ELSEVIER

Patient Education and Counseling 70 (2008) 407–411

Patient Education and Counseling

www.elsevier.com/locate/pateducou

Short communication

Measuring quality of patient information documents with an expanded EQIP scale

A.I. Charvet-Berard [a,*], P. Chopard [b], T.V. Perneger [c]

[a] *Quality of Care Unit, Geneva University Hospitals, Switzerland*
[b] *Quality of Care Unit, Geneva University Hospitals, Switzerland*
[c] *Clinical Epidemiology Service, Geneva University Hospitals, Switzerland*

Received 15 March 2007; received in revised form 21 November 2007; accepted 23 November 2007

Abstract

Objective: To develop an expanded version of the ensuring quality information for patients (EQIP) scale to measure quality of patient information documents.
Methods: We added 16 new items to the 20-item EQIP scale. The 36 items addressed document content, structure, and identification data. The new tool was used to rate the quality of 73 leaflets describing medical care procedures, used at a university hospital. Assessment rules were clarified on 25 documents; the remaining 48 leaflets were independently rated by two assessors.
Results: Inter-rater reliability was very good (mean item-specific κ statistic on 48 documents = 0.84). The intraclass correlation coefficient for the global score was 0.95. The mean global conformity score on all items was 44 (range: 21–76, S.D. = 10). Most documents stated the purpose of the medical intervention (74% fully adequate), described qualitative risks (64%), used a respectful tone (80%), provided clear information (64%) in a logical order (73%). Fewer quantified risks (7%), were balanced (33%), used everyday language (22%), provided contact details (28%), identified authors (25%) and funding sources (4%). None gave evidence-based references nor clearly mentioned patient participation.
Conclusions: The expanded EQIP scale was reliable, and proved useful for analysis of patient information documents. Documents partially met international standards for quality patient information.
Practice implications: Document producers' efforts should focus on respecting guidelines and including patients.

Keywords: Patient information; Information quality scale; Patient education handouts

1. Introduction

The provision of high quality information is a legal responsibility of healthcare institutions and professionals in many countries [1,2]. According to international guidelines [3–9], three aspects of patient information documents that should be assessed are content, structure, and identification data.

Content encompasses descriptions of the illness, all treatment options with detailed consequences, a list of sources of information and support, a space for questions, and contact information [7–10]. In terms of structure, information should be balanced, evidence-based and referenced, easily understandable, relevant to the target population, regularly updated, hierarchically displayed and illustrated [7–10]. The date of document issue, the names of entities responsible for editing and financing should be specified. Patients should be involved (and acknowledged) in determining document acceptability and relevance [7–10].

Topic-specific [11,14] or generic [15–21] tools have been proposed to evaluate the quality of patient information. The ensuring quality information for patients (EQIP) instrument aims to "assess quality of patient information, applicable to all information types, and prescribe the required action" [21]. Several EQIP criteria coincide with those of the British Medical Association (BMA) patient information award appraisal form [19]. Both proved useful in surveys of patient information leaflets [13,21]. However, other criteria were recently added to evaluate patient information [7–9,12].

In this study we aimed to (1) expand EQIP with criteria derived from a recent literature review; (2) restructure the

* Corresponding author. Current address: Fondation genevoise pour le dépistage du cancer du sein, Bvd de la Cluse 43, CH-1205 Geneva, Switzerland. Tel.: +41 22 320 28 28; fax: +41 22 320 28 30.
E-mail address: a.charvet@fgdcs.ch (A.I. Charvet-Berard).

0738-3991/$ – see front matter
doi:10.1016/j.pec.2007.11.018

expanded tool according to the three dimensions of content, structure and identification data; (3) use the new tool to assess the quality of information documents in a large university hospital.

2. Methods

2.1. Background

The study was conducted at Geneva University Hospitals (Switzerland). Hospital activity amounts to about 48,000 admissions and 785,000 hospitalisation days annually, in 2200 beds. The hospital had no official guidelines regarding patient information documents.

2.2. Document selection

We gathered 243 currently used documents, of which 162 met the selection criteria of describing a medical intervention with direct interaction between a patient and a health professional. Multiple identically structured documents addressing different treatments in a given speciality were randomly sampled to avoid over-representation in the overall analysis. Seventy-three documents were finally included.

