

Bulletin



**Imminent
Threat**

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Radiology and healthcare are prime targets for cyberattacks, but radiologists can protect their offices and patients against growing threats.



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**Christoph Wald, MD,
PhD, MBA, FACR**

Chair of the ACR
Commission on
Informatics

Guest Columnist

Cybercrime: The Invisible Foe

While cyberattacks may not be specifically aimed at your institution, healthcare is a growing target for these types of threats.

In 2021, 66% of healthcare organizations were hit by ransomware, up from 34% in 2020 — a 94% increase over the course of a year.¹ More than 590 organizations reported healthcare data breaches to the HHS Office for Civil Rights in 2022, impacting upwards of 48 million individuals. It is not a question of if but when you and your organization and patients might be affected.

As citizens of the 21st century, we spend much of our lives in cyberspace. This is not a physical space. Rather, it's a construct with a given name: the virtual space in which near-instantaneous sharing of information occurs across global, interdependent networks of IT infrastructures and resident data.

Everyday items including cars, phones and refrigerators are also increasingly joining the so-called Internet of Things.² Smart devices equipped with voice assistants like Apple's Siri and Amazon's Alexa listen in on us, and wearables and smartphones are constantly collecting information on us. Social media and digital networks dominate our professional profiles and personal/family connections. Our work lives occur on digital production systems. An increasingly remote workforce depends on cyberspace to conduct business.

However, cyberspace is also a playground for well-resourced for-profit criminal enterprises, “hacktivists” and nation-state actors pursuing malicious goals, including warfare. International codes of conduct are undefined, and the barriers to entry and competition for cybercriminals are very low, benefitting from an absence of accepted laws, agreements or governing protocols. As a result, any participant of cyberspace simultaneously benefits from and is vulnerable to this network.

The Human Factor

Most cyber incidents are related to human behavior: Human error often enables attacks. Behaviors such as the ever-increasing digital communication across multiple platforms and online shopping are being exploited. The convenience of the latter is correlated with our ever-increasing surrender of personal information, widely shared and stored with our permission. The infamous

“one-click” acceptance of “cookies” and convoluted online terms for sharing data is often performed indiscriminately by naive end users, opening the door to abuse.³ Phishing and SM(S)ishing attempts occur routinely to try to steal credentials for illicit purposes.

How does this impact healthcare? Our organizations render complex, human-based services. Many people of different levels of education and digital awareness work together to care for patients, under one roof and on the same network, from the front desk staff to the chief medical officer. Anyone can become the target of a cyber-attack, wittingly or unwittingly. The resulting spread of malicious computer code can encrypt servers, data or both, which can cripple operations, leading to negative results including patient harm and financial losses.

Identity “Crisis”

Our access to sensitive systems, data and networks is typically tied to our role(s) and identity, requiring authentication. Identity spans personal and work life, so it has to be protected. The work step of authentication is an important vulnerability, unless biometric or multifactor authentication (identity proof) is used.

Compromise may result, for example, from careless design and use of passwords or inappropriate response to phishing emails. The digital data-sharing technology that is designed to customize our many online transactions is easily exploited by cyber criminals. To make matters worse, we increasingly use the same devices for leisure and work. Infection of unsecured devices outside your organization with physical connection inside your organization can allow criminals to gain access to your data.

A Digital Medical Specialty

Radiology is the first fully digital medical specialty! Everything is completely dependent on digital technology, from the acquisition of modern-day digital images and their interpretation to the dissemination of results to the point of care. Radiologists create, interpret and store large amounts of sensitive and valuable information. Hence, radiologists have a particular obligation to take cybersecurity seriously since their core mission is tied to it. Radiologists must consider business continuity planning a mission-critical activity to minimize patient harm in times of attack ([read more in the cover story on page 8](#)).

It takes a village to protect our organizations and patients from cybercrime. Don't wait one more day to put a plan in place. **B**

ENDNOTES available in the digital edition at acr.org/bulletin



Study Finds Racial Disparities in Mammography Tech Access

Black women had less access to new mammography technology compared with White women, even when getting their mammograms at the same institution, according to a study published by the Harvey L. Neiman Health Policy Institute[®] in *Radiology*. The analysis of more than 4 million Medicare claims found that despite the same insurance, Black women were less likely to have mammography performed at a facility with newer technology. Even

in a facility with newer technology, imaging was more likely done with older technology for Black women — using film until 2009, and 2D versus 3D from 2015 to present. The study was conducted in collaboration with the Radiology Health Equity Coalition.

Read the full study in *Radiology* at bit.ly/RSNA_Study.

NRC Extravasation Decision Prioritizes Patients and Safety

In an advocacy issue the ACR has been engaged in for several years, U.S. Nuclear Regulatory Commission (NRC) leaders voted unanimously in favor of using ACR-supported harm-based reporting, instead of dose-based reporting, of certain nuclear medicine (NM) agent extravasations as “medical events.” NRC medical staff, federal advisory committee members and radiation experts had recommended the policy after a medical device and software-as-a-service company filed a petition with the NRC urging the agency to require novel measurements and dose estimate-based reporting of extravasations, which the NRC defines as infiltrations of injected fluid into the tissue surrounding a vein or artery.

The vendor filed its petition in 2020 seeking to require providers to perform novel injection site measurements during NM agent administrations, and then to report suspected extravasations as medical events based solely on controversial dose estimations of unclear validity without regard to risk, cause or significance. NRC Chair Christopher T. Hanson stated with his vote, “This would impose a regulatory burden without a nexus to safety, and as the medical community has warned, may hinder the use of these diagnostics and therapeutics.”

Instead of necessitating nationwide acquisition and use of proprietary tools and novel methodologies, the NRC decided to initiate future rulemaking to mandate medical event reporting in extreme and rare extravasation cases that require medical attention for suspected radiation injury. This “harm-based” approach is aligned with public feedback from the ACR, which applauded the move as a decision focused on patient safety and real-world medical significance rather than a single vendor’s interests.

Read more about the vote at bit.ly/NRC_Vote.



Podcast Interview: Leading With Trust



In a new episode of the Radiology Leadership Institute (RLI[®]) “Taking the Lead” podcast, host Geoffrey D. Rubin, MD, MBA, FACR, talks with **ACR BOC Chair Jacqueline A. Bello, MD, FACR**, about her leadership in the field of radiology. Bello grew up as one of seven children and learned early about the importance of building trust and consensus — two qualities that have been crucial in her career. By establishing a foundation of trust and transparency, Bello has been able to secure leadership roles wherever she goes. The inspirational conversation covers the importance of family, finding common ground and leading with trust.

Listen to the full episode at bit.ly/RLI_Pod.

Bulletin Podcast: Helping Patients With Scanxiety



Patients often feel a mix of nerves and anxiety around imaging scans. These feelings are so common that they have a name: scanxiety. Put simply, Amanda Crowell Itliong from the ACR Commission on Patient- and Family-Centered Care describes scanxiety as the combination of “scan” and “anxiety,” which is now coming to the forefront of the conversation about radiology and the patient experience. In a new ACR *Bulletin* podcast, Itliong discusses patient anxieties about imaging and how radiologists can help them feel more comfortable. You can also share this new podcast with your patients to alleviate the stress and worry that accompanies a radiology appointment.

Listen to the podcast at bit.ly/Bulletin-scanxiety-podcast to hear the full conversation.



Being fluent in current leadership methods improves your ability to work up and down your professional hierarchies.

KURT A. SCHOPPE, MD



Participate in the ACR Virtual Poetry Night

Join the ACR Medical Student Subcommittee for its first Virtual Poetry Night, which takes place from 7 to 8 p.m. EDT on March 23. Not only will you hear original poetry submissions

on radiology, but you will also discuss the creative process and provide feedback to the authors. This event will showcase a combination of science, poetry and performance. The goal is to cultivate a community of people interested in the intersection of radiology and the arts.

Register for the event at bit.ly/2023Poetry_Night.

Wisconsin Chapter Offers Free Well-Being Webinar



On April 1, during the Wisconsin Radiological Society's (WRS) 2023 Annual Conference, practicing radiologists can attend a free well-being webinar. Conference registration is not required to attend the webinar.

The April webinar features Frank J. Lexa, MD, MBA, FACR, and David P. Fessell, MD, as presenters. Lexa is the chief medical officer for the Radiology Leadership Institute (RLI®), and Fessell is a radiologist and certified executive coach. Ian A. Weissman, DO, FACR, who serves as WRS president, chair of the ACR Commission on Patient- and Family-Centered Care's Outreach Committee and chair of the ACR Veterans Affairs Committee, has worked with the WRS to put together its webinars.

This is the second half of a two-part series designed to help members of the radiology community protect their well-being and mitigate burnout. The first webinar was held in December and the recording is available on the WRS website at bit.ly/WRS_Webinar_Pt1.

Visit the WRS website to register at wi-rad.org/Webinars.



