IMAGING 3.0 IN PRACTICE
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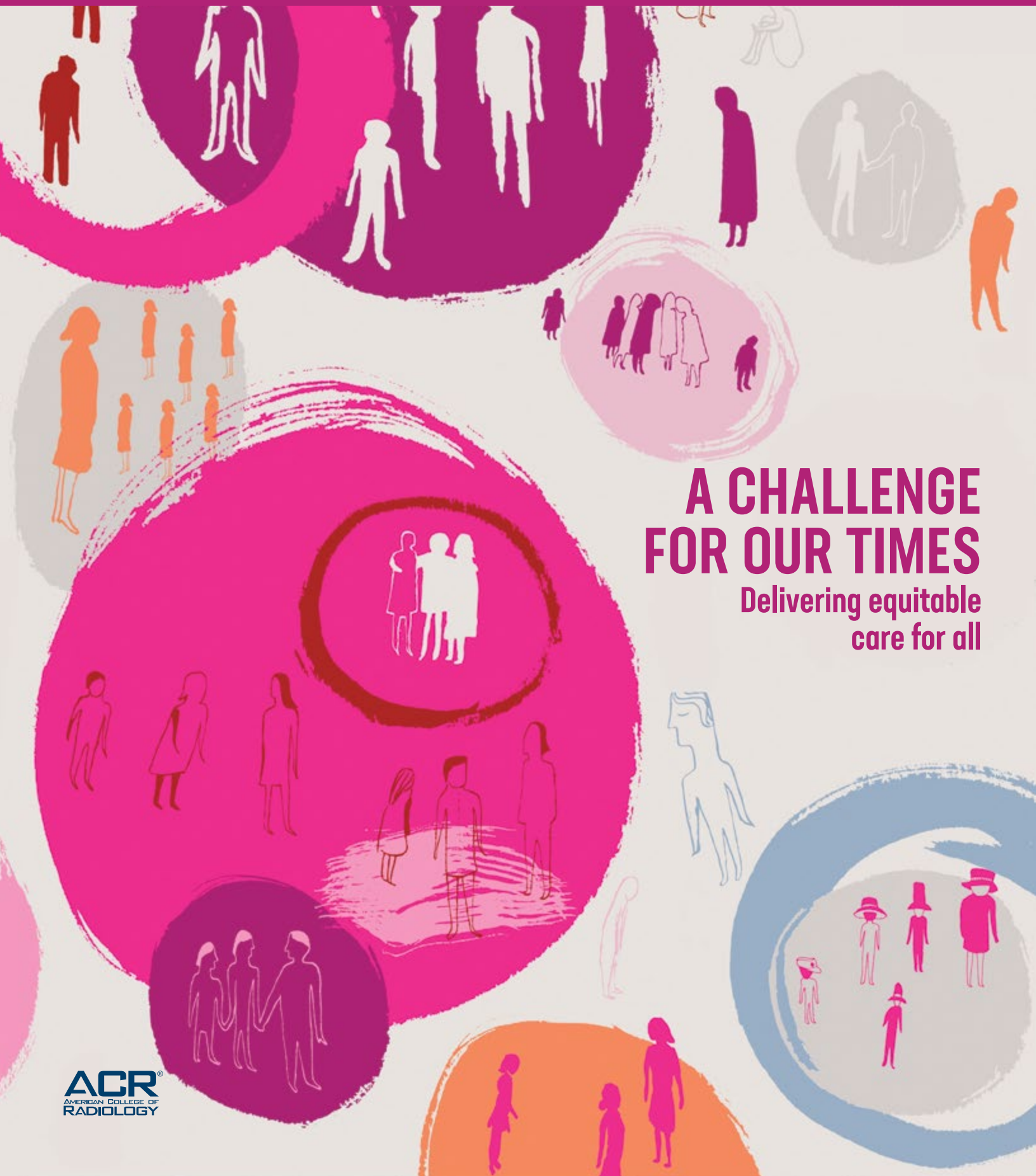

A CHALLENGE FOR OUR TIMES

Delivering equitable care for all

ACR® American College of Radiology

May 2021

IMAGING3.0®

IMAGING 3.0 IN PRACTICE

A Challenge for Our Times

Delivering equitable care for all

As medical professionals, we have an ethical responsibility to understand our patients' medical needs and the influences impacting their care. Providing equitable care does not simply mean delivering equal care across different patient populations. It means reducing and eliminating barriers so that everyone – regardless of race, ethnicity, gender, sexual orientation, disability, or socioeconomic status – has the opportunity to attain their full health potential. In short, providing equitable care means comprehensively addressing individual patient needs for more positive outcomes across all populations.

