

SPECIAL ARTICLE

OPTIMIZING COMMUNICATION BETWEEN THE RADIOLOGIST AND THE GENERAL PRACTITIONER

L.B.O. Jans, J.M.L. Bosmans, K.L. Verstraete, R. Achten¹

Adequate communication between radiologist and referring general practitioner (GP) is mandatory in a good practice clinical setting.

Several hurdles may interfere with good communication. Inappropriate imaging requests or incomplete clinical details conveyed to the radiologist may result in inappropriate imaging and interpretation. GPs may find the radiology report confusing or may feel it takes too much time to receive the reports. Communication issues may dissatisfy GPs and make them look for alternative providers for imaging referrals.

In the digital era, electronic radiology request forms, digital access for the GP to radiology images and reports and networks centralizing patient data may all help to improve communication between radiologist and GP.

In this paper we outline practical ways of improving this communication.

Key-words: Radiology and radiologists.

The radiology report is the primary tool by which the radiologist communicates his/her findings to the referring physician. The report provides answers to the clinical question, emphasizes the clinical importance of radiological findings and may mention important additional findings beyond the remit of the clinical question.

In Belgium, the iconographic documents and the report can reach the GP by several ways. The diminishing number of radiology departments where films are still in use, hand these documents to the patient, together with a printed document containing the report. Departments using PACS generally provide the images and the radiology report as well as a dedicated DICOM reader on a single CD-ROM. In addition to that, a growing number of departments mail the encrypted report to the referring physician by means of a third party server.

The relationship between the radiologist and the general practitioner is clearly different that with hospital-based specialists, and so are their respective means of communication. While hospital-based specialists requiring additional information can visit the radiology department and attend multidisciplinary meetings, clinicians in a primary care setting lack this benefit. GPs rely on e-mail and telephone if they require additional information (1).

Another difference is that GPs rely much more on the radiology report than do specialists (1). They highly value the clinical opinion of the radiologist, and the form and content of the report should be in accordance with their expectations (1-3). Radiologists should therefore dictate imaging studies in time, produce accurate reports with clear conclusions tailored to the GP and his clinical question, apply electronic means of communication if these are available, and establish direct contact with GPs where appropriate, depending upon clinical scenarios (3). Doing so is not only good medical practice, it is also in the interest of the radiologist. GPs dissatisfied with the quality of reports and communication could turn to alternative providers for their imaging referrals (3).

For this purpose, existing systems for information interchange with general practice should be improved and new ways to improve communication explored and implemented. To avoid uncoordinated initiatives and prevent confusion, guidelines for referral and for the electronic communication and information transfer across the GP-radiologist interface should be developed (2).

GP referral to the radiologist

Referral guidelines for GPs

Radiology is expanding rapidly. Imaging techniques that once were

state-of-the-art have become obsolete, while the introduction of new techniques (e.g. multislice CT, dual energy CT, perfusion CT and MR) has made it more difficult for the GP to request the optimal imaging study to answer a particular clinical question. Reducing radiation exposure by preventing inappropriate imaging studies should be a concern for both radiologists and referring clinicians.

In the conclusion of a report, radiologists can give limited advice concerning the best technique to investigate similar cases in the future. However, the radiology report is there to provide adequate diagnostic information, not to replace a refresher course for GP's (2). Moreover, offering unsolicited advice may be considered offensive. Guidelines that lead GPs to requesting the proper imaging study can help to reduce radiation risks, prevent repeat studies, boost the accuracy of the imaging process, and eventually contribute to installing the right treatment.

Guidelines describe quality problems at the GP-radiologist interface and seek solutions to such problems. Professional leaders facilitate the GP-radiologist interface by means of consensus discussions and support the use of these guidelines to improve cooperation (4). In Belgium, radiology referral guidelines are available for GPs, but they are not compulsory (5).

Paper vs electronic request form

Sending imaging requests electronically from the GP's office to the radiology department well before the appointment can prevent the

From: 1. Department of Radiology and Medical Imaging, Ghent University Hospital, Gent, Belgium.

Address for correspondence: Dr L.B. Jans, M.D., Ph.D., Department of Radiology and Medical Imaging, Ghent University Hospital, De Pintelaan 185, B-9000 Gent, Belgium. E-mail: Lennart.jans@UGent.be

loss of request forms and help the radiologist to anticipate the requested study. This in turn may lead to contacting the referring GP for additional information where necessary and in some cases even to suggesting a more appropriate study.

Patient-centered approach

As patients (in Belgium) time and again are free to visit any physician, the radiologist may be unfamiliar with the patient presenting at his department, despite his/her long medical history. Conversely, the patient is free to present the results of the study to a GP or even a specialist other than the one who requested it. In such a system, access to a (nation-wide) electronic patient record system can be considered a necessity in the interest of optimal diagnosis and treatment. Information systems would be able to track the imaging studies a patient has already undergone and suggest, guide or discourage additional studies (4).

Radiologist communication to GP

The radiology report

It is important that radiologists try to imagine what the clinician will deduce from a report. Erroneous interpretation by the referring clinician can have important consequences in malpractice cases. Poor communication is a causative factor in up to 80% of malpractice lawsuits involving radiologists. In most cases, the referring clinician did not react adequately to the message in the report, as a consequence of which prompt diagnosis or therapy were postponed. If the radiologist expresses himself more strongly in the reports, GPs will act much sooner (3).

With continued progress in radiological information systems, radiologists can produce standardized tabulated reports more easily. In structured reporting (SR) systems, the radiologist completes a set of data fields in a preformatted template. The result is a consistently structured report that is easy to read and to compare with earlier reports. These structured reports have been shown to be favoured over prose reports by GPs (1, 3, 8).

