

## Case Study: Direct to Patients

### *Massachusetts General Hospital's radiology consultation clinic puts radiologists in direct contact with patients.*

By Jenny Jones

#### Key Takeaways:

- Massachusetts General Hospital is piloting a radiology consultation clinic that allows patients to meet with radiologists to review images and ask questions.
- The clinic focuses on patients with emphysema, atherosclerosis, and hepatic steatosis — diseases that are increasingly common.
- Radiologists are tracking whether the clinic increases patient compliance with exercise, diet, and medication adherence.

Regardless of how many times physicians tell patients to take certain medications, quit smoking, exercise, and follow a prescribed diet, many of them fail to comply with those orders. The World Health Organization estimates that just 50 percent of patients with chronic illnesses in developed countries take medications as prescribed.<sup>1</sup> And several recent studies have shown that many patients quickly stop exercising and watching their diets as their physicians recommend — if they ever start at all.

Perhaps anecdotes about the benefits of treatment regimens and the dangers of ignoring those plans are too abstract to incite patient action. Perhaps if patients were presented with more tangible evidence of the seriousness of their conditions, they would be more likely to adhere to physicians' orders. Radiologists at Massachusetts General Hospital (MGH) in Boston are testing that theory with a pilot program that allows patients to meet with a radiologist to review their images — and that emphasizes the value that radiology brings to patient care.

MGH's Radiology Consultation Clinic puts radiologists in direct contact with patients to explain their imaging and answer their questions, much like other types of clinical encounters. "The program aligns well with ACR's Imaging 3.0™ initiative because we're engaging with patients about their health care and showing them the changes that are happening in their bodies," says Mark D. Mangano, MD, diagnostic radiology resident at MGH and one of the leaders of the program. "It helps patients better understand their conditions, and that adds a lot of value both for them and their primary care physicians."

#### Establishing the Clinic

In 2012, MGH's radiology department began hearing more from primary care physicians who were concerned that they couldn't always fully answer patients' imaging questions. At about the same time, an oncology patient approached one radiologist and

asked to see her images to better understand how her cancer was responding to treatment. Realizing that some patients could benefit from imaging consultation, a team of radiologists led the effort to establish the clinic that year.

Radiologists set the clinic up in a patient exam room within the interventional radiology (IR) department, where they could access patient images through the PACS. They then told referring physicians about the clinic and offered to meet with interested patients. Garry Choy, MD, MBA, staff radiologist in MGH's divisions of thoracic and cardiovascular imaging and a founder of the program, says that initially the clinic attracted just a few patients a month from oncology and primary care. "It wasn't a high volume, but it consisted of patients who had complex cases and a lot of questions," he says.

Earlier this year, radiologists began thinking about expanding the clinic to have a greater impact on patient care and outcomes. In particular, they wondered whether the clinic could help patients with emphysema, vascular and coronary atherosclerosis, and hepatic steatosis better understand their conditions. Radiologists focused on those diseases because they are common among patients, and therefore addressing them could have a broad impact.



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Figure 1

Preliminary Results	Pre-Consult Rating (1-5)	Post-Consult Rating (1-5)	Δ	% Indicating More Motivated	n	p-value
Motivation to Improve Health :	4.4	4.7	0.3	93%	14	<b>0.04</b>
Motivation to Improve Diet :	4	4.8	0.8	93%	14	<b>0.006</b>
Motivation to Improve Exercise :	3.9	4.8	0.9	86%	14	<b>0.001</b>
Motivation to Improve Med Compliance :	4.5	4.5	0	69%	13	<b>N/A</b>
Motivation to Quit Smoking :	4	4.5	0.5	100%	2	<b>0.42</b>
Understanding of a Radiologist :	4	4.8	0.8	29%	14	<b>0.01</b>

How useful was meeting with a radiologist (1-5)?	4.8
% Preferring the option to meet with a radiologist again	100%

"We were reading chest X-rays of patients with changes of atherosclerosis and wondered whether the patients actually understood the magnitude of the deterioration within their arteries," Mangano says. Radiologists thought that if patients knew how clogged their arteries looked and were better informed about the effects that diet, exercise, medication adherence, and smoking cessation can have on their health, they might change their habits.

With support from the chair of the radiology department and multiple faculty members, the radiologists got approval from MGH's internal review board to expand the clinic and study its effectiveness on changing patient outcomes for emphysema, atherosclerosis, and steatosis. As part of the expansion, the radiologists teamed up with Susan E. Bennett, MD, physician at MGH and assistant professor of medicine at Harvard Medical School, who agreed to refer patients to the pilot program as part of her goal to make health care more transparent. "Patients should be able to see what their doctors write down, view their blood tests electronically, and review their radiology reports and images electronically," Bennett says. "They should be able to look at those things and have them explained, especially if the findings are abnormal. The purpose of the study from my perspective is to demonstrate that patients can sit down with radiologists and talk about their images without interfering with my relationship with them or diminishing my influence."

## The Consultation

The team started with a two-week study period, and now the program is growing. Bennett sends the medical record numbers of patients scheduled for appointments to Mangano, who then identifies those patients who have had chest CTs, abdominal CTs, or ultrasounds of the liver during the past five years that

showed emphysema, atherosclerosis, or steatosis. Two weeks prior to their appointments, Bennett sends those patients letters, informing them about the study and asking them to consider participating in the clinic following their appointments. Both Bennett's and Mangano's signatures appear on the letter. When a patient arrives for his or her appointment and elects to participate in the clinic, Mangano receives a page and gets everything set up in the IR exam room for the consultation.