Register for the AIRP Rad-Path Correlation Course

Apply the principles of radiologic-pathologic correlation to the interpretation of radiologic studies at the live ACR Institute for Radiologic Pathology (AIRP®) four-week rad-path course to be held March 13 through April 7 at the AFI Silver Theatre in Silver Spring, Md. Attendees will receive extended access to all course materials for four weeks after completing the course. In-person sessions will not be recorded. However, those sessions with a corresponding recording from a previous virtual course will be available.

If you are a resident who has not yet taken the course, or a program director or coordinator who has residents who need to take the course, reach out to the ACR at 1-800-373-2204 or AIRPRegistrations@acr.org.

For more information and to register, visit bit.ly/AIPP_Rad-path_Course.

TMIST Passes 80,000 Patients Enrolled

Enrollment has exceeded 80,000 for a Tomosynthesis Mammographic Imaging Screening Trial (TMIST), even though screening numbers remain below pre-pandemic levels. This was achieved through the hard work of 124 active sites continuously recruiting women to enroll. TMIST sites have also produced some of the most diverse cancer screening trial populations, with Black participation standing at 21%, more than double the average Black participation rate in National Cancer Institute-funded clinical trials.¹

Study Chair and ACR Chief Research Officer Etta D. Pisano, MD, FACR, along with ECOG-ACRIN Health Equity Committee Co-Chair Edith P. Mitchell, MD, credit the results to personalized recruiting of women by staff in local facilities and a forward-thinking study design.

Read the full article at bit.ly/TMIST_Screening.

1. Stevens WM. Accrual of Minorities into NCTN and NCORP Clinical Trials: A Twenty Year View. National Cancer Institute. June 15, 2020.

Winning Defined by What Could Have Been Lost

Payment for our services would be in far worse shape without the ACR's advocacy efforts.

Frustration (noun) – the feeling of being upset or annoyed, especially because of inability to change or achieve something.

Many (most) in the physician payment advocacy world are reflecting on this definition and wondering, “Why bother?” It often seems the cards are just stacked against us. Digging deeper, that feeling diminishes when we understand the years of accumulated successes against the backdrop of severe political dysfunction. Advocacy is essential but misunderstood if evaluated only by the face value of victories.

On Dec. 29, 2022, President Joe Biden signed into law the Consolidated Appropriations Act, 2023. The Act fell short of expectations of the entire physician community, which had hoped for more from the federal government during a tumultuous time plagued by the COVID-19 pandemic, hyperinflation and mass consolidation destroying physician autonomy.

As a refresher, Medicare pays physicians using a complex formula multiplying relative value units (RVUs) assigned to each physician service by a dollar amount (the Conversion Factor) set for the entire Medicare Physician Fee Schedule annually based upon restraints of budget neutrality. The Conversion Factor is on a sharp multiyear downward trajectory, primarily due to re-valuation of several families of evaluation and management (E/M) codes used during face-to-face visits between physicians and patients. The federal government intervened on the falling payments in both 2021 and 2022 with 3.5% and 3% fee schedule updates, respectively — in large part as a response to physician advocacy efforts led by the ACR. This precedent established some hope in the physician community that Congress understood the impact of stagnant payments in the Medicare Physician Fee Schedule.

However, instead of continuing support of the Conversion Factor, the government reduced the update for 2023 to 2.5% and for 2024 to 1.5%. This was a signal that Congress has chosen the pathway of phased-in cuts as opposed to continuing support of a flat physician payment.

The ACR was one of many disappointed voices across

the entire house of medicine. We were not alone. The president of the AMA stated, “The AMA is extremely disappointed and dismayed that Congress failed to prevent Medicare cuts next year, threatening the financial viability of physician practices and endangering access to care for Medicare beneficiaries.”¹ The American College of Physicians released the following statement on Dec. 20, 2022: “The American College of Physicians (ACP) believes that the partial restoration of Medicare physician payments that is contained in the end-of-year congressional spending bill falls short of what is needed to protect patients and physicians.”

What has physician advocacy, particularly that of the ACR, accomplished? The College has combated years of scrutiny regarding radiology payments primarily occurring at the AMA/Specialty Society RVS Update Committee (RUC). The source of this scrutiny originated from the merger of the old radiology fee schedule into the RUC methodology. Volunteers for the ACR Commission on Economics have spent years equating these disparate fee schedules, and as both a participant and observer of this reconciliation, I can say a lot could have gone wrong. I have personally watched hundreds of radiology services make it through the RUC process unscathed. In the absence of our advocacy and volunteer experts, radiology payments would be in a far worse place.

The College has also combated fee schedule reductions from the federal government. The onerous Multiple Procedure Payment Reductions were cut from 25% to 5% largely due to ACR advocacy efforts. The Conversion Factor decrease from E/M services could have been abrupt, instead of phased in, so by delaying the cuts we successfully injected millions of dollars back into the hands of radiology practices. The federal government would not even have entertained allocation of more funds to healthcare without the efforts of a coalition of medical specialties led by the ACR. The College has also led efforts in valuing new services such as fetal MRI, MRI elastography and contrast-enhanced US, among others, bringing new payments to the radiology community.

Advocacy may be frustrating, but it is vital. Without it, policymakers would have no idea who we are or what we do. Often the wins are hidden or behind the scenes, but payment for our services would be in far worse shape without the work of our economics and government relations advocates. **B**

ENDNOTE

1. Resneck Jr. J. *AMA statement on Medicare cuts*. American Medical Association. Dec. 19, 2022. bit.ly/AMA-Medicare-statement.

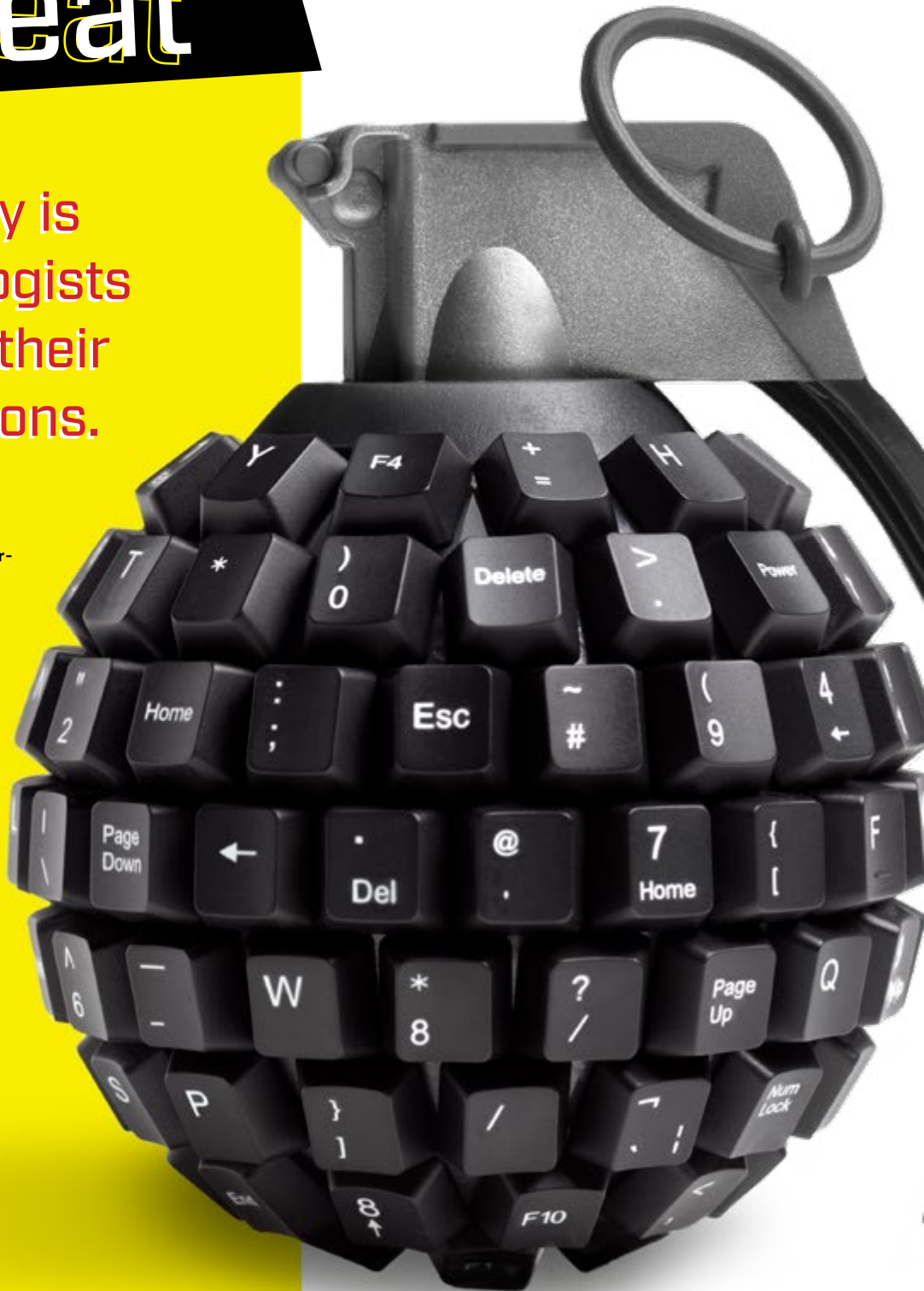


Imminent Threat

Cybersecurity is key to radiologists carrying out their clinical missions.

