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AUGUST 2020 | VOL. 75 | NO. 8

Bulletin

BACK TO WORK

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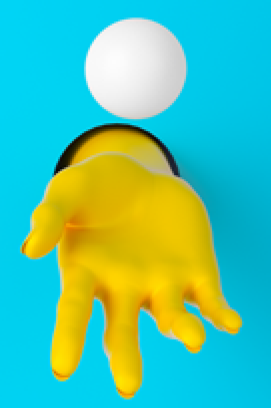
CONTENTS



7

FEATURE

7 **Back to Work**
While it is difficult to discuss a possible new or next wave of the pandemic, a lingering or resurgent COVID-19 means more of the same challenges — especially for radiology teams staffed with parents of young or school-aged children.

14

OUR MISSION: The *ACR Bulletin* supports the American College of Radiology's Core Purpose by covering topics relevant to the practice of radiology and by connecting the College with members, the wider specialty, and others. By empowering members to advance the practice, science, and professions of radiological care, the *Bulletin* aims to support high-quality patient-centered healthcare.

QUESTIONS? COMMENTS? Contact us at bulletin@acr.org

Digital edition and archives of past issues are available at ACR.ORG/BULLETIN.

ALSO INSIDE

5 **A Learning Curve**
With virtual resources and curricula like Radiology-TEACHES®, medical students and radiology residents have been able to stay informed and engaged in the midst of a pandemic.

11 **Is it Safe to Schedule Medical Imaging?**
A new ACR infographic suggests imaging offices make a plan to keep radiologists and their staff safe as they rebook imaging appointments during the pandemic.

12 **A Virtual Transformation**
COVID-19 gave two radiologists an opportunity to learn more about the patient-physician relationship that will forever change the way they practice.

14 **Redefining Normal**
Radiologists were key to the crisis response earlier this year, but are they ready for what the post-pandemic world of healthcare looks like?

16 **A Mental Toll**
While readying for the return of non-urgent procedures, radiology leaders realize that a critical aspect involves ensuring all members of their departments are comfortable, mentally as well as physically.

18 **Changing for the Better**
Change management skills learned from the RLI helped a new practice president lead a transition to voice recognition technology and structured reporting, despite resistance from many radiologists in the group.

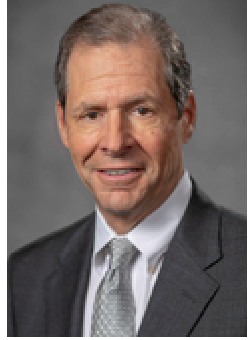
21 **Offering High-Impact Solutions**
Non-interpretive AI holds the promise of helping radiology practices solve current, large-scale problems.

DEPARTMENTS

4 **From the Chair of the Board of Chancellors**
Approximately 750 members and guests participated in the ACR's first 100% online annual meeting in May.

6 **From the Chair of the Commission on Economics**
The ACR Contractor Advisory Committee Network has become more critical now than ever.

Howard B. Fleishon, MD, MMM, FACR



Our “Virtual” Annual Meeting

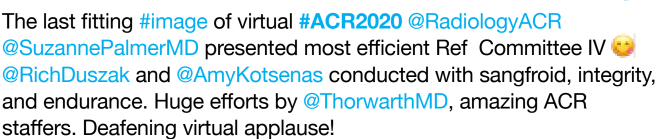
Due to COVID-19, ACR 2020 was a departure from previous annual meetings — but more than 700 members convened virtually to move forward with the business of the College.

The annual meeting is the highlight of the year for the ACR. It is when our representative body, the Council, gets together to determine ACR policy. Since 2003, the meeting has been held in Washington, D.C., so the College could mobilize hundreds of members to bring its legislative priorities for discussion to Capitol Hill.

COVID-19 forced the CSC to find a way to conduct the business of the Council in the face of restrictions on travel and large gatherings. While difficult, we unanimously decided to move forward and conduct a virtual meeting. Nobody underestimated the enormity of this undertaking. The logistics and IT challenges of inventing, implementing, and conducting a new kind of Council meeting were daunting. Nonetheless, we came together to conduct not only a functional, but evolutionary event. Approximately 750 members and guests logged on from Saturday, May 16, through Tuesday, May 19, to participate in the ACR’s first 100% online annual meeting.

What was truly remarkable was the learning cycle of the event. As anticipated, there were unforeseen technical glitches at the beginning of the meeting — but the issues were quickly corrected and the meeting presenters were undeterred. The online format allowed us to transfer certain particulars of the meeting to asynchronous alternatives. Reports that are usually limited by time constraints in our traditional format were made available as recordings on demand to be viewed at the convenience of our members. The Convocation was creatively celebrated by Debra L. Monticciolo, MD, FACR, and ACR staff. Unfortunately, some of the presentations, award ceremonies, and other highlights — such as the Moreton lecture, chapter awards, Global Humanitarian awards, and Economics Forum — had to be deferred so we could concentrate on the business of the meeting.Global Humanitarian and chapter award recipients will be honored on stage at ACR 2021.

In case you missed ACR 2020, you can watch videos on-demand, view election results, review the actions of the Council, and more at acr.org/annual-meeting.



> We proved that the meeting could still include meaningful participation and engagement without a physical venue.

The virtual nature of the meeting was certainly new and innovative. We proved that the meeting could still include meaningful participation and engagement without a physical venue. As we explore options for future meetings, we plan to preserve important features of the in-person meeting, such as the socialization and networking components. Importantly, having members directly delivering our talking points to their representatives on Capitol Hill has been an important component of our advocacy efforts. Going forward, the annual meeting may be a combination of the best facets of both live and online formats.

We are grateful to our ACR governance staff team and IT staff, as well as staff from across the organization who came together, often on a daily basis, to ensure the success of our meeting. We are also grateful to our councilors, alternate councilors, chapter leaders, and attendees for their patience and enthusiastic participation in making this meeting a success.

As we move forward, we will build upon the foundation that this is the Council meeting. ACR is, and will always be, a membership-driven organization. At the end of the day, we can all celebrate the fact that even in the face of a global pandemic, we came together as the ACR. B

A Learning Curve

As courses move online in the wake of the pandemic, several academic radiology departments are figuring out how to make virtual education meaningful.

With many radiology residents and medical students displaced from their clinical learning environments due to the pandemic, traditional education has moved online. With virtual resources like Radiology-TEACHES® (an online resource hub that uses case vignettes integrated with the ACR Select® CDS tool), radiology students have been able to stay informed and engaged.

"I do think that there are actually increased educational needs during COVID-19," says David M. Naeger, MD, director of radiology at Denver Health and professor and vice chair of radiology at the University of Colorado School of Medicine. That said, the rapid transition to online learning has not been without challenges. To ensure that hospitals are abiding by social distancing protocols, many radiologists, trainees, and students have had to work from home and professors have had to quickly transfer their course material online. "There have been challenges in trying to make the online platform more collaborative, but there have also been triumphs," says Christopher Beaulieu, MD, PhD, professor of radiology at Stanford University. "Many of these students may not have otherwise found themselves taking these courses and investing themselves in the possibility of radiology as a specialty."

At Stanford specifically, Beaulieu has seen many students flock to a virtual radiology course established during the shelter-in-place. In the past, the average class size for the radiology clerkship was around ten students. Their last clerkship clocked in at 80 students, many of whom are now considering pursuing radiology as their main course of study. "This is a specialty that is amenable to online learning because so much of it is image-based and can be transmitted better over computers," says Beaulieu.

According to Marc H. Willis, DO, MMM, associate chair of quality improvement and clinical professor of radiology at Stanford, there was a 1,845% increase in the use of Radiology-TEACHES from March through April. More than 2,300 activities were completed during April, compared with the 131 activities completed during March.