Inequities have existed within the healthcare system for decades. Barriers to access and care – from economic strife to systems-based discriminatory policies – have resulted in avoidable negative health outcomes, even death, among some patient populations. The COVID-19 pandemic has revealed the magnitude and consequences of these inequities even more. Now is the time for radiologists to seize the opportunity to make healthcare more equitable for all.

Imaging guides many, if not most, healthcare decisions, and radiologists are critical to the mission of eliminating disparities throughout the health system. This issue highlights some of the many ways that radiologists are advancing this goal. From developing language tools for patients who speak limited English, to advocating for lifesaving screening coverage for women, to conducting community outreach and encouraging smokers to receive early lung cancer screening, radiologists are addressing barriers that prohibit patients from accessing and fully participating in their care.

Achieving health equity will require dedication both inside and outside of our healthcare delivery systems. Faced with this challenge for our times, we must be focused and forward-thinking in this effort. In helping patients who face the greatest barriers, we will help all patients reach their full health potential.

Jacqueline A. Bello, MD, FACR
Vice Chair, ACR Board of Chancellors

Case Studies

Cover illustration: Trina Dalziel / Ikon Images

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Case Study Published March 2021

Translated for Care

Radiologists create a translation tool that helps increase efficiency and improve the patient experience for greater health equity.

KEY TAKEAWAYS

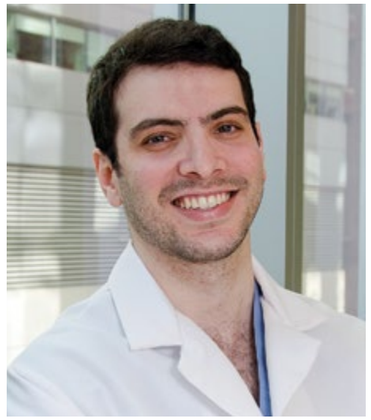
- Radiologists at Massachusetts General Hospital (MGH) leveraged artificial intelligence to develop a translation tool to enhance care and improve health equity among patients who speak limited English.
- The web-based tool delivers common imaging exam instructions, such as "hold your breath," in Spanish and other languages at the push of a button.
- Since MGH deployed the tool, preliminary data shows that exam times are more predictable for standard chest X-rays while enhancing the patient experience.

During imaging exams, technologists often provide directions about how patients should position themselves to ensure the best image acquisition and quality. But when language is a barrier, providing optimal patient care can be difficult. While in-person translators and telephone-based translation services can help, connecting with those services can sometimes slow down care. It's a challenge the radiology team at Massachusetts General Hospital (MGH) has overcome with development of an innovative translation web app that it is sharing with other specialties and healthcare institutions to help improve patient care across the country and around the world.

MGH radiologists created RadTranslate,™ a web app that currently delivers imaging instructions in Spanish, Mandarin, and Portuguese — the three most-common languages, after English, that MGH patients speak — after the radiology team at the MGH Chelsea HealthCare Center indicated that they struggled to communicate with members of the predominantly Spanish-speaking community, particularly during the initial COVID-19 surge in early 2020. Research shows that COVID-19 disproportionately impacts non-white and non-English-speaking people in the U.S.[1]

"Chelsea is located just across the river from Boston and has about 40,000 residents, upward of 70% of whom speak Spanish," says Patricia Daunais, operations manager for MGH Health Center Imaging. "At Chelsea HealthCare, some of us can navigate a few key phrases in Spanish, such as *hold your breath*, but the language barrier became pronounced during the initial COVID-19 surge. Patients were so sick that they were unable to comprehend what we were trying to say and waiting for a translator caused care delays."

Members of the radiology department's Diversity, Equity, and Inclusion (DE&I) Committee, which includes radiologists and staff, and MGH's Medically Engineered Solutions in Healthcare (MESH™) Incubator collaborated with the Chelsea HealthCare group to develop RadTranslate. The team launched the web app in late April of 2020 at Chelsea HealthCare, and a few months later, it also began piloting the tool at an MGH mammography screening site. At these two locations, technologists now use the tool between 15-25 times per day and rate it 4.8/5 stars for its ease of use and positive impact on patient care. The most-used phrases include general explanations of the exams and instructions for disrobing and removing jewelry.[2]



Marc D. Succi, MD, emergency radiologist and founder and executive director of MGH's MESH Incubator, led the development of RadTranslate to help technologists communicate with non-English speaking patients.

