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Virtual Radiology Consults Can Lead to Improved Care, Better Understandings of the Radiologist's Role

- Studies have shown that radiological findings are not always well understood by either primary care physicians or patients.
- Synchronous virtual radiology consults allow patients or referring physicians to meet with radiologists via tablet computer to better understand imaging findings.
- Research has validated the benefits of virtual radiology consults using videoconference technology.

Radiology findings can be integral to patient care, yet patients and primary care physicians often have questions about their meaning. To address this problem, and to provide patient-centric care, radiologists at Massachusetts General Hospital have introduced a new model for point-of-care virtual radiology consultations that enables direct interactions among patients, primary care physicians, and radiologists.

A New Framework for Explaining Radiology Findings

Under the current radiology practice model, radiologists occasionally meet face-to-face with referring physicians to discuss their findings and do not typically have the opportunity to explain their findings to patients. Studies have shown that, with this model, both patients and physicians have questions about terminology, incidental findings, and recommendations in radiology reports. As a result, according to a 2012 paper in the journal Radiology, up to 30% of follow-up imaging recommendations in radiology reports are not pursued.

Improving the lines of communication among radiologists, primary care physicians, and patients has the potential to increase the impact of radiologists' findings—and the value of the care they provide. The Mass General radiologists who created the new virtual consult model believe that establishing a connection between radiologists and patients can lead to positive behavioral changes and better compliance on the part of the patient. To facilitate communication, they developed a framework for implementing virtual consultations in radiology.

Within this framework, the primary care physician begins a videoconference at the appropriate time during the patient visit by using the hospital's Virtual Provider software installed on a tablet computer. The radiologist joins the call using a video- and microphone-enabled PACS station and shares the PACS screen while discussing the findings with the patient and the physician. This approach allows the radiologist to provide clinically relevant and personalized results.

The typical consult takes three to five minutes as the radiologist explains the findings and answers any questions the patient or the physician might have. The radiologist displays the image, provides a quick overview of the anatomy, indicates abnormalities, and answers questions.

Assessing the Impact of Virtual Radiology Consults

Studies in internal medicine and surgical subspecialties have demonstrated the benefits of virtual consults, but few reports have explored their potential in radiology. To assess the efficacy of synchronous virtual radiology consults at point of care, Dania Daye, MD, PhD, and colleagues—including Dushyant Sahani, MD, director of computed tomography at Mass General—launched a feasibility study in a primary care clinic in the hospital. Conducted between June 2016 and December 2016, the study included three primary care providers and three diagnostic radiologists interacting with a total of 43 patients.

As part of the study, participants completed surveys before and after the visit (patients) or only after the visit (physicians). The surveys were designed to assess the impact of the consults in three areas: the patients' and physicians' overall satisfaction, the patients' experience and understanding of their medical condition, and the physicians' management decisions.

The results of the surveys were overwhelmingly positive, with approximately 90% of patients saying they were very satisfied with the virtual consult experience and reporting improvement both in their care and in understanding their medical conditions. The physicians' responses in these areas were similarly positive (see tables below).

Table 1: Patient Experience with Radiology Virtual Consultation

Patient Response	Percent
Very Satisfied with Radiology Virtual Consult Experience	89%
Reported Improved Patient Care Experience	92%
Reported Improved Understanding of Medical Condition	88%
Would like to Participate in Future Virtual Radiology Consult	91%
Reported Improved Understanding of Radiologist's Role	59%

Table 2: Primary Care Provider (PCP) Experience with Radiology Virtual Consultation

PCP Response	Percent
Very Satisfied with Radiology Virtual Consult Experience	97%
Reported Improved Patient Care Experience	89%
Reported Patient's Improved Understanding of Medical Condition	92%
Reported Some Impact on Patient Management Decisions	86%
Reported Improved Relationship/Services from Radiology	97%
Indicated that Virtual Consults are Good Option for Patient to Learn Results	94%
Would like the Option of Virtual Radiology Consult in the Future	97%

The researchers also asked the participating radiologists about their experiences with the virtual consults. They were positive in their responses as well, noting they felt they had more involvement with and impact on patient care and how rewarding it was to talk with patients face-to-face. Because they generally play a behind-the-scenes role in health care, radiologists are not always visible to those whose care they are advancing. After the virtual consult study, a majority of the patients said they had a better understanding of the radiologist's role.

Dr. Daye presented the study's findings at the 2017 annual meeting of the Radiological Society of North America, where she was awarded an RSNA Trainee Research Prize for the work.

Another Step Forward for Telemedicine

The results of the initial, proof-of-concept study have encouraged the researchers to examine further the potential of the virtual radiology consult model. In late 2016, they were awarded a grant from the American College of Radiology to scale the model beyond the original primary care clinic. With the new work, they are planning a controlled trial with 100 to 150 patients to scientifically and rigorously assess the value of the consults. The study is currently under way. The researchers hope to open virtual consults to the broader patient population after this further evaluation of their effectiveness.

The consults are part of a larger trend toward telemedicine, especially within the Mass General and Partners HealthCare systems. Partners recently launched the Center of Connected Health, which facilitates virtual patient visits—with patients talking to physicians from home—across a number of departments. The virtual radiology model is slightly different inasmuch as the patients connect with radiologists using an app in the physician's office, but the overall goal is the same: to create more opportunities for interactions between patients and care providers.

Further Information

For further information about the virtual radiology consult studies at Mass General, please contact Dania Daye, MD, PhD, Vascular & Interventional Radiology, Women's Imaging, Department of Radiology, Massachusetts General Hospital. We would like to thank Dr. Daye for her advice and assistance in preparing this article.

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