

Masters of Radiology Panel Discussion— Is Imaging in Decline?

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INTRODUCTION. Each quarter, the *AJR* will publish the transcripts of the Masters of Radiology panel discussion hosted by Drs. Howard P. Forman and Marcia C. Javitt. The panel will review topics of importance in the field of radiology and share their unique insight into how these issues are shaping or will shape the future of the specialty.

Forman: As you saw in the article from *Health Affairs* [1], the field of radiology, for the first time, has truly slowed to a crawl. There are some skeptics out there, but there is certainly a lot of evidence to suggest that radiology utilization has dramatically slowed from where it's been in the past 30 years. Ever since the introduction of CT, we've just seen an incredible growth rate. During the hard times for radiology in the late 1990s, when we were anticipating a reduction in utilization, we never saw a true drop such as we're now beginning to see. The first thing I want to hear from all of you is, "What are your own experiences in your own practices and within your specialties about overall utilization?" Secondly, if we all agree there is a decrease in the magnitude of growth, what does that mean in terms of national society planning, department planning, and leadership considerations going forward?

Crowe: As the oldest person in this group, I actually remember radiology in the 1970s when growth was limited. Before the invention of diagnostic ultrasound, CT, and MRI, radiology was not considered a growth industry. We did not think of it in the way that we have in the past 10–20 years. In the coming years, if we depend only on current technology, we may be trending back to the future.

As we try to change our culture, revamp medical education, and begin looking at what is truly effective care, it is fascinating to consider why people order certain studies and the various implications of utilization. However, we must look forward and not back to the future.

What people really want is health and not health care. We, as radiologists, must prepare ourselves to integrate not only current modalities but also molecular imaging and therapy into better utilization, diagnosis, and outcomes. Even if we succeed in these goals, we still must use the data to inform clinicians and improve their use of imaging. Even as radiology becomes less of an income center and tries to become more clinically productive, we must simultaneously master information and increasingly provide leadership to the entire health care enterprise.

Kazerooni: It's a new reality for radiologists, one that does not seem to have a rapid climb back to the past, and it's something practices have to adapt to. Our value has been measured and judged for the past one to two decades on examination volume, relative value units, and turnaround times. As a specialty, we've become addicted to double-digit growth year over year, turning to "nighthawk" providers to read studies at night because business was so good during the day, abrogating our professional physician relationships. What we have not had to pay attention to—and is perhaps our greatest value—is in consultation, such as discussions about appropriateness of testing for the individual patient. There is often no positive feedback mechanism when a radiologist tells a provider a test is not needed. In fact, the feedback can be seen as negative, obstructionist, laziness, or the commentary of someone who is not a "real" physician. Working toward a reimbursement model that incorporates all we do, not a radiology report alone, would be a fundamental change and aligned with the accountable care organization model of care we are rapidly moving toward.

Locally, we're seeing continued reduction in the growth of radiology in our environment in southeastern Michigan and in the state of Michigan in general. It varies among

the different organ system–based specialties. For example, in thoracic radiology, we have two primary modalities, the low-end ubiquitous chest radiography and the high-tech high-end CT. Whereas our abdominal and pediatric colleagues can turn to ultrasound, or even MRI, in the event of radiation exposure concerns, we do not have that option. So, they are seeing more of a decrease in their CT volume, but we are not. Within my own department, volumes are relatively flat.

For the past few years, one of our single biggest growth areas has not been examinations that we perform and read, but in those that we are reinterpreting from other centers. We often get these cases from patients who are seeking tertiary care institution consultation or consideration for clinical trials. The by-product of this service line is professional reimbursement, but there is no technical revenue to the institution. When it's the first time a new patient comes to our system, this makes sense. However, because it is so easy to move images on discs or over the Internet, we increasingly have active health system patients having their follow-up CT and MRI studies performed close to home, driving 1 to 10 hours instead of coming to us for the studies our own system providers are ordering. That is a technical revenue loss for the health system, and with radiology as one of the largest contributors to margin, especially in the ambulatory care setting, has implications on health system finances and therefore other departments, too. This "leakage" is not an easy one to reduce, given the convenience for patients, that technology improvements in the installed scanners yield better image quality, and that the same subspecialists our providers are familiar with for reading their examinations are still doing so.