"Preliminary data shows we can reduce the variability in exam times and therefore better predict and reduce patient wait times on a standard 10-minute chest X-ray when RadTranslate is used for non-English-speaking patients versus traditional interpreters," says Marc D. Succi, MD, emergency radiologist and founder and executive director of MGH's MESH Incubator. "In addition, the care experience is more user friendly and equity and inclusion is enhanced because patients receive the care they need more quickly and in a more understandable way."

> "The care experience is more user friendly and equity and inclusion is enhanced because patients receive the care they need more quickly and in a more understandable way."
>
> –Marc D. Succi, MD

Serendipitous Moment

The idea for RadTranslate grew from an initiative that was sidelined because of the COVID-19 pandemic. Before the pandemic unfolded, Daniel B. Chonde, MD, PhD, radiology resident at MGH and co-chair of the radiology department's DE&I Committee on Education, was working with Succi and other committee members to develop a hackathon, an event that brings community members together to develop new ideas, focused on addressing DE&I challenges in imaging. As the team discussed the hackathon, some committee members expressed doubt about their ability to conceive viable solutions during the event.

"It seemed really scary to some people because the premise was that you just showed up, thought of an idea, and developed it," Chonde says. "Back in January, before the pandemic hit, I asked the committee to run through an exercise and think of something in the hospital that posed a challenge, and then we'd try to come up with an interesting solution. That's when one of the technologists mentioned that it was hard to get in-person interpreters, particularly overnight, so they would just kind of pantomime to the patient what they wanted them to do during the exam — such as take a deep breath or stand up. Then someone said, 'Oh, wouldn't it be cool if we had an app that had all of the languages, and you could just press a button and it would vocalize the directions?' And I was like, 'See, in 5 minutes we came up with a great idea; imagine what we could do in 10 minutes.'"

The exercise gave committee members confidence about hosting the hackathon. They planned to hold the event in March of 2020, but as the pandemic swept across the country, they canceled it for safety reasons. Instead, committee members reached out to Chelsea HealthCare to see what they could do to help the clinic as COVID-19 ravaged the city. "The Chelsea team told us that their workflow was getting crushed because they didn't have enough in-person interpreters and that using our telephone-based interpreter system was challenging because the phones, which aren't wireless, are difficult to move around the clinic," Chonde recalls. "That's when we shared the concept for the translation app that came up during the hackathon demo, and the Chelsea team was immediately interested in the idea."

Rapid Development

Chonde met with Succi to discuss the possibility of developing such a tool. Succi, who has a background in web design, coding, and device development, was eager to help and promptly started contemplating the best format for the tool — with accessibility as the top priority. "In a lot of these situations, you may not know that your next patient is Spanish-speaking, so you don't really have time to download a translation app to your phone. Plus, a lot of hospital networks don't allow you to download apps like that," Succi explains. "We wanted this to be as accessible as possible, so we decided to make it a website."

From there, Succi visited Chelsea HealthCare and spoke with the technologists about which phrases they most frequently needed to communicate to care for patients and about how they might use the tool in the exam room. He then built the website and used an artificial intelligence (AI) speech program to translate and vocalize the phrases that the technologists provided into Spanish. "The main reason I used the AI-powered speech program was for standardization," Succi notes. "This way, the pitch and the tone are exactly the same for each translation. That is important for reducing variability in the quality of the translations so that patients can easily understand them for an improved care experience."

Daniel B. Chonde, MD, PhD, radiology resident at MGH and co-chair of the radiology department's Diversity, Equity, and Inclusion Committee on Education, conceived the idea for RadTranslate with other members of his committee.

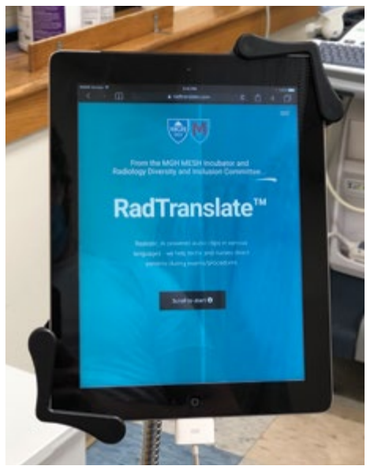
Over a weekend, Succi had a prototype ready for sharing. He went back to Chelsea HealthCare and set a computer tablet on a stand near the technologist and placed a wireless speaker on the other side of the room so that the patient could easily hear the translation. He then asked the technologists to test the tool and provide feedback for improvement. "This is a fundamental component of user-centered design, where you go to the end-user and build from there," Succi says. "The technologists provided great feedback. For example, they told us that the question, 'What is your first and last name?' should be separated into two questions because some patients might not understand both phrases in one question."