Radiology-TEACHES covers everything from case studies to imaging practices; in fact, a COVID-19 module has already been developed and made available across the nation, ensuring that students, residents, and radiologists have all the most up-to-date information. Radiology is a particularly dynamic field, known for setting the pace for the rest of the medical community in areas such as lifelong learning and adopting new technology. Hence, resources like Radiology-TEACHES — that help radiologists stay at the top of their game in an ever-evolving field within a constantly shifting medical landscape — feel especially critical now.

Online learning has been an adjustment for students and staff alike. Lori A. Deitte, MD, FACR, vice chair of radiology education at Vanderbilt University Medical Center and chair of the ACR Commission on Publications and Lifelong Learning, has had to figure out how meaningful connections can still happen in virtual settings.

"I thrive on working with other people — the interaction, the camaraderie, and the knowledge-sharing that happens in a group setting," says Deitte, who is currently working out of a solo office in a building next door to the hospital at Vanderbilt.

It can feel daunting to try and foster collaboration through video conferences or phone calls, especially when residents and staff are used to working side-by-side. For many, this new normal has also meant getting acquainted with different virtual platforms and methods of teaching. Deitte quickly had to transition her presentations to Zoom (with initial support from a tech-savvy resident). "Video conferencing can be robust, but it can also be draining, especially if you have a whole day lined up with virtual meetings," says Deitte.

The team at Vanderbilt wanted to ensure that their transition was thoughtful and informed by the students' circumstances, not just post hours of lectures online and call it a day. "We were able to figure out individual needs: some people are higher-risk, some have childcare needs at home. There is not a one-size-fits-all approach," says Deitte.

According to Willis, despite all the chaos and uncertainty that is COVID-19, he's seen the best of humanity emerge in the radiology field. He notes that radiologists have volunteered their time to ensure that students can continue their education. "Radiology-TEACHES is about volunteerism," says Willis, "and it depends on those who step up and do something in an unfolding crisis." B

By Ivana Rihter, freelance writer, ACR Press

Radiology-TEACHES® By the Numbers

Over **10,180** activities have been completed to date.

More than **2,970** students have participated in the program.

33% of medical students in the U.S. have participated in the program.

FROM THE CHAIR OF THE COMMISSION ON ECONOMICS

By Gregory N. Nicola, MD, FACR

Sammy Chu, MD, FACR, Chair, ACR CAC Network, and Vice President, Washington State Radiological Society

Guest Columnist

Getting to Know the ACR Contractor Advisory Committee Network

As the MACs have started working together, CAC members need to leverage the framework the College established decades ago — and coordinate efforts to respond to the coverage policies put forth.

Have you ever wondered why a clinical history of "lightheadedness" for a head CT leads to a harsh email from your coding and billing department, while "dizziness" is smooth sailing? Who decides what an appropriate history is for a radiological exam?

For Medicare billing, most of those decisions rest with the Medicare Administrative Contractors (MACs). Medicare is a huge, $683 billion enterprise. Therefore, due to Medicare's sheer size, CMS is unable to process all the nationwide claims — so it divides the country up into several "jurisdictions." It then puts up for bid the claims processing contracts for each jurisdiction. Private insurance companies then bid for each contract, which lasts for up to seven years. One of the conditions of the contract is that each MAC needs to convene a group of physicians from multiple specialties and seek their advice in deciding which symptoms, signs, and diseases are appropriate for particular medical exams or procedures. These groups are the Contractor Advisory Committees (CACs).

Prior to 2019, the MACs needed to constitute a CAC for each state, even if there happened to be ten states in one jurisdiction (for example, Jurisdiction F). These CACs met at least three times a year. During these meetings, the MACs proposed Local Coverage Determination (LCD) policies, which outlined the conditions under which they would reimburse providers for their services. The CAC meetings not only offered a forum for physicians to give feedback on these policies, but also provided an opportunity for physicians and the CAC medical directors to exchange ideas and concerns. The final decision on the LCDs still rested with the MACs, but the CAC meetings allowed the contractors to get a sense of what physicians felt. Within this complex system, the ACR sought opportunities to streamline processes and avoid duplicating efforts.

The MACs would usually introduce their proposed policies around the same time to all the states in their jurisdiction. However, there was no mechanism for the communication and coordination amongst the radiology CAC members — which resulted in a duplication of the work reviewing the LCDs and offering policy improvements. The ACR had the foresight to establish the CAC Network in 2001 under the leadership of Bibb Allen Jr., MD, FACR. Continuing under the leadership of Robert K. Zeman, MD, FACR, this collaboration served as a means for CAC members in radiology, nuclear medicine, and radiation oncology to share news about upcoming LCDs, divide up work reviewing the draft policies, and strategize actions to take.

> With these changes, the ACR CAC Network has become more critical now than ever.

Several changes took place to the LCD development process at the beginning of 2019. Under the 21st Century Cures Act, the purpose of the CAC was changed from reviewing the draft LCDs to analyzing the scientific literature that underpinned the policies. The LCDs were presented later, and CAC members no longer provided face-to-face feedback on the policies to the MACs. In addition, it was no longer mandated that each state have a full committee; a MAC could form one CAC per jurisdiction, or even collaborate with other MACs to form a multi-jurisdictional CAC. In the last year and a half, those multi-jurisdictional CACs have become the norm.

With these changes, the ACR CAC Network has become more critical now than ever. As the MACs have started working together, ACR CAC members need to leverage the framework the College established decades ago to coordinate efforts to respond to the coverage policies that the MACs put forth.

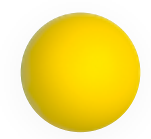
Have any of these activities piqued your interest in health policy and encouraged you to get involved? If you are a CAC member but have not yet participated in an ACR CAC Network meeting, reach out to Alicia Blakey, ACR senior economic policy analyst, at ablakey@acr.org. We can help you get in touch with your ACR state chapter and tell you more about the CAC Network's activities.

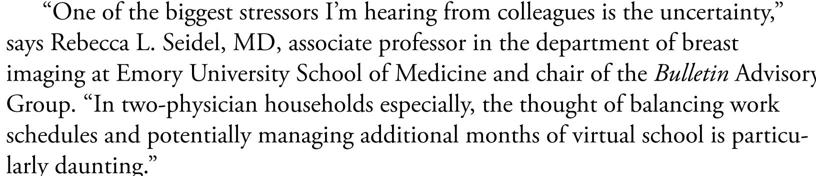
BACK TO WORK

WOMEN IN RADIOLOGY JUGGLE UNCERTAINTIES BROUGHT ON BY COVID-19 FROM A FAMILIAR VANTAGE POINT.

There is much talk about the "new normal" as the pandemic rolls on. The number of reported cases still changes daily — dipping and spiking depending on where you live or who you ask — and the uncertainty surrounding how physicians can and must return to work is an exacting reality for the imaging community.

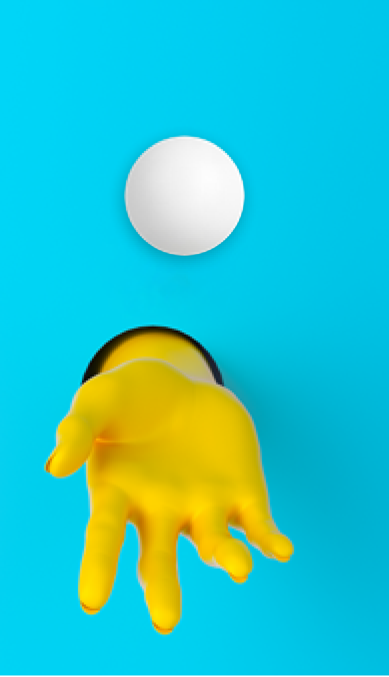
Since the pandemic first broke, many radiologists have found themselves working remotely or drastically reducing in-person hours. Economic strains from hard-hit volume and isolation from colleagues, residents, and patients have compounded an already unprecedented healthcare crisis. When facing the daunting challenge of delivering radiology services at maximum capacity, women have been particularly hard hit, shouldering more responsibilities at home while also striving to keep up at work.[1]





Rescheduling Medical Imaging

It's normal for patients to feel stress and anxiety during a pandemic, particularly if they are trying to decide to rebook medical appointments. See page 11 for a patient-facing resource on keeping everyone safe as imaging appointments are rebooked. We encourage you to print out and share this resource with your patients.



