Rationale and Objectives. Effective communication is essential for high quality care, yet little is known about radiologists’ communication with patients, what constitutes “best communication practices,” and how best to teach and evaluate it. We piloted educational strategies and an assessment instrument to teach and evaluate radiologists’ communication skills. We focused on communication in the diagnostic mammography suite, where patient–radiologist interactions are often intense and stressful.

Materials and Methods. We adapted existing instruments to create a Radiology Communication Skills Assessment Tool (RCSAT). We piloted an educational program that included patients as teachers and raters of interpersonal and communication skills, and implemented a radiology objective structured clinical examination (OSCE). We measured radiology residents’ self-assessed skills, confidence and stress, as well as patient-rated communication skills using the RCSAT.

Results. Residents’ baseline self-assessed communication skills regarding abnormal mammograms were fair, confidence in their communication was minimal, and they found this communication stressful. Overall baseline communication skills, rated by patient–teachers using the RCSAT, were 3.62 on a 5-point scale (1 = poor to 5 = excellent). Analysis of post-OSCE debriefing comments yielded nine themes regarding effective radiology communication, as well as residents’ reflections on the communication challenges they experience. The themes were integrated into subsequent RCSAT revisions. Residents’ reflections were used to inform teaching workshops.

Conclusion. Educational curricula on communication about difficult information can be implemented in radiology training programs. Radiology residents’ performance can be assessed using a communication skills assessment tool during standardized patient–teacher encounters. Further research is necessary in this important domain.

Key Words. Physician-patient communication; communication skills teaching; patient teachers; patient participation; objective structured clinical examinations; medical education.

Effective communication is an essential component of high-quality, safe patient care. The importance of communication is recognized by the public and by new standards for professional licensure and postgraduate program accreditation (1,2). Effective communication in the primary care disciplines has been shown to improve clinical outcomes and patient and physician satisfaction and reduce malpractice suits (3–6). Educational interventions in primary care have significantly altered the process of interpersonal interactions with positive effects on objective (e.g., blood pressure, hemoglobin A1c [HbA1c]) and subjective (e.g., illness experience, patient satisfaction) health outcomes (7).

Radiologists must communicate abnormal or uncertain mammographic findings to women, shepherd patients...
through complex interventions, and communicate with technologists and other health care providers to ensure coordinated care. Little is known, however, about the nature and impact of the process of communication among radiologists, other health professionals, and patients. Radiologist—patient communication challenges are heightened by the absence of previous or ongoing relationships and the short amount of time available to develop rapport. Despite the importance and challenges inherent in radiologist communication with patients, more radiologists than other specialists in one survey (80% vs. 47%, \( P < .001 \)) reported feeling insufficiently trained in communication skills (8). Radiology residents and faculty have expressed interest in enhancing their communication and interpersonal interactions (9).

We initiated a program to teach and assess patient-centered interpersonal and communication skills in radiology to address these issues. We focused first on the diagnostic mammography suite where health care providers interact with patients in brief, intense, and often stressful encounters. Recent research suggests that a majority of women prefer to have radiologists discuss both normal and abnormal results with them immediately after their mammograms, rather than waiting to speak with their referring physician (10,11). Immediate disclosure of these results may reduce patient anxiety and enhance follow-up (12). Currently, approximately half of practicing staff mammographers communicate directly with patients about their diagnostic mammographic results (9,13).

Our “Patients as Partners” program is based on the principle that standards for effective communication must represent the perspectives of both health care professionals and the patients who use health care services. We created educational and assessment methods to integrate the perspectives and communication preferences of both patients and physicians. Here, we report results of a pilot effort to evaluate baseline communication skills in a cohort of radiology residents at a university-affiliated regional teaching hospital. Women who were breast cancer survivors collaborated in this program as both teachers and evaluators of physician communication.

We analyzed the focus group data using qualitative methods to describe themes about patient preferences for communication with radiologists in diagnostic mammography. We held a separate focus group with radiology residents to learn about their experiences, perceptions of optimal communication in radiology, and challenges. We applied qualitative methods to analyze these data to inform subsequent curriculum development.

