

# Virtual Mentor

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## ETHICS CASE

### **Teleradiology: The Importance of Communication**

Commentary by Richard Gunderman, MD, PhD

Mr. Brown, a retired pipefitter living in upstate New York, was bothered by persistent episodes of shortness of breath that had become increasingly frequent, waking him from sleep and leaving him gasping for air. After the third bout in a single evening, his wife took him to their local community hospital's ER at midnight.

The scene was busier than usual for a Friday evening, with nearly every room filled. Dr. Smith, the sole attending physician in the ER that evening, took a thorough history, eliciting Mr. Brown's chief complaint of shortness of breath, his prior occupational history as a pipefitter working with asbestos, a chronic cough for several months, and other medical comorbidities including mildly elevated cholesterol. Mr. Brown's vital signs were notable for decreased oxygen saturation and an elevated heart rate, but he had no sign of fever. An electrocardiogram confirmed the elevated heart rate but showed no worrisome signs for an acute heart attack. Concerned about a pulmonary embolism—a potentially serious blood clot in the lungs—Dr. Smith recommended that Mr. Brown undergo a CT scan and reassured him that it would be read within the hour.

At the physician workstation, Dr. Smith entered an order for the CT scan: "65-year-old man, shortness of breath. Differential diagnosis: pulmonary embolism, rule out pneumonia, rule out heart failure." She made no mention of his persistent cough or work history in the order, but did include these facts in her progress note.

Fewer than 30 minutes later, Dr. Jones, a radiologist board certified in New York but now based in Hawaii, reviewed the scan. He saw no evidence of pulmonary embolism or heart failure. A small focus of abnormal lung tissue raised the possibility of a localized pneumonia. Dr. Jones forwarded his report to Dr. Smith in New York.

Dr. Smith received and recorded the report. Pneumonia wasn't the most likely explanation she could see for Mr. Brown's symptoms—he had no fever and no productive cough—and she contemplated discussing the case with the radiologist. But it was late, many patients were waiting for evaluation, and remote readers tended to be hard to get in touch with. She decided to proceed with conveying the findings of pneumonia to Mr. Brown. She prescribed an antibiotic, and the Browns felt reassured and returned home.

After completing the antibiotic course, Mr. Brown felt somewhat better, but still had an intermittent cough and occasionally woke up with shortness of breath. Six months later, he was diagnosed with mesothelioma, an aggressive form of cancer.

Mr. Brown and his wife wondered how the cancer could have developed so quickly—there had been no evidence of it six months earlier. They were surprised and confused to hear from Mr. Brown's oncologist that, on the initial CT scan, there were in fact a few smaller nodules present. They were even more taken aback to learn that the radiologist who had reviewed Mr. Brown's initial scan was not technically an employee of the hospital and not available to speak to them.

### **Commentary**

Mr. Brown's case is fraught with challenges, only some of which can be laid at the door of telemedicine. The teleradiologist's failure to detect several small nodules and to provide a complete differential diagnosis of the pulmonary abnormality on the chest CT scan, together with the ED physician's failure to consider the possibility that the CT pulmonary abnormality might represent a neoplasm, might have been avoided had (1) the ED physician adequately conveyed the clinical history, (2) the ED physician and teleradiologist conferred about the CT scan result, and (3) both physicians not been pressed for time.

First, the failure of the ED physician to provide relevant occupational history for a patient with cardiopulmonary symptoms may have contributed to the teleradiologist's failures both to detect the pulmonary nodules and to raise neoplasia as a diagnostic possibility. Like the classic relationship between figure and ground in perceptual psychology, every radiologic finding is always perceived (or not perceived) in a larger clinical context that includes the patient's present illness, past medical history, physical examination, and other diagnostic tests. When key information is not provided, the radiologist may over- or underrate certain possibilities—or overlook them entirely.

