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The Future of Radiology Consultation

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Abstract

A more collaborative approach to consultation is one that every radiologist concerned about the future of radiology should be eager to embody.

Introduction

We believe that radiologists should function not as production line workers, according to a factory model, but as consultants. The word "consult" comes from Latin roots meaning "to deliberate together," and this is precisely what the practice of diagnostic radiology at its best looks like: a referring health professional and a radiologist coming together to pool their knowledge and experience to arrive at a diagnosis or, at least, a diagnostic plan. The radiologist's role is not to produce reports as quickly as possible, but to work collaboratively, where appropriate, to make a difference for the patient (1).

We admit that there are situations in which referring health professionals and radiologists do not need to meet face to face or even interact with each other in real time. Suppose, for example, a radiologist is interpreting a chest radiograph that is completely normal. In such a case, merely producing an electronic report and transmitting it in a timely fashion to the referring health professional may be adequate. But in more complex situations, such as in patients with unexplained fever, weight loss, or chest pain, "getting two heads together" in real time can offer important benefits to patients.

The American College of Radiology Actionable Reporting Workgroup has addressed some of these issues by dividing findings according to urgency into those that should be conveyed in minutes,

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hours, and days (2). But the issue is not simply one of urgency. There are ways to communicate findings, whether urgent or not, that help to build strong collaborative relationships, others that do not, and still others that actually tend to undermine such relationships. Regardless of the urgency of findings, radiologists must carefully consider the kind of relationships they are building with referring health professionals.

It is evident that at least part of the radiologist's consultative role is being supplanted by information technology (3). But direct consultation is still important in many cases, in part because it is the consultant's professional responsibility, and in part because the use of electronic communication alone for documentation does not necessarily protect the consultant from medical-legal action (4). Such a perspective is especially important in view of the increased rate at which radiologists are making clinically important recommendations in their reports, rendering high-quality communication essential (5).

Radiologic consultation can take many different forms. In this article, we outline four different models of radiologic consultation, as reflected in such features as the accessibility of radiologic reading rooms and radiologists themselves. We do not pretend to cover every form that radiologic consultation could take, but we do present what we believe to be at stake in choosing between different approaches. We also do not suggest that every radiologist must choose one of these models and stick with it inflexibly. Instead, these models help to clarify the strengths and weaknesses of the different options from which a radiologist or group must choose in each situation.

Isolated Radiologist

Our first model is that of the "isolated radiologist," whose motto might be stated as, "I work best alone." The isolated radiologist works in a reading room that is distant, either literally or conceptually, from referring health professionals. In some cases, such as teleradiology, the radiologist may be located in another town, another state, or even another continent. From the referring health professional's point of

view, the reading room seems quite far removed, even if the radiologist happens to be located under the same roof. For example, the reading room may be located in an out-of-the-way place, behind multiple secured doors, and poorly marked. If the referring health professional manages to reach it, there is little room to stand and no extra chairs. The general atmosphere and the radiologist's demeanor may vary from mildly inhospitable to frankly hostile. Reaching the radiologist by other means, such as by video conference, telephone, or instant messaging is cumbersome and time consuming, requiring considerable effort on the part of the referring health professional.

Of course, isolating the radiologist and the reading room does appear to offer certain advantages. If the practice of radiology is conceptualized as "piece work" on an assembly line, then the isolated radiologist, who encounters few interruptions, appears to offer maximal potential for productivity, as measured in the number of examinations interpreted and the amount of revenue generated (6). In this model, the diagnostic radiologist barely functions as a consultant at all, instead serving merely as an examination interpreter whose output can be easily measured and quantified almost strictly in revenue.

But there are also downsides to the isolated radiologist model. For one thing, radiologists are liable to become largely anonymous, never encountering health professionals who refer the patients for whom they provide care. When radiologists have no meaningful relationships with referring health professionals, they become interchangeable and replaceable (7). Moreover, the practice of radiology becomes lonely. Radiologists do not see the people who depend on them, which, over time, can undermine professional dedication and fulfillment (8). Such factors can adversely affect morale, with longer term detrimental effects for quality and output.