Succi used the technologists' feedback to tweak the prototype. For future updates,

he created an online form that users can fill out to suggest additional phrases or request that translations for additional modalities be incorporated into the tool. "In order to make the tool scalable, we have an online intake form that anyone can use to suggest a phrase," Succi notes. "So, if the technologists find themselves using additional phrases that we didn't include during the initial design, they can fill out the form. This provides an opportunity to do longitudinal iteration and updates."

Reduced Disparities

As the COVID-19 pandemic raged, Succi deployed the tool at Chelsea HealthCare about a week and a half after Chonde approached him with the idea. It was a welcomed addition to the team's pandemic-fueled workflow as they used X-rays to image hundreds of patients with suspected COVID-19. "Dr. Succi brought over the tablet and set it up on his way home one night," Daunais says. "I can't tell you what it meant to us, particularly during the COVID-19 surge. All we had to do was push a button, and the instructions came out in Spanish. Patients were really responding to it. You could see the comfort come over them, and it helped us improve our efficiency to get patients in and out. I don't know that we would have been able to achieve that level of efficiency without it. It upped our game and allowed us to help patients without delay."



A web app that delivers imaging instructions, RadTranslate is easily accessible at the point of care.

With RadTranslate helping to provide more equitable care to Spanish speakers in Chelsea, Succi reviewed hospital data to identify the other most common languages that MGH's diverse patient population speaks. Based on that research, Succi has added Mandarin and Portuguese translations to the tool and has started working to include Arabic, Haitian Creole, and Italian, as well. "When you're trying to care for patients, you don't want to delay care because of someone's language," Succi says. "For straightforward exams, this one-way communication allows teams to provide more inclusive care."

In addition to loading more languages, Succi is working to deploy the tool across MGH. He has already partnered with Gary X. Wang, MD, PhD, radiologist at MGH and the breast imaging division's community site liaison for Chelsea and the town of Revere, to incorporate screening mammography instructions into the tool and deploy it at MGH's breast imaging center in Revere, which, like neighboring Chelsea, is home to many non-English speakers. "During the COVID-19 surge, we paused mammography screening in support of public health measures and mandates, and some of the mammography technologists from Revere helped with chest X-rays at Chelsea," Wang explains. "When they saw how well RadTranslate worked for chest X-rays, they were eager to use it for mammography. I worked with Marc and the technologists to incorporate the mammography instructions and deploy it in Revere. The mammography technologists say that it contributes to a more welcoming and equitable experience for patients."

Succi hopes to expand RadTranslate's use not only throughout MGH but also at institutions across the nation and around the globe. To that end, he has made it open access so that anyone anywhere can use it immediately and without cost to improve patient care. "As large academic medical centers with the means and resources, if we can use technology to help reduce health disparities, then it's our obligation to do it," Succi says. "Everyone deserves a high level of care, and this tool can help us deliver that level of care to all of our patients."

Gary X. Wang, MD, PhD, radiologist at MGH and the breast imaging division's community site liaison for the towns of Chelsea and Revere, plans to use RadTranslate for screening mammography.

By Jenny Jones

ENDNOTES

1. Clark E, Fredricks K, Woc-Colburn L, et al. Disproportionate impact of the COVID-19 pandemic on immigrant communities in the United States. *PLoS Negl Trop Dis.* 2020; 14(7):e0008484 doi: 10.1371/journal.pntd.0008484
2. Chonde D, Pourvaziri A, Williams J, et al. RadTranslate: An artificial intelligence-powered intervention for urgent imaging to enhance care equity for patients with limited English proficiency during the COVID-19 pandemic. *J Am Coll Radiol.* 2021; doi.org/10.1016/j.jacr.2021.01.013

Now It's Your Turn ››››

Follow these steps to deploy RadTranslate at your institution and tell us how you did through email at imaging3@acr.org or on Twitter at the hashtag #Imaging3.

- Analyze your patient population and determine whether your team could provide better patient care by incorporating RadTranslate into your workflow.
- Access RadTranslate at radtranslate.com and set up computer tablets and speakers to make it easy for your technologists to use the tool during imaging exams.
- Provide feedback through the online form to suggest additional phrases and modality instructions to include in the tool.