The scary part about cyber-attacks is that they're no longer news, according to Howard (Po-Hao) Chen, MD, MBA, chief imaging informatics officer for the Cleveland Clinic, chair of the ACR's Informatics Advisory Council and a member of the ACR *Bulletin* Advisory Group. "It's like when the first case of COVID-19 made the news, and now no one thinks twice when hearing about new cases," he says. "Organizations are learning to live with it rather than treat it as a one-off crisis."

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You can't be too careful, he says, but it's also important not to overreact. "If everything is locked down, you might feel confident in your cyberattack defense system, but caregivers might be locked out of necessary data to do their jobs," Chen says. "Staff still need privileges to make the right choices. It can become really hard to deal with."

TRAIN ON PHISHING

Malicious internal attacks aside, the ACR Commission on Informatics encourages all practices to include staff training on phishing, or incidents involving impostors who try to trick email recipients into clicking links, opening attachments or sharing passwords and other critical information. "We are telling people that you should definitely have a phishing email training program in your practice or radiology group," Chen says. "If you don't have one, you can contract with numerous companies that help by sending employees phishing emails. This can help prevent unsuspecting employees from clicking on a link that leads to malicious actors stealing your information and putting patients at risk."

The object is to encourage employees to see themselves as attractive targets — because they are, says former FBI cybersecurity analyst Hope Palmer, a member of the ACR Commission on Informatics' Cybersecurity Work Group. "Phishing training is a great way to increase awareness of threats, particularly different types of threats using a variety of methods to trick and deceive," she says. "I see it as the cornerstone of cyber hygiene and the building block for security awareness. And this training shouldn't be just a one-and-done milestone that you check off annually." It needs to be meaningful, periodic and tailored training, she says.

"The ultimate goal through trainings like these is to reduce risk through broader cultural change that incorporates standard cyber hygiene into daily practices across the enterprise," Palmer says. "This space — a fully engaged, educated and security-aware community — is where we'll make the most progress in defending against malicious actors." As a bonus, she says, this awareness will also reduce risk posed by accidental, negligent or intentional activity by employees.

CUSTOMIZE PROTECTIONS

"Like most things, there is not a one-size-fits-all solution, even for small versus large practices or institutions," says Daniel Reardon, MPA, CHPC, chief compliance officer for the ACR. "Outsourcing cybersecurity is certainly an option, and there are many service and solution options in the market."

Knowing that most cyberattacks start with phishing, even small practices can focus on educating their workforce, Reardon says. "Phishing awareness training and simulated phishing tests can provide protection for small practices at low or no cost. Of course, if there are technical vulnerabilities, attackers may not need to use phishing or social engineering to wreak havoc on your systems and information."

This is why the topic of cyber-readiness must be a strategic, holistic discussion, Reardon says. Strategy should be based on an assessment of risks — and risk profiles will be different for every organization.

For instance, some data is not stored locally on laptops, phones and tablets, so cross-contamination may be less of an issue. Many organizations at this point have established a policy or position on "bring your own device," regulating the use of private mobile phones, tablets and computers for work-related tasks. Regardless, there are good solutions to help with data governance issues. Mobile device management, data loss prevention and multi-factor authentication can all help mitigate data risk.

"At the end of the day, it's just a numbers game," Reardon says. "Even small practices will receive hundreds, if not thousands of emails every day. It only takes one click to potentially

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"The ultimate goal through trainings like these is to reduce risk through broader cultural change that incorporates standard cyber hygiene into daily practices across the enterprise."

HOPE PALMER

"It only takes one click to potentially expose the organization — and this is what the bad actors are banking on."

DANIEL REARDON, MPA, CHPC

Business Continuity Items to Consider

Think about the infrastructure and systems you depend on for your work or your practice. According to Christoph Wald, MD, PhD, MBA, FACR, chair of the ACR Commission on Informatics, it's critical to consider these items before disaster strikes.

- How do you replace your systems temporarily with alternative workflows during downtime or following an attack? What would you need to have (paper report forms, printers, workflows) if you lost one, several or all of these systems?
- How would you organize your workforce in the face of an emergency?
- How would you replace your dictation system?
- How do you record the performance of exams or the results thereof when you do not have access to dictation or electronic health records?
- How do you communicate with your radiologists and/or staff when network-based communication is down?
- Do you have a master list of cell phone numbers, and is there reception within your building if the systems are down?
- Do you have enough radiologists to physically place them at scanners 24/7 during cyberattack downtime so emergent imaging can continue in a timely manner?

expose the organization — and this is what the bad actors are banking on. Much like COVID-19 and other mass healthcare threats, cyberattacks are not going away. They are something that we need to recognize as a persistent and real threat."

But just as with COVID-19, there are some practical and preventive steps all organizations can take to reduce risk. There is a cyber-readiness equivalent to wearing a mask and washing your hands, he says.

Cyberattacks are primarily about two things — money and disruption.

Radiology and healthcare in general are prime targets for both. Radiology is one of the most technology-driven fields in medicine. This presents more complex technical risks with regard to system configuration, ongoing vulnerability and patch management, Reardon points out.

Disruption to radiologic services can greatly impact patient care, Reardon says: "We have already seen a few cases where cyber incidents have been tied to patient deaths."

USE OUTSIDE VENDORS

"Educating staff is of utmost importance," says Paige Nierengarten, associate IT project manager at the ACR. "Provide training and procedures to help staff identify suspicious emails and avoid unsafe downloads. When you start using a computer for purposes other than patient care or patient-related work, you increase the risk of opening yourself up to malware.

"If you don't feel like your small practice can afford protection, move to cloud-based software, which may require hiring an outside vendor," Nierengarten suggests. "Cloud-based healthcare is typically more protected than traditional server-based infrastructure — as radiologists are able to control the movement of protected data across numerous devices using the one solution."

The ACR Commission on Informatics' Cybersecurity Work Group meets quarterly and includes cybersecurity specialists from industry leaders, such as Philips and Siemens. The group has launched the Cybersecurity Resource Hub (see sidebar) to better equip radiologists with the necessary tools and knowledge to keep doctors, patients and organizations safe. Cybersecurity amounts to patient care, Nierengarten says.

According to Nierengarten, "Hackers are only getting smarter." With the digitization of the profession, the risks associated with cyberattacks have increased significantly for radiology departments. Many radiologists still work remotely because of COVID-19, and hackers are more likely to target these individuals if they are using wireless networks and mobile devices that aren't secure.

"There is a silver lining," Nierengarten says. "Healthcare workers are getting better at recognizing phishing emails, and most radiology groups aren't writing off security as a non-issue anymore."

HAVE A PLAN

Ransomware and similar types of attacks hit about 66% of healthcare organizations in 2021. That represents a 94% increase from the previous year, when the figure was 34%. In 2022, healthcare data breaches reported to the HHS Office for Civil Rights impacted as many as 48 million people at almost 600 organizations.¹ "As people say, it is not a question of if but when you and your organization and patients might be affected," says Christoph Wald, MD, PhD, MBA, FACR, chair of the ACR Commission on Informatics and chair of the department of radiology at Lahey Hospital and Medical Center.

"This is a job for all of us — every person who works in and touches digital infrastructure," Wald emphasizes. "Cybersecurity is not just for IT experts. We all need to participate." Most cyber incidents are related to human behavior — human error enables attacks.

Picking up the COVID-19 parallel, Wald points out, "There are some similarities between being shut down by COVID-19 or another pandemic and getting hit by a cyberattack. Cyberattacks, however, play out on a very different timescale than COVID-19 has at some institutions.

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“In both situations, nothing will be the same under the conditions you will be operating within,” Wald says. “A tremendous amount of preparedness and flexibility are probably the winning recipe. You must have some type of disaster plan and infrastructure in place to manage a crisis. That’s something you’d better establish ahead of time.”

Everyone should have a contingency plan, he says. Stress to staff and leaders the importance of knowing what you have in place. “For example,” Wald says, “this could be a cellular phone system or other communication means that isn’t impacted by a cyberattack when most or all of your systems are shut down.”

To address the growing threat, the ACR Commission on Informatics established the Cybersecurity Working Group that launched at the 2022 ACR Annual Meeting. “It is a coalition of ACR volunteer leaders, military members and ACR staff working to jointly examine the topic and provide the kinds of resources we need to combat cyberattacks,” Wald says.

“We have given three workshops — one at the annual meeting, one at the Informatics Summit in October 2022, and a widely broadcast American Society of Radiologic Technologists webinar in November 2022 during National Radiologic Technology Week,” he says. The goal is to bring together coalitions and to raise awareness of the cybersecurity issue.

"It's imperative to have the right security measures in place when you are working remotely. 'Work from home' puts both work and home at risk."