We used a template for patient-centered communication teaching and assessment based on the Kalamazoo consensus statement (14). This statement synthesized elements from validated assessment instruments and the most commonly used models to teach healthcare communication in medical education in the United States and Canada. We selected an assessment instrument used at Harvard Medical School that is based on this template (15). We significantly modified this instrument to reflect input from our radiology faculty and residents, and the themes from the women’s focus group data analysis, creating the Radiology Communication Skills Assessment Tool (RCSAT). The instrument shown in Appendix I represents the version used in the Objective Structured Clinical Exam reported in the following.

**Material and Methods**

**Radiology Communication Skills Assessment Tool Development**

We first held focus groups with breast cancer survivors who had previously undergone diagnostic mammograms. We recruited six breast cancer survivors to be patient-teachers, five of whom had participated in the initial focus groups. These patient-teachers participated in 7 (newest recruit) to 16 two-hour training sessions with our patient-teacher trainer to learn to reliably enact and respond to “difficult conversation” vignettes, to use the RCSAT to evaluate physicians’ interpersonal and communication skills, to give constructive feedback on communication and interpersonal behaviors, and to ask questions to foster learner self-reflection. The patient-teachers honed their assessment skills over time by observing and rating multiple videotaped encounters using the RCSAT. They compared fellow patient-teacher ratings and role-played and debriefed cases with each other and the patient-teacher trainer to move toward consensus regarding the application of RCSAT ratings. Our patient-teachers differ from standardized patients as they contributed to the development of the assessment tool, provide feedback based on both their role-played characters and their own actual experiences of illness, and participate in educational sessions with residents and faculty.
Radiology Simulation: The Objective Structured Clinical Examination

We created a two-station Objective Structured Clinical Examination (OSCE). The cases are described in Appendix II. At each station, a resident was given a brief patient history sheet identical to that used in our diagnostic mammography suite. He or she then interpreted a diagnostic mammogram or ultrasound with a radiology faculty member and agreed on the Breast Imaging Reporting and Data System (BI-RADS) category and patient recommendations. The resident then called the patient-teacher in to the OSCE station from the actual hospital radiology waiting area to discuss the findings and recommendations. At the end of each station, the patient-teachers asked the residents questions to stimulate self-reflection and gave oral feedback. They completed the RCSAT to rate the resident’s communication skills.

Following the OSCE, the authors led a large group debriefing session during which residents, patient-teachers, and radiology faculty together discussed their experiences, challenges, and suggestions about optimal communication. The debriefing session was audiotaped and transcribed, and the data were reviewed.

Educational Strategies

We initiated a communication skills curriculum. Educational strategies included feedback given to each resident by patient-teachers during the OSCE, the large group debriefing session after the OSCE that included residents, patient-teachers, and radiology faculty, and three 1-hour teaching workshops for residents that were co-facilitated by faculty and a patient-teacher. During these workshops, patient-teachers answered residents’ questions about what communication strategies were effective from their perspective and shared their personal experiences when salient to the discussion. Participants also discussed videotaped examples of radiology faculty communicating with a patient-teacher in our “difficult conversation” vignettes.

Participants

Nine of the 12 residents in our radiology residency program participated in this voluntary pilot, including 8 men and 1 woman (three in post-graduate year 2 [PGY2], two in PGY3, three in PGY4 and one in PGY5), who had spent 0 to 3 months on mammography.

Evaluation

The protocol was approved by the Mount Auburn Hospital Institutional Review Board and informed consent obtained from all participants. Prior to the OSCE, participants completed a self-assessment questionnaire in which they were asked to rate themselves on four measures: general communication skills, communication about mammographic findings, confidence, and stress in communicating about abnormal mammographic findings. These items were rated on a 4-point scale with higher numbers indicating greater skill and confidence and higher stress.

During the OSCE, two patient-teachers (one playing Case A, and another, Case B) assessed each participant’s communication skills. The skills assessed were (a) Sets the stage (STS); (b) Understands the patient’s perspective (UPP); (c) Shares information (SI); (d) Reaches agreement (RA); (e) Provides closure (PC); (f) Manages the flow (MF); and (g) Builds the relationship (BR). These items were measured using the RCSAT 5-point scale, with higher numbers indicating greater skill.

The authors reviewed the post-OSCE debriefing session transcript to identify general themes from the session. This was used to inform subsequent communication workshops and RCSAT revisions.