2.3. Evaluation tool

We restructured the 20 EQIP criteria into the dimensions of content, structure, and identification data (Table 1). The criterion ''the document mentions which subjects will be covered and covers them'' was divided in two: (1) document mentions the subjects covered and (2) actually covers the defined subjects.

Another 15 criteria were elaborated after review of the scientific literature on quality of patient information [3–10,15–19] for a total of 36 criteria (EQIP36, Table 1). New criteria addressed document content (description of the medical problem, sequence of the medical procedure, quantitative benefits and risks, dealing with complications, patient precautions and alert signs, cost of the procedure, summary content item), identification data (date of revision, logo, name of sponsors, bibliography) and structure (information clear, balanced, no consent form). Presence of patient testimonials was not included, because the issue remains controversial [22,23]. Due to limited resources documents were not evaluated on the ''less than 15 word sentences'' criterion, but on all other 35 criteria.

Each item was coded on the four point EQIP scale ('yes', 'partly', 'no', 'does not apply') [21]. An overall score of document quality ranging from 0 to 100 was computed according to the EQIP algorithm: [21]

$$\text{score} = \frac{\text{'yes'} \times 1 + \text{'partly'} \times 0.5}{35 - \text{'does not apply'}} \times 100$$

Two assessors (ACB and PC) independently evaluated the first 25 documents, and clarified assessment rules in consensus meetings. The remaining 48 documents were evaluated independently by each assessor. In case of divergent coding, document rating was defined by consensus.

2.4. Analysis

We report item frequency distributions for the 73 documents, and global conformity score. Inter-rater reliability was determined by means of unweighted κ coefficients based on the 48-paired assessments.

3. Results

3.1. Documents

The 73 documents informed about an examination or diagnostic test (12), a medical treatment (7), an invasive but not surgical procedure (12), a surgical procedure (33), anaesthesia (4) and other topics (5). They covered the fields of anaesthesiology (5), pharmacology (1), surgery (14), gynaecology (11), obstetrics (6), internal medicine (8), neurology and neurosurgery (11), ophthalmology (12), otorhinolaryngology (1), pediatrics (1), radiology (2), and nosocomial infection prevention (1). Twenty-eight documents (38%) were produced by scientific societies, 45 (62%) by hospital services.

3.2. Inter-rater reliability of EQIP36

Thirty-three of the 35 criterion-specific κ coefficients ranged from 0.63 to 1 (Table 1), with two outliers at 0.37 (respectful tone) and 0.39 (information presented in a logical order). κ coefficients did not differ significantly between added and original EQIP criteria. The mean κ coefficient was 0.84, standard deviation 0.16. The intraclass correlation coefficient for the global score was 0.95 (95% confidence interval = 0.91–0.97).

3.3. Global quality score

On a score ranging from 0 to 100, the overall mean was 44 (range: 21–76, S.D. = 10). Similar scores were found for documents produced by scientific societies (43) or hospital services (44).

3.3.1. Document content

Over two thirds of documents defined treatment goal, described what happened *pre*- and *post*-medical intervention, included a *qualitative* statement about side-effects (Table 1). About half explained the illness, and suggested precautions for patients. A third described which topics the document covered, therapeutic alternatives (including no treatment), qualitative benefits, dealing with potential complications, treatment effects on quality of life, and hospital service contact details. A quarter of documents were coded 'yes' on overall relevance for targeted patients, and addressed medical intervention cost and insurance issues. *Quantitative* estimates of risks and benefits, sources of information or support were hardly ever mentioned.

Table 1
Criteria for evaluation of patient information document quality (new items are in bold)