Case Study Published October 2018

Clinical Integration

At an academic medical center, interventional radiologists and neuroradiologists are embedded in patient clinics and collaborating at the point of care.

KEY TAKEAWAYS

- The clinical practices of interventional radiology (IR) and interventional neuroradiology (INR) are integral to patient care at the University of Tennessee Medical Center in Knoxville.
- Multidisciplinary clinics in the Cancer Institute and the Brain & Spine Institute allow patients to see various providers in one visit, discuss issues and options, and engage in the care plan.
- Referring physicians count on the IR and INR specialists as invaluable partners on the collaborative patient care team.

In 2013, a 62-year-old man from a rural county in the central Appalachia region of Tennessee was diagnosed with a large, biopsy-proven hepatocellular carcinoma. Due to his lack of trust in the medical system, he delayed further assessment and treatment of the tumor for nearly three years.

In early 2016, with symptoms worsening, the patient finally arrived at the University of Tennessee (UT) Medical Center's Cancer Institute.

Keith D. Gray, MD, MBA, associate professor and chief of the surgical oncology division, immediately ordered new scans and quickly determined that the man's right-sided liver cancer had grown to approximately 15 centimeters. Realizing that chemotherapy is typically ineffective for a hepatocellular carcinoma, Gray raised several questions: Can the tumor be resected? Does the patient have enough healthy liver on the left side to facilitate resection? If not, what are his other treatment options?

Answering the Call

For answers, Gray turned to the UT Medical Center's multidisciplinary clinic for patients with liver and pancreatic diseases. The clinic was established in 2015 with instrumental guidance from the department of radiology and its chair, Laura K. Findeiss, MD, FSIR, who is an interventional radiologist.

"At UT Medical Center, we pride ourselves on designing a unique treatment regimen based on each patient's diagnosis and needs," says Gray. "Interventional radiology (IR) is a key player in providing that type of personalized care for our patients. Whether it is preparing for surgery or determining an alternative to surgery or helping us with complications related to surgery, we view the interventional radiologists as a part of the team. They're not an afterthought. When we're thinking about the plan, the options they bring to the table are always considered."

Every Monday, a team of oncology caregivers — including surgical, medical, radiation, IR,

Interventional radiologists and interventional neuroradiologists are integral members of patient clinics at the University of Tennessee Medical Center in Knoxville.

gastroenterology, and nurse navigators — participates in a same-day clinic for liver and pancreas patients. In a multidisciplinary conference beforehand, providers gather to review the imaging and treatment options for each of the patients. "It's not mandatory; there's no CME credit," notes Findeiss. "But the physicians and nurses continue to show up to the conference every Monday and are enthusiastic about providing the best care possible. And when a patient sees various providers across the clinic, everyone is on the same page."

For patients, the clinic means they can see all caregivers in one visit, which is especially important for those who are constrained by socioeconomic pressures and remote locations. "We often have a difficult time getting those patients the care they need and getting them back and forth to appointments," says Findeiss. "With the clinic, it's a long day for the patient, but it's all done in one trip. It's one day off work, one tank of gas."

Navigating the Pathway

In the case of the wary liver cancer patient, that collaborative approach proved invaluable. "We knew if he was a candidate for resection, he would need hypertrophy of his liver remnant via a portal vein embolization," remembers Gray.

The interventional radiology and interventional neuroradiology clinical practices are key to the consultative radiology platform established by radiology chief Laura K. Findeiss, MD, FSIR, an interventional radiologist.

"But if we did the portal vein embolization, that would preclude us from doing regional therapy if he turned out not to be a candidate for surgery," Gray continues. "It's a pretty complex pathway, and we were dealing with a patient who didn't trust the system. We were on the fence when we first went into the clinic, but we worked through all the questions together and had a plan going into the afternoon."

A laparoscopic ultrasound found occult liver disease in the left side, which precluded the patient from surgical intervention. Then Findeiss scheduled the patient for a minimally invasive radio-embolization (Y90) to the right side of the liver. "The patient showed up for his treatment with Dr. Findeiss, and now he's on his way," emphasizes Gray. "Thanks to the clinic, it went off without a hitch — whereas if the patient had to come back for five different appointments, he may not have engaged further and received the proper treatment."

