

Radiology Is Evolving in the Midst of the COVID-19 Pandemic

Mary Beth Massat

As the rapid spread of COVID-19 led to the temporary closures of radiology practices and imaging centers earlier this year, exam volumes dropped between 40 and 90 percent.¹ Hospitals re-allocated resources to combat the wave of infected patients, overwhelming staff and leading to both bed and equipment shortages in many areas. Non-urgent imaging, including screening exams and cancer patient follow-up, was halted.

“We learned how important it was for ... organized radiology to be a clear voice on what was safe and appropriate during a pandemic,” says Geraldine M McGinty, MD, MBA, FACR, president of the American College of Radiology (ACR). The ACR has been a key source of COVID-19-related information to help practices navigate the pandemic, including guidance on safely reopening and obtaining financial support from the federal government.

Thanks to the Centers for Medicare and Medicaid Services’ (CMS) suspension of restrictions on telehealth, remotely provided medical services have skyrocketed during the pandemic, accounting for 43.5 percent of Medicare primary care visits in April compared to 0.1 percent in February.²

“Many practices realized that they could provide more services remotely,” says Dr McGinty, who is also an associate professor of clinical radiology at Weill Cornell Medicine and chief strategy officer of Weill Cornell’s Physician Organization in New York City. While remote

reading did not make up a large portion of many radiology practices, she and her colleagues realized it would be vital to delivering important health services for the foreseeable future.

“Telemedicine will be critical to the future of imaging, from the basics of rapid interpretation utilizing home workstations, to obtaining consent for interventional procedures and doing patient follow-up visits at home,” says Edward Steiner, MD, FACR, chairman of imaging and radiation oncology at WellSpan York Hospital in York, PA. Dr Steiner adds that 20 to 30 percent of radiologists across WellSpan Health are performing more remote reading.

At WellSpan, video patient visits are being implemented to limit in-person contact before and after procedures. The system’s facilities are also asking patients to wait in their cars until they are summoned by phone call or text to enter the clinic or office for their appointment.

Virtual healthcare is a capability whose time has come, says Rasu Shrestha, MD, MBA, executive vice president and chief strategy officer and transformation officer for Atrium Health in Charlotte, NC.

“The role of leadership is to provide ... clarity,” says Dr Shrestha. “That is really important during a time of crises and also moving forward as we come out of the crisis. Leading by humility and prioritizing empathy is really important, and I think you have got to prioritize science.”

Atrium Health has turned on an AI-powered chatbot to help enhance communication with patients, a step that has exceeded expectations.

Mary Beth Massat is a freelance writer based in Crystal Lake, IL.



“Telemedicine will be critical to the future of imaging, from the basics of rapid interpretation utilizing home workstations, to obtaining consent for interventional procedures and doing patient follow-up visits at home.”

Edward Steiner, MD, FACR
Chairman of Imaging and Radiation Oncology
WellSpan York Hospital, York, PA.

“The chatbot has allowed us to really connect in a meaningful way with our patients and our communities to answer questions and help triage them,” Dr Shrestha says.

In addition to implementing COVID-19 screening and temperature check stations, Weill Cornell Medicine has migrated to electronic check-in and pre-registration forms. Along with the obvious benefit of reducing contact between staff and patients, these measures have also helped to reduce paper usage—an important step toward a truly electronic and paperless hospital.

Amidst the changes wrought by the pandemic is the realization that screening exams remain vital to preventive health and patient care. While screening mammograms were paused during the initial outbreak of COVID-19 earlier this year, most facilities are resuming breast cancer screening.

“October is always a month where we want to raise awareness and amplify the conversation about the importance of screening for breast cancer,” Dr McGinty says. “This year, we added a message to our patients that it’s important to not miss a year.”

She also stressed the importance of practices to clearly communicate how diligently they are implementing cleaning and infection prevention protocols so patients are aware the equipment and exam rooms are safe.

A Proactive, Coordinated Response

In some respects, WellSpan may have been more prepared than other healthcare systems to deal with the coronavirus, owing to processes it

implemented to handle a measles outbreak in 2019. An incident command center developed for that outbreak was relaunched for COVID-19 and has helped the system’s seven hospitals across five counties track infection rates, and to coordinate patient care and resources, including beds, staff, and personal protective equipment.

“If you don’t do things on a coordinated level, you no longer have control of the situation,” Dr Steiner says. “Questions arise rapidly, so you need a dynamic methodology to answer them on a system-wide level.”

For example, a 125-bed WellSpan hospital in one northeast county of Pennsylvania became part of a “hot zone” experiencing a high COVID-19 positivity rate. Resources were distributed and WellSpan York Hospital, a 600-bed hospital, was able to absorb some of the positive patients.

Leveraging real-time data to guide institutions as part of a coordinated response in a pandemic such COVID-19 is crucial. Utilizing its information and analytics services team, Atrium developed comprehensive dashboards to help inform clinical and operational strategies.

“We mobilized the war room with daily coordination, situation awareness, and rapid decision-making as well as outlining the framework for safeguarding our teammates and patients,” Dr Shrestha explains.

Targeted outreach efforts have also helped to address health disparities and other aspects of reduced diagnostic imaging exams. WellSpan has rolled out a mobile mammography trailer and is arranging with corporations to bring screening



“If we are going to implement mobile imaging technology, we should start with the presumption that mobile should be equivalent to fixed imaging technology.”

Geraldine M McGinty, MD, MBA, FACR

President

American College of Radiology

services to various communities. According to Dr Steiner, the trailer will rotate across four Pennsylvania counties, starting in an underserved area where a fixed screening site has not been sustainable.

“Patients certainly would feel much more comfortable going into a trailer that is cleaned immediately after use rather than coming to the hospital for their screening mammogram,” Dr Steiner says. “Mammography is so conducive to this model.”

