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Communication study

Quality of radiologists' communication with other clinicians—As experienced by radiologists

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ABSTRACT

Objective: The objective was to study radiologists' experiences of written and oral communication with referring clinicians, and its potential implications for decision making and patient care.
Methods: Focus group discussions with 12 radiologists were carried out. Content analysis was used for interpretation of the data.
Results: Radiologists reported many problems with the request forms: improper choice of imaging examinations and procedures, insufficient patient history/information, unclear clinical questions, lack of specific terms and unclear abbreviations on the request form. *Radiologists also mentioned other difficulties:* insufficient attention among participating clinicians during conferences, difficulties in reaching the referring clinicians by telephone, and communication difficulties in making priorities between patients. To overcome these problems, radiologists suggested increased contacts between radiologists and clinicians, and educational activities.
Conclusion: A number of difficulties in oral and written communication were highlighted. The use of medical imaging may be optimized by joint discussions on indications and methodology and educational activities, such as lectures, seminars and conferences, directed to the medical community at large.
Practice implications: Improved communication between radiologists and referring clinicians should be encouraged to ensure diagnostic quality, correct patient prioritization and patient safety, and to avoid unnecessary delays and costs.

1. Introduction

Mutual understanding in inter-professional communication is of paramount importance in health care [1]. With the introduction of electronic communication, traditional inter-professional communication is challenged. This is particularly evident in radiology, where communication of radiological images and reports now can be achieved electronically, based on digital picture and archiving systems (PACS) [2]. Thereby, images and reports can be reached instantly and simultaneously in e.g. surgical theatres, wards and outpatient clinics, and at remote sites outside hospitals. This is in sharp contrast to the traditional way of conveying imaging results, showing images on light-boxes and storing the only copy of the analogue film in the radiology file room. In parallel, many radiology departments strive for "paper-free" communication with clinicians, replacing paper referral forms with electronic referrals (and reports). PACS has clearly facilitated technical communication of imaging data [2], and also impacts work routines in radiology [3]. However, it has also been shown that consultations with radiologists decreased when hard copy films were replaced by workstations [4], but reports on effects on communication between radiologists and referring clinicians are conflicting [5].

The other aspect of inter-professional communication relates to its information value. The quality of communication from referring clinicians to radiologists has significant impact on clinical patient handling and safety [6–10]. Thus, request forms with adequate clinical information are essential to guide the radiologist and technician in planning and performing the examination and to obtain a correct diagnosis [11] and a clinically useful radiology report [12].

A previous study showed that of 100 request forms sent for MRI, 63% contained poor or insufficient information [13]. Inadequate communication of clinical data from referring clinicians to radiologists may have significant impact on diagnosis, cost and

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patient radiation exposure [14–18]. Despite the profound changes of work situations associated with digital imaging and electronic communication, there is limited research on inter-professional clinical communication in radiology [5].

The purpose of this study was to investigate channels and quality of inter-professional communication between radiologists and referring clinicians and to identify difficulties and possibilities in this context, as experienced by radiologists working with digital imaging systems and electronic referral and reporting systems.

2. Methods

Data was prospectively collected through three focus group discussions [19] with a total of 12 clinical radiologists (six women, six men) at a university hospital radiology department, comprising three units with partly different subspecialization profiles. Age of the participants was 27–61 years (median 41 years) and they had worked as radiologists for 1–27 years (median 10 years) (ten specialists, two senior residents). Participants were recruited through announcements at the respective units.

The study was approved by the department head as a quality assurance project. It was performed in accordance with strict ethical principles, including voluntarism, written and oral study information, oral consent and anonymization. The regional research ethics committee did not require additional ethical approval.

Semi-structured focus group discussions [20,21] were performed in the native language, led by two of the authors (mediators), and began with the main questions "How do you experience communication, oral and written, between the radiologists and the referring clinicians? What are the difficulties, possibilities and barriers in communication, and can they be overcome?" Deepening of the discussions was obtained by more targeted questions from the mediators. The group discussions lasted 60, 65 and 70 min, respectively. They were electronically audio-recorded, with the participants' permission, and transcribed verbatim.

Qualitative content analysis was used for analysis and interpretation of the transcribed material [22,23]. Since our study groups had similar professional backgrounds and environments, they were considered as one group.

The transcribed discussions were carefully and repeatedly read independently by three investigators, extracting meaning units addressing specific topics, which were then compared, condensed, coded and categorized into subcategories, categories and themes [22]. The results are presented with selected, direct quotes from the discussion.

3. Results

Written communication, in the form of electronic or paper request forms and radiology reports, and oral communication, in the form of individual or group face-to-face meetings and telephone contacts were brought up at the focus group discussions. Non-verbal communication was not specifically addressed.

The analysis of the discussions resulted in five categories and eight subcategories (Table 1).

3.1. Quality of written communication

3.1.1. Insufficient information on request forms

Insufficiencies of the content of the request forms (electronic or paper "order form") from the referring physicians were major concerns expressed by the radiologists. Lack of relevant clinical information, unclear clinical questions and use of specific abbreviations were highlighted as problem areas.

Table 1
Codes, subcategories and categories obtained at content analysis of the audio-taped and transcribed focus group discussions, which had begun with the main questions "How do you experience communication, oral and written, between the radiologists and the referring clinicians? What are the difficulties, possibilities and barriers in communication, and can they be overcome?".

Theme	Modes of communication—difficulties and possibilities								
Categories	Quality of written communication		Quality of oral communication		Impact of economy		Ethical aspects	Improvements of communication	
Subcategories	Insufficient information on request forms	Radiology report	Difficulties at radiology rounds	Difficulties in individual contacts	Cost of examinations	Change of examination type	Inadequate medical priorities	Trust and mutual understanding	Better practical routines
Codes	Patient data	Structured or free text	Participation	Face-to-face contacts	Time aspects		Symptom description	Increased contacts	Medical records access
	Amount of information	Dictated or typed report	Clinicians' attention	Phone contacts			Medical urgency	Scheduled joint meetings	Time aspects
	Clinical questions		Conference times	Time aspects			Change of priority	Prescriber education	
	Abbreviations			Language barrier			Patient's needs		
	Anatomical specifications								