Establishing a Footprint

The weekly clinic grew out of the IR clinical practice that Findeiss and her team established at the Cancer Institute in 2014. "Initially, a lot of our IR work was cancer related, so we asked the cancer center about leasing clinical space to see patients in their clinic. At first, it was a half-day a week, then we progressed to a second half-day, then a third," says Findeiss. "The goal was to establish a footprint. This is our day to see patients; we're not getting pulled into IR procedures. That's also the challenge because you're not generating revenue at the outset. The others in your practice need to have faith it will grow and add value — without a lot of cost."

The faith in Findeiss was well placed. Being in the cancer center with the oncologists and seeing patients concurrently helped the IRs establish strong relationships with other physicians and demonstrate their value, which led to additional referrals.

"We view Dr. Findeiss and her IR team as a collaborative partner, as an integral member of the team, not as an adjunct," says Gray. "IR is involved in day-to-day decision-making about complex oncology patients. They're approachable, they're knowledgeable, they're available, and they're engaged. As she continues to build her team, she brings in like-minded people to expand that footprint. This is the approach to transform into the next generation of patient care."

Expanding the Imprint

As word of the IR clinic's success spread, the IR team began making changes to optimize the clinical practice of interventional neuroradiology (INR). "One of the neurosurgeons who performs a lot of vascular neurosurgery asked if we could see patients concurrently in the neurosurgery clinic," says Findeiss. "Now our INR specialists have a combined clinic with them one morning a week where they work side by side with the neurosurgeons."

Andrew S. Ferrell, MD, director of neuro-interventional services at UT Medical Center, says that the INR team collaborates on all of the cases and sees some patients together with a neurosurgeon and some independently. "If a patient is an equal candidate for clipping versus coiling or intravascular therapy versus an open therapy, they can see both of us at the same time, in the same place," he says. "Patients understand that we are truly giving them the best options to make an informed decision about their care."

The comprehensive stroke team also takes a multidisciplinary approach to patient care, with a biweekly neurovascular case conference. "We present cases to ensure the plan is appropriate from everybody's perspective," Ferrell explains. "As a team, we also review past cases to assess lessons learned and identify changes to improve patient care. The neurovascular case conference is what glues us together."

Creating Convenience

Ultimately, Findeiss says the joint clinical practices provide convenience for the patient and for the referring physicians. "Before, patients would see one physician, who provided a referral to IR or INR, and then the referring doctor had to jump through hoops for pre-authorization and scheduling," she notes. "Once we put the IR doctor into the clinic, everything goes through our process. We're pre-authorizing patients, setting appointments, and handling everything on the back end, so it takes some of the burden away from overworked office staff. The patients are happier, and the physicians and their staffs are happier."

David Hall, senior vice president and chief operating officer at UT Medical Center, who is a champion of the clinical practice of radiology, sums up its value to patients and to the organization: "Clinical integration breaks down silos in healthcare. The multidisciplinary clinics allow patients to ask questions and providers to discuss issues and options collaboratively with patients and one another. That provides for a much better experience and connects pieces of the system that, before, might have been somewhat difficult for patients to navigate," he says.

Hall adds, "Put simply, bringing interventional radiologists into the clinical process advances our plan for expanding our patient outreach, which means we're no longer depending strictly on patients to come to us, but we're becoming more convenient for our patients."

By Linda G. Sowers

Now It's Your Turn ››››

Follow these steps to begin embedding IRs and INRs into patient care clinics and tell us how you did at imaging3@acr.org or on Twitter with the hashtag #Imaging3.

- Consider leasing space in existing patient clinics and embed IR and INR specialists with other clinicians to provide collaborative care.
- Establish a clinical foothold and then grow by demonstrating your value to other providers and to patients.
- Take the burden off of referring physicians' staffs by handling pre-authorization, scheduling, and other processes.

RECOMMENDED

Lessons for Learning

Podcasts

Population Health Management in Your Practice

Lucy B. Spalluto, MD, MPH, vice chair of health equity at Vanderbilt University Medical Center, talks about health care equity and diversity and the role radiologists can play in ensuring quality care in their communities.

acr.org/PHM-in-Your-Practice-Equity-and-Diversity

Health Equity in the Era of COVID-19

Efrén J. Flores, MD, officer for radiology community health and equity at Massachusetts General Hospital, discusses health equity in the Boston area, particularly as it relates to COVID-19.

acr.org/PHM-in-Your-Practice-Health-Equity-COVID

Webinars

Leveraging Payment Models to Achieve Population Health Success

Population health management leaders discuss leveraging shared-risk and alternative payment models to deliver high-quality care to distinct patient populations.

acr.org/Payment-Models

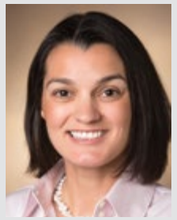
Understanding and Pursuing Health Equity: Opportunities to Take Action

American Medical Association and ACR leaders provide insights into taking action to ensure quality care for all community members.