The ACR is encouraging radiologists to help referring clinicians reconnect with women over 40 to help reschedule exams postponed during the pandemic. It is estimated an additional 5,200 women may die from breast cancer over the next decade due to the lack of screening exams.³

The disproportionate impact of the pandemic in Black and Brown communities further highlights the disparity in outcomes among Black women, says Dr McGinty. Noting data demonstrating that Black women are getting more aggressive breast cancers earlier and are 19 percent more likely to die from the disease than White women, the ACR recommends that all women receive a risk assessment at age 30.⁴

“We need to address that disparity in a more urgent way than we have before,” she adds.

Mobile Imaging

During the height of the first coronavirus wave in the US, mobile imaging technologies such as point of care ultrasound (POCUS) and mobile radiography were used to avoid the risk of contamination posed by moving patients about hospitals. Given their portability, these technologies promise to extend their usefulness beyond brick-and-mortar facilities.

“If we are going to implement mobile imaging technology, we should start with the presumption that mobile should be equivalent to fixed imaging technology,” says Dr McGinty. “We make certain accommodations during a pandemic or other crisis, but we always want to make sure we are adding value with imaging.”

At the beginning of the pandemic, the ACR issued a statement that CT did not have a role in screening COVID-19 patients; instead, the ACR said CT should be used sparingly and only for symptomatic, hospitalized patients with specific clinical indications.

Atrium Health deployed POCUS devices in more than 30 locations throughout the health system, including in COVID-19 testing centers, emergency departments, intensive care units, and Atrium Health’s Sanger Heart and Vascular Institute.

“Lung ultrasound has been shown effective in detecting pulmonary involvement and avoiding cross-contamination in suspected COVID-19 patients,” Dr Shrestha says. “While we started in the emergency departments ... and ICUs, we are now expanding to anesthesia and cardiology. We can leverage these devices to triage; they are easy to clean as opposed to sending the patient into the CT scanner or getting a chest X-ray. It doesn’t replace CT or chest X-ray, but it is an amazing triage tool.”

Virtual Hospitals

The pandemic is renewing interest in the concept of virtual or “at-home” hospitals. In the midst of the Spring surge in COVID-19 patients, WellSpan developed its own hospital-at-home model so that less severely ill patients could be monitored



“The role of leadership is to provide ... clarity. Leading by humility and prioritizing empathy is really important, and I think you have got to prioritize science.”

Rasu Shrestha, MD, MBA

Executive Vice President, Chief Strategy Officer, Transformation Officer
Atrium Health, Charlotte, NC

remotely to free up beds for COVID-19 patients and others who require in-hospital care.

“There is a whole cadre of patients who can be easily treated at home, but we have to make sure they are treated well and with whatever technologic needs that are required,” Dr Steiner says, noting that its model leverages mobile chest radiography and ultrasound. “You don’t necessarily need to follow chronic heart failure or deep vein thrombosis patients in the hospital.”

Meanwhile, a virtual hospital developed by Atrium Health was critical for handling the increase in bed capacity and for keeping COVID-19 patients out of the ED and the hospital.

According to Dr Shrestha, centralized urgent care video visits increased 16-fold, from 23 each day to 386 during the peak of the first wave of COVID-19. Adding in all service lines, the peak number of video visits reached 1,800 per day, a 7,500 percent increase, not including virtual check-ins and phone visits.

“We built this COVID-19 Virtual Hospital with virtual entry points through COVID testing and referrals from all Atrium locations,” Dr Shrestha explains. “Over 1,500 patients have received care in the virtual hospital since its opening on March 24. To support the patients in their home environments, a 24/7 digital symptom monitoring application was implemented.”

The virtual hospital is divided into two floors, the first for observational care of patients with limited symptoms, and the second for in-patient level care that doesn’t require the advanced resources of intensive care units. Second-floor patients receive remote vital sign monitoring as well as in-person visits from paramedicine or nursing staff.

Although the virtual or at-home hospital concept may not have an immediate application their specialty, radiologists should remain open-minded, says Dr McGinty.

“I’d like to see us critically evaluate our whole healthcare delivery system,” she says. “Providers have been able to deliver care safely at home for many people. We need to create the right incentives for innovation that start with what makes people better, rather than with some of the embedded traditions, biases, and reimbursement patterns that may have impeded us from really thinking more creatively.”

The ACR continues to strive for more patient-radiologist interaction, lobby against further reductions in imaging study reimbursement, and support research. New care models will likely emerge, with telehealth and point-of-care mobile imaging taking on heightened importance.

Dr McGinty would like to see an increased emphasis on research funding, noting a proposed 7 percent cut to the National Institutes of Health 2021 budget and a 6 percent cut to the National Science Foundation’s budget.

“This is a time when we really need to be learning for the future,” she adds.

REFERENCES

1. Sharpe RE, et al. Special Report of the RSNA COVID-19 Task Force: The Short- and Long-Term Financial Impact of the COVID-19 Pandemic on Private Radiology Practices. *Radiology*, July 17, 2020. <https://doi.org/10.1148/radiol.2020202517>
2. US Department of Health and Human Services. HHS Issues New Report Highlighting Dramatic Trends in Medicare Beneficiary Telehealth Utilization amid COVID-19. July 28, 2020. Available at <https://www.hhs.gov/about/news>.
3. Sharpless NE. COVID-19 and cancer. *Science*. 2020; 368 (6497): 1290.
4. Lee CS, Monticciolo DL, Moy L. Screening Guidelines Update for Average-Risk and High-Risk Women. *AJR Am J Roentgenol*. 2020;214(2):316-323. doi: 10.2214/AJR.19.22205. Epub 2019 Nov 12. PMID: 31714845.