HOWARD (PO-HAO) CHEN, MD, MBA

“It is growing, and it’s dangerous for our patients and our practices,” Wald says. “Cyberattacks have seriously disabled institutions — resulting in pain and suffering and financial losses.² It is rather a complex set of vulnerabilities that we all have. The bottom line is that it still takes a village, but you can also do your own part to reduce the likelihood of a devastating attack.”

PREPARE FOR IMPACT

“Cybercriminals are very incentivized to target healthcare because it creates chaos and instability issues, often more so than with banks,” says Chen. “The malicious actors are mostly looking for a financial return.”

But there are steps healthcare leaders can take to use technology to fight back. “When it comes to protecting yourself, there’s some low-hanging fruit out there for radiologists,” Chen says. For instance, don’t use your work password for personal accounts and vice versa. Use a password manager with a strong master password so you don’t have to use a single password with multiple applications. And always use a secure connection such as a VPN to tap into sensitive information such as PACS.

In this new era of radiology, Chen warns to watch out for risks intensified by the continued popularity of remote work. “One relatively easy thing you can do is to have someone help you manage your remote workflow from a security perspective,” Chen says. “It’s imperative to have the right security measures in place when you are working remotely. ‘Work from home’ puts both work and home at risk.”

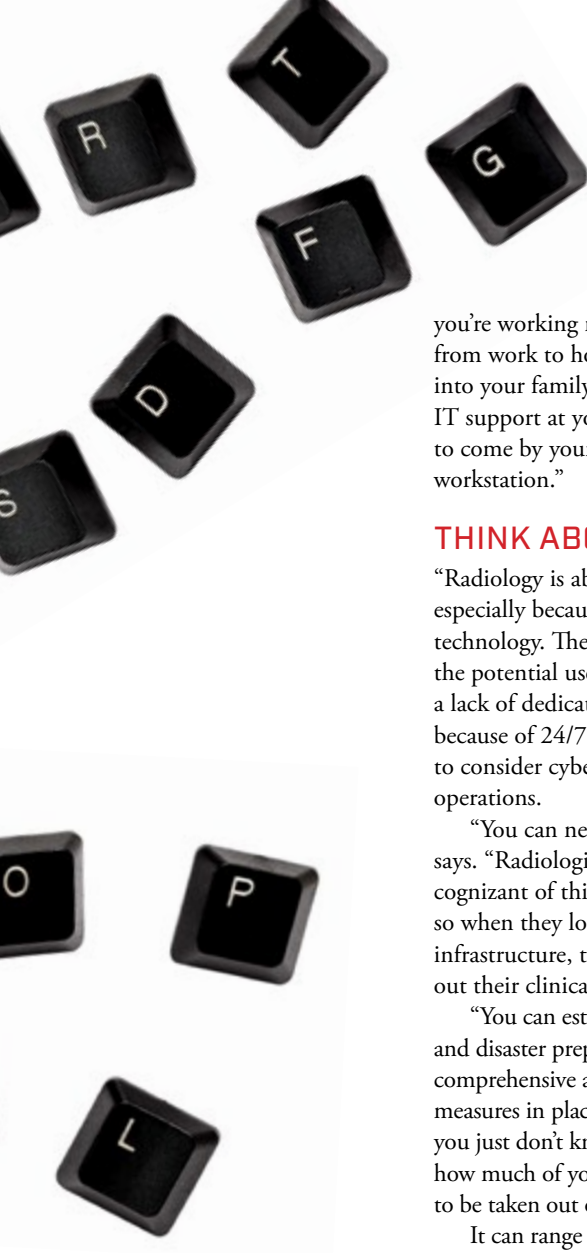
He compares the situation to sending your children to school and having them bring home the flu — except in malware’s case, the “germs” are passed virtually. “It’s imperative to have the right security measures in place when

Cyber Hygiene Tactics in Radiology

According to Wald, you cannot predict exactly how an attack might play out, but you can mitigate clinical impact by initiating “cyber hygiene” tactics to prevent a strike.

- All information stored on physical media should be encrypted.
- Information shared, such as data in transit between institutions, should be encrypted.
- Authentication on equipment (such as passwords) needs to be enabled and properly managed.
- Applications on imaging equipment need to be properly secured, and security patches must be applied when available.
- Equipment needs to be audited to ensure all proper procedures are followed.
- Use physical network security and consider endpoint protection (individual firewalls) to protect particularly valuable or critical equipment.
- Use strong passwords (including password managers and dual authentication) and control access to resources.
- Monitor for intrusion, and keep operating systems and anti-malware up to date.





you're working remotely because malware could pass from work to home through your workstation and into your family's devices," Chen says. "If you have IT support at your organization, they may be able to come by your remote location and check your workstation."

THINK ABOUT STRATEGIES

"Radiology is absolutely at risk," Palmer says, especially because of the specialty's heavy reliance on technology. The impact of disruption, coupled with the potential use of older or legacy equipment and a lack of dedicated down time for IT maintenance because of 24/7 operations, makes it imperative to consider cybersecurity as critical to business operations.

"You can never eliminate the threat," Wald says. "Radiologists have a particular reason to be cognizant of this." Radiologists are 100% digital, so when they lose even some of their production infrastructure, they essentially can no longer carry out their clinical mission.

"You can establish a reasonable level of resilience and disaster preparedness — you can try to be as comprehensive as you can to have business continuity measures in place," Wald says. "At the end of the day, you just don't know, before the actual attack unfolds, how much of your production infrastructure is going to be taken out of the game."

It can range from all of it — your complete system — to losing just part of the functionality. You may be able to isolate an attack, or it could be catastrophic. There are many variables, he says.

"As such, it behooves radiologists to spend more time probably than just about any other specialty thinking about strategies for business continuity," Wald says.

ADOPT A DEFENSIVE STANCE

"Preparation and education are key," Palmer says. The more preparation you can do in advance of a potential cyberattack, the better positioned you'll be in responding to incidents and lowering the possibility of devastation.

Your plan should include addressing everything from business continuity to data protection. It should include a low-tech solution for interim operations to allow for continued patient care, and it should be crafted with a diverse group of stakeholders — including representatives from cybersecurity, corporate security, legal, HR, communications, finance and more, Palmer says.

"It also means building relationships with law

Stay Safe Through Education

Learn how you and your team can avoid becoming victims of cybercrime through best practices, whether you're in the office, working at home, hosting a virtual meeting or updating your social media. Understand what happens during a cybersecurity breach and how you can prepare in case you're hit by a cyberattack.

Visit the ACR's Cybersecurity Resource Hub at bit.ly/ACR-Cyber-Hub.

Learn more about the ACR Commission on Informatics at bit.ly/ACR-informatics.

enforcement early and baking their roles into your plan," Palmer says. "The hours after an attack is not the time to forge new relationships." Engaging with FBI and Cybersecurity and Infrastructure Security Agency (CISA) partners before an attack occurs, for example, gives you a head start in your incident response planning. CISA, law enforcement and banking experts offer various forms of virtual and in-person training to help staff members learn how to be diligent.³

Creating a preparedness plan is crucial, but equally so is testing it — and testing it again, Palmer says. "Conducting tabletop exercises and running through various real-world scenarios will allow you to ensure all stakeholders understand their roles and responsibilities and keep your plans efficient and effective," she says.

Advances in technology are increasingly exploited by cybercriminals and hackers for malicious purposes including financial gain. Resources to combat these crimes — including videos from institutions hit by cyberattacks — have been compiled on the ACR's Cybersecurity Resource Hub (see sidebar [Stay Safe Through Education](#)).

"We can't just give radiology groups a playbook — what you're doing and what I'm doing might not call for the same approach," Wald says. "What we can and are doing at the ACR is putting radiologists on the right track toward education and preparedness." **B**

By Chad E. Hudnall, senior writer, ACR Press

ENDNOTES

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BY THE NUMBERS

\$9.23 million

The average cost of a data breach in healthcare in 2021

\$10.5 trillion

The expected cost of cybercrime worldwide by 2025

11 seconds

How often a cyberattack occurs

To learn more about these figures, visit bit.ly/ACR-Cyber-Hub.



Educators at Clinical Radiology conference of the ACR, Kansas City, Mo., 1936

A Century of Excellence

The ACR has empowered radiologists through peer recognition and professional development over the past 100 years.

As medical technologies have advanced and healthcare systems have evolved over the past century, the learning curve for physicians has heightened. To keep radiologists on the leading edge of the inevitable changes and challenges they encounter, the ACR has developed a unique space for professional excellence and growth since its inception in 1923 — achieving its mission of “empowering members to serve patients and society by advancing the practice and science of radiological care.”

What started as an honorary group of physicians committed to upholding the position of radiology in the medical field soon developed into an organization dedicated to advancing the quality of care provided by the specialty. Naturally, the College began to put an emphasis on education — not just in the medical aspects of the field but also in the role radiology plays in society. The quest to be the best was on, and it continues today.