Available Radiologist

A second model of radiologic consultation might be termed the "available radiologist," whose dictum is, "I will help if asked." In this model, the radiologic reading room can be found easily. Once referring health professionals reach it, they are treated courteously, and radiologists respond readily to

requests for help. However, the reading room is not visited often, and the radiologist rarely reaches out to referring health professionals, except as necessary to convey an urgent finding. In this setting, there is generally a nonradiologist in the room who serves as the first point of contact for those seeking assistance.

In many radiology practices, the available radiologist is a familiar model. Radiologists function in a largely reactive fashion, responding to queries and requests but rarely initiating contact. They generally stay as focused as possible on the means of production: computer monitors and dictation equipment. Phone calls and visits are still treated largely as distractions, although not so much as nuisances. Radiologists are apt to build relationships with few if any referring health professionals, and some of the relationships they do enjoy are rather distant and shallow.

The model of the available radiologist still affords clear productivity advantages, at least to the extent that the radiologist remains primarily focused on interpreting imaging examinations. Yet radiologists are still relatively anonymous, relationships are rather few and distant, and the radiologist functions in a consultative capacity in only a small minority of cases, and only when explicitly asked to do so. Again, radiologists are unlikely to get to know or to be known by those who count on them for assistance in caring for patients, which can result in a corresponding loss of professional fulfillment.

The Eager Radiologist

A third model of radiologic consultation is the “eager radiologist,” whose motto might be, “I will ask to help.” Eager radiologists actively seek to build consultative relationships with referring health professionals by interacting with them on a regular basis, and at least some of the time on their own initiative. They are located in a convenient and well-marked reading room, and phone calls or visits by referring health professionals result in almost immediate direct contact with a radiologist. Because of their dedication to relationship building, eager radiologists even reach out to patients, at least from time to time.

One example of eagerness toward patients is a diagnostic radiologic consultation clinic, where radiologists view imaging studies directly with patients, often operating on the basis of direct referrals from primary care physicians. When asked to evaluate such an approach to radiology practice, many patients respond favorably, even enthusiastically, and depart from their visit to the radiology department with an improved understanding of the radiologist's role in their care (9). Another example of eagerness with respect to interaction with health care professionals is the radiology group that assigned a radiologist to the physicians' dining room, enhancing the group's visibility and relationship with referring providers (10).

The advantages of the eager radiologist model are readily apparent. Radiologists have strong collaborative relationships with referring health professionals, who regard them as important members of the patient care team. They regularly visit patient care areas and discuss cases, participate routinely in multidisciplinary conferences, and know referring physicians not only as professional colleagues but as persons. Many such radiologists derive greater professional fulfillment from their work, and when the time comes to renew a contract with the radiology practice, they often have many allies in other fields (11).

On the other hand, there are disadvantages to eagerness. Eager radiologists and practices in which eagerness is encouraged are likely to be considered less "productive," at least in the short term, on the basis of crude measures such as the number of examinations interpreted and revenue generated (6,12). Moreover, from the point of view of an isolated radiologist, they are subject to far more "distractions," with queries from referring health professionals. Not only are they consulted more frequently, but they also initiate many of these consultations themselves in an effort to make a bigger contribution to patient care. What to an isolated radiologist seems to be an interruption appears to an eager radiologist as an opportunity.

Embedded Radiologist

The final radiologic consultation model might be called the “embedded radiologist,” who exemplifies the phrase, “at your side.” In this model, the radiologist functions as an integrated member of the patient care team. Radiologists spend a substantial portion of the day in direct contact with referring health professionals, making contributions in real time at the point of care. The reading room is located in the same area in which referring health professionals practice, and there are no middlemen between them. The radiologist knows referring physicians and patients more thoroughly than in any other model.

