. of ratings = 166			
1. I was dissatisfied as this information had no impact on my practice	YES 47%	YES 86%	😊
2. I was dissatisfied as there was a problem with this information	YES 40%	YES 81%	😊
3. I disagree with this information	NO 4%	NO 66%	😢*
4. I think this information is potentially harmful	NO 8%	YES 80%	😢*
<b>INFORMATION USE</b>			
No. of units = 737			
1. To modify the management of this patient	YES 19%	NO 56%	😐
2. To justify or maintain the management of this patient	YES 39%	YES 97%	😊
3. To better understand a particular issue related to this patient	YES 28%	YES 97%	😊
4. To persuade other health professionals or patients to make changes	YES 14%	NO 77%	😐
<b>HEALTH OUTCOMES</b>			
No. of units = 766			
1. Increasing patient knowledge about health or healthcare	YES 23%	YES 97%	😊
2. Avoiding unnecessary or inappropriate treatment, diagnostic procedure or preventative intervention	YES 21%	YES 87%	😊
3. Increasing patient acceptability of treatment, diagnostic procedure or preventative intervention	YES 18%	NO 4%	😢
4. Preventing disease or health deterioration (including acute episodes of chronic diseases)	YES 17%	NO 64%	😐
5. Improving patient health or functioning or resilience (i.e., how well the patient faces difficulties)	YES 20%	NO 65%	😐

\*in the context of filtered and relevant information

## CONCLUSIONS

Results suggest:

- 😊 16 items are relevant and representative – will be retained
- 😐 6 items are relevant but not representative – need modification
- 😢 3 items are not relevant – removal to be considered

## NEXT STEPS

1. Complete the analysis of relevance and representativeness
2. Suggest improvement / modification of 6 IAM items
3. Obtain ITPCRG consensus on item improvement / modifications
4. Launch the validated version: IAM 2011

## REFERENCES

- 1) Haynes, S. N., et al (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment, 7*(3), 238-247.
- 2) Creswell, J. W., & Plano Clark, V. L. (2007). Designing and conducting mixed methods research. Thousand Oaks: Sage

Learn more about IAM at  
<http://iam2009.pbworks.com>

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