“As radiologists, we are continuously learning,” says Lori Deitte, MD, FACR, chair of the ACR Commission on

Publications and Lifelong Learning since 2018. “Anytime there are new imaging modalities, techniques, protocols or guidelines, it requires a new or updated set of knowledge and skills. That’s why education is such an important part of what the ACR provides. We are supporting and empowering radiologists throughout their careers from medical students to residency, through fellowship and practice, into retirement.”

The ACR’s educational continuum has matured over the past century as new programs have been added to empower a rapidly changing profession. All along, the College has committed to serving members without duplicating the educational programs of other radiological societies — distinguishing itself as a world leader in radiology training.

“Although the College’s role in education has not historically been its primary mission during its first 100 years, it has been extremely important at providing unique educational offerings,” says Brad Short, ACR vice president of governance and membership services.

From residency training programs to “practice simulator” learning environments and continuing education, the College has developed new ways to offer members what they need — when, where and how they need it.

“The ACR’s current educational programs are unique in both

their content and their delivery platforms,” says the College’s CEO, William T. Thorwarth, MD, FACR.

Here’s a look at some of the ACR’s most impactful educational offerings that continue to lead the radiology profession.

Reaching Globally

Starting in the early 1900s, the Armed Forces Institute of Pathology (AFIP) played a pivotal role in teaching residents the correlation between radiologic imaging and underlying pathologic findings. From its humble beginnings as the U.S. Army Medical Museum in 1862, it branched out from a case collection into education and opened to civilians in 1920. The institute launched formal training programs following World War II. Virtually all radiology residency programs in the country were soon sending residents to the AFIP’s Radiologic Pathology Correlation Course (known as “rad-path”).

But when the military’s Base Realignment and Closure Commission mandated the disbanding of the AFIP in 2005 to cut costs, the ACR stepped up to ensure the rad-path course wouldn’t be lost as a casualty of the cutbacks. In January 2011, the popular four-week course was re-established as the ACR Institute for Radiologic Pathology (AIRP®) — maintaining the program’s longstanding legacy, bolstered by the ACR’s strong technological infrastructure.

“We felt strongly that this was a vital component to the education of residents, and the ACR was the natural organization to continue it,” says Mark D. Murphey, MD, FACR, who served as the chief of musculoskeletal imaging at the AFIP from 1993 to 2010, then spearheaded the transition to the AIRP, where he now serves as physician-in-chief. “We recognized the value of helping radiologists limit their differential diagnoses to improve patient care and lessen medical costs by avoiding additional tests.”

With the requirement that residents submit cases from their own institutions, the AIRP has amassed a massive database of more than 90,000 pathology-proven cases that lay the groundwork for this renowned training. Historically, an estimated 90% to 95% of all U.S. radiology residents attend the course, which averages approximately 1,500 students each year. International students make up at least

20% of this volume because the program has expanded its reach around the globe.



The ACR Institute for Radiologic Pathology’s rad-path training has expanded globally and now reaches an average of 1,500 students a year.

“It’s very valuable to have a common educational curriculum that almost everyone experiences,” says Jamie Marko, MD. He attended the course at AFIP during his residency in 2010, then got more involved in the AIRP during his fellowship before becoming the section chief of genitourinary imaging in 2020 and associate physician-in-chief in 2021. “Many radiologists describe their time at the AIRP as one of the most important parts of their residency training because it equips them to do less memorizing and more understanding. As we move toward more interdisciplinary care, knowing more than just the imaging — knowing the basis of the disease — allows us to speak the same language as other physicians and participate better in that care.”

Simulating Radiology in Practice

To bridge the gap between classroom learning and real-life practice, the ACR extended its training programs over time to give radiologists more hands-on experience interpreting images. The opening of the ACR Education Center in 2008 provided real-world simulation by leveraging the technologies and PACS workstations that radiologists use every day.

“The Education Center offers the only courses I’m aware of that closely simulate what radiologists do in practice,” says Murphey. “You have your own workstation and full-blown DICOM® images to evaluate, interposed with lectures from renowned faculty.”

With a limited faculty-to-student ratio of 10:1, the Education Center offers plenty of personalized feedback and unparalleled opportunities to learn firsthand from experienced radiologists. Offering a range of courses focused on various areas of clinical practice, the curriculum is designed to teach practical mid-career radiology skills and techniques by sharing emerging clinical information through one-on-one guidance.

“The Education Center provides a unique hands-on experience that simulates image interpretation at the workstation with individualized feedback,” Deitte says. “Being able to apply what you’ve learned to clinical practice is critical to providing the best possible patient care as imaging evolves.”

When the COVID-19 pandemic paused in-person courses in the spring of 2020, the Education Center started producing virtual micro-courses consisting of pre-recorded lectures and faculty case review sessions. Since on-site programs resumed in September of 2022, the Education Center has continued to offer virtual courses along with in-person training to provide extensive case-based experience.

“The Education Center is unique in that it simulates our work environment while providing individualized feedback.”

LORI DEITTE, MD, FACR

Equipping Leaders

While radiologists receive ample clinical training throughout medical school, residency and other educational programs, they also need non-interpretive skillsets to navigate increasingly complex practice environments. To fill this gap, in 2012 the ACR launched the Radiology Leadership Institute (RLI®), the first program dedicated to professional development and leadership training for radiologists.

Unlike earlier iterations of radiology leadership training previously offered specifically for practice leaders, the RLI adopted a mantra of “leadership for everyone” to empower radiologists with critical business skills at all career levels.



The RLI, which launched with a program at the Kellogg School of Management at Northwestern University in July 2012, teaches critical business and leadership skills for all career levels.

“Whether you’re a resident, a mid-career radiologist or an experienced leader, all radiologists have a role to play in the future success of their practice or department and the specialty,” says Anne Marie Pascoe, senior director of the RLI. “Our goal is to help radiologists understand the business and financial world in which they operate and provide the skills and resources needed to build strong teams, manage change and deal with challenging work situations.”

Designed by radiologists for radiologists, the RLI curriculum covers non-interpretive skills encompassing finance and economics, ethics and professionalism, strategic planning and effective communication — all within the context of radiology.

More than 9,000 radiologists had participated in the RLI by the time it celebrated its 10th anniversary in 2022. As practice environments continue to shift, Pascoe says, leadership skills will become increasingly critical.

“The healthcare landscape has changed so much in just the past 10 years,” she says. “Reimbursements and other requirements



Workstations at the ACR Education Center offer state-of-the-art instruction.

have changed the way radiologists work, as they move toward more team-based care and into C-suites and committees. The RLI is going to be a lasting hallmark of the ACR because it’s filled a gap and given radiologists the tools to give the best care to their patients as part of a cohesive team.”

Building a Community

The ACR’s educational continuum spans a wide spectrum of resources for medical students, residents, practicing radiologists, technologists, radiation oncologists and other physicians. Ongoing training such as CME sessions at the ACR Annual Meeting, Continuous Professional Improvement self-assessments, Case in Point® files emailed to members daily and lung cancer and breast imaging educational programs keep radiology on the forefront of a rapidly changing medical landscape.

As valuable as these training programs are from a purely educational standpoint, the benefits transcend the curriculum. Networking opportunities surround the ACR’s learning environment, connecting members from different practice areas, career stages and backgrounds. “Those connections can be as important as the knowledge gained,” Deitte says.

The AIRP, for example, unifies residents from all over the world. “It’s probably the only area in medicine where residents from across the country uniformly attend the same program,” Murphey says. “The professional networking that occurs here is unmeasurable. It’s not just listening to lectures; it’s the interaction with colleagues — being able to ask, ‘Is that the way you do it at your institution?’ — that provides so much value.”

These connections and networking opportunities comprise the shared experience of education that keeps radiologists at the top of their field, fostering in them a love of lifelong learning.

“The only way to provide the best and most up-to-date care is constant education and commitment to lifelong learning,” Marko says. “As radiologists, we have limited time to advance our knowledge, so knowing that the ACR is always going to provide high-quality educational materials makes it easier for us to become experts in our field and provide the best care possible.” **B**

By Brooke Bilyj, ACR Press freelance writer

Leading the Field

The College will recognize leaders in the imaging community at ACR 2023.

Each year, the College awards individuals whose work and dedication advance and strengthen the specialty. Spanning continents and subspecialties, this year's recipients include individuals from across the community of imaging intervention and therapy. Commendations will be awarded at the ACR Annual Meeting, taking place in May.

GOLD MEDAL



The Gold Medal is awarded by the BOC to an individual for distinguished and extraordinary service to the ACR or to radiology. View the list of past recipients at bit.ly/ACR-gold-medalists.



JAMES A. BRINK, MD, FACR

As the ACR celebrates its 100th anniversary, it's only fitting that one of the Gold Medal recipients this year has played a major role in the College's past, partly by helping forge radiology's role in the future. James A. "Jim" Brink, MD, FACR, the Juan M. Taveras professor of radiology at the Harvard Medical School in Boston, served as ACR BOC chair from

2016–18 and as ACR president from 2018–19. During his tenure as BOC chair, he had the foresight to establish the ACR Data Science Institute® in anticipation of the oncoming wave of AI. The DSI has matured into a recognized force in the AI community.