Training programs are making increasing use of the embedded radiologist model in resident and fellow education by allowing trainees to rotate with specialists and their clinical teams (13). At our institution, for example, radiology residents have devoted 4-week rotations to departments such as Oncology, Hepatology, Womens’ Health, and Vascular Surgery, depending on their own intended areas of specialization in radiology. The new interventional radiology residency pathway includes a required critical care rotation during the 5th postgraduate year (14).

Embedded radiologists are “up close and personal” with referring health professionals, encountering patients on a frequent basis. The reliance of referring health professionals on the radiologist is more apparent to both parties, and the fulfillment that comes from seeing the difference good radiology makes in patient care is clearer to embedded radiologists than to those in any other model. Referring physicians and even patients are apt to refer to “my radiologist,” not in a possessive sense, but as a sign that, to them, “radiologist” refers to an identifiable person or small group of individuals.

The potential drawbacks of the embedded radiologist model are also apparent. Radiologists spend a smaller proportion of their time actually interpreting examinations, which results in an apparent reduction in productivity as measured in reports and revenue generated. As a result, more radiologists would be needed to sustain such a practice model, and each radiologist would likely earn less money. To many health care professionals, such a model appears impractical: No one would expect a surgical attending physician to go on rounds with the medicine team, and no one should expect radiologists to do so either.

Finding the Appropriate Balance

Each radiologic consultation model has its own advantages and disadvantages. Many factors are involved in finding the appropriate balance between different models of radiologic consultation: the personalities and professional aspirations of a particular group of radiologists, their area and degree of specialization, the degree of specialization of referring health professionals, the needs and expectations of the local culture, payment models for radiologic services, and too many other factors to enumerate here (15).

One particularly important factor in seeking the appropriate balance among these models is the level of experience of the radiologists in question. For example, in radiology residency programs, it may be highly desirable that trainees participate in an embedded model for at least a portion of their training to enable them to experience what it feels like to function as a maximally consultative radiologist. Such an experience can help them to understand the collaborative foundation that is the basis of all professional consultation, but such a model is not likely to work as well for many fully qualified radiologists in clinical practice.

At a time when productivity seems to be commanding more and more attention, it is also important for early-career radiologists to understand that contributing to patients, referring physicians, and the health of a radiologic practice can take many different forms that are not always reflected in the most obvious quantitative measures (16). For example, a less than maximally productive radiologist who builds superb relationships with referring health professionals may do far more to build a practice than would a completely isolated radiologist who generates high revenue from a radiology bunker across the ocean (17).

Radiologists also must adapt to ongoing reforms in physician reimbursement, such as those associated with the Centers for Medicare and Medicaid Services Patient Relationship Categories and Codes. These would require physicians to identify their level of involvement in patient care by using

predefined patient relationship categories. One low-involvement and low-reimbursement category is a physician who “furnishes items and services only as ordered by another physician or practitioner.” Another higher involvement and higher reimbursement category is a physician who supplies “ongoing supportive services,” a role that many radiologists could assume (18). Regardless of whether this particular program is implemented in its current form, the era of bundled payments tends to reward radiologists who function in a less reactive, more-collaborative capacity.

Although a practice cannot choose to adopt a model that will drive it out of business, this does not imply that income must be the sole or principal factor in shaping a consultative model. We believe that, in the long term, a purely revenue-focused model will prove unsustainable, so badly eroding consultative relationships that imaging volumes will drop. Conversely, a radiologist who devotes too much time to each case will not generate sufficient income. But on balance, we believe that many practices are placing too much emphasis on volume at the expense of the kind of consultative relationships that enhance demand for radiologists.

At stake in the different models of radiologic consultation are deep and vital questions about the definition of excellence in radiology. We believe that there is no monolithic, one-size-fits-all model that should be applied in every setting. But when radiologists and groups enter into discussions about these matters—something we believe must happen more frequently—they must recognize that the future not only of individual radiologists and practices but also of the whole field of radiology hangs in the balance.