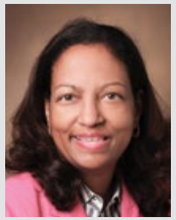
acr.org/UnderstandHealthEquity

Q&A Quality Care for All

Vanderbilt University Medical Center's department of radiology health equity program addresses barriers to care.



Lucy B. Spalluto, MD, MPH



Andrea Birch, MD, FACR

High-quality care is the ultimate goal of healthcare institutions. However, value-based care in one population does not necessarily look the same as it does in another population. The department of radiology at Vanderbilt University Medical Center (VUMC) believes that radiology is in a unique position to improve health equity – and is committed to ensuring that all patients have the opportunity to be as healthy as possible. In 2020, Vanderbilt radiologists established a health equity program within their department that is dedicated to reducing barriers to high-quality imaging care.

Imaging 3.0™ staff sat down with Lucy B. Spalluto, MD, MPH, vice chair of health equity at VUMC radiology, and Andrea Birch, MD, FACR, the department's associate director of health equity, to discuss the program and why radiologists should be at the forefront in addressing health inequities.

Q: Why did Vanderbilt Radiology start its health equity program?

LS: Vanderbilt radiology's dedicated, formal health equity efforts began in early 2020. We recognized the need to focus departmental efforts on addressing health disparities – specifically, we determined that providing the infrastructure and support for these efforts is essential to drive real change. Vanderbilt Radiology Health Equity's overarching goals are to strengthen and amplify health equity efforts through a combination of learning, research, and collaborative partnerships, ultimately driving systemic change within and beyond Vanderbilt to achieve health equity. To this end, our team works closely with VUMC's Office of Health Equity, which is led by Consuelo H. Wilkins, MD, MSCI, VUMC's vice president for health equity and a nationally recognized expert and leader in health equity.

Q: What are some obstacles to health equity in your community?

AB: Location is a big challenge. For instance, in our city, many of the communities of color don't have a breast imaging center, and for those that do, it's not accredited by the ACR as a Center of Excellence. If you are trying to get the best outcomes for these patients, they are already potentially disadvantaged because access to quality care is more difficult to obtain. Access is only one of the issues, though.

LS: In Nashville and more broadly the state of Tennessee, there is a lack of access to good jobs with appropriate pay that offer health insurance. Access to childcare can also be an obstacle, as can language and cultural barriers. It may be difficult to find a physician who looks like you and understands your specific needs. One of the ways we can start to address these obstacles is to understand the social determinants of health and how these obstacles impact different populations in different ways, as well as the types of resources different individuals require to be healthy.

Q: How can radiology begin to address these obstacles?

LS: Radiology can start by building stronger relationships with patients and the community. We need to help our patients understand why imaging is being performed and help them to trust the radiologists who are providing recommendations for follow-up care based on the results of the studies. We can do this by creating an environment for imaging that is inclusive of all patient needs. This can include offering information before exams and results after exams in the language and terminology that patients understand. It can also include understanding the different cultural needs of the community when it comes to imaging. There are many opportunities for radiology to make changes to improve equitable care.

Q: What were the first steps you took to start your health equity program?

LS: Our first steps were to obtain leadership support and establish the infrastructure within the department to support health equity efforts. Next, we developed an interdisciplinary team to drive our efforts and built collaborative relationships across departments within the medical center, as well as at institutions outside of the medical center. Cross-institutional, multidisciplinary, interprofessional efforts are necessary to drive systemic change to achieve health equity. We cannot stay in our radiology silo and in our reading rooms and expect to be able to make the necessary changes. We need to interact with our colleagues within the medical center and beyond, who see our patients across the spectrum of care. We must also build relationships with community members, including community healthcare centers and other organizations that help to provide care for these patients, as well as with patients themselves.

Q: Who are the leaders of the program, and how were they selected?

LS: Vanderbilt Radiology Health Equity is a collaborative effort driven by a diverse, interprofessional team. Initial discussions with our department chair, Reed A. Omary, MD, MS, FACR, focused on the need to advance health equity efforts locally, as well as nationally. We also discussed how efforts to achieve health equity requires a team with a broad skillset. Important skills for team members and leadership in this field include experience in health services and health disparities research, experience working with the community, an understanding of health policy, and a commitment to developing learning materials for health professionals and patients. As our vice chair for health equity, I guide this team in our efforts to address disparities.