Brink has been described as a "leader in the field and a pleasure to work with — both at the ACR and in his other roles." Some recommendations for the award come from those who have known him since the mid-1980s, including this one: "Jim was instantly recognizable as an extremely intelligent and well-mannered chap. His work has been exceptional over many years."

Brink's position as chair of the recently merged radiology departments at Massachusetts General Hospital (MGH) and Brigham and Women's Hospital (BWH), and his academic rank as a full professor at Harvard Medical School, more than attest to his reputation and impact. He currently holds the position of enterprise director of radiology for the Mass General Brigham (MGB) Health System. In that capacity, he holds direct responsibility for two large academic departments of radiology at MGH and BWH and a number of smaller community hospital departments. One nominator says, "This is a rather unique circumstance that bespeaks the high regard in which these organizations hold his administrative capabilities."

Brink started his career with a bachelor's degree in electrical engineering from Purdue University and a medical degree from Indiana University before completing his residency and fellowship at MGH in 1990. He joined the faculty at the Mallinckrodt

Institute of Radiology at Washington University School of Medicine, where he rose to the rank of associate professor prior to joining the faculty at Yale University in 1997. He served as chair of the diagnostic radiology department at Yale from 2006–13 before returning to MGH as radiologist-in-chief.

Professional organizations including the ACR rely on member volunteers to accomplish their missions. Brink is an exemplar for his willingness to serve, one colleague points out. For the American Roentgen Ray Society, Brink served on its governing board and then as president. For the ACR, he served on innumerable committees and commissions before being elected chair of the BOC and then serving as president. He also served as the chair of the ACR Commission on Body Imaging.

Brink is a fellow of the ACR, as well as the Society for Advanced Body Imaging. He has been awarded gold medals from other organizations in the field, as well as honorary memberships in several international radiological societies. In 2020, he was elected a Distinguished Emeritus Member by the National Council on Radiation Protection and Measurements for his broad experience in medical imaging, including the use and management of imaging resources. He has specific interest and expertise in issues related to the monitoring and control of medical radiation exposure.

"The ACR is arguably the most impactful professional organization for our specialty, and it is a very special honor and privilege to receive its Gold Medal."

JAMES A. BRINK, MD, FACR

The ACR's continued relevance as a professional organization relies on both its organizational excellence and the overall success of the radiology profession. By his attention to staff support at the College and encouragement for professional development, Brink has played an important role in ensuring the ACR will continue to be the voice of radiology for its tens of thousands of members — and an employer of choice for the best talent in a very competitive market.

Another nominator says: "As a person, Dr. Brink is unassuming, outgoing and friendly. He treats everyone in a fair and open manner and has terrific support from members of his departments — both clinical and support staff. In summary, Jim continues to be an outstanding radiologist and person who has served our specialty. He has been an invaluable player within the ACR over many years, and I support this award for him with the highest enthusiasm."

Brink received the news of the award with his customary humility. "The ACR is arguably the most impactful professional organization for our specialty, and it is a very special honor and privilege to receive its Gold Medal," he says. "I have great respect for the tireless effort and diverse talents of the College's many leaders — and many with skills that extend well beyond my own. Thank you for recognizing me in this way, but I wish I could place the medal around the necks of all of you!"



CAROLYN C. MELTZER, MD, FACR, FAWR

Labeled a “game-changer” for her pioneering work in the field of radiology, Carolyn C. Meltzer, MD, FACR, FAWR, is described as “a trailblazing leader who has done it all” — a fact evidenced by her 117-page curriculum vitae submitted by one of her nominators for the 2023 ACR Gold Medal. Meltzer joins an elite group of innova-

tive leaders who have inspired people across science, medicine and radiology. She has made her mark not only in her profession but also in two other areas she is passionate about: diversity, equity and inclusion (DEI) and mentorship.

Meltzer has built her research and clinical career as a neuroradiologist and a nuclear medicine physician with expertise in PET imaging. “I’ve always been fascinated by the brain as the next frontier,” she says. As a cash-strapped medical student at the start of her career in the 1990s, she volunteered as a subject in clinical trials at Johns Hopkins Medical Center. Her persistence eventually led to an opportunity to work on the first combined PET/CT scanner in the world at the University of Pittsburgh Medical Center, where she would help lead the clinical evaluation of applications for cancer.

Today Meltzer serves as dean of the Keck School of Medicine at the University of Southern California, where she was appointed in March 2022 after being selected from among 130 applicants. She has shared plans to grow the program, which has about 2,300 faculty members. Meltzer previously served for 15 years as the chair of radiology and imaging sciences at the Emory School of Medicine, which counted more than 3,300 faculty members, including over 200 in the radiology department, at the end of her tenure. In 2020, she was named chief diversity and inclusion officer for the Emory University School of Medicine.

One colleague who nominated her describes Meltzer as “an internationally recognized scholar and cherished transformational and visionary leader who has not only conducted groundbreaking research in cancer imaging and neurosciences but also promoted a progressive agenda for academic advancement, leadership and inclusion of women and underrepresented minorities in medicine.”

Meltzer was awarded fellowship in the ACR in 2007 and served as a member of the BOC for six years. Among her numerous contributions on committees and task forces, she served as chair of the Commission on Neuroradiology and the inaugural chair for the Commission on Research.

Her academic output includes what one nominator called a “staggering” 70-plus grants from the National Institutes of Health, which she has served as a principal investigator, co-investigator or consultant. Meltzer has written more than 185 peer-reviewed publications and 266 abstracts for national and international conferences, served more than 70 national and international visiting professorships and delivered more than 200 invited lectures at national and international conferences.

Another nominator calls Meltzer “a role model and tireless advocate for the advancement of our field, and specifically, the diversity imperative.” By her own count, Meltzer has mentored

more than 100 people throughout her career. Among numerous recognitions, in 2021 Meltzer received the American Association for Women in Radiology Marie Sklodowska-Curie Award and the Academy for Radiology and Biomedical Imaging Research Gold Medal. In 2020, she received the Radiology Research Alliance Innovation and Leadership Award from the Association of University Radiologists, which had awarded her a Gold Medal in 2018. She also received a Gold Medal from the American Society of Neuroradiology and the Outstanding Researcher Award from the RSNA in 2018.

“I was thinking how much better our field would be if we could diversify and welcome all talent. So as I’ve moved into leadership positions, I have been very intentional about creating an inclusive environment in which all may thrive.”

CAROLYN C. MELTZER, MD, FACR, FAWR

Meltzer says DEI has been part of her values for as long as she can remember, and her passion for social justice was amplified by her feeling of being “a bit of an oddity” as a female in male-dominated fields, from the time she played competitive chess in high school and well into her early days in neuroradiology. “I was thinking how much better our field would be if we could diversify and welcome all talent,” she says. “So as I’ve moved into leadership positions, I have been very intentional about creating an inclusive environment in which all may thrive. At Emory, we became sort of a magnet for diverse talent at every level, from residency to senior leadership positions. I truly believe it was our advantage to be able to solve complex problems.”



EDWARD I. BLUTH, MD, FACR

Described as an enthusiastic leader within the ACR since his involvement with the College dating back to 1974, Edward I. Bluth, MD, FACR, has been a part of more than 200 publications, has held numerous leadership roles within the ACR and other radiology organizations such as the AMA and the New Orleans Radiology Society, and has been an active leader in organizing

and driving positive change for the profession.

Bluth started his studies at the University of Pennsylvania, graduating as part of the class of 1967, before advancing his studies further at the Downstate Medical Center at the State University of New York (SUNY) to get his medical degree. It was his fascination with the history of medicine that got him thinking about joining the medical field, a passion he confirmed while attending classes at SUNY.

“I was introduced to radiology when I took a fourth-year clerkship as a medical student at Downstate,” Bluth says. “The elective was in my cousin Irwin Bluth’s radiology department. He was an

excellent general radiologist in Brooklyn. He showed me that a radiologist was actually a doctor's doctor, and that the radiologist plays a major role in the delivery of quality medical care in all aspects of medicine." He returned to the University of Pennsylvania for his radiology residency.

In the ACR, Bluth served in many capacities culminating with his term on the BOC from 2011–2017 as chair of the Commission on Human Resources. When he entered the role, the main focus was dealing with relations between the allied health professionals and radiology. However, Bluth decided to expand the commission's agenda by focusing on noneconomic challenges radiologists face.

One of the ways the commission did this was through the introduction of thought papers that featured volunteer appointed committee members writing about the problems radiologists encounter outside of economics. These papers focused on issues including burnout, retirement and gender equity. The papers were published in the *JACR*® and the goal was to create not a single solution, but a wide range of options for consideration.

"He showed me that a radiologist was actually a doctor's doctor, and that the radiologist plays a major role in the delivery of quality medical care in all aspects of medicine."

EDWARD I. BLUTH, MD, FACR

One of Bluth's proudest accomplishments as chair of the Commission on Human Resources was introducing a new annual survey to help determine and accurately measure workforce needs in the radiology community. Bluth was critical in helping design the survey questions and drafting the manuscripts, getting the results out to the public as soon as possible.

