

# Preferences of referring physicians regarding the role of radiologists as direct communicators of test results

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## PURPOSE

Currently, there is a growing need for patient-centered radiology in which radiologists communicate with patients directly. The aim of this study is to investigate the preferences of referring physicians (RPs) regarding direct communication between radiologists and patients.

## METHODS

This study was conducted in a single academic hospital using a survey form. The survey items investigated the preferences of RPs regarding: 1. who should be the communicator of test results when a patient with abnormal findings requests information (the options were the radiologist; another health professional with communication skills training (CST); and the RP with CST); and 2. how the communication activity should be conducted if the radiologist is obliged (or chooses) to communicate with the patient directly (the options were that the disclosure should be limited to the findings in the radiology report; the radiologist should emphasize that the RP is the primary physician; and the communication activity should be conducted in accordance with guidelines established by consensus). The respondents were 101 RPs from various fields of specialty; they were asked to rate the items using a 5-point Likert scale. The effects of age, sex, field of specialty (surgical vs. nonsurgical), and total years of experience as a medical specialist on the ratings were statistically compared.

## RESULTS

Most RPs preferred that the radiologist transmit the information to the RP without communicating directly with the patient (89.1%). Although 69.3% of the RPs declared that health professionals with CST have priority in communication, 86.1% declared that the RP should be the person who received CST. If the radiologist communicates with patients directly, the RPs favored that 1. the disclosure should be limited to the findings in the radiology report (95%); 2. the communication activity should include an emphasis on the RP as the patient's primary agent (84.1%); and 3. communication should be conducted in accordance with guidelines established by consensus (73.2%). The percentage of strong opinions did not change significantly with regard to age, sex, field of specialty, or total years of experience, except that surgeons expressed strong disagreement with delegating the communication activity to another health professional who received CST ( $\chi^2 = 9.9$ ;  $P = 0.042$ ).

## CONCLUSION

These findings may serve as a basis to implement institutional and national policies for patient-centered radiology.

The traditional role of radiologists is to transmit imaging findings to referring physicians (RPs) without direct communication with patients. Recently, radiologists have developed a tendency to replace the traditional model of communication with patient-centered radiology, in which patient-radiologist communication is an integral part of the practice (1–4). There are several reasons behind this tendency, which can be summarized as follows:

1. In socioeconomically developed countries such as the United States, failed communication between radiologists and patients has become a leading cause of malpractice lawsuits in recent years (5, 6). To prevent accumulation of litigation, there is a growing need to include patient-radiologist communication in radiology practice.

2. Apart from legal obligations, it is the legal right of the autonomous patient to obtain the information he/she requests, and it is the ethical duty of the physician to convey the information requested (7). This view is further supported by the current constitutional law in Turkey.

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3. From the perspective of healthcare management, recent trends in patient consumerism, i.e., the growing desire of the public to be informed about their medical condition, cannot be neglected (8). These trends bring the radiologist into the complex interplay of communication activities between patients, RPs, and radiologists.

4. The invisibility of radiologists in this interplay increases the possibility of an economically undesirable process called commoditization (9, 10). Commoditization occurs when a good or service is widely available and is interchangeable with a good or service provided by another company (11). Interchangeability results from a lack of quality differentiation between products in which price remains the only distinguishing factor (i.e., cheaper is better, because they are all the same). In the case of radiology, quality differentiation is achieved by improving several components of the service, such as appropriateness of the selected imaging study, technical quality of the examination, thorough interpretation and reporting of the findings, and teamwork with RPs after the examination (12, 13). To increase the competitiveness of the service and prevent commoditization, these qualifications should be visible not only to healthcare providers, but also to patients, through direct communication of test results.