Dimension	Initial EQIP criterion	Criteria	κ EQIP36	73 documents coded			
				Yes (%)	Partly (%)	No (%)	Does not apply (%)
Content (18 criteria)							
Q1	Q1	Initial definition of which subjects will be covered	1.00	30.1		69.9	
Q2	Q1	Coverage of the above-defined subjects (if ''no'' above, does not apply)	0.87	63.6	36.4		69.9
Q3		**Description of the medical problem**[a]	0.97	46.4	35.7	17.9	23.3
Q4	Q17	Definition of the purpose of the medical intervention	0.68	74.0	12.3	13.7	
Q5	Q20	Description of treatment alternatives (including no treatment)[a]	0.85	35.7	23.2	41.1	23.3
Q6		**Description of the sequence of the medical procedure**	0.87	24.7	71.2	4.1	
		If 'yes' or 'partly':		57.5		42.5	
		Prior to intervention					
		During intervention		90.4		9.6	
		Post-intervention		86.3		13.7	
Q7	Q18	Description of qualitative benefits (e.g. improved mobility)	0.76	34.2	24.7	41.1	
Q8		**Description of quantitative benefits (e.g. "40% of patients regain hand mobility")**	1.00	4.1		95.9	
Q9	Q19	Description of qualitative risks and side-effects	0.80	64.4	24.7	11.0	
Q10		**Description of quantitative risks and side-effects (e.g. "two thirds of patients experience headache")**	0.93	6.8	15.1	78.1	
Q11	Q15	Addressing quality of life issues (may not apply if very short intervention)	0.63	27.9	39.7	32.4	6.8
Q12		**Description of how potential complications will be dealt with (e.g. "if you feel nauseous we will change the medication")**	0.82	30.1	16.4	53.4	
Q13		**Description of precautions that the patient may take (e.g. "do not eat 6 h before anaesthesia")**	0.70	53.4	8.2	38.4	
Q14		**Mention of alert signs that the patient may detect (e.g. "if you feel a burning sensation call the nurse")**	0.86	19.2		80.8	
Q15		**Addressing medical intervention cost and insurance issues**	0.89	23.3	1.4	75.3	
Q16	Q10	Specific contact details for hospital services	0.91	27.8	8.3	63.9	1.4
Q17	Q16	Specific details of other sources of reliable information/support	1.00	2.7	1.4	95.9	
Q18		**The document covers all relevant issues on the topic (summary item for all content criteria)**	0.71	23.3	75.3	1.4	
Identification data (6 criteria)							
Q19	Q11	Date of issue or revision	0.97	17.8	38.4	43.8	
Q20		**Logo of the issuing body**	1.00	37.0	1.4	61.6	
Q21	Q12	Name of persons or entities that produced the document	1.00	24.7		75.3	
Q22		**Name of persons or entities that financed the document**	1.00	4.1	1.4	94.5	
Q23		**Short bibliography of evidence-based data used in the document**	1.00			100.0	
Q24	Q13	The document states if and how patients were involved/consulted in its production	1.00		23.3	76.7	
Structure (12 criteria)							
Q25	Q2	Use of everyday language, explains complex words or jargon	0.64	21.9	68.5	9.6	
Q26	Q14	Use of generic names for all medications or products	0.96	60.0	15.0	25.0	72.6
Q27	Q3	Use of short sentences (<15 words on average)	Not done				
Q28	Q4	The document personally addresses the reader	0.77	27.4	49.3	23.3	
Q29	Q5	The tone is respectful	0.37	79.5	19.2	1.4	
Q30		Information is clear (no ambiguities or contradictions)	0.64	64.4	34.2	1.4	
Q31		Information is balanced between risks and benefits	0.90	32.9	47.9	19.2	
Q32	Q8	Information is presented in a logical order	0.39	72.6	26.0	1.4	
Q33	Q6	The design and layout are satisfactory (excluding figures or graphs see below)	0.76	42.5	56.2	1.4	
Q34	Q7	Figures or graphs are clear and relevant (if absent, 'does not apply')	0.85	25.9	29.6	44.4	63.0
Q35	Q9	The document has a named space for the reader's notes	0.90	20.5	31.5	47.9	
Q36		The document includes a consent form, contrary to recommendations	1.00	34.2	19.2	46.6	

When the criterion 'does not apply' to some documents, the percents in columns 'yes', 'partly', 'no' are computed only for the documents for which the criterion is valid.

[a] For these criteria, medical exams and tests are coded 'does not apply'.

3.3.2. Document identification data

The majority of documents did not include the recommended identification data. A quarter or less included a publication date, the name of entities that produced the document, and 4% mentioned how the document was financed. Scientific references were absent, patient involvement was seldom mentioned and never described.