It is possible that the quality of communication and collaboration between the ED physician and the teleradiologist was affected by their wide separation. Perhaps had they been working closer to one another, they would have been likelier to discuss the case. However, they were in different states and time zones, and both may have reasoned that contacting the other was too great an inconvenience to warrant investing the time and effort it would require. Apparently the ED physician had experienced delays and frustrations in attempting to contact teleradiologists in the past. Moreover, we know that the ED physician faced a large case load, and this was probably also true for the teleradiologist.

A related but deeper problem underlies this failure to discuss the patient—namely, that Dr. Smith and Dr. Jones had probably never met each other face-to-face and never would. In these situations, physicians are unlikely to develop a good working relationship, simply because they do not know one another, and the resultant lapses in communication and collaboration can take a toll on patient care, as in this case.

Furthermore, we must consider the limitations of written communication. Radiologists' reports, physicians' notes, and electronic medical records are all very important, but they do not always tell the full story. For one thing, the point-and-click format they often employ can lead to omissions when aspects of a case do not fit typical profiles. Moreover, physicians are different—some tend to be very thorough and complete, leaving few stones unturned, while others tend to be more focused, conveying only what seems clinically relevant. If physicians do not know one another's styles, they may misinterpret information conveyed in writing.

I knew a medical student from a large urban school who did a rotation at a small rural hospital. After a few days, he expressed to his attending physician his surprise at the brevity of the notes different physicians were entering into their patients' charts. "Back at the medical school, each day's notes are usually more than a page or two long, while here it is not uncommon to see notes that run only a few sentences," he said. "Aren't you worried about missing things?" The attending physician smiled. "No," he replied, "we don't worry too much about what is in the notes, because around here we make it a point to talk with each other about our patients."

At least in part because no direct, real-time communication took place concerning Mr. Brown's case, the level of mutual understanding and collaboration between the ED physician and teleradiologist left much to be desired. Even when face-to-face communication is impossible, a variety of other media exist, including voice and video conferencing, instant messaging, e-mail, and so on. It is important for telemedicine systems designers to anticipate the need for, and to provide quick and relatively painless channels of, communication between the physicians caring for a patient.

The goal is not merely to avoid poor patient satisfaction scores or lawsuits. The goal is to provide a high level of care for patients. And just as care is likely to be better when patients and physicians know one another well, so patients benefit when the physicians involved in their care have developed good working relationships. In this sense, telemedicine is likely to be at a disadvantage compared to local care, partly because telemedicine services often employ dozens or hundreds of physicians, so employees of hospitals that contract with a telemedicine service may interact with a different remote physician each time they use it. The result is a pattern of faceless and nameless interactions between physicians, with patients falling through the gap.

In this case, the imperative of timeliness overwhelmed the imperative for quality. Physicians in a hurry to get an answer did not devote the time and attention necessary to ensure that the patient received good quality care. We can only hope that the hospital, the emergency department, and the radiology department had systems in place that would detect, examine, and learn from such errors. Possible strategies for improvement include providing the teleradiologist with real-time access to the patient's medical record, requiring a brief interaction between the two doctors, ensuring that local radiologists also review such cases, creating teleteams in

which the same local and remote physicians work together repeatedly, and developing a local or regional radiology staffing model that would eliminate the need for teleradiology.

It is easy to see why Mr. Brown would be baffled and frustrated by the care he received. Not only were the radiologic lesions not detected, but, even later, after his cancer had been diagnosed, he could not speak with the teleradiologist. Radiologists, referring physicians, and hospital and health system administrators may think that patients do not know or care who is participating in their care, but it is quite possible that many patients feel otherwise. To them, it may make a difference whether their doctors are strangers or know one another well.

In a profession that prizes the quality of relationships and the development of a certain degree of intimacy between patients and physicians, the very term telemedicine may seem a bit of an oxymoron, like telefriendship, telemarriage, or teleparenting. When a wide geographic gap separates physicians from patients and physicians from one another, relationship-based care becomes considerably more difficult to achieve. Taking good care of patients requires the development of good relationships, for which no gadget or software can finally substitute.

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