Norbash: Although our CT volume has dropped at least 27% cumulatively over the past 3 years, this decrease is offset by other areas of growth in our department. Our MRI volume has been increasing steadily at a rate of about 4% per year, our mammography volume has been increasing at double-digit annual rates every year for the past 4 years, and our ultrasound volume has been increasing at 3% to 4% annually. A look at the volume drivers for each of the growth areas is very illuminating. For example, the reason our ultrasound business has been steadily increasing is that we have an avid and very capable champion of the technology as our chief of ultrasound. She is on the front lines, championing the technology and building

services through her own sweat equity and is consistently accommodating regarding the needs of patients and clinicians. She is leading the charge, the referring physicians demand her by name, and the referring service providers value her championing of the service and the direct beneficial results of their relationship. So it makes you hesitate and realize that, of course, there is concern over the radiation issue, but when we're looking at the drivers of what is going on where volume and growth are concerned, there may be two sets of issues at play: technology and money.

Technology has contributed to our problematic state. By creating a remote service that is PACS-based and gives clinicians the opportunity to review images in our absence and from afar, we have lost the opportunity to cultivate relationships with our clinicians so they could see the value we provide on a daily basis. We no longer have daily film rounds. We're disconnected and we're also trying to churn through studies because of our diminishing margins. Disappointingly for all, we have even reached a state where our rarely appreciated referring physicians' presence is increasingly seen as a bit of an interruptive inconvenience. When I have had a chance to personally review angiograms with a neurologist or neurosurgeon, they could appreciate my contributions and specialized knowledge that could serve their patients directly. Now, they are also pressured to churn patients, I'm also pressured to maximize my efficiency and to do more than I've done before, and the time that we previously had set aside that permitted us to be collaborative and thoughtful is a thing of the past. Naturally, I'm now invisible to them. As I become invisible to referring physicians, when a third party wants to come in from the outside and financially undercut my entire group, it is now a feasible alternative from the perspective of the hospital and the referring physicians because the foundation for a relationship has evaporated. I've permitted myself to be seen as a commodity, and as much as I'd like to, I can't honestly hold anyone else to blame. If there's some competitive opportunity in which a nonradiologist in my hospital now wants to read a particular study that will also allow them to financially do better in their own progressively more constrained lives, they're going to grab it. In the past, the nonradiologist could not pretend to add nonexistent value to the imaging equation. So now we're in a very strange relationship in which we're being progressively more commoditized and ignored.

As the margins continue to shrink, we have to be busier and busier to generate the same revenue. The financial problem is not just the shrinking margins; there are also disincentives that are being introduced into the system that at times seem to opacify the quality of care delivered. In Massachusetts, we're seeing patients who are incentivized to go to the lowest-cost provider, not necessarily the highest-quality provider, and the patients personally gain financially from going to the lowest-cost provider with absolute disregard for quality. Had we concentrated on universal quality measures we could have been on sounder ground. Another problem we have is that we're not able to effectively describe and measure quality to all of our customers and referrers, and we're not able to effectively verbalize the added value we bring to the table for every single radiology interaction. If we're not going to be able to grow our domain, then we're going to have to focus on value and we're going to have to focus on building relationships. I don't see an alternative. The role our national societies play will therefore vary depending on our strategy for creating and preserving a more protected future.

Forman: What are you hearing in Massachusetts overall? You're implying that you may be losing some leverage on the pricing issue, but my sense from talking to people in Massachusetts right now is that there is a decline in demand, driven at least partly by reforms in the state.

Norbash: That is partially true because in the fee-for-service world we've created medical imaging is seen as a cost, not a benefit. We're living in an era of imaging rationing rather than rational imaging. The value of each imaging engagement has not been fully described. If payers look at imaging purely as a cost and if you have a single-minded focus on reducing costs without recognizing or realizing that you're adding mortality, morbidity, pain, suffering, and discomfort, then you forge ahead with cost-cutting. We have not effectively communicated with our payers how much a given abdominal CT will reduce pain and suffering when a patient with abdominal pain comes to the emergency department and undergoes abdominal CT. This is the true challenge.