"One of the biggest stressors I'm hearing from colleagues is the uncertainty," says Rebecca L. Seidel, MD, associate professor in the department of breast imaging at Emory University School of Medicine and chair of the *Bulletin* Advisory Group. "In two-physician households especially, the thought of balancing work schedules and potentially managing additional months of virtual school is particularly daunting."

There are some childcare providers who refuse to provide in-home care for the children of physicians, Seidel says, because of fear of a higher risk of COVID-19 exposure. "There were economic pressures for many after COVID-19 hit, and some were hit harder than others," she says. That adds to the stress of returning to a potentially heavier workload, while being diligent about staff and patient safety.

REFOCUSED RETURN

"The return to work is a huge deal," says Debra L. Monticciolo, MD, FACR, professor of radiology at Texas A&M University and immediate past president of the ACR. "How do we get back to a better practice in dealing with patients moving forward? The post-COVID-19 world is upon us," she says.

In breast imaging, Monticciolo says, her department's main concern has been patient care and the safety of technologists. "All of our technologists are women, and many of them are younger with small kids," she points out. "Not only do they have to juggle the children at home — with schoolwork assignments and becoming homeschool teachers — but they are struggling to manage their work hours."

As more radiology staff transition back to work under more stressful circumstances, it is important for the team to recognize individual needs. "We have always been a close-knit group here, trying to accommodate each individual need," Monticciolo says. "COVID-19 has made us focus even more on our internal needs. That's a good thing for radiology as a whole — to not just be thinking of ourselves, but to really consider what's going on with our support staff and our technologists."

The well-being and availability of staff are critical to quality care at a time when many patients are nervous about returning to imaging facilities for scans postponed by the pandemic. Letting patients know it is safe to come in for services will revitalize business, Monticciolo believes, while creating a more comfortable, less stressful environment that benefits everyone (see sidebar).

WILLING SUPPORT

Reaching out to patients with the message that their safety is the hospital's primary concern has been successful so far, Monticciolo says. "Patients know when they come in that we are cleaning the machines and the door handles, that waiting rooms will be monitored, and that we are really paying attention," she says.

To cover the needs of returning patients, Monticciolo's staff discussed what shifts would work best based on their needs at home. They talked about who could work early morning hours, evening hours, or provide weekend coverage. "Some staff — especially the women — said that they really needed to be home at certain times for their kids," Monticciolo says. Those same women, she adds, were happy to work on weekends — and even some overtime to recover economically — if they could get extra support from partners, spouses, or other family members.

"There has been a good response from the community," Monticciolo says. "We are filling most of our available slots. We take everybody who wants to come in. Although women are worried about COVID-19, they are also worried they might have breast cancer. We try to do everything possible to make their visit and their screening exam as safe as possible."

Screening mammography and other imaging services have begun to rebound, despite scheduling challenges. Radiology groups who are largely unencumbered by

staff trying to maintain a work-life balance — due to childcare issues brought on by the pandemic — may see a faster recovery.

DEPENDENT BUSINESS

"We've been fortunate," says David T. Boyd, MD, MBA, a neuroradiologist with Reston Radiology Consultants (RRC), a private practice group in Northern Virginia that serves multiple hospitals. "We're coming through this better than some other groups I think."

Outpatient and inpatient volumes are coming back strong, Boyd says. "We believe that our hospitals will allow us to begin performing overnight reads from home soon and I'm not sure that would have happened before COVID-19", he says.

Everyone in the group sacrificed when the pandemic hit, Boyd says. "Everyone took a pay cut with reduced hours, including radiologists and staff," he says. "As business has picked up, we have been able to bring just about everyone back to full-time."

Patient messaging has helped allay COVID-19 fears and bolster volume. An email blast went out to RRC patients, he says, and David E. Dubois, MD, president of the group, posted a message on the website reassuring patients that their safety was paramount. "We told them they would be in and out quickly, that we were performing extra cleaning, and that they could wait in their car until it was time for their appointment," Boyd says.

The firm's business has recovered as referring physicians have increased their in-person and virtual office visits as well as elective surgeries, Boyd says. "Things are looking pretty good at the moment, and we should be full steam ahead hopefully."

UNEVEN PATH

Predicting radiology volumes will be one of the next major challenges for radiology practices, and recovery of imaging volumes will likely vary by geography and infection rates.[2] Radiology groups can ready themselves through preparing safety protocols and changes to physical spaces. They can reevaluate bandwidth and leave policies, and hone in on more efficient scheduling. Even as imaging practices begin to reopen, balancing personal and professional responsibilities moving forward will be incredibly hard, says Lucy B. Spalluto, MD, MPH, vice chair of health equity at Vanderbilt University Medical Center and president of the American Association for Women in Radiology.

"I think work-life balance is hard for men and women during the pandemic — but I think it's currently harder for women," Spalluto says. "Literature supports that men are doing more domestic work than they once did, but they still aren't taking on as much as women."

Since COVID-19 hit, everyone is working more hours each week from a frazzling mix of professional and domestic work, Spalluto says. Single physician parents are especially taxed. "What I see and what I have experienced first-hand is a very real mental health toll on women who are trying to juggle increasing personal and professional activities," she says (see sidebar).

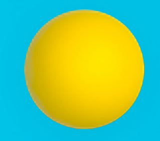
By July, volume was nearly back to normal at Vanderbilt, Spalluto says, and it may go up even further to make up for missed visits. "It is very hard to have flexibility when the work needs to get done," she says, "but in a lot of ways the necessary responses to COVID-19 have demanded changes to a system that has been too static for a long time."

The forced flexibility that came with COVID-19 is something some radiologists have been asking for with no response in many situations, Spalluto says. "If one of the changes that comes out of this is more long-term flexibility within the system, that's a very positive thing," she adds.

People work in different ways, based on their style, personality, or home life.

"ALL OF OUR TECHNOLOGISTS ARE WOMEN, AND MANY OF THEM ARE YOUNGER WITH SMALL KIDS. NOT ONLY DO THEY HAVE TO JUGGLE THE CHILDREN AT HOME — WITH SCHOOLWORK ASSIGNMENTS AND BECOMING HOMESCHOOL TEACHERS — BUT THEY ARE STRUGGLING TO MANAGE THEIR WORK HOURS."

—Debra L. Monticciolo, MD, FACR



Return to Table of Contents

Taking Care of Ourselves, While Taking Care of Others

The ACR Radiology Well-Being Program, which provides members with resources to assess and improve their level of wellness, recently released a new support guide to self-care as part of a new series of guides for well-being. The Well-Being Support Guide to Self-Care includes links to podcasts, videos, articles, books, and apps on topics that radiologists at all career levels need to reduce burnout, including sleep, nutrition, exercise, relationships, and more.

Other support guides, created and reviewed by radiologist and patient advocate volunteers, focus on conflict resolution, resilience, mentoring, diversity and inclusion, and communication. To access the guides and all the program has to offer, visit acr.org/WBI.

"What makes radiology so interesting to me is that our field is made up of a diverse group of people who think and work differently," Spalluto says.