He has also served the ACR as a member of the CSC from 2000–11, and the nominating committee from 1996–97.

Bluth has been a member of the staff at the Ochsner Clinic in New Orleans since 1977 and is now chair emeritus. He served for 14 years as a member of its board of managers and board of governors and was chair of the radiology department for seven years. His radiology sub-specialty has been diagnostic US. Among other significant academic achievements, he was responsible for leading the national panel that developed and published the first internationally accepted duplex carotid criteria for grading carotid stenosis. He has been a nationally and internationally invited lecturer and visiting professor and serves as professor of radiology at the Ochsner Clinical School of the University of Queensland School of Medicine and, in the past, served as clinical professor at Tulane University School of Medicine.

Even though he has had success his entire career, Bluth still has goals he'd like to accomplish. He is focused on ensuring that accurate radiology workforce assessments continue and making sure the information is available to ACR members.

"I also still want to help ensure that the value of radiology technologists and the role they play in developing and offering radiology services continues to be better appreciated," he says. "I want to emphasize that working in organized medicine can make

a difference in our lives and can influence the practice of medicine and the delivery of healthcare."

He has found his work rewarding because it helps advance the field of radiology, and he couldn't be happier to see his decades of hard work recognized with an ACR Gold Medal. "It's a major honor, and I'm humbled and appreciative," Bluth says. "I feel my life's work in the pursuit of improving the practice of radiology has been validated by this award."

HONORARY FELLOWSHIP



The Honorary Fellowship award recognizes the contributions to radiology by individuals who are ineligible for ACR Fellowship but deserving of high recognition. View the list of past recipients at bit.ly/ACR-honorary-fellows.



RICHARD PÖTTER, MD

Richard Pötter, MD, is a professor (emeritus) and chair (retired) with the department of radiation oncology at the Medical University Vienna General Hospital Comprehensive Cancer Center in Vienna, Austria. He started his professional career after earning a medical degree in 1975 from the University of Münster, Germany, where he also studied psychology and philosophical and

social sciences with a dissertation on multidisciplinary ambulatory health centers in the Netherlands.

"It was the first time in the world that we were able to build the use of MRI systematically into radiation oncology, based on an MRI scanner installed in the Vienna radiation oncology department in 1998."

RICHARD PÖTTER, MD

After initially training in surgery, internal medicine and psychotherapy, he saw the light and became a diagnostic radiologist and radiation oncologist in a period when volumetric imaging started to change radiotherapy dramatically. It is this introduction of volumetric imaging and the ability to use and incorporate MRI in radiation oncology treatment planning and guidance that Pötter considers one of the greatest accomplishments of his career.

"It was the first time in the world that we were able to build the use of MRI systematically into radiation oncology, based on an MRI scanner installed in the Vienna radiation oncology department in 1998," he says. "We found that some treatment concepts had to be adapted. In particular, for cervix cancer, we created a new concept, which was a response-adapted treatment of cervical malignancies, and then published recommendations. To go from imaging into treatment planning, to make a paradigm on one tumor site and then go through the whole process, from technological innovation and providing evidence to standard clinical practice, is valuable and important."

The breakthrough work was achieved with benchmarking trials on MRI-guided adaptive radiotherapy in cervical cancer, part of what is known as the EMBRACE studies. From its headquarters in the Vienna hospital, the EMBRACE research put a special focus on improving clinical outcome.

Throughout his career, Pötter has volunteered and collaborated with organizations like the ACR and the European Society for Radiation and Oncology (ESTRO), including serving as president of the Groupe Européen de Curiethérapie-ESTRO. “It’s extremely important for both personal and professional development to volunteer and serve outside of your practice and institutions,” Pötter says. With the achievements he has amassed during his career, he has experienced the value of networking and collaboration. “The international group we had in developing guidelines for cervix cancer treatment was very communicative,” he notes. “It is for this reason that we were able to create good guidelines.”

Pötter has also been active in teaching and education. “I like to show people a skill they can use and then see them grow,” he says. As a manager of the ESTRO School of Radiotherapy and Oncology from 2006–16, he helped to create a comprehensive program for postgraduate education. “In ESTRO, we have a tradition of teaching courses — not just doing presentations but being part of the faculty for a course over three to five days with many interactive parts,” Pötter says. “We learned from each other and had motivated students, and I enjoyed that, as a teacher, very much.”

As an author and researcher, Pötter has contributed more than 470 peer-reviewed publications to scientific journals and served as clinical editor for *Radiotherapy & Oncology* from 2005–14. With these and all his other accomplishments, accolades, awards and honors — at least 15 honors to date — when asked how he has managed to protect his well-being and prevent burnout, he says: “I’ve also asked myself this from time to time. There are a lot of challenges you have to meet, but this includes also a lot of rewarding activities. And I was happy to have a large family and a great wife. Certainly that’s helped a lot.”

DISTINGUISHED ACHIEVEMENT AWARD



The ACR Distinguished Achievement Award recognizes highly notable service to the College and the profession, or other action or achievement at the national level that reflects in a uniquely favorable manner on the ACR and radiology. View the list of past recipients at bit.ly/ACR-distinguished-achievement.



ROBERT J. ACHERMANN, JD

This year’s ACR Distinguished Achievement awardee is Robert J. “Bob” Achermann, JD, who has served as the executive director of the California Radiological Society (CRS) for much of his nearly 40-year career. Achermann has worked side-by-side with the state society leadership, successfully championing difficult policy issues in diverse areas of healthcare, including occupational

licensing and medical malpractice reform, and has advised multiple ACR board chairs throughout his career. He has served as advisor to many national ACR leaders over that span as well.

“In this capacity he had a great pulse on legislative issues confronting all of radiology. Bob has been one of the icons of legislative and regulatory support to the house of radiology.”

A NOMINATOR FOR ROBERT J. ACHERMANN, JD.

Achermann has been described as a “respected legislative advocate” and having a “calm sense of logic and reason on some very controversial issues.” Some recommendations for the award came from those who have known Achermann during his 26-year tenure as a lobbyist for the CRS. “In this capacity he had a great pulse on legislative issues confronting all of radiology,” one CRS colleague says. Another CRS colleague says of Achermann, “Bob has been one of the icons of legislative and regulatory support to the house of radiology.”

Achermann has worked tirelessly alongside his physician partners in influencing elected officials, state and federal regulatory agencies and insurance companies to ensure that payment policy and regulation support the delivery of high-value imaging. Among some of the issues Achermann has navigated the CRS through are:

- 1) Opposition to an effort to eliminate routine screening mammography to women age 40 to 49.
- 2) Leadership of a coalition to support the passage of the physician self-referral law in California with a subsequent bill to ban suspect leasing arrangements.
- 3) Support of legislation to affirm the contractual relationship between hospitals and members of the medical staff limiting unilateral capricious actions by hospitals to terminate or offer an exclusive contract (i.e., to radiologists).
- 4) Work to limit the impact of final legislation in California on out-of-network reimbursement to radiologists by providing better reimbursement levels.
- 5) Coordination of objections, together with the ACR, to Health Care Finance Administration rules allowing nurse practitioners and clinical nurse specialists to perform and be reimbursed for diagnostic imaging procedures without physician supervision in California.

Achermann’s reputation as a powerful and effective advocate for radiologists and the patients they serve is known well beyond his home state of California. Achermann was always a familiar and welcome face and voice at the Western States Caucus of the ACR annual meetings. One CRS colleague says, “Whenever one of the councilors had difficulty explaining California issues that impacted other states, Bob was always there to provide concise and understandable explanations.”

Several ACR BOC chairs have relied on Achermann for his insight and assistance in appropriately directing controversial issues facing the College. According to former BOC Chair James P. Borgstede, MD, FACR, “Bob possessed an outstanding ability to guide and creatively think through complex socioeconomic and governmental issues. This ability has been invaluable to not only the CRS and Western states but also the entire ACR.” **B**

By Chad E. Hudnall, Diane Sears, Raina Keefer, Alexander Utano and Nicole Racadag, ACR Bulletin staff

A Community Effort

One radiology department strives to improve health equity by partnering with its surrounding community.

All healthcare is not created equal. Although most institutions strive for high-quality care, value-based care can look different from population to population. Patients are born into and live under conditions that affect their ability to be healthy, such as access to healthy food, reliable transportation, education and safe living conditions. In turn, these determinants can foster health disparities and inequities.¹

The Vanderbilt University Medical Center (VUMC) Department of Radiology believes radiology is in a unique position to improve health equity. In 2020, VUMC Radiology established a health equity program committed to reducing barriers to imaging care, led by Lucy B. Spalluto MD, MPH, inaugural vice chair of health equity. The program aims to increase awareness of health equity principles, generate interest in health equity among trainees and foster research that addresses health equity.

Although VUMC Radiology Health Equity collaborates closely with VUMC Radiology's Office of Diversity and Inclusion, the health equity program is a separate initiative with discrete infrastructure and resources. "We recognized there was a real need to focus our efforts on health disparities," Spalluto says. "Specifically, we realized we needed to provide infrastructure and support for ongoing and future health equity efforts beyond diversity and inclusion in the medical workforce in order to drive real change."