Due to the abovementioned reasons, there is a growing need to revise the traditional model of communication, in which the radiologist is the “doctor’s doctor.” However, there are difficulties and uncertainties involved in adopting direct communication. Communication with patients requires additional time, which increases the workload of radiology departments. In addition, radiologists may feel reluctant to interfere with the role of RPs as the primary agents who evaluate the patients in a larger context, including their complaints, medical history, physical examination findings, other laboratory data, and coexisting diseases. Therefore, although direct communication may provide a safeguard in preventing malpractice litigation, radiologists may be exposed to new forms of liability if the information they communicate is not well delineated. Unfortunately, there is no internationally established consensus regarding the limits and responsibilities of the radiologist in their duty to communicate. Should the information transfer be restricted to findings with diagnostic certainty, or should it be limited to findings included in the radiology report without additional comments? These questions will remain unanswered unless radiologists develop policies in collaboration with RPs to determine the role of radiologists in communication (14). However, the radiologists’ duty does not end with an established policy. As with all physicians, communication skills and knowledge of how to manage interactions present challenging issues for radiologists, especially when the communication activity involves disease progression and end of life (15). Communication skills training (CST) should be implemented into radiology residency training and continuing education programs, although it may take decades to achieve the desired standard (14, 16).

In this study, we investigated the preferences of RPs regarding the newly emerging model of communication. The study was conducted at an institutional level using a survey that was designed to assess: 1. the preferences of RPs regarding the radiologist’s role as a direct communicator; 2. how RPs value skillful communication when it is isolated from their clinical practice; and 3. how their preferences change when certain conditions of patient-radiologist communication are met. Our expectation is that the findings may serve as guideposts to establish a consensus in implementing in-

stitutional or national policies for the newly required models of communication and patient-centered radiology.

## Methods

### Study Setting

The aim of the study was to assess the preferences of RPs at an institutional level. Therefore, the study setting was a single academic hospital. Between June 2015 and April 2016, a hard copy survey form was distributed to 150 RPs from various fields of specialty, including internal medicine, pediatrics, emergency medicine, family medicine, infectious diseases, physical therapy and rehabilitation, chest diseases, neurology, sports medicine, general surgery, pediatric surgery, neurosurgery, chest surgery, gynecology, cardiovascular surgery, otorhinolaryngology, orthopedy, and urology. Due to the academic nature of our hospital, no general practitioners were included in the study. The study was approved by the hospital ethics committee.

### Survey

The survey items were grouped into three sections. Section 1 included demographic data (age and sex), an approximate categorization of the field of specialty (i.e., surgical vs. nonsurgical), and the total years of experience in that field. Section 2 included three items based on a clinical scenario where a patient with severely abnormal findings requests information from the radiologist (the complete text of the scenario and the survey items are presented in Table 1). The information disclosure options were that 1. the radiologist should inform the RP rather than the patient; 2. the patient should be referred to another health professional who has received CST; and 3. the RP should be the person who received CST, rather than any other health professional. In this section, our aim was to investigate the preferences of the RPs regarding the radiologist’s role as a direct communicator and how they perceive the value of skillful communication when it is isolated from their clinical practice. Section 3 included three items based on the assumption that the radiologist is obliged (or chooses) to communicate with the patient directly. The items investigate the preferences of the RPs under different conditions. The conditions set by the authors were inspired by the commonly encountered scenario in radiology practice in which the patient (or

### Main points

- The traditional role of the radiologist is to transmit imaging findings to referring physicians without direct communication with patients.
- Currently, there is a growing need to replace the traditional model of communication with patient-centered radiology, in which radiologists communicate with patients directly.
- We have found that, at an institutional level, most referring physicians were uncomfortable with the role of the radiologist as the direct communicator of test results.
- However, almost all referring physicians expressed strong opinions that, if the radiologist is obliged (or chooses) to communicate with the patient directly, the disclosure should be limited to the findings in the radiology report, and it should be emphasized that the radiologist is not the primary physician.
- These findings serve as a basis to implement institutional and national policies for patient-centered radiology.