RESULTS

Analysis of the residents’ questionnaires showed that average self-assessed skill in communicating abnormal general radiology results to patients was 2.33; skill in communicating about abnormal mammographic findings was 2.11 (1 = poor, to 4 = excellent); confidence in communicating about abnormal mammograms was 1.56 (1 = not at all, to 4 = very confident); and stress was 2.56 (1 = none, to 4 = severe stress). Average OSCE scores rated on a 5-point scale (1 = poor to 5 = excellent) are shown in Table 1. Overall, baseline patient-teacher communication skills ratings for our sample of residents were “good” (3.62 on a 5-point scale). Overall scores were higher for Case B (responding to strong emotions) than Case A (communicating about uncertainty). Overall scores for both cases were lowest for the skill “understands the patient’s perspective” (UPP) (3.22) and highest for “manages the flow” (MF) (3.89). The skill UPP involves acknowledging the patient’s social context (personal or family history of breast disease) and eliciting the patient’s thoughts and emotions or concerns about findings and recommendations. The skill MF involves efficient time management without rushing or interrupting the patient.
Nine general themes emerged from participants’ comments during the post-OSCE debriefing session regarding suggestions for effective communication. The themes for effective communication included: preparation; set up; nonverbal behaviors; elicit information about patient’s understanding and emotional state; understand the patient’s context; respond to patient’s emotional state; provide information; decision making; and planning. The themes and some examples given by participants are shown in Table 2.

Participants discussed their insights about effective communication as well as their questions and challenges during the debriefing session. Residents were uncertain about what kinds of nonverbal behaviors, including touch, would be “appropriate” in response to the patient’s distress. They recognized the need to elicit the patient’s understanding of her situation but struggled with how to do so respectfully; for example: Resident: “I think the hard part is trying to understand what the patient knows and asking, ‘Do you understand why you are here?’ [without] being negative or talking down to the patient.”

Participants spoke of the need to acknowledge and respond to the patient’s emotions, for example, by “stating something critical that the patient is going through like, I understand your sister died. I’m so sorry.” They also mentioned the importance of both empathy and self-awareness during patient interactions; for example: Resident: “. . . be aware of how you would feel if you were in that situation, but [also] be aware of how you are responding to things.”

They were challenged by the need to be “factual and straightforward” while simultaneously expressing “realistic optimism” in the face of a mammographic abnormality; for example: Resident: “Don’t use euphemisms. You can’t say things like, ‘It doesn’t look good,’ because they won’t get the message. If you are thinking cancer you

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Case A</th>
<th>Case B</th>
</tr>
</thead>
<tbody>
<tr>
<td>STS</td>
<td>3.83</td>
<td>3.67</td>
<td>4.00</td>
</tr>
<tr>
<td>UPP</td>
<td>3.22</td>
<td>3.00</td>
<td>3.44</td>
</tr>
<tr>
<td>SI</td>
<td>3.61</td>
<td>3.44</td>
<td>3.78</td>
</tr>
<tr>
<td>RA</td>
<td>3.67</td>
<td>3.78</td>
<td>3.56</td>
</tr>
<tr>
<td>PC</td>
<td>3.25</td>
<td>2.75</td>
<td>4.00</td>
</tr>
<tr>
<td>MF</td>
<td>3.89</td>
<td>3.44</td>
<td>4.33</td>
</tr>
<tr>
<td>BR</td>
<td>3.69</td>
<td>3.38</td>
<td>3.89</td>
</tr>
</tbody>
</table>

BR = builds the relationship; MF = manages the flow; PC = provides closure; RA = reaches agreement; SI = shares information; STS = sets the stage; UPP = understands the patient’s perspective.

Likert ratings: 1 (poor); 2 (fair); 3 (good); 4 (very good); 5 (excellent).
may have to say the words. You can say you think there’s not much of a risk, or it’s less likely . . .

They also discussed the complexity of decision making; for example: Resident: “Ask for the patient’s input in the decision making process . . . Some patients may want to wait and some may want to get it done very quickly so that they are not waiting for the results of the biopsy.”

