Year after year, medical students pose questions that reflect the same concerns and misconceptions about a career in radiology. While radiology educators and practicing radiologists may perceive many of these reservations as ill-founded or misguided, they are nonetheless important to recognize and address. Student decisions about careers are determined not only by what students know, but also by what they think they know. If students opt for radiology or eschew it based on inaccurate information, this benefits neither the students nor the field of radiology. In what follows, we briefly identify and suggest strategies for educating students about a dozen concerns and misconceptions.

#1. Radiologists are not real doctors. American College of Radiology focus group studies have suggested that approximately one-half of the general population does not know that radiologists are physicians (1). At most medical schools, there is no required course in radiology, and at many others, radiologists play little teaching role in the medical school curriculum. As a result, students have little opportunity to see radiologists in action. If such misconceptions are to be corrected, it is incumbent on academic radiologists to seek opportunities to expand their role in medical student teaching, ensuring that each future physician understands who radiologists are and what they do (2). Medical students who do not choose radiology as a career still constitute the field's future referral base.

#2. Radiologists have little or no patient interaction. There is some truth to this. Some radiologists may go days or even weeks without interacting directly with a patient. But it is important to point out that many radiologic disciplines, such as interventional radiology and mammography, involve a high degree of patient interaction, and radiologists in all disciplines have opportunities to interact with patients (3). Moreover, radiologists make a huge contribution to day-to-day patient care. Until we know what is wrong with the patient, it is impossible to prescribe appropriate therapy. Radiologists are frequently the physicians who rule in and rule out diagnostic hypotheses, thus playing a crucial role in patient care (4). Physicians also turn to radiologists to monitor response to therapy and detect complications.

#3. Radiologists do not treat patients. Again, it is true that many radiologists focus a relatively small proportion of their time on treatment, as opposed to diagnosis. Yet some radiologists do play important roles in this area, interventional radiologists foremost among them. In addition, many non-interventionalists help to treat patients on a regular basis. Examples include the placement of feeding tubes and central venous catheters, thoracentesis and paracentesis, and abscess drainage. In community practice, many radiologists are called upon to advise referring physicians about treatment options. Because so many different medical disciplines refer patients to radiology on a regular basis, radiologists can often offer a multidisciplinary perspective on patient management (5).

#4. Radiology is dangerous to your health. This notion has been promulgated in popular literature by such books as Samuel Shem’s The House of God, in which the interns rule out radiology as a career in part because it “damages your gonads” and increases the risk of cancer (6). In fact, however, a number of safeguards are in place to protect against the hazards of ionizing radiation (7). There is no evidence that birth defects, cancer risk, or life expectancy are adversely affected by the practice of radiology (8,9). Moreover, becoming a radiologist provides an opportunity to understand the benefits and risks of ionizing radiation to a higher degree than most other physicians.

#5. Many physicians read their own images. For example, most neurosurgeons are competent at reading head CT and head MR images, and many pulmonologists are adept at interpreting chest radiographs and CT scans. This is especially true in academic centers. General radiologists may find it difficult to add much value in these situations, although equally specialized radiologists have much to offer. Moreover, the radiologic skills of such specialists are usually highly domain specific. Neurosurgeons are not comfortable interpreting abdominal CT scans. And of course, many primary care physicians are not specialized and do not feel comfortable...
interpreting studies on their own. For these reasons, radiologists will always play an important role (10).

#6. Radiologists will be replaced by computers. Over the past few decades, interest in computer-aided diagnosis has grown, and computers now play a regular role in helping to detect lesions in fields such as mammography. Nevertheless, there is an ongoing and vigorous debate over the utility of such tools, and some evidence suggests that they contribute little (11). Moreover, these technologies are being used not to replace radiologists but to aid them (12). There is no computer that can reliably interpret a chest radiograph. The task of interpreting radiologic studies remains far too complex for any existing computer to handle, and this situation will continue for the foreseeable future.

#7. The work of US radiologists will be outsourced. Many students are aware of the widespread phenomenon of off-shoring work to take advantage of lower labor costs. Yet on-site US radiologists are unlikely to be replaced by foreign radiologists, for a variety of reasons. First, radiologists need to be credentialed in the hospital or healthcare facility where the imaging is performed. Second, they need a license to practice medicine in the state where the facility is located (13). And most importantly, patients and referring physicians prefer to work with radiologists who are based in the same locale and institution. Local radiologists are able to build better consultative relationships and to play a more active and effective role in improving quality (14).

#8. Dark rooms are boring. Students who visit radiology reading rooms are often surprised by how dark and quiet they seem, which can make radiology seem tedious. It is important to explain to students the principle of the signal-to-noise ratio, and to offer students opportunities to interact with radiologists at work, to see the difference radiology can make in patient care (15). Many radiology reading rooms are stimulating places where important consultations between physicians regularly take place. Conversations that take place there are often engaging and even entertaining. And camaraderie is often high. Radiologists should be mindful of how others perceive the workplace and do their best to make it a hospitable one.

#9. Radiologists only care about money. Many students are aware that radiology is a relatively well-remunerated field, especially in relation to primary care disciplines. Moreover, they may hear off-hand comments from radiologists complaining about reimbursement rates and the like. These and similar factors may lead to the misperception that radiologists are “in it for the money.” The best way to counteract this is for radiologists to share with colleagues and students the non-monetary sources of their professional fulfillment. One means of doing so is to tell the stories of patients for whom radiologists have made a significant difference (16).

#10. Radiology is too difficult to get into. It is true that the USMLE scores and grades of medical students who enter diagnostic radiology residency programs generally rank near the top, but this should not be interpreted as a counsel of despair by students interested in radiology. Most programs look at more than just grades and test scores. Many students can take steps to improve their prospects, for example by engaging in research or service projects in the field. Moreover, nearly all students who seek a residency in diagnostic radiology find a spot somewhere. In recent years, only approximately 2% of 4th-year US medical students who applied in diagnostic radiology did not match (17).

#11. Radiology requires too much physics. Some students perceive radiology as a very science-heavy and technology-laden field, assuming that only someone with a physics or engineering background could possibly succeed in it. Yet in comparison to physicians in other disciplines, many radiologists have little or no special interest or education in such fields. It is not necessary to be able to design or even take apart and reassemble an MRI scanner to be able to practice radiology at a very high level. Many radiologists may go days, weeks, or even months without engaging in a conversation with a physicist or engineer. In practicing radiology, knowledge of biomedical disciplines such as anatomy, physiology, and pathology is far more important than physics.

#12. Radiology is best suited to introverted or socially inept individuals. Nothing could be further from the truth. While an introvert could certainly excel as a radiologist, the high-level practice of radiology requires excellent interpersonal skills (18). Radiologists interact all the time with physicians from virtually all other medical disciplines, as well as non-physician health professionals. To excel, they need to be effective communicators who are good at building consultative relationships and partnering with colleagues from diverse fields to provide the best patient care (19). One way to get this message across is for radiologists to be regular and active participants in multidisciplinary conferences, such as grand rounds, where the radiologist’s contributions have high visibility to students.

Radiology educators and practicing radiologists should not ignore students’ misconceptions and concerns about radiology as a career. If they are not corrected, they are likely to persist and even grow, which would not be in the best interests of the field. More importantly, every misconception represents an educational opportunity. Great educators do not simply download information into learners. They meet learners where they are, addressing teaching to their level of understanding. By getting students to voice their perceptions of radiology and then engaging them in conversation around them, radiologists can help all students, whether they are interested in radiology as a career or not, to better understand and utilize radiology.

REFERENCES