Larson: Our experience at Cincinnati Children's Hospital has been similar. Overall, our volume in the late 1990s until 2001 increased about 10% per year then continued to grow at about 7% until 2007. From 2008 to 2010, growth was about 2% per year. By 2011, we

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had an overall decrease by 4%. We have a relatively closed system, so we think that the slowdown is primarily due to decreased utilization rather than loss to competition. Some of the volume decrease is driven by concerns about radiation—mostly CT. But we believe that the greatest effect has been from increased cost sharing. Patients who now shoulder more cost for imaging think twice or wait longer to get the imaging. At the same time, the area where we are seeing growth is in our more advanced MRI techniques, such as MR enterography and elastography, which supports the experience of Drs. Norbash and Crowe. When we are able to show the benefit of these new techniques, the ordering clinicians embrace them despite the cost. This illustrates to me that despite the economic pressures, the future is still bright for those who can show that their services add value.

A market demand for increased specialization should not be surprising. Continued specialization is the basis of modern society, so it is likely to continue in medicine in general and in radiology in particular. But the price of subspecialization is effective coordination and management, but subspecialization is still in its relative infancy in radiology. That means we need intelligent mechanisms to make sure that studies efficiently get to the appropriate level of expertise; that we can efficiently define, develop, and maintain that expertise; and that we can execute it without a lot of infighting. For example, I was fascinated by Dr. Kazerooni's observation that reinterpretation is a growth area. From a system perspective, paying for two interpretations is wasteful. Organizations that can efficiently direct studies to the appropriate level of expertise the first time are attractive to payers because they do not see the value of paying for the same service twice. Organizations that can make that happen will have a competitive advantage and may eventually do away with the practice of reinterpretation. Therefore, although duplicative work may constitute a short-term growth area, for the long term, my money is on those who can overcome the local politics to eliminate the duplicative work altogether.

Forman: There's a sense that we're seeing relative flatness or declines in some areas, which has been a dramatic change from the rapid growth we saw before. We've touched on some of the solutions to that as well as some of the reasons that might be occurring.

Javitt: In my view there are some common pathways for these trends, and the con-

cept of "value-added" is going to become more important as we morph into shared responsibility among clinicians, radiologists, and health care partners. The other part to the story is the untold part—the data that drives our systems and helps triage patients with the proper imaging studies ought to be based on evidence. We have precious little of that information available to rely on.

One approach to dealing with this has been to try to create databases that tell us the pretest probability of disease and provide data about what testing might be productive and accurate and then show whether that testing has an impact on patient management and outcomes. Computerized order entry has been a popular item lately and may improve not only the performance of tests and the radiologists who interpret them but also the performance of the ordering provider. Remember, we are procedure-based subspecialists. Unless we're directly consulted, we're the recipient of the order, not the generator. The computerized order entry system might permit us to make some headway in achieving better value and better quality and reducing unnecessary imaging.

In my area in Washington, DC, volumes of studies are trending down. Many residency programs are reducing the number of trainees in response to the weak job market and the impending decreases in numbers of studies ordered. As residency programs decrease in size, there will be redistribution of labor with greater and greater demands for hyperefficiency and faster throughput. Expect more active use of teleradiology in the coming years, as we all "right-size" our workload to our labor force. We have the same issues at my hospital, even though the profit motives and incentives are very different than in the public sector. At the end of the day, the systems and management we are working with are going to continue to change. Unless we decide to take a leadership role by controlling how these changes affect our lives, we will be victimized. I would prefer that we try to respond in a positive way. As Dr. Larson and others have pointed out, we have an opportunity to shape our future rather than become passive bystanders. We can implement appropriateness criteria in a positive way, and we ensure that there is active, two-way communication throughout the entire process, from front-end order entry all the way to patient management. The future of our specialty depends on this approach.

Beauchamp: In terms of our local community, growth varies across our practice. We

have an oncology hospital that's doing a lot of outreach so there's still good growth there—probably about 6%. At our academic medical center, one of the things we're working hard to do is close our out-referral more. There's some flight to academic medical centers in our community, so the volume there is about 3%, flatter than it's been. Harborview, where about 90% of the admissions come through the emergency department, is where we've seen our drop in volume. In looking at that, one of the things we recognized is that in emergency department a lot of the costs are related to duplicate imaging, up to 20%. A few years back, we set up a virtual private network to 150 hospitals that send us patients, and we found that through this connection we could have the imaging studies sent directly and get rid of the redundancy. The downside was we saw a drop in volume, but the important thing is we showed the role of the radiologist in helping to take costs out of health care by getting rid of that redundancy and also communicating back to the hospitals when we did have to duplicate the imaging.