Some people may be thriving in the current atmosphere, she says, working from home and creating a schedule around family-related commitments. Other people want to get up early, go to their office, get their work done, and go home, she says.

"We've thought about things like staggered shifts for studies that don't need to be read right away," Spalluto says. "Screening mammograms, for instance, can be read at night or on the weekends." The idea is that if people really need flexibility for childcare or other family-related reasons, they could change their shifts to accommodate it, she says.

These types of accommodations depend largely on the willingness of the work group and its geographic location. The same holds true for home workstations — depending on cost and the type of work involved (mammography stations are more expensive than others, for instance). "It will be interesting to see, moving forward, if healthcare professionals are given the opportunity to continue to work in these new more flexible environments and schedules in which they've proven to excel," Spalluto says.

NEW WAVE

"I don't think the impact of COVID-19 on medical practice is going away anytime soon," Spalluto says. "It is a new disease that will be in the mix for at least the next year or two." The more physicians learn about the virus, the more they will be able to pivot to handle it, she says. "We have to adapt our systems to the new normal."

It is difficult to discuss a possible new or next wave of COVID-19 as the climate shifts constantly. It can be said, however, that a lingering or resurgent COVID-19 means more of the same challenges — especially for radiology teams staffed with parents of young or school-aged children, Seidel says.

Even pre-COVID-19, attending to family matters has at times waylaid female radiologists seeking leadership roles. Household responsibilities can be a potential impediment to securing tenure, publishing research, and finding opportunities to lecture. The pandemic has only magnified these challenges as time becomes an increasingly scarce commodity.

If they can find time, the current climate may offer unique chances to connect and stay relevant. "When someone is asked to be a visiting professor or to give Grand Rounds at another institution — now that these are all virtual — it could open up opportunities to more junior faculty who may not have been afforded the chance before the pandemic because they were passed over for more senior faculty," Seidel says.

"Isolation is another problem radiologists are facing," Spalluto says. Engaging with other radiologists, residents, and patients is incredibly important to overcome this isolation — even if virtually, she notes.

The stress and worry radiologists endure over caring for patients, tending to their own families, and protecting both from COVID-19 exposure — all while practicing medicine with the same intensity as before — is a complex burden to ease. "I don't think we will go back to shutting down the way we had to the first time," Seidel says, "but we will have to use everything we've learned to keep everyone safe and well."

"Ignoring the impact of COVID-19 on radiologist well-being is not an option," says Spalluto. "Instead, we should embrace this opportunity to adapt the radiology work environment to add much needed flexibility." B

By Chad Hudnall, senior writer, ACR Press

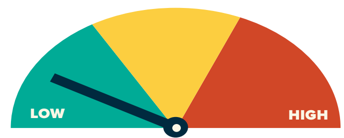
ENDNOTES

1. Brown D. Women take on a greater share of parenting responsibilities under stay-at-home orders. *USA Today*. Published May 8, 2020. Accessed July 14, 2020.

2. Madhuripan N, Cheung HMC, Cheong LHA, Jawahar A et al. Variables influencing radiology volume recovery during the next phase of the coronavirus disease 2019. *J Am Coll Radiol.* 2020;17(7):855-864.

IS IT SAFE TO SCHEDULE MY MEDICAL IMAGING?

For most radiology care, your risk of exposure to COVID-19 is **low.**



It's normal to **feel stress** and **anxiety** during a pandemic, particularly if you are trying to decide to rebook medical appointments. The American College of Radiology suggests imaging offices make a plan to keep you and their staff safe.

During COVID-19, your imaging practice may:

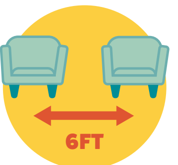
SCHEDULING

Ask if you are feeling sick before scheduling your appointment

Meet with you before your appointment online or via phone

WAITING ROOM

Give you a mask



Practice social distancing

Not allow extra people

YOUR HEALTH CARE PROVIDERS

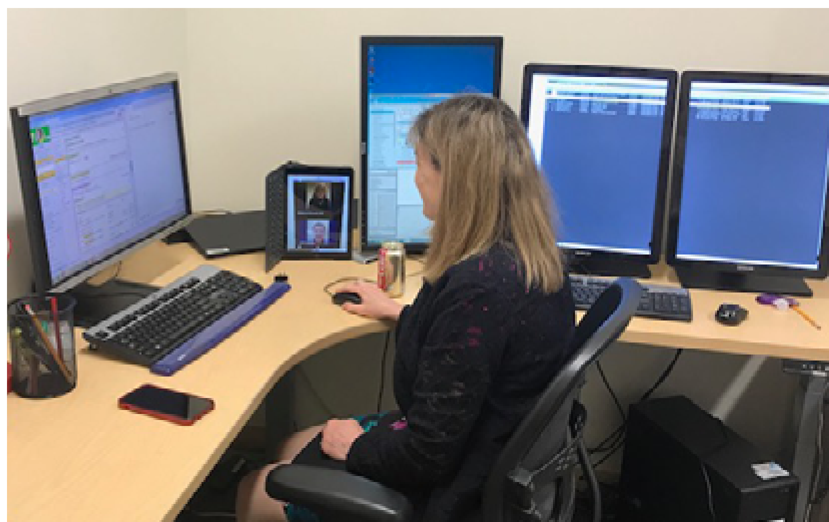
Screen staff temperatures

Wear protective gear for your care

Disinfect surfaces between patients

Your risk of exposure during medical imaging is low.
Your radiologist is always concerned about patient safety.

A Virtual Transformation



Rebecca K. Schwartz, MD, chief of the department of radiology at Atrius Health Inc., conducts the coronavirus video visit.

The pandemic gave two radiologists an opportunity to learn more about the patient-physician relationship that will forever change the way they practice.

During the first six weeks of the COVID-19 pandemic, we had a rare opportunity to work as primary care telehealth providers. Although our training is similar to that of most of the radiologists in this country, we volunteered to perform primary care video visits specifically for suspected COVID-19 patients in our health system. In doing so, we learned more about ourselves as physicians and about the patient-physician relationship that will forever change our practice of radiology.

Atrius Health, Inc., a multispecialty, next generation accountable care organization, became inundated with patient phone calls during the onset of the pandemic in March. With approximately 1,000 physicians and advanced practice providers caring for over 700,000 patients, we are responsible for the health of approximately 15% of the residents of eastern Massachusetts. Amidst the growing pandemic and the rapid decline of in-person visits, a previously developed, but little used, telehealth platform was deployed to bridge the gap for many worried, symptomatic patients. The majority of the telehealth providers were physicians and advanced practice providers from the primary care department. Others, as has been the case in other institutions, were from specialty departments such as orthopedics, podiatry, and OB/GYN.[1,2] We were the two radiologist volunteers.

Armed with several hours of detailed, hands-on technical training, including demonstration with a simulated patient, we learned how to conduct the coronavirus video visit. Material covered in the visit included the clinical presentation of COVID-19, broad criteria to use as decision support for where to triage a patient as a result of the visit, and a differential diagnosis for common respiratory and systemic symptoms. The limited physical examination included the patient's self-assessment of their heart rate, abdominal tenderness, and cervical lymphadenopathy, plus our observations of the patient's general comfort, any eye redness, cough, wheezing, and shortness of breath. Patients were triaged to at-home care, testing when appropriate, or in-person care. Over-the-counter treatments were recommended, and prescription medications were prescribed when needed. The patient's primary care provider was copied on encounter notes to ensure safe follow-up.