3.3.3. Document structure

Over two thirds of documents used a respectful tone, and provided clear unambiguous information in a logical order. About 40% had a satisfactory design. A third provided balanced information about benefits and risks, less than 25% included clear figures or graphs, a space for patients to take notes, and directly addressed the reader. Interestingly, most documents that 'partly' addressed the reader used the active second person when providing neutral or positive information, but referred to 'the patient' when mentioning risks. Only 22% of documents were easily understandable by patients.

4. Discussion and conclusion

4.1. Discussion

The expended version of EQIP (EQIP36) showed good inter-rater reliability, with κ coefficients generally higher (mean $\kappa = 0.84$) than those of the original EQIP tool (mean $\kappa = 0.60$) [21]. This might be attributable to time spent adjusting assessment rules in the preliminary evaluation phase on 25 documents. Two criteria (''respectful tone'' and ''information presented in a logical order'') with low κ coefficients require further improvement. The subjective nature of these criteria may explain the low reliability. Other studies have also reported lower κ coefficients on subjective items [15,21].

The main advantage of the expanded instrument is its compatibility with international recommendations [3–10,15–21], i.e., better content validity. Because the evaluation of information documents is still an evolving field, further revisions to this instrument may be necessary. A limitation of this study is that the construct validity of the new tool was not examined. In particular, it will be important to ascertain in future studies whether patients who have received higher quality documents, as reflected by EQIP scores, are indeed better informed than those given lower quality documents.

Although the analysed documents had been issued in the absence of internal guidelines, we did not expect key elements to be so frequently missing: a description of the medical problem, the sequence of the medical procedure, the quantification of risks and benefits, and scientific references. This suggests that efforts to produce patient information within the hospital were generally inadequate. The majority of patient information documents had been produced by healthcare professionals unaware of medical information guidelines. That documents issued by scientific societies scored no better is worrisome, because both health professionals and patients widely rely on these for treatment information.

Our results support studies in which the quality of patient information documents proved uneven [11–14,24,25]. Recommendations on elaboration of quality information for patients were first published 10 years ago [10], and should have found their way into routine practice. Several studies including ours documented the lack of patient involvement in the production and evaluation of medical information. This is worrisome because only patients can tell health professionals about the relevance of information documents [26,27]. In the future, document producers should endeavour to involve patients in the development of quality information documents.

4.2. Conclusion

The expanded EQIP tool proved valuable in assessing the quality of a large range of patient information documents. Documents were only partially in agreement with international recommendations. Substantial efforts should be made to improve the quality of patient information leaflets, using an effective tool such as the expanded EQIP scale.

4.3. Practice implications

Our results suggest that guidelines should be advertised to health professionals who develop patient information documents. In that respect, the EQIP36 scale is a convenient condensed instrument to help design quality patient information material. In addition, a substantial effort should be made to involve patients in the production and evaluation of medical information documents, for which they are the target audience. Indeed, only patients can confirm that documents and leaflets are adequate and relevant to their informational needs. Further research is required to evaluate whether patients' information quality criteria differ from those of health professionals.

Acknowledgements

We wish to acknowledge and thank B. Moult, L.S. Franck, H. Brady, authors of the first EQIP paper, who kindly provided us with details of the EQIP scale and manual.

Competing interests: none.

Financial support was generously provided by Geneva University Hospitals, as part of the Quality of Care fund (competitive review). The funding agreement ensured the authors' complete independence in designing the study, interpreting the data, writing and publishing the report.

References

[1] Faden RR, Beauchamp TL. A history and theory of informed consent. New York, NY: Oxford University Press; 1986.

[2] del Carmen MG, Joffe S. Informed consent for medical treatment and research: a review. Oncologist 2005;10:636–41.

[3] Coulter A, Entwhistle V, Gilbert D. Informing patients. An assessment of the quality of patient information materials. King's Fund: London; 1998.

[4] General Medical Council. Seeking patients' consent: the ethical considerations. London: General Medical Council, http://www.gmc-uk.org; 1999.