In summary, we believe that many practices would benefit from shifting toward the model of the eager radiologist who welcomes the opportunity to serve as a consultant to referring physicians and does so in real time. This keeps radiologists more visible and knowable on a personal basis without reducing productivity to the same degree as would the embedded radiologist. It takes the professionalism of both the referring physician and the radiologist seriously, respecting the important role that relationship plays in ensuring good care for patients, and it provides the necessary degree of adaptability to ensure that radiologists can respond as needed to the demands of patient care.

Every time radiologists rely on an automated system or an intermediary to convey an important imaging finding or question, they undercut the opportunity to build better collaborative relationships. Radiologists must ask themselves not only, “What is the least I could do to take good care of this patient?” but also, “How will the way I plan to handle this case affect my relationship with the referring health professional?” A purely episodic approach to care fails to take into account the broader and longer term implications for the field of radiology. A more collaborative approach to consultation is one that every radiologist concerned about the future of radiology should be eager to embody.

References

1. Norbash A, Bluth E, Lee CI, et al. Radiologist manpower considerations and Imaging 3.0: effort planning for value-based imaging. J Am Coll Radiol 2014;11(10):953–958.

2. Larson PA, Berland LL, Griffith B, Kahn CE Jr, Liebscher LA. Actionable findings and the role of IT support: report of the ACR Actionable Reporting Work Group. J Am Coll Radiol 2014;11(6):552–558.

3. Weiss DL, Kim W, Branstetter BF 4th, Prevedello LM. Radiology reporting: a closed-loop cycle from order entry to results communication. J Am Coll Radiol 2014;11(12 Pt B):1226–1237.

4. Berlin L. Communicating nonroutine radiologic findings to the ordering physician: will (should) information technology-assisted communication replace direct voice contact? Radiology 2015;277(2):332–336.

5. Sistrom CL, Dreyer KJ, Dang PP, et al. Recommendations for additional imaging in radiology reports: multifactorial analysis of 5.9 million examinations. Radiology 2009;253(2):453–461.

6. Lam DL, Medverd JR. How radiologists get paid: resource-based relative value scale and the revenue cycle. AJR Am J Roentgenol 2013;201(5):947–958.

7. Glazer GM, Ruiz-Wibbelsmann JA. The invisible radiologist. Radiology 2011;258(1):18–22.

8. Gunderman RB, Tillack AA. The loneliness of the long-distance radiologist. J Am Coll Radiol 2012;9(8):530–533.

9. Mangano MD, Bennett SE, Gunn AJ, Sahani DV, Choy G. Creating a patient-centered radiology practice through the establishment of a diagnostic radiology consultation clinic. AJR Am J Roentgenol 2015;205(1):95–99.

10. Gunderman RB. The radiologist in the doctors' dining room. J Am Coll Radiol 2015;12(8):872–873.

11. Patel S. Value management program: performance, quantification, and presentation of imaging value-added actions. J Am Coll Radiol 2015;12(3):239–248.

12. Enzmann DR. Radiology's value chain. Radiology 2012;263(1):243–252.

13. Mamlouk MD, Anavim A, Goodwin SC. Radiology residents rounding with the clinical teams: a pilot study to improve the radiologist's visibility as a consultant. J Am Coll Radiol 2014;11(3):326–328.

14. LaBerge JM, Anderson JC; Radiology Review Committee. A guide to the Interventional Radiology residency program requirements. J Am Coll Radiol 2015;12(8):848–853.

15. Enzmann DR, Schomer DF. Analysis of radiology business models. J Am Coll Radiol 2013;10(3):175–180.

16. Muroff LR. Culture shift: an imperative for future survival. J Am Coll Radiol 2013;10(2):93–98.

17. Thrall JH. Teleradiology. Part II. Limitations, risks, and opportunities. Radiology 2007;244(2):325–328.

18. Centers for Medicare and Medicaid Services. CMS Episode Groups. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Episode-groups-summary.pdf. Published online April 16, 2015. Accessed May 25, 2016