The radiology report is a method of communicating the expertise and clinical judgement of the radiologist to the GP. Specific guidelines for reporting to GPs include the following advices (3, 4, 6, 7):

Examination:

GPs are not particularly interested in the technical details of the examination, but think that sub-optimal technical quality should be mentioned. The date and type of comparative studies should also be stated.

History:

Including the clinical question into the report will inspire the GP more confidence, since it shows that the radiologist has read and understood the question. The clinical history may be added automatically to computer-generated reports.

Findings:

- Reports should be in the present tense and findings organized in a logical manner, the most important first.
- The findings should be reported in clear, exclusively descriptive terms. Interpretations should be restricted to the conclusion of the report.
- Only relevant negative or incidental findings should be mentioned. GPs do not appreciate measurement of normal structures. If the report contains results of measurements, their meaning should be stated.
- Unfamiliar abbreviations are to be avoided.

Conclusion:

In a 1988 survey in Arizona, only 38% of the referring clinicians (hospital specialists and GPs combined) read the entire report and 18% read it only if the conclusion was unclear; 43% read only the conclusion if the report was longer than one page (8). In contrast, in a large-scale survey in the Netherlands and Flanders (Belgium) in 2008-2009, two thirds of the referring specialists and GPs denied only reading the conclusion and more than eight out of ten agreed the descriptive part should also be read (1). Whatever the truth is, the conclusion is an essential part of the report and is considered mandatory in longer reports in all guidelines.

When dictating the conclusion, the radiologist should observe the following guidelines:

- Answer the clinical question. In case of equivocation, try using the first person to add a personal touch.

- Give a diagnostic opinion and avoid the hedge. Provide a clear list of differential diagnoses: a rambling list gives the impression of diagnostic uncertainty.
- What is clear to a specialist may need to be highlighted to a non-specialist. GPs appreciate detailed advice on further non-radiological (97%) and radiological (96%) investigation in the conclusion.
- The radiologist should proofread the report before verifying it, minimizing clinical risk from error (eg. "asymmetric" can easily be mistyped as "symmetric").

If findings are conveyed to the referring clinicians the time and means of communication should be recorded (3, 6).

Preliminary vs final report

In an emergency situation or other cases in which immediate action is required, the results of an examination are to be communicated to the referring clinician verbally. If such preliminary findings have been conveyed to the GP, it is generally advocated that the information conveyed has to be repeated in the final report. If a preliminary report undergoes substantive change before finalization, this should also be clearly communicated to the referring clinician (3).

Communication of final report

Developing systems for appropriate information exchange between the radiology department and primary care providers is an absolute necessity. Guidelines and recommendations for electronic communication and information transfer for GPs and access to electronic patient records across the GP-radiologist interface is essential (4).

The final report and images may reach the referring GP in several ways:

1. In an urgent situation, preliminary findings can be conveyed to the GP by telephone.
2. Data carriers (paper or CD) with radiology report and images may be handed to the patient or can be posted to the referring GP's office.
3. Radiology departments may mail the encrypted report to the referring physician by means of a third party server.
4. GPs may log in to a local network, allowing them access to the hospital/ radiology practice server

and obtain restricted information from their patients. Secure, fast and reliable access may be provided by a virtual particular network (VPN).

5. Nationwide electronic patient file databases may contain all medical reports available from a patient. Access for GPs to these electronic patient records, including radiology reports and images, requires sophisticated security systems, such as electronic passport identification systems (eg. eID-viewer).

'E-health platforms and radiology: a Belgian perspective'

In the last decade, several large Belgian hospitals implemented their own electronic platform (e.g. Medi-bridge®), allowing referring GPs to access the radiology reports of studies they had requested, often secured through virtual private network (VPN) connections. These local networks created a strong connection between referring physician and radiologist. However, the functionality, authentication and authorisation between hospitals differed and the impossibility of data sharing between hospitals hindered efficient communication.

Consecutively 5 regional 'e-health hubs' were created in Belgium linking hospitals. Imaging data remained stored locally in the participating hospitals, but GPs could retrieve data of their patients from allied regional hospitals. These regional hubs represented an opportunity for radiology to share infrastructure and services between hospitals thus optimizing return on investment.

Subsequently Belgian governance obliged all hospital to join a hub and facilitated interconnection of the 5 regional hubs in 2012, thus creating a 'metahub' (9). The metahub represents a collaborative e-health platform for all actors in healthcare: not only for professionals (doctor-hospital-caretaker), but also for patients, pharmacy, governance and research.

Storage of data remains decentralized, in the hospital were examinations are obtained. The uniform functionality of the e-health platform facilitates access to all actors in healthcare. The patient authorises access to data by informed consent (opt-in system, e.g. the patient chooses if the GP has unlimited access to his/her file or may only view results of examinations he has requested). Healthcare actors will only be granted access to (specific) patient data if a therapeutic relation is affirmed. Authentication for login to the platform will be by means of encrypted e-ID-viewer technology.

It is clear that e-health platforms will have a great impact not only on GP-radiologist communication, but will also affect daily radiology practice in the near future.

Conclusion

Good communication between GPs and radiologists implies three basic requirements: facilitation of the GP-radiologist interaction through guidelines and the use of electronic request forms, radiology reports tailored to the GPs needs, with prompt validation of final reports, and organization of local or nationwide electronic healthcare

platforms allowing optimal data exchange between GP and radiologists.

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