The department's annual lectureship in health equity is an important avenue to support discussion of topics important to the surrounding community that affect community health. This annual lectureship is named after the late Matthew Walker III, PhD, professor of radiology and radiological sciences and professor of the practice of biomedical engineering at Vanderbilt University. Walker, who was a member of the health equity team, championed bringing affordable healthcare to marginalized populations as well as opening the pipeline for underrepresented minorities in medicine.

Empowering Others

Helping communities at large requires the work of many hands. To that end, one of VUMC Radiology's main strategies is to empower individuals throughout the geographic area to develop partnerships and collaborate with others working to improve healthcare. "To drive change, we have to get out into our communities and understand their needs — we can't stay in the bubble of academic medicine," Spalluto says.

In 2022, VUMC Radiology Health Equity offered the first Vanderbilt Radiology Health Equity Community Partnership Grants. Funded by the department's Diversity, Equity and Inclusion Endowment, the grants offer up to \$2,000 for the awardees to develop trust, capacity and understanding between VUMC Radiology and the surrounding community, Spalluto says. The awards are



At the Vanderbilt Radiology Matthew Walker III, PhD Annual Lecture in Health Equity, pictured left to right: Andrea A. Birch, MD, FACR, Vanderbilt Radiology associate director of health equity; Grand Rounds speaker Hedy Weinberg, equality and justice advocate, former director of American Civil Liberties Union of Tennessee; Carla Brathwaite, ACR diversity, equity and inclusion program manager; Beverlee Carlisle, ACR publication specialist; Lucy B. Spalluto, MD, MPH, Vanderbilt Radiology vice chair of health equity; and Reed A. Omary, MD, MS, FACR, Vanderbilt Radiology department chair.

open to VUMC Radiology faculty, staff, residents and fellows, as well as medical students from Vanderbilt University and Meharry Medical College, a historically Black medical school in Nashville.

The three inaugural awardees from 2022 have already been making strides in the greater Nashville community. Kai Wang, MD, a resident at VUMC Radiology, is working on a project focused on breast cancer screening in the transgender patient population.

"Transgender patients have historically faced many barriers to healthcare, in part due to discrimination and trauma in healthcare settings," Wang says. "Breast cancer screening is also rarely talked about once a patient has completed gender-affirming therapy, and the recommendations for breast cancer screening for transgender patients are different from those for cisgender patients.^{2,3} For example, although transgender men may have had breast tissue removed, they do not receive a total mastectomy, meaning they should still be screened."

To help address this population's needs, Wang is partnering with local lesbian, gay, bisexual, transgender, and queer (LGBTQIA+) organizations to engage with Nashville's transgender population. Wang and his team are conducting a survey to gain better understanding of the transgender community's sentiments toward breast cancer screening. The team will use those results to retool mammography experiences and aim to make the visits more inclusive for all patients. Wang and VUMC Radiology will also work with their community partners to host breast health seminars for transgender patients to increase understanding of current recommendations and who needs to be screened.

The other 2022 awardees — Heather A. Cole, MD, a resident at VUMC Radiology, and Angelina Cords, MD, a former resident at VUMC — worked with Shade Tree Clinic, a nonprofit clinic for uninsured people run by VUMC medical students who provide care at no cost to patients. People seen at Shade Tree Clinic are sent to VUMC if they need imaging care, with the cost of imaging covered by the institution.

However, receiving offsite care can be difficult for patients who have limited transportation access or who may have to ask for additional time off or incur extra childcare expenses. To alleviate some of that difficulty, Cole and Cords worked with Shade Tree leadership to create an on-site ultrasound clinic and have been coordinating volunteer sonographers to perform examinations and volunteer radiologists to interpret images and discuss findings with patients.

“Everyone has been enthusiastic to be a part of this project, with many of the radiologist attendings graciously volunteering their time,” Cole says. “Amazingly, the majority of our volunteer slots at Shade Tree are already filled for the year.” Cole is setting up an elective program that will allow radiology residents to participate in and learn from the clinic.

Both Cole and Wang credit part of their projects’ success to the community grants. “These grants empower us to make larger connections in our community — I had an idea I was passionate about, and they helped make it happen,” Cole says.

Making connections is also key to improving community care, Wang adds. “Getting out there really helps us understand the needs and perspectives of our patients and develop the trust that is so necessary for their care.”

Increasing Access

VUMC Radiology also has implemented concerted efforts in breast and lung cancer screening. Nashville faces similar at-risk patient populations to those of any major city: historically marginalized residents, people experiencing poverty and homelessness, and LGBTQIA+ patients, just to name a few, according to Katie M. Davis, DO, assistant professor of radiology and section chief of breast imaging at VUMC. “We’re also surrounded by a rural population that must travel at least an hour to reach healthcare,” she says.

To help make mammography more accessible, VUMC Radiology meets patients in their own communities by visiting their workplaces or doctors’ offices and conducting screenings outside of traditional business hours, Davis says. Three times a year, VUMC Radiology partners with Metro Nashville Public Schools to offer Saturday screenings. VUMC also offers mammography sites throughout Nashville and its suburbs as well as locations in rural middle Tennessee.

Additionally, VUMC Radiology is the principal site of the Coordinate a Lung Screening with Mammography or CALM study. Research team members check mammography appointment schedules for patients who are also eligible for lung screening. The screening program clinical coordinator then contacts patients’ primary care physicians to let them know that those individuals can undergo both screenings on the same day at the same facility.

“I noticed that many women who were diagnosed with lung cancer had not enrolled in lung screening but had often received



The team at the Shade Tree Clinic, pictured front row left to right: Lucy A. Spalluto, MD, MPH, Vanderbilt Radiology vice chair of health equity; and Heather A. Cole, MD, Vanderbilt Radiology diagnostic radiology resident. Back row, left to right: Bea Solorzano, VUMC diagnostic medical sonography program sonography student; Laura E. Heyneman, MD, Vanderbilt Radiology faculty radiologist; Alyssa Altheimer, Vanderbilt University School of Medicine medical student and Shade Tree Clinic ultrasound director; James Jordano, Vanderbilt University School of Medicine medical student and former Shade Tree Clinic executive director; and Jill Webb, RT, RDMS, RVT, program director of VUMC diagnostic medical sonography program.

years’ worth of mammograms,” says Kim L. Sandler, MD, co-director of the Vanderbilt Lung Screening Program. “I realized these patients were engaged in the healthcare system and knew the benefits of breast screening but had perhaps not been presented the opportunity for lung screening.”

VUMC Radiology is hard at work on these initiatives and many more, including health equity lectures, resident electives and research opportunities. The organization is also hoping to inspire more radiologists to become involved in health equity efforts.

“As radiologists interact with patients more, the things we’re doing are impacting patients more than before,” says Andrea A. Birch, MD, FACR, associate director of health equity at VUMC Radiology. “Working in health equity allows radiology to impact some of the policies and some of the changes and initiatives that need to occur to level the playing field.”

That impact is only expected to grow as radiology continues to advance, Spalluto says. “Health equity is the responsibility of each and every one of us,” she says. “It’s going to take commitment from all levels to really create change.” **B**

By Meghan Edwards, freelance writer, ACR Press

ENDNOTES available in the digital edition at acr.org/bulletin

Learn More About Improving Health Equity

The Radiology Health Equity Coalition’s five-part webinar series “Breaking Medical Imaging Barriers” provides practical, actionable insights for improving health equity. The live and on-demand program has already reached about 500 radiologists, community health services and other medical providers. To view the webinars, visit bit.ly/RHEC-Barriers.

The field of radiology is rapidly evolving. What changes do you see for the specialty over the next few years?



“One of the most significant is the increasing use of AI and machine learning. These technologies have the potential to improve the accuracy and efficiency of medical imaging. Another expected change is the increasing use of telemedicine, which has the potential to improve patient care and reduce costs. Another important change is the increasing use of 3D imaging, which provides more detailed and accurate images than traditional 2D imaging. There is also a growing interest in using radiology to detect and monitor chronic diseases such as cancer, heart disease and other conditions at an early stage, which can help improve patient outcomes.”

Jason Adleberg, MD, radiology resident, Mount Sinai Health System



“Several big themes are converging: 1) implementation and governance of AI, 2) persistent/increased remote and teleradiology services, 3) payment models, especially to reflect volume, complexity, practice style and new technologies, 4) sociolegal environment including #Rads4Choice, #salarytransparency, #TransHealthcare, 5) climate change and “green” decision-making such as #Rads4SF, 6) increased focus on diversity and inclusion in radiology/medicine, bringing new perspectives and leadership to innovate for the future, and 7) adapting our residency/fellowship programs and ABR certifications to meet the challenges of this reality. It’s an exciting time to be in radiology and become a part of this change.”

Florence X. Doo, MD, MA, chief fellow, body imaging, Stanford University Healthcare;
ACR Informatics Fellow, 2022–2023

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