DISCUSSION

We developed a unique program to teach and assess patient-centered radiology communication skills. We initiated an ongoing dialogue among radiologists, residents, and patients who have had experiences with diagnostic mammograms to inform our curriculum and assessment processes. Our residents’ baseline questionnaires showed that their self-assessed communication skills regarding abnormal mammograms were fair; they had little to no confidence in their ability to communicate with patients about this, and experienced it as stressful. Previous investigators have also found that residents find mammogram interpretation more stressful than that of other images (16). We hypothesize that educational interventions can enhance physicians’ communication skills and reduce their stress during difficult communication encounters.

Our study is significantly limited by the small number of participants in this pilot investigation. We submit this work, however, as proof of concept that educational curricula on communication about difficult information can be implemented in radiology training programs and that residents’ performance can be assessed using standardized patient-teacher encounters. We have incorporated information from the post-OSCE debriefing session and our experience using the RCSAT into subsequent revisions of this instrument, which is available from the authors upon request.

Faculty development will be important to enable radiology faculty to teach and assess these skills during interactions with actual patients. Additional research is needed to establish the validity and reliability of the RCSAT. The reliability of RCSAT ratings by faculty observing residents’ communications with actual patients in clinical settings should be compared to those of patient–teacher ratings in simulations. Expansion of the number of participants and assessment observations will be required to reliably demonstrate significant changes in interpersonal skills and communication behavior through educational interventions.

The need for robust curricula to teach and evaluate radiology-related interpersonal and communication skills is clear. We have developed scenarios for radiology communication challenges beyond the mammography suite (e.g., fetal demise, informed consent). Conversations with patients about abnormal mammograms, however, are perhaps the most common communication challenges faced by practicing radiologists, and they have significant impact. Abnormal mammograms affect women’s psychological well-being (17). Comprehension of abnormal mammogram results is frequently suboptimal but may be enhanced by personal communication (18). Effective communication, methods to enhance patient comprehension, and systemic approaches may help address the finding that approximately 1 million U.S. women reported receiving no follow-up after an abnormal mammogram (19). Radiologists, too, will benefit as they currently report insufficient communication training, find it to be a source of work-related stress, and express interest in additional educational experiences in this domain (8,9).

In conclusion, we initiated a program to teach patient-centered radiology communication, and we developed a radiology communication skills assessment tool (RCSAT) that can be used to help guide educational programs and serve as a template for feedback and assessment of radiologists’ communication skills. The participation of patients as partners in a faculty-led curriculum may enhance communication. Further research will be required to assess the RCSAT, the efficacy of educational interventions, and linkage of effective radiology communication to important public, professional, and organizational outcomes.

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REFERENCES


APPENDIX I

Case Information for Patient-Teachers

Case A: Rachel Grady

General objectives: The physician will demonstrate overall ratings of 3 (good) or better on all RCSAT elements.

Key case objectives. The physician will:
- Elicit psychosocial context salient to patient’s current situation.
- Explore and explicitly respond to patient’s emotions.
- Share information about mammographic findings and recommendations.

Rachel G. is sitting in the office waiting for the radiologist after having a mammogram. She knows something is wrong because the technician asked her to wait while she got the radiologist. She is visibly upset and tearful with tissues in hand.

Rachel is a 38-year-old woman who has a strong family history of breast cancer. Rachel is married and has two small children. Her mother was diagnosed with breast cancer when Rachel was a child. Although her mother is a survivor, Rachel has vivid memories of her mother’s difficult treatment and the effect it had on her family. Rachel’s older sister just succumbed to breast cancer, and her funeral is scheduled for this weekend. Yesterday, Rachel felt a mass in her left breast while showering. Terrified, she called her doctor to get her an appointment right away, and is now here for a diagnostic mammogram and ultrasound examination.

The mammogram demonstrates a partially obscured mass in the upper outer quadrant of the left breast. Following the mammogram, Rachel is taken to the ultrasound examination room, and the technologist finds a 1-cm solid nodule in the same location. Although the technologist does not tell Rachel that she has found an abnormality, Rachel senses her concern. She asks Rachel to wait in the doctor’s office so she can bring the radiologist back to speak with her. The radiologist reviews the images with the technologist who briefly relates Rachel’s family history.

The radiologist goes to the office to find Rachel very frightened, overwhelmed, and visibly tearful. Rachel is afraid she is going to die and is worried about her children. Rachel is calmed by the radiologist’s comments (if offered) and willing to consider ultrasound-guided biopsy.