[5] National Health and Medical Research Council. How to prepare and present evidence-based information for consumers of health services: a literature review, http://www.nhmrc.gov.au/publications/synopses/cp72syn.htm; 1999 (accessed January 25, 2007).
[6] National Health and Medical Research Council. Communicating with patients: advice for medical practitioners, http://www.nhmrc.gov.au/publications/synopses/e58syn.htm; 2004 (accessed March 15, 2007).
[7] Haute Autorité de Santé. Guide méthodologique: élaboration d'un document écrit d'information à l'intention des patients et des usagers du système de santé, http://www.has-sante.fr/portail/upload/docs/application/pdf/elaboration_doc_info_patients_rap.pdf; 2005 (accessed March 15, 2007).
[8] International Patient Decision Aid Standards collaboration. Background document, http://ipdas.ohri.ca/IPDAS_Background.pdf; 2005 (accessed March 15, 2007).
[9] O'Connor AM, Stacey D, Entwistle V, Llewellyn-Thomas H, Rovner D, Holmes-Rovner M, Tait V, Tetroe J, Fiset V, Barry M, Jones J. Decision aids for people facing health treatment or screening decisions. Cochrane Database Syst Rev 2003; CD001431.
[10] Kenny T, Wilson RG, Purves IN, Clark Sr J, Newton LD, Newton DP, Moseley DV. A PIL for every ill? Patient information leaflets (PILs): a review of past, present and future use. Fam Pract 1998;15:471–9.
[11] Slaytor EK, Ward JE. How risks of breast cancer and benefits of screening are communicated to women: analysis of 58 pamphlets. Br Med J 1998;317:263–4.
[12] Fagerlin A, Rovner D, Stableford S, Jentoft C, Wei JT, Holmes-Rovner M. Patient education materials about the treatment of early-stage prostate cancer: a critical review. Ann Intern Med 2004;140:721–8.
[13] White P, Smith H, Webley F, Frew A. A survey of the quality of information leaflets on hayfever available from general practices and community pharmacies. Clin Exp Allergy 2004;34:1438–43.
[14] Fitzmaurice DA, Adams JL. A systematic review of patient information leaflets for hypertension. J Hum Hypertens 2000;14:259–62.
[15] Ademiluyi G, Rees CE, Sheard CE. Evaluating the reliability and validity of three tools to assess the quality of health information on the Internet. Patient Educ Couns 2003;50:151–5.
[16] Godolphin W, Towle A, McKendry R. Evaluation of the quality of patient information to support informed shared decision-making. Health Expect 2001;4:235–42.
[17] Kim P, Eng TR, Deering MJ, Maxfield A. Published criteria for evaluating health related web sites: review. Br Med J 1999;318:647–9.
[18] Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. J Epidemiol Community Health 1999;53:105–11.
[19] British Medical Association patient information award. http://www.bma.org.uk/ap.nsf/Content/LIBBMAPatientInformationAward (accessed March 15, 2007).
[20] Interactive Health Communication Application. http://www.health.gov/scipich/IHC/checklist.htm (accessed March 15, 2007).
[21] Moult B, Franck LS, Brady H. Ensuring quality information for patients: development and preliminary validation of a new instrument to improve the quality of written health care information. Health Expect 2004;7:165–75.
[22] Butow P, Fowler J, Ziebland S. Using personal stories. International Patient Decision Aid Standards collaboration background document 2005; 24–27. http://ipdas.ohri.ca/IPDAS_Background.pdf (accessed March 15 2007).
[23] Fagerlin A, Wang C, Ubel PA. Reducing the influence of anecdotal reasoning on people's health care decisions: is a picture worth a thousand statistics? Med Decis Making 2005;25:398–405.
[24] Smith H, Gooding S, Brown R, Frew A. Evaluation of readability and accuracy of information leaflets in general practice for patients with asthma. Br Med J 1998;317:264–5.
[25] Estrada CA, Hryniewicz MM, Higgs VB, Collins C, Byrd JC. Anticoagulant patient information material is written at high readability levels. Stroke 2000;31:2966–70.
[26] Rozmovits L, Ziebland S. What do patients with prostate or breast cancer want from an Internet site? A qualitative study of information needs. Patient Educ Couns 2004;53:57–64.
[27] Moumjid N, Morelle M, Carrere MO, Bachelot T, Mignotte H, Brémond A. Elaborating patient information with patients themselves: lessons from a cancer treatment focus group. Health Expect 2003;6:128–39.