I think radiologists have to be stewards of not only trying to increase volume but also increasing volume where it brings value, decreasing volume where it doesn't, and using our operational and business skills to help look at the health care costs in academic medical centers and across communities. There's an initiative by the American Board of Internal Medicine called "Choosing Wisely [2]." The initiative includes an article by Forman Brody that outlines five things you could do less [3]. A number of specialty societies, including the American College of Radiology, offered responses, and imaging appears in almost all of them.

When those discussions are happening at your institution, it's absolutely essential that you as a radiologist are involved. I've seen a number of groups saying we should come up with our own Choosing Wisely criteria and further decrease the utilization of imaging. So it's absolutely imperative that you have a radiology representative to say "Yes, we want to decrease it where it doesn't add value but also to do more where it does." It's a time for us to enter the areas of community and institutional leadership in looking at utilization and cost.

Forman: In New Haven, we're in a rather unique circumstance. We're pretty much a monopoly in this marketplace. I think a lot of us don't realize that there's been this national shift, partly due to our growing our market share over this time. Without a doubt,

that strategy only works for a certain amount of time. Going forward, it is a very challenging thing to consider that our long mainstay of growing utilization is failing us. Which brings us to the second part of the question: Does the specialty as a whole have a responsibility to address this problem in terms of the number of residents that we train, embracing radiology assistants, and other strategies that may be used to prevent us from having an excess supply of radiologists over time?

Kazerooni: We are at the transition point between providing volume and providing value for the interaction. That means that we are evaluating every step in the radiology enterprise, from when somebody might be considering radiology to helping with understanding the right step for the right patient at the right time and how patient providers and their office staff are treated when they interact with the radiology department. We have to do more to educate referring providers about how we can help them in making diagnosis earlier or in a different fashion than what they may be used to. Although we always focus on overutilization and inappropriate utilization, there is also underutilization because referring providers are not fully aware of opportunities when imaging could help them add value in the care of their patients. Although overutilization and inappropriate utilization are easy targets to look at, I think there are other circumstances where individuals are not getting the diagnostic or screening tests they need, and radiologists could step up and show the value that we can provide in this regard. Delivering top-notch customer service and satisfaction to those that we serve and providing that value throughout the process are going to be critical.

Radiology has been becoming more specialized over the past decade, with more radiologists practicing fewer specialties across the discipline. One thing that concerns me with the continued decrease in the growth of radiology examinations is a reversal of that trend. From data that we've gotten from the American College of Radiology, the biggest growth area in radiologist hiring is now the general radiologist. When people are asked where they're going to hire into the future, many of them are looking for general radiologists, not specialty radiologists. If we're going to try to provide value at the specialty level, we need to watch this carefully.

Forman: A lot of what you're talking about relies on a change in the provider payment paradigm. I realize that much of the nation-

al conversation about health care right now is about a shift in that paradigm, but it hasn't really happened yet. A lot of what you're all suggesting is to increase what turns out to be nonrevenue-generating work, such as proving value, providing extra care, and providing additional consultation, even when there is no compensation. In 3–5 years when each of us is working as part of an accountable care organization, at that point, increasing nonrevenue-generating value may be a financially stable model, but in the shorter run, this may be yet another financial strain. Do you think your practice or others around you have the foresight and passion to make that type of change and investment?

Kazerooni: Accountable care organizations are a very important part of this discussion. If we're going to be well positioned within our health care system, as more organizations are becoming bigger conglomerates, we're going to need to be better positioned on quality, value, service, and the goodwill that accrues to those who lead health care systems. This is going to be critical for radiology as a discipline. The more that we stick to the volume-based method where we find value, we will be prevented from doing the things we need to do to position ourselves well for accountable care organizations and being reimbursed in the future. There are always going to be early adaptors, people on the edge and looking to the future. They may be penalized while we're still in a volume-driven-mode, but those late to the transition may do well in the short term but not in the long run. Our health system has chosen to be on the value curve and to be an early accountable care organization adopter. We must improve quality and service so that we are well positioned for the future and part of how the decisions are made, not just on the receiving end.