We were both surprised to see how quickly we adapted to this new role. We learned the mechanics and nuances of post-visit documentation and charting. We reviewed common over-the-counter treatment strategies for respiratory symptoms and antibiotic regimens for common coincident bacterial infections. Performing these video visits required us to dig deep into our general medical knowledge. We persisted, despite some uncertainty and discomfort — sensations relatively foreign to us given the number of years we have practiced radiology. The liability protections for healthcare workers providing COVID-19-related diagnosis and care during the state of emergency passed in Massachusetts in April and provided us with some comfort.[3]

Despite the stress of assuming a new role on essentially a day's notice, the increased patient contact was invigorating. Connecting with patients in their home environment grants an unusual window into the social determinants of health that deeply affect patient care, including imaging, but are often invisible to us as radiologists. Performing video visits with patients to discuss imaging findings — for example, low-dose chest CT for lung cancer screening — might afford radiologists the same opportunity to understand their patients' medical conditions in the context of their lives.

Working in telehealth also gave us newfound respect for our primary care colleagues. Their charting and documentation requirements stand in contrast with radiology's powerful voice recognition programs and extensively templated reports tailored to meet billing requirements.

continued on page 22

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2020 marks the ASRT Centennial! For 100 years, ASRT has played a vital role in supporting the nation's medical imaging and radiation therapy professionals.

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Redefining Normal

Practices plan for a future with little resemblance to the past.

In the spring, while ICUs were overwhelmed with COVID-19 patients, many radiology departments were eerily quiet. As a result of focusing healthcare resources on the crisis and canceling non-urgent care to curb the spread of the disease, volumes were down 50, 70, even 80% in some places.[1]

But the need for radiology procedures has not gone away. Procedures that were non-urgent in March were likely urgent by May or June. The evidence for screening mammograms has not changed; women over 40 will still need regular checks. Cancer, chronic disease, and injuries don't stop for a pandemic.

Whether by sudden surge or gradual uptick, radiology volumes will increase. But this is not a return to normal. COVID-19 has changed things — at least until an effective vaccine is widely available and maybe even longer than that.

Radiologists were key to the pandemic response earlier this year. But are they ready for the "new normal?"

The *JACR*® has established a frequently updated resource center with the latest radiology-related research and commentary as the pandemic unfolds. Visit the resource center at bit.ly/COVID-Practice.

Responding to Demand

With referrals from screening programs down 60–80% and cancer diagnoses down 30–40%, radiology procedures at the University Medical Center Groningen in the Netherlands decreased by half to a third of normal, says Thomas Kwee, MD, radiologist and vice chair of the radiology department there.

Kwee and his colleagues likened the drop in exams earlier this year to what he calls "the tsunami phenomenon, in which the sea water recedes before the actual wave comes." Kwee is expecting a surge "considerably above the volume our department handles under normal circumstances." He took advantage of this lull to think through the implications for the future — and write an article for the *JACR*® on the topic (available at bit.ly/JACR_Crisis).[2] By preparing now, he hopes his department will be better prepared to meet the challenge of that surge.

They expect a considerable rise in oncologic care, especially procedures on the abdomen, chest, and neuro/head and neck. But he also expects other types of care, including a return to cancer screening programs. Their plan — which they've dubbed Optimizing Efficiency in Radiology, or OPERA — involves cross-training for radiologists, adding self-educational materials for medical students completing their radiology rotation, and transitioning to "abbreviated MRI protocols" when clinically indicated.

Predicting the Future

Sabiha Raoof, MD, FACR, says she has had little time to breathe, let alone plan for a return to a new normal. In addition to being chief medical officer and chair of radiology for Jamaica and Flushing Hospitals, she is also the chief medical officer for Medisys Health Network in New York and was busy with clinical operations during the crisis."We saw our first COVID-19 patient on March 3 and soon after that there was a rapid escalation of coronavirus patients at our hospitals," she says.

By mid-May, COVID-19 cases were declining enough to start focusing on other aspects of care. In the radiology department, a team of radiologists started looking at cancelled appointments, conferring with referring physicians, and determining who should be seen first.

All patients will be tested prior to interventional procedures. They're also mandating masks and temperature screenings for all patients. They're ready to extend hours to meet the demand and ensure that they can maintain social distancing in waiting rooms. "We cannot schedule the same way we did before," she says.

Raoof feels efforts need to be made to educate patients about the safety measures hospitals have put in place to keep their patients and staff safe. She hopes that by standardizing and publicizing measures to keep patients and staff safe, patients will start feeling more comfortable seeking the care they need at the hospital that's easiest for them to get to.

Even so, she's not sure when patients will be ready to return. "Even if they are comfortable coming to the hospital, how will they get here?" she points out. Most of the hospitals' patient populations do not have cars and rely on public transportation. People are even less eager to get on the subway than they are to come to the hospital.

So instead of a surge, she predicts a gradual increase over the summer, with volumes well below normal for

the next few months. She's actually asking staff to take vacation over the summer, so that they are ready for a possible second wave in the fall.

Increasing Confidence

On the other side of the country in Seattle, Mahmud Mossa-Basha, MD, vice chair of clinical operations at the University of Wisconsin's department of radiology, says his group opted to ramp up services slowly to ensure safety precautions to protect the health of both patients and staff.

In partnership with ordering physicians, they went through the backlog of procedures. "During this time of crisis everyone has come together, resolved to do what's best for the patients and the system as a whole," he says, adding that he's seen increased cohesiveness both within the department and across departments during the pandemic. Because the health system has been upfront about the financial implications of the pandemic, staff understand the financial difficulties and the reasons behind schedule changes, furloughs, and salary reductions.

To increase efficiencies and spread patients and staff out, they have moved volume (and staff) among facilities, staggered shifts, and expanded hours. In addition to reducing the number of chairs in the waiting room and instituting hourly cleaning procedures, they have also set up an area in the parking lot where patients can wait in their cars until their appointment. Some procedures will require more precautions than others, he says. They are staggering appointments for their MRI scanners to minimize waiting room overlap among patients. All patients are required to wear a mask — hospital-supplied, if necessary.

The radiology department is using the automatic texting system they already had in place to let patients know about safety measures. They also created videos that were posted on social media to the general public in July.

So far, he says, patients have reacted positively. "My sense is that patients appreciate the precautions, and their confidence is coming back," he says, noting that patients are starting to return — ED volumes are almost up to pre-COVID levels.

Safety as Recurring Theme

As an interventionalist treating emergent or semi-emergent cases, David S. Kirsch, MD, FACR, has continued close to normal workloads in his private practice serving hospitals and clinics in Louisiana and Mississippi. "You can't really defer emergent or semi-emergent care, especially in a hospital setting," he explains. But that doesn't mean he hasn't been affected by the pandemic.

From a financial/volume perspective, outpatient clinics have taken the financial brunt. "Volumes are down across the board, but outpatient clinics have been hit hardest. April was by far the worst," he says. Inpatient volumes were down 50% in April, he says, and outpatient as much as 90%.

Kirsch's practice currently has about 40 contracts in place with facilities. That means that he has 40 different plans for how to ramp services back up again safely and efficiently. "Every location is slightly different," he says. But any patient coming into the hospital for a non-emergent procedure has to have a COVID test 48–72 hours before their procedure. Patients coming to the ED receive a rapid test when they get there.

Letting patients know about the precautions is key to getting volumes back up, he says. "If the patients do not feel comfortable or if they feel we don't value their safety, they're not going to use the services, whether it be in retail or in medicine."

So far, the message seems to be getting across. After the first week of May, volume has gradually increased, with a nearly 50% recovery from April lows. Kirsch said there was a big uptick in June, with volumes back to "reasonable levels" in July. One of the clinics is currently trying to reschedule 4,000 mammograms. The practice accelerated plans to increase remote reading by buying home workstations for all radiologists back in March. This will allow them to expand hours and continue with specialization studies without overtaxing their physicians.