At the beginning of the approximately 30-minute long sessions, patients fill out a brief pre-consultation survey that includes questions about their diet and exercise regimen and their current understanding of what a radiologist does. Mangano then introduces himself further and explains the role of radiologists in patient care. "I really highlight the importance of working with the primary care physician and the fact that I'm there as an adjunct or consultant to help the primary care physician," Mangano says. "I place the primary care physician front and center to add value to both the patients and the referring physicians."

After explaining the clinic's mission, Mangano pulls up the patient's images, reviews the changes in their most current images from any previous sets, and shows the patients images from cases of anonymous patients so they can see how much worse their conditions could get if they did not change their lifestyle. "I try to put their images in context by showing their changes in comparison to the extremes of normal or completely abnormal," Mangano explains. "I want them to see how bad their condition could get. I explain that they are not necessarily going to progress to the extreme end, but they should be aware of the potential severity of progression if their conditions are not properly managed." Mangano spends the rest of the time answering the patient's questions.

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Approximately 30 patients have participated in the clinic so far, and each one has filled out a satisfaction survey following the consultation. Figure 1 presents preliminary survey results from the ongoing research study. The survey found that 93 percent of patients were more motivated to improve their health and diet, 86 percent were more motivated to exercise, and 100 percent were more motivated to quit smoking as a result of the consultation. Radiologists have already shared these findings with Bennett and will present them to hospital administrators soon. "All of the patients I've met would like the option to meet with a radiologist for future studies," Mangano says. "They indicate that the session increased their motivation to take steps to improve their health. Whether it changes long-term outcomes, I don't know yet. We're not there yet." Radiologists will administer follow-up surveys at six and 12 months after the consultations to monitor patients' long-term outcomes.

### Challenges to Consider

Radiologists plan to expand the clinic even further by working with more primary care physicians, but first they must find a permanent space for the consultations and cultivate a full-time staff. "We're looking at having a resident-run clinic where it's part of a dedicated resident consult rotation," Mangano says. "It will likely be set up where the clinic is held on a specific day of the week and a radiologist is on call, with a designated role to respond to the clinic. They may fill in on other clinical responsibilities, but their primary role will be to be available at all times for the clinic."

The clinic also needs more referrals from more physicians — a challenge because some referring physicians don't want radiologists seeing their patients. Choy says some oncologists in particular were concerned about radiologists talking to their patients. But radiologists addressed those concerns by agreeing to see patients only after referring physicians saw the images and the patients and by ensuring that referring physicians received a summary of the consultations. The arrangement has convinced some oncologists to participate in the clinic. "We want to make sure we're on the same page as the referring physicians and don't give conflicting information," Choy says. "Everyone is acting in the best interest of the patient, so ideally in the referring physician-to-radiologist model there is collaboration and alignment."

Radiologists currently offer the clinic free of charge but are considering reimbursement options that include levying an out-of-pocket fee to patients. "To create an incentive to change, there has to be some form of reimbursement," Mangano says. "That's not something we've initially looked at, but we will be addressing

it soon. We understand that if we really want the radiology community to fully adopt the model of routine patient consultation sessions, some form of reimbursement and recognition of its value will be important drivers."

### Improving Outcomes

Radiologists, referring physicians, and the radiology profession all benefit from the clinic, Mangano says. For radiologists, interacting directly with patients allows them to see how their work impacts patients and integrates into patient care, while also positioning them as consultants to referring physicians. For referring physicians, it boosts patient management by encouraging patients to follow their prescribed treatment regimens. And for the profession, it brings increased attention to radiology by educating patients about radiologists' role in health care. "It has been proven in multiple studies that patients have little understanding of radiology," Mangano says. "The clinic allows us to actually have face time with patients, and provides the opportunity for them to understand what we do and how we fit into their medical care. This can improve our value in the system as patients are increasingly becoming more informed consumers of their own health care."

But the most significant and important benefit of the clinic is the impact it has on helping patients better understand their conditions. "Many patients are visual learners, so if we show them their images and explain their changes, we can make these fairly abstract conditions more tangible," Mangano says. "It empowers patients and improves patient engagement, which we anticipate will translate into improved patient outcomes." Bennett agrees and says that the value that radiologists bring to patient care through the clinic cannot be duplicated by referring physicians. "Nobody can explain image findings and what they mean better than a radiologist," she says. "I could not explain fatty liver infiltration on a liver ultrasound or demonstrate signs of emphysema on a chest CT. That's something that needs to be done by the radiologists, who are the experts in interpreting images, and the clinic is the vehicle for that interaction."

### NEXT STEPS

Radiology departments that want to set up their own consultation clinics should:

- Develop a referral base by partnering with primary care physicians and specialists.
- Determine how the clinic will be staffed and where it will be located.

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- Focus the clinic on specific diseases and conditions where radiology consultation can have a significant impact.

### Endnote

1) Sabaté E, ed. Adherence to Long Term Therapies: Evidence for Action. Geneva, Switzerland: World Health Organization; 2003.

### Join the Discussion

Want to join the discussion about how radiologists can establish a consultation clinic that allows patients to meet with radiologists to review images and ask questions? Let us know your thoughts on Twitter at #imaging3.

Have a case study idea you'd like to share with the radiology community? Please submit your idea to <http://bit.ly/CaseStudyForm>.



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