Case B: Clair Martin

General objectives: The physician will demonstrate overall ratings of 3 (good) or better on all RCSAT elements.

Key objectives. The physician will:
- Share information about mammographic findings, rationale supporting diagnostic procedures done, and recommendations for follow-up.
- Explore and explicitly respond to patient’s emotions.
- Demonstrate respectful support for patient’s decision.

Clair M. is a single, 58-year-old physics professor. Clair undergoes screening mammography every 4 years because she does not believe there is solid evidence to support current screening recommendations and prefers to avoid the radiation exposure. The day after this year’s screening mammogram, Clair received a call from the mammography center asking her to return for extra mammographic views. The screening mammogram revealed a question-
able developing density in the outer aspect of the right breast seen only in one view.

Clair returns and undergoes several additional views which fail to clearly identify the lesion, as well as an ultrasound on the entire outer aspect of the right breast, which reveals no solid or cystic abnormalities. The radiologist decides to do a 6-month follow-up mammogram (BI-RADS category 3) to confirm stability of this questionable density. The technologist tells the radiologist that Clair seems quite disturbed that so many additional films have been taken and that she had commented, “This radiologist doesn’t seem to know what he is doing!”

The radiologist meets with Clair in his office to discuss the findings and his recommendations. Upon meeting the radiologist, Clair is clearly very unhappy. She is tense and her voice is somewhat controlled. At the end of the meeting despite the radiologist’s reassurances, Clair concludes that she wants to sign out her entire folder and get a second opinion.

APPENDIX II

Mount Auburn Hospital Radiology Communication Skills Assessment Tool (MAH RCSAT)

MAH RADIOLOGY COMMUNICATION SKILLS ASSESSMENT TOOL

Sets the stage:
Introduces oneself and one’s role
Arranges physical setting to maximize patient’s comfort and privacy
Tells patient what to expect before and during interview, exams, procedures

Overall rating 1 (poor) 2 (fair) 3 (good) 4 (very good) 5 (excellent)

Comments:
Understands the patient’s perspective:
Acknowledges patient’s personal or family history as related to current issue
Elicits patient’s thoughts and concerns about recommendations

Overall rating 1 (poor) 2 (fair) 3 (good) 4 (very good) 5 (excellent)

Comments:
Shares Information:
Asks about patient’s current understanding of her situation
Asks if patient wants detailed statistical information or an overview
Provides brief description of test/image interpretation
Explains using patient’s preferred approach
Uses words patient can understand
Explains thought process and findings
Offers patient opportunity to see films
Describes and explains recommended options/next steps
Asks what questions the patient has
Avoids premature advice or reassurance

Overall rating 1 (poor) 2 (fair) 3 (good) 4 (very good) 5 (excellent)

Comments:
Reaches agreement:
Reaches agreement about patient’s and physician’s follow-up tasks
Asks about barriers to follow-up
Identifies additional resources as appropriate

Overall rating 1 (poor) 2 (fair) 3 (good) 4 (very good) 5 (excellent)

Comments:
Provides closure:
Summarizes and clarifies follow-up
Asks what remaining questions/concerns the patient has
Acknowledges the patient and closes the interaction

Overall rating 1 (poor) 2 (fair) 3 (good) 4 (very good) 5 (excellent)
Appendix II (continued)

Comments:
Manages the flow:
Provides salient information in time allotted
Allows patient time to speak, avoids rushing the patient

Overall rating 1 (poor)  2 (fair)  3 (good)  4 (very good)  5 (excellent)

Comments:
Builds the relationship:
Greets and shows interest in patient as a person
Listens carefully, doesn’t interrupt
Uses words and nonverbal behaviors that show care, concern, and respect
Avoids words that convey judgment of patient or other healthcare professionals
Responds explicitly to patient’s statements & nonverbal clues about ideas & feelings

Overall rating 1 (poor)  2 (fair)  3 (good)  4 (very good)  5 (excellent)

Comments:

Descriptors below each heading were derived in part from our work with faculty, residents, and patient focus groups.
The heading “Set the stage” was coined and used with different descriptors by Makoul G. The SEGUE Framework for Teaching and Assessing Communication Skills. Patient Educ Couns 2001; 45:23–34.