**Table 1.** Clinical scenario and items in the survey

Section 1	
Demographic data, field of specialty, and total years of experience in that field	
Section 2	
SCENARIO	
1.	A patient (or a representative of the patient) requests knowledge from the radiologist about the imaging examination that he/she has recently undergone
2.	The patient has abnormal findings that require breaking bad news
3.	Assume that there is another health professional in your department (such as a nurse, psychologist, or one of your colleagues) who has received communication skills training in breaking bad news
What is your preference about the following statements?	
1.	Even if the patient requested the knowledge from the radiologist, the radiologist should inform the referring physician rather than the patient
2.	The health professional who has received communication skills training has priority in communicating with the patient
3.	I (i.e., the referring physician) prefer to be the person who has received communication skills training, rather than any other health professional
Section 3	
What is your preference about the following statements?	
4.	If the radiologist is obliged (or chooses) to give information, the information should be limited to the findings in the radiology report
5.	If the radiologist is obliged (or chooses) to give information, he/she should emphasize that the radiologist is not the primary physician who determines disease management strategy
6.	In order to determine the conditions and limitations of the radiologist's role as a communicator, radiologists and referring physicians should reach a consensus and establish guidelines for direct communication with the patients

**Table 2.** Summary of the referring physicians' preferences

Item	Brief content	Disagree*	Neutral	Agree*
1	The radiologist should inform the RP rather than the patient	6 (5.9)	5 (4.9)	90 (89.1)
2	A person who has received CST has priority in communication	19 (18.8)	12 (11.8)	70 (69.3)
3	The RP should be the person who has received CST	4 (3.9)	10 (9.9)	87 (86.1)
4	The radiologists' disclosure should be limited to the findings in the report	5 (4.9)	0 (0)	96 (95.0)
5	The radiologist should emphasize that he/she is not the primary physician	8 (7.9)	8 (7.9%)	85 (84.1)
6	A consensus and guidelines for communication are needed	10 (9.9)	17 (16.8)	74 (73.2)

Data are presented as n (%).

RP, referring physician; CST, communication skills training.

\*"Disagree" and "Agree" correspond to Likert scales 1 and 2 and 4 and 5, respectively.

## Respondents

One hundred and one RPs responded to the survey, with a response rate of 67.3%. The respondents were 18 females and 83 males, with a mean age of 47.1 years (age range, 34–65 years). There were 46 and 55 physicians from the surgical and nonsurgical branches, respectively. The mean total years of experience of the RPs in their specialty was 16.4 years (range, 2–36 years).

## Statistics

In addition to the descriptive analysis of the findings, the effects of age, sex, field of specialty, and total years of experience in the field on the RPs' preferences were statistically compared by chi-square test (the age and total years of experience in the field were converted to categorical variables by grouping them in intervals of 10 years). Statistical significance was taken as  $P < 0.05$ .

## Results

Table 2 summarizes the RPs' preferences regarding the survey items in Sections 2 and 3. For the sake of simplicity of presentation, we collapsed the 5-point Likert scale into three categories, with responses 1 and 2 and responses 4 and 5 classified as disagree and agree, respectively.

Based on the clinical scenario in Section 2 (Table 1), 89.1% of the RPs expressed strong opinions that the radiologist should relay the information to the RP rather than directly communicating with the patient. With regard to skillful communication, 69.3% of the RPs declared that any health professional who has received CST has priority in communication; however, 86.1% preferred that the RP should be the person who received CST. This number includes 18 of the 19 respondents (11 surgeons and 7 non-surgeons) who had strong opinions against delegating the communication activity to a health professional with CST (Item 2).

In Section 3, a large majority (95%) of the RPs had strong opinions that, if the radiologist is obliged (or chooses) to communicate with the patient directly, the disclosure should be limited to the findings in the radiology report. Although the percentages of strong opinions were slightly lower, the RPs also expressed strong opinions that communication activity should include an emphasis on the RP as the patient's primary agent (84.1%) and that patient-radiologist communication should be conducted in accordance with guidelines established by consensus (73.2%).

a representative of the patient) requests knowledge from the radiologist although he/she knows that the radiologist is not his/her primary physician, regardless of whether the radiology report suggests a definitive diagnosis. Therefore, the items in Section 3 included the RPs' preferences when: 1. the disclosure was limited to the findings in the radiology report; 2. the ra-

diologist emphasized that he/she is not the primary physician; and 3. a consensus and guidelines for direct communication with the patients were established. The RPs were asked to answer the questions using a 5-point Likert scale (in which responses were categorized as strongly disagree, disagree, neutral, agree, and strongly agree) to select their preferences.