Norbash: Does the specialty have a bigger responsibility to society other than survival? I'm concerned that if we are too selfish and too protective, we could hasten our demise. We can't be too protective because society at large is trying to protect itself on the expense side with indeterminate value. As we look at health care delivery, and certainly accountable care organizations are going to be a very interesting model, we still have interests that seem to be strong, intact, and undamaged. Again, as much as we want to focus on a safe, comfortable, accurate, and integrated approach to health care delivery where imaging is concerned, there are barriers to that eventuality. So we have not es-

tablished the right partnerships outside medicine and we have not really looked at this in terms of leading the charge as radiology leaders. My sense is that we're at a disadvantage because we have not taken an active role in successfully formulating policy; we're in a position of following set policies. The challenge is to get involved in the policy discussion and on issues that relate to patient advocacy. We have to find a way to collaborate, then lead and recast our role where policy determination is concerned. Radiology is subjected to a rationing philosophy, whereas cognitive and procedural medicine and even pathology otherwise appear to be spared from direct rationing. We need to lead payment logic and reform.

Larson: We've enjoyed dramatic increases in volume for many years, and now that we are seeing growth that many industries would consider more reasonable, to us it feels like a crisis. Radiology has been in a boom for more than a decade, and it resembles the kind of boom we see in other industries. The nice thing about a boom is that it tends to benefit everyone—including both excellent and mediocre performers. But that is also its downside. The irony is that during boom years, organizations simultaneously have the most resources and the least incentive to become truly excellent. In the lean years that often follow, the incentives to improve suddenly become very high right at the time when the resources dry up. The organizations that have the foresight and discipline to invest some of their resources during years of plenty to efficiently deliver excellent service and quality tend to survive and even thrive during the sifting that usually follows the boom.

We have been hearing the phrase “unsustainable growth in health care costs” for about 20 years now (maybe longer). I don't know when we will get to the point where the market will decide that the costs truly are unsustainable, but I have to think it's coming within the next decade. We are probably feeling the beginning of that now. We should remember that payers are looking to decrease overall costs—not necessarily physician salaries. We often lament that current incentives promote productivity at the expense of quality. If that is the case, it is our own decision to allow our practices to be micromanaged by a perverse incentive system. Even with the slower growth, imaging revenues provide plenty of resources for us to develop effective organizational structures

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and systems if we choose to use them in that way—we do not have to perpetuate the perverse incentive system to the level of the individual radiologist. We currently work in a profession in which it is difficult to objectively measure and compare our own or others' quality in a meaningful way. However, if we develop the methods to do just that, I am confident that the payers will respond with better aligned incentives. Whether we lead them or they lead us to that destination is up to us. I think it is much better for everyone, including patients and even payers, if we lead the payers rather than vice versa. That choice is ours to make—for now.

Javitt: We also need to look at the payment models that we are working with and reevaluate the value systems that drive them. Some conversations about pay for performance have already started, and we're aware of the new regulations. By the same token, penalties for poor performance are implicit. Given the reality of cost control, we need to change the value system used for reimbursement. These things should include a linkage between imaging examinations and defined clinical end points, such as reducing mortality, improving life expectancy, reducing morbidity, decreasing lengthy hospital stays, limiting unnecessary hospitalizations, and doing

away with unnecessary surgery. All of these endpoints are measurable. It is mission critical for us not to just wait but rather to actively seek that data. For example, we can go to existing databases to spin data from private insurers or Medicare data and see how these things look. We can also pay close attention to outcomes and try to acquire the information that we need to give feedback to create sensible choices at the order entry level.

Beauchamp: If I walk into my reading room right now, I can see that they are working very hard. They come in at 7:30 am, and they don't look up until 6:00 pm. If I were to redesign our specialty, I might say we should make a little less money, spend a little more time doing some of the value-added aspects that attracted us to the specialty, or interact with patients a little longer. In the end, bringing more value to patients is perhaps a little more joyful to the practitioners. Health care reform is going to take money out of health care. We will see a drop in salaries, up to 10% to 20%. But if we look at the number of people in our country who are struggling, it might not be unreasonable if we end up with more people having access to health care. Right now, we do have the wherewithal to bring on more radiologists, but I think we need to reconfigure the work. We could be

honest and tell our colleagues that salaries are going to drop a little bit, but your ability to have an impact every day is going to go up and you will be better connected to your patients and your colleagues.

Kazerooni: In the end, it comes down to the value of human beings doing meaningful work. As humans, radiology professionals don't want to feel we're on a treadmill, reading examinations in a vacuum and not connected to the value we provide. If we can create a more meaningful work experience, even if that means a lower salary, in the end we'll probably be a happier discipline and just maybe add more value to patients and providers.

Forman: One of the key things we need to do is to show that value now. As the health care system redefines and realigns itself, we want to be central in those decisions, and we don't want to be a cost to the system.

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