One consideration in rescheduling procedures is not only reauthorization but also changes in patients' financial or insurance situations because of layoffs or furloughs. He says his practice has worked with patients on payment plans or coordinating with insurance.

Kirsch says radiology practices have to think strategically about how to manage cash flow through the ups and downs of this pandemic — and crises to come. The Paycheck Protection Program (a loan program that originated from the Coronavirus Aid, Relief, and Economic Security Act to provide a direct incentive for small businesses to keep their workers on the payroll) was "a godsend," allowing the practice to restore full salaries to their IT and support staff despite the volume drops. Kirsch warns against making rash decisions that will affect the practice's future, pointing out, "You don't want to do anything that's going to impair your ability to react to future challenges and opportunities." B

By Emily Paulsen, freelance writer, ACR Press

ENDNOTES

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A Mental Toll

Radiologists and staff are coping with the emotional fallout from COVID-19.

Whether on the frontlines, on furlough, or continuing to work in staggered shifts or empty hallways, radiology staff have been through the wringer over the past few months. And this comes on top of suffering high rates of burnout even before the pandemic.[1] While readying their departments for the return of non-urgent procedures, radiology leaders realize that a critical aspect involves ensuring all members of their departments — clinicians, RTs, and administrative staff — are comfortable and ready to return, mentally as well as physically.

This is top of mind for Sabiha Raoof, MD, FACR, chief medical officer and chair of radiology for Jamaica and Flushing Hospitals and chief medical officer for Medisys Health Network in New York. Serving a diverse urban population, her hospitals have been the epicenter of the pandemic in New York City, and her staff have witnessed intense suffering. At the height of the crisis, her hospital had 550 COVID-positive patients, 150 of whom were on ventilators. This is four times the normal inpatient volume. They increased capacity by 50% by the middle of March; a week later, they doubled capacity again. The pediatric, OB/GYN, and psychiatric wards all became COVID-19 units.

Meanwhile, non-COVID-19 patients stayed away. "We usually have 2–3 appendectomies a week. We've had none since the pandemic," says Raoof. "People are so afraid that they have delayed calling the ambulance until too late." Her ambulance crews were pronouncing 20, even 40 deaths a day at people's homes, a rare occurrence before the pandemic.

To deal with the onslaught of COVID-19 inpatients, the hospital closed all ambulatory sites and called all outpatient staff to work on inpatient units. Staff who usually spent their days in the radiology department performing routine X-rays found themselves suddenly on the frontlines of COVID-19 wards, providing portable X-rays for desperately ill patients. The RTs saw much

more suffering and death than they were used to, says Raoof. Seeing patients dying alone without family is difficult for anyone, but RTs may be even less prepared for the sight than healthcare workers in other parts of the hospital.

In the first intense days of the pandemic, with recommendations for PPE constantly changing and so many unknowns regarding presentation of this illness, Raoof's staff dealt with an avalanche of patients. According to Raoof, many staff got sick themselves — including radiology staff, especially US and X-ray technologists. "The staff have been patients themselves," she says. "They know how their patients felt when they could hardly breathe."

Raoof also points out pre-existing mental health needs that have gone unmet and have also increased because of the trauma of the pandemic, both in the community and among her staff. Many staff have experienced trauma at work and at home, caring for patients, getting sick themselves, and losing their own friends and family members to the disease. The hospital has opened up a wellness line for employees to seek support and is setting up in-person sessions. Staff are also reaching out to family members of patients who have died to extend their sympathy and help connect them to counseling or other resources.

Even without high rates of illness among staff, radiologists and staff members at University of Washington (UW) School of Medicine are concerned about returning to "normal," says Mahmud Mossa-Basha, MD, vice chair of clinical operations for the university's department of radiology. Administrative staff and RTs have been furloughed or moved to different facilities, which has been disruptive and stressful for many. The hospital had already established a peer-to-peer support program before COVID, and it has seen an increase in use lately, he says. Staff can access the program to talk to a coworker who has been trained to provide informal counseling. If the person appears to need additional support, the coworker can bring in a professional counselor.

"Communication is key," Mossa-Basha says. "The more communication and transparency, the better." Increasing communication had been a focus at UW before the pandemic, he says, and they are seeing the benefits of that now. Weekly faculty meetings have become virtual town halls, offering an opportunity to ask questions and understand not only what changes are being made — but why. Twice-weekly faculty and leadership huddles by section also help.

"The staff have been patients themselves. They know how their patients felt when they could hardly breathe."

– Sabiha Raoof, MD, FACR

David S. Kirsch, MD, FACR, an IR with Southern Radiology Consultants in Louisiana, agrees that consulting with staff and listening to their concerns helps address the stress of practicing during a pandemic. Initially, he and his staff were nervous about continuing to see cancer patients and others whose care couldn't wait during the early days of the pandemic. However, everyone worked together to ramp up their protocols, increase use of PPE, and adjust procedures to provide a safe environment for patients and staff.

The pandemic has also accelerated the move to telemedicine and teleradiology, Kirsch points out, which has enabled his practice to expand hours and increase access to care while also avoiding or exacerbating burnout among radiologists. Reading from the comfort of their own homes reduces worry about infection control and enables radiologists to work for an hour or two without adding a commute.

Even as Kirsch feels his practice and staff have taken adequate steps to prepare, he worries about the lingering effects of the pandemic on his community. "COVID-19 has affected everyone in every phase of life," he says. "Nobody's been hidden from it. A second outbreak or shutdown would be pretty devastating to everyone, including most of the healthcare system. We have to continue social distancing and other practices to mitigate that." B

By Emily Paulsen, freelance writer, ACR Press

ENDNOTE

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Resources for Self-Care

Self-care is a critical part of well-being, but how do you make time for yourself in the middle of a pandemic? Visit acr.org/wellbeing to find a list of resources, activities, webinars, podcasts, and more to combat the toll of COVID-19. If you have a resource you'd like to share, please contact copllstaff@acr.org.

Changing for the Better

Radiology leaders use change management strategies from the Radiology Leadership Institute® to adopt previously resisted technology.

In the value-based era, radiologists must step out of the reading room and take on new roles to enhance patient care. To succeed in this new paradigm, radiologists need more than interpretive expertise. Without leadership training, radiologists can find themselves in dire straits — with a faltering practice, transitioning leadership, and no one to spearhead change.

In 2009, this was the situation in which Radiology Consultants of Little Rock (RCLR) found itself. After one of its two outpatient imaging centers shuttered due to a lack of profit, the group was in debt and its leaders were struggling. Several radiologists left the group while others blamed one another for the group's problems. "No one wanted to be president," recalls Scott B. Harter, MD, FACR. "We spent a couple of months trying to figure out who was going to take charge of the difficult situation." Several of Harter's colleagues approached him and asked him to take the lead. After consulting his wife and close friends, Harter agreed to run for the position and was elected. Harter spent the beginning of his presidency stabilizing the group. He helped integrate a new practice manager and spent time re-establishing relationships with administrators at Baptist Health, the hospital RCLR serves. He also developed relationships with the radiology group's various departments, including accounting and billing. Things were improving for RCLR, but Harter worried he still didn't have a strong enough business or administration background to succeed in the position.

In 2012, he received an invitation to the annual RLI Leadership Summit and discovered an opportunity to learn the financial, communication, and collaboration skills he needed to strengthen his practice. With the business challenges ahead of him as president, Harter asked his group to sponsor him to attend the Summit.

Negotiating for Change

One of the most valuable concepts Harter learned about during the Summit was change management, a transformational process that follows key stages to build change over time. It's one of several skills Harter says he has learned through the RLI that helped him make specific improvements within his practice. One of those changes was to implement voice recognition technology with structured reporting into a practice that was a late adopter of that technology.