In both sections, the percentage of strong opinions did not change significantly with regard to age, sex, field of specialty, or total years of experience in the field, except that surgeons expressed strong disagreement with delegating the communication activity to another health professional who had received CST ( $\chi^2 = 9.9; P = 0.042$ ).

## Discussion

The items in our survey were based on a clinical scenario in which a patient had severely abnormal findings; therefore, they did not include the preferences of RPs in cases of normal or trivial test results. Previous researchers have indicated that the preferences of RPs regarding direct disclosure of findings by radiologists differ significantly for normal vs. abnormal test results (17–19). In our view, this differentiation is arbitrary because if a patient requests information, the radiologist's duty to disclose cannot be reserved to abnormal findings alone. In other words, it is the patient's preference, or patient-centered radiology, that plays the central role in the newly emerging model of communication. However, are patients willing to hear results from the radiologist?

Previous studies have shown that patients prefer to receive their test results from RPs rather than radiologists (2, 20–23). However, the results of these studies should be interpreted cautiously because they do not involve a standardized method of conduct that includes factors such as the patients' educational and sociocultural background; anticipated delivery time of the test results; and the type of patient-radiologist encounter (i.e., interactive vs. noninteractive). Capaccio et al. (24) have reported that patients with higher levels of education are significantly more active in communicating with radiologists. Cultural issues may also play an important role in the patients' predilection to communicate with RPs because in paternalistic cultures, patients may view the RP as the primary authoritative figure in their healthcare. Another important factor is the anticipated delivery time of the test results. Levin et al. (25) have shown that the majority of patients (approximately 90%) preferred that radiologists disclose their mammography results immediately, rather than that RPs disclose the results at a later time. Similarly, in a study by Basu et al. (20), nearly one-fourth of the patients preferred to receive results from whichever practitioner is faster. Final-

ly, the type of encounter with the radiologist (i.e., interactive vs. noninteractive) may have an impact on patients' preferences. In a study by Ragavendra et al. (26), a high percentage of patients who underwent diagnostic sonography preferred to receive the results from the sonologist rather than the RP. This finding contradicts the overall view that patients prefer to communicate with RPs; however, it may hold true in other interactive (i.e., face to face) encounters in radiology, such as in fluoroscopy and imaging-based interventions.

What are RPs' preferences regarding the direct disclosure of test results to patients by radiologists? In the literature, there are relatively few survey studies exploring the views of RPs regarding the role of the radiologist in patient-physician communication. Because these surveys are not based on standard questionnaires, it is difficult to compare the results. However, one can obtain an approximation of the general scheme of preferences and its evolution over time. In 1993, Levitsky et al. (17) found that 76% of RPs were comfortable with the role of the radiologist as the direct communicator of test results when the results were normal. However, the percentage decreased considerably (28%) when the results were severely abnormal. In subsequent years, RPs appeared to be on the agreement side of neutral, or at least neutral, in their view of the radiologist's role in communicating abnormal findings (18, 19, 27, 28). Recently, the only study favoring direct communication by radiologists originated from an emergency department in the United States, in which 83% of service providers approved of the direct communication of radiologists with patients. This percentage may reflect a change in the views of RPs; however, it is difficult to arrive at a conclusion about recent trends based on one study.

In contrast to previous studies, we found that 89.1% of RPs in our institution had strong opinions that radiologists should relay information to the RP rather than directly communicating with patients. This finding shows that RPs are unwilling to abandon their traditional role in patient-physician communication. There may be several reasons for this predilection; for example, direct communication of radiologists with patients may be criticized due to their lack of knowledge about the patients' presenting complaints, past medical history, and other laboratory data. In addition, there are

no established definitions of the limits and responsibilities of radiologists in communication (such as what, when, how, and how much information to provide), which may result in legal problems and additional endeavors to correct misunderstandings.

The second item in the survey was designed to determine how RPs perceive skillful communication as a value when it is isolated from their clinical practice and performed by another health professional who has received CST. A high percentage of the RPs (81.1%) were comfortable with or neutral to delegating communication activity to a health professional with CST; this was statistically less evident in surgeons. However, the majority of RPs (86.1%) also had strong opinions that it should be the RP who had received CST; this shows that the RPs perceive skillful communication as a value, but that they feel it should be reserved for them. In our view, this expectation is unrealistic because as explained previously, the need for radiologists to actively participate in patient-physician communication is obvious. Therefore, delineating the radiologist's role in communication activity without intervening in the RP's field of responsibility may be comforting for RPs. Amber et al. (4) suggested a paradigm in radiologic disclosure in which imaging findings are categorized based on a scale of diagnostic confidence: highly suggestive (with unequivocal results); suggestive (no definitive diagnosis is established); and indeterminate (due to lack of evidence and/or clinical correlation or further evaluation). They propose that the duty to disclose is strongest in highly suggestive cases, whereas indeterminate cases warrant honest communication but have a weaker obligation of disclosure. In our view, this approach can be criticized as the need for the disclosure is largely determined by the radiologist, rather than the patient; however, the newly emerging model of communication is mainly centered on the patient's requests and legal rights. Moreover, the definitive diagnosis made by the radiologist is only one part of the composite clinical picture which determines the final management strategy. Therefore, the radiologist's disclosure may be misleading in some cases if he/she does not emphasize that it is the RP who will determine the final management strategy. In other words, we believe that information disclosure should be independent from the diagnostic certainty of the test results and who plays the primary role in the patient's

management. A large majority of the RPs in our institution (95%) preferred that, if the radiologist is to provide information, the disclosure should be limited to the findings in the radiology report. The RPs also favored that the radiologist should emphasize the primary role of the RP in the final management strategy (84.1%). These findings show that the RPs feel comfortable about disclosure by radiologists, as long as the information disclosed is restricted to field-specific issues in radiology. Regarding the necessity to build consensus and establish guidelines in delineating the duties of radiologists, the percentage of strong opinions was relatively lower (73.2%); this shows that that at least some RPs may be either uncomfortable with official regulations governing this practice or deem them unnecessary as long as the information disclosure is limited to field-specific issues.

Finally, the reader must be alert to limitations in this study. The conditions in Section 3 were inspired by the commonly encountered experience in our practice, and may differ depending on the socioeconomic status and cultural values of patients in other parts of the world. The study was conducted at an institutional level; therefore, it may not reflect the general tendency of RPs at a national or worldwide level. The number of female physicians in the study was relatively low, which may preclude determining the effects of gender differences on communication. The statistical comparison of the preferences from surgical vs. nonsurgical branches may be controversial because both groups include many subspecialties. In some subspecialties, the impact of disclosure by radiologists can be profound (such as in oncology), whereas it can be less evident in other subspecialties. Unfortunately, when taken separately, the number of subspecialists in our institution was limited for statistical analysis. Despite these limitations, as a future prospect, our findings may be helpful in developing hybrid models of communication, which include regulation of message content in relation to the socioeconomic status and cultural values of the patients, plus field-specific preferences of the subspecialty physicians.

In conclusion, although most of the RPs in our institution were reluctant to abandon

their traditional roles in patient-physician communication, almost all of them expressed strong opinions that they were comfortable with direct disclosure by radiologists as long as the information disclosed was restricted to field-specific issues and as long as it was emphasized that the radiologist is not the primary physician. These predilections may serve as a basis to implement institutional and national policies for patient-centered radiology in collaboration with RPs, legal practitioners, health managers, and stakeholders.

#### Conflict of interest disclosure

The authors declared no conflicts of interest.

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