Starting in 2013, hospital administrators at Baptist Health had approached RCLR about incorporating voice recognition technology into their practice. Although the radiology group knew about the technology, they resisted adopting it, believing it would decrease their efficiency and reduce productivity.

"The radiologists had a lot of concerns," recalls Gerald C. Raymond, information systems manager at Baptist Health. At the time, Raymond was the PACS administrator and spearheaded the hospital's transition to voice recognition technology. Harter knew implementing voice recognition technology would also be an opportunity to initiate structured reporting for the group. Having a standardized reporting process would add value because other departments would consistently know where to look for sought-after information in radiology reports, and physicians could immediately receive clear, significant findings.

At the time, the radiology practice's process — whereby transcriptionists would type and edit the reports before written copies were sent to referrers — left other departments uneasy. "Any time there was a significant finding, the radiologist would give us a verbal report," explains Wendell Pahls, MD, medical director of emergency services at Baptist Health. "By the time we received the written report, we were concerned we wouldn't know whether something changed between the initial and final reports that could have an impact on patient care."

Despite the expected benefits of structured reporting, many radiologists were against that transition, too. "Initially, several people believed their own report structures were better than standard templates," Harter recalls.

Most other departments within the hospital were already implementing voice recognition technology, making radiology an outlier. Hospital administrators became somewhat frustrated with the radiologists because they recognized that voice recognition technology would save money and benefit the entire hospital system. Harter worried that RCLR's resistance made them seem unsupportive of the organization as a whole.

In 2014, the hospital began putting more pressure on providers to align with other physicians and adopt voice recognition technology. Resisting change also made radiology's image more problematic, says Harter.

Applying Lessons Learned

Harter determined he would use the lessons learned from the Summit to overcome resistance, get consistency of buy-in from his group, and plan and execute the transition. Some of the change management principles that faculty taught at the Summit were first published in a *Harvard Business Review* article by John P. Kotter, PhD, business and management thought leader, entrepreneur, and professor at the Harvard Business School. In "Leading Change: Why Transformation Efforts Fail," Kotter lays out a structured design approach to making change and overcoming resistance by those who are holding on tightly to the status quo.

According to Kotter, the steps to successfully leading change are:

- Establish a sense of urgency
- Form a powerful guiding coalition
- Create a vision
- Communicate the vision
- Empower others to act on the vision
- Plan for and create short-term wins
- Consolidate improvements and produce more change
- Institutionalize new approaches

"Change is hard, and you often see it fail more than it succeeds," Harter acknowledges. "Convincing the group to change was smoother and easier because we followed the change management steps, got the right people together, and paid strict attention to the details," he says.

Applying Change Management Skills

Harter connected with radiologists across the country whose practices had already implemented the voice recognition technology software and solicited opinions about the transition process. "I heard lots of people saying it was not as difficult as they imagined to make the transition," he says. Harter also talked to several people in his own practice who had used voice recognition — including board members and younger radiologists who had used it in residency. And he recruited people to collaborate with him on the transition group.

From that point, Harter says, establishing urgency was easy. "I went to my board and told them we would continually get pressured to do this and that it was in our best interest to be proactive about it. That way we'd have the most influence in installing the system that worked best for us," he notes.

With board members receptive to the idea, Harter took steps to further educate his guiding coalition about voice recognition technology. He arranged for board leaders to attend professional conferences and site visits to learn about various voice recognition systems, and the group identified vendors they thought would best fit the radiologists' needs. "We spent time understanding what different vendors were offering," Harter explains. "We weighed the pros and cons, and we spoke with practices who had implemented different systems. After narrowing the field, in cooperation with hospital administration, we had a couple of different vendors do onsite demonstrations."

"The fundamentals I learned through RLI carried me through my tenure as president and allowed me to lead our practice back to stability. The overall experience was a platform from which I was able to become a more effective leader."

—Scott B. Harter, MD, FACR

Pahls was a great supporter of the radiology department's change to voice recognition technology and to standardized reporting. This education also helped Harter and the board determine their vision for the change process, the third step in successful change management. "With hospital administration, we collectively decided which vendor to use. We understood that implementing voice recognition and structured reports would take a full year from start to finish, and we knew what physician training for it might look like," explains Harter. "Our goal was to make the change as clear as possible so that radiologists wouldn't be deterred by unknowns."

Convincing the Practice

Next, Harter and the board communicated their vision. In a corporate meeting in January 2015, they explained their decision to the rest of the practice, as well as the timeline. "One of the reasons everyone was so skeptical — and remained skeptical — was that they were afraid of the unknown," Harter says. "So, it was my goal to help explain the technology and process as much as possible."

For the next year, the voice recognition project was placed on each agenda for every board and corporate meeting to keep the project at the forefront of group members' minds. "We talked about where we were on the timeline and what progress we'd made. That way, everyone knew the change was coming, and there would be no surprises," Harter says.

From there, Harter engaged several colleagues who were familiar with voice recognition software and understood its potential advantages to help lead the change.

Return to Table of Contents

"Radiology did amazing work. By eliminating the need for transcription services so quickly, they ensured patients would get faster, more standardized results."

— Gerald C. Raymond

Harter named a point person — a radiologist who was tech-savvy and could talk about the benefits of voice recognition software. He also got section leaders within the radiology practice involved.

This powerful coalition built structured report templates, which each section leader vetted through their own areas. Harter arranged training for a transcriptionist on the voice recognition software so that she could provide support and answer additional questions. "Prior to that, she was in danger of losing her job, but we found a way to empower her to find a new role in the practice," explains Harter. "Our internal IT company associates were also trained in the technology."

Harter and his coalition also spent time talking to members of the practice who weren't on board with the project. Knowing it would be more effective coming from multiple sources, Harter asked several members of the practice who understood the technology and were positive about it to allay fears in the group and convince them the new technology wouldn't hurt their practice.

Knowing that this change process would take time out of everyone's schedules, Harter gave his team administrative time for these activities. "They were excited about it," Harter notes. "It was a fine opportunity for established leaders to increase their stature and for young leaders to emerge." The approach worked, convincing many skeptical members of the practice that adopting voice recognition technology was the way to go.

Structured reporting implementation took a little more effort. "I had to assert the influence and power of the board — we told resisters it was a mandate, not a choice. In some cases, we really had to give them some tough love if they refused to use the report template. And they would have to explain to me why they believed their report structure was better than the one the team developed," says Harter.

Achieving Victory

Due to the collective efforts of the board and the section leaders, more and more of the group signed on to embracing the technology and report templates. Three months before the technology went live in the hospital's radiology department, they installed the voice recognition software in RCLR's remaining outpatient office to get all of the radiologists familiar with using the software. "We made sure every single doctor rotated through the office so that they could experience the technology and could call on IT support if they were stuck," Harter says.

All of that communication and practice with the new technology prior to the rollout culminated in overwhelming success. RCLR stuck to its timeline and switched completely over to voice recognition software with no transcriptionist backup in one day on Feb. 2, 2016 — moving completely over to the new technology and structured reporting. "Radiology did amazing work. By eliminating the need for transcription services so quickly, they ensured patients would get faster, more standardized results," says Raymond.

Despite their initial resistance, the radiologists were pleased with how relatively little impact the change had. "Over time, productivity actually improved, and we weren't having to spend time after-hours signing and editing reports," says Harter. Feedback from the other departments was also very positive. "The perception that we were getting a more thorough read of the report was extremely comforting," says Pahls.

Looking to the Future

Although Harter stepped down from his presidency in January to prepare for a move to the local teaching hospital, he continues to advocate for radiologists learning how to lead. "Taking on a leadership role was one of the best decisions I ever made, but I couldn't have been as successful without the skills I learned through the RLI," Harter says. "The fundamentals I learned through RLI carried me through my tenure as president and allowed me to lead our practice back to stability. The overall experience was a platform from which I was able to become a more effective leader."

Now Harter is focused on mentoring the next generation — using what he learned through the RLI to inspire his colleagues and empower them to take on leadership positions of their own. In recognition of the value that RLI provides, RCLR now sponsors a radiologist to attend the RLI Summit each year to build leadership skills in the practice. "I think it's important for everyone to learn these skills," Harter says. "Radiologists must do more to demonstrate that they're willing to step out of the reading room to lead change and enhance the care we give our patients. Acquiring communication, negotiation, collaboration, and other leadership skills will position radiologists for success well into the future." B

By Meghan Edwards, freelance writer, ACR Press

Offering High-Impact Solutions

While image-interpretation algorithms might one day provide autonomous care, non-interpretive AI is changing healthcare today.

When we think about AI in radiology, most radiologists think of machines interpreting images — and look forward to a day when AI will support physicians by detecting subtle, critical findings, while freeing up time to become more patient-facing. Although this image-interpretation use of AI is an exciting part of our future, it is not our most pressing need now and might cause us to overlook something equally exciting: non-interpretive AI.

Much of the current development of image-interpretation AI is focused on creating algorithms to identify a specific finding or make a specific diagnosis, as you can see from the list of the FDA-cleared algorithms at acrdsi.org. But for the most part, AI is not critically needed for image analysis since radiologists now accomplish the tasks that AI tools can solve. Realistically, these image-interpretation AI tasks will not be rapidly implemented in our practices. It will take time.

Non-interpretive AI holds the promise of helping radiology practices solve current, large-scale problems, including predicting patient wait time, predicting patient no-shows, improving image quality, and automating worklist prioritization.

While non-interpretive algorithms that tackle efficiency and productivity issues may not be as sexy as AI interpreting high volumes of scans, they have greater potential to be rapidly developed and adopted. Rapid deployment and implementation is feasible because non-interpretive algorithms (for the most part) do not suffer the same issues as image-interpretation algorithms — incorporation into physician workflow, FDA-clearance, and providing clear value.

In general, non-interpretive algorithms can be readily incorporated into existing workflow. Since these algorithms do not interpret images, they are less likely to face costly hurdles before receiving FDA clearance and can enter the market more quickly. Non-interpretive algorithms have the potential to address each element of the imaging value stream from the moment an imaging study is considered by the ordering physician through final billing and subsequent imaging follow-up — delivering quick results.

Recognizing the value non-interpretive AI can bring to radiology, the ACR Data Science Institute® Non-Interpretive Panel has been working to identify and build use cases to define these non-interpretive problems that are highly solvable by AI. The panel comprises six sub-panels, each taking a different radiology practice user's perspective: ordering providers, patients, technologists, radiologists (both in the reading room and procedure room), business administration, and the general population.

To date, the sub-panels have been successful in identifying ways for AI to improve workflow management through non-interpretive AI. The subpanels have published 22 AI use cases for radiology in five categories.

Business-Facing

- Automated follow-up program
- Computerized auto-coding of reports with real-time dictation feedback
- Intelligent routing of exams for optimal performance
- Predicting patient no-shows for radiology appointments
- Predicting volume to optimize staffing
- Reconciling discrepancies on insurance payments

Patient-Facing

- Chatbots to answer radiology-based procedure patient questions (breast imaging)
- Computer-aided translation of radiology reports (thyroid US) to layperson language
- Information delivery on incidental findings (pulmonary nodules)
- Produce multi-media reports that are easier to understand
- Update patients on wait times

Population Health-Facing

- Decreasing variability in follow-up recommendations (incidental thyroid nodules)

Reading Room Facing

- Automated cross-sectional co-registration
- Prioritization of exams on the worklist
- Radiology and pathology report correlation
- Virtual transcriptionist/dictation assistant

continued on page 22

Protecting Patients during COVID-19

The ACR DSI has published several new AI non-interpretive use cases to help practices manage the changing workflows related to COVID-19. Non-interpretive AI algorithms address safety, efficiency, and productivity issues — whereas image-interpretation AI aids in identifying a specific finding or making a diagnosis. DSI's non-interpretive use cases were created to offer the developer community context — including necessary inputs, outputs, and possible corollary features — for protecting patients and radiology teams. Learn more at acrdsi.org.

High-Impact Solutions

continued from page 21

Technologist-Facing

- Detecting image quality COVID-19
- Actionable Finding Follow-Up
- Breast Imaging Patient Triage
- CT Lung Screening Patient Triage
- COVID-19 Surge Planning
- COVID-19 Risk Profile Assessment

At the end of the day, AI applications for both imaging analysis and efficient workflow management have the potential to benefit radiology. The two uses reinforce one another. But since non-interpretive AI brings value to radiology departments as soon as it is put into place, it has the added benefit of providing an impact right away. While image-interpretation algorithms will one day be common, it will be many years before they offer us the kinds of results we can achieve now with non-interpretive AI tools. B

Alexander J. Towbin, MD, is chair of radiology informatics at Cincinnati Children's Hospital Medical Center. Towbin is also co-chair of the ACR DSI Non-Interpretive Panel.

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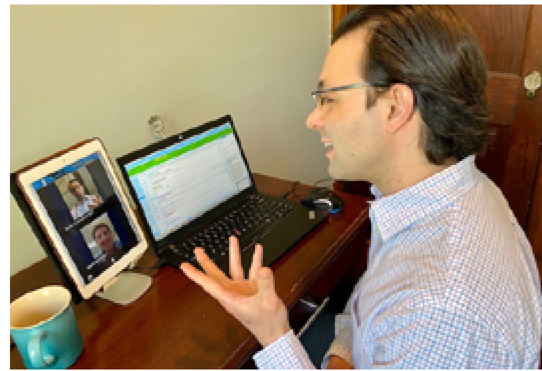
Virtual Transformation

continued from page 12



Scott F. Cameron, MD, conducts a video visit from his home office.

The emotional wear and tear of helping sick patients, hour after hour, face-to-face, can compound the mental challenges of dealing with medically complex patients. Radiologists often lament inadequate histories and inappropriate choices of imaging exams submitted by ordering providers. We never understood before why the few extra clicks involved in submitting information to a CDS module might be so onerous. Walking for a few weeks in the ordering provider's shoes fosters a better appreciation of the challenges of the internist's work life and a greater desire to simplify their interactions with the radiology department — perhaps by promoting process-improvement projects and AI applications.

Above all, we gained a respect for the ability of a crisis to accelerate progress. A crisis such as this is devastating for patients and the population at large. It can also provide radiologists with unique opportunities for service, institutional collaboration, and lessons learned that will endure and enrich their perspectives and performance in the care of their patients. B

Scott F. Cameron, MD, and Rebecca K. Schwartz, MD, are radiologists with Atrius Health Inc., in Boston. Cameron is the chair of the ACR's College Nominating Committee, and Schwartz is chief of radiology and chair of ancillary services at Atrius Health Inc.

ENDNOTES

1. Shipchandler TZ, Nesemeier BR, Schmalbach CE, Ting JY. Otolaryngologists' role in redeployment during the COVID-19 pandemic: a commentary. *Otolaryngol Head Neck Surg.* 2020;163(1):94-95.
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ACR Bulletin (ISSN 0098-6070) is published monthly and printed bi-monthly by the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191-4326.

From annual membership dues of $900, $12 is allocated to the *ACR Bulletin* annual subscription price. The subscription price for nonmembers is $90. Periodical postage paid at Reston, Va., and additional mailing offices. POSTMASTER: Send address changes to *ACR Bulletin*, 1891 Preston White Drive, Reston, VA 20191-4326 or email to membership@acr.org.

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