Q: Who else is involved in the program?

LS: We built a diverse team that has experience in providing various types of patient care across the organization – for example, breast cancer screening, lung cancer screening, and nuclear medicine. Our team includes radiologists, other radiology team members, nurse practitioners, trainees, and non-radiology team members from outside of the department. This diverse team provides a broad perspective across the field of radiology and beyond. We also believe it is important to have diversity of race, ethnicity, and gender representation on our team so that we can have a diverse perspective in recognizing the needs of the community and developing potential solutions to meet the needs of the community.

Dr. Omary and I developed an initial list of qualified individuals we believed would be interested in joining the team and then reached out to these individuals to ask if they would like to join our health equity team efforts.

Q: What types of initiatives has the health equity team undertaken so far?

LS: We have focused our initial efforts on our three core functions: increasing awareness of health equity principles, generating interest among trainees, and fostering health equity research. Within the awareness category, we created a website for Vanderbilt Radiology Health Equity, where we post informational resources, departmental health equity publications, upcoming talks, and links to health equity resources. We also started an annual grand rounds health equity speaker series, funded by the department. And we worked to increase awareness of health equity through collaboration at the national level with the ACR and other societies, such as the American Society of Neuroradiology, through webinars and speaking series.

Regarding generating interest in health equity among our trainees, we focused our early efforts on education. In February of 2021, we piloted

a two-week health equity mini-elective for our residents. Trainees from emergency medicine, internal medicine, and radiology participated in didactic learning and journal-club-style activities. The residents were also able to spend time at some of our local community health clinics as well as develop a focused quality improvement project related to addressing health disparities.

AB: On the research side, we have started to look at how we can improve our service line at the breast center to provide care for underrepresented minorities. The mortality rate for Black Americans and other people of color is significantly higher than that of White patients – so much so that the Society of Breast Imaging has declared being Black as a risk factor for developing breast cancer. (Learn more about the guidelines at acr.org/ACR_SBI.) We are hosting virtual design-thinking sessions with multidisciplinary medical professionals, a diverse group of interprofessional community leaders, and patients to better understand what's most important to our patients, question assumptions, and identify barriers so that scalable solutions can be tested and implemented. This is important because, in years past, research cohort studies didn't necessarily reflect the population as a whole. Risk assessment models and guidelines for how frequently screening, such as lung cancer or breast cancer screening, should be done didn't necessarily include minority patients when they were created. Our goal is to better connect with patients from communities of color to deliver quality health care based on their needs.

We are also working on a project designed to meet the needs of our LGBTQ populations and help our providers better meet these needs. We hope to help gender and sexual minority patients better understand breast health and screening recommendations. We want to create an enhanced service line to improve the outcomes and experiences of this patient population when they come to the breast center or our other facilities.

Q: Why should radiologists care about health equity?

AB: In the past, radiology has not been at the forefront of health equity. That has been something that has usually been left to primary care medicine, such as internists and pediatricians, because they are traditionally more patient-facing and have been in a better position to see how the inequities impacted their patients' lives and health outcomes. But as radiologists interact with patients more, the things that we are doing are impacting patients more than before. Health equity is starting to become something that radiologists are helping to address. This opportunity allows radiology to impact some of the policies and some of the changes and initiatives that need to occur to level the playing field. This is incredibly important work, and radiologists have a key role to play. At the end of the day, it is simply the right thing to do.

Q: Why should radiologists consider committing resources to addressing health equity issues?

LS: As Dr. Birch said, now is the time for radiology to claim their seat at the table for health equity. We need to show that radiology is committed to providing the best care possible to the diverse populations that we serve. This will take commitment from everyone – ranging from the individual level to the national policy level. Vanderbilt Radiology is committed to health equity, diversity, and inclusion. We are excited to be announcing soon how we plan to amplify these efforts through a sustained financial commitment into perpetuity. Our goal is to inspire action within and beyond the radiology community.

By Meghan Edwards

Case Study Published July 2020

Save a Life

At a South Carolina health system, the population health team and radiologists partner on a campaign that has increased breast cancer screenings by 39%.

KEY TAKEAWAYS

- At Bon Secours St. Francis Health System, radiologists, technologists, and schedulers worked with the population health team on Save a Life, a campaign to increase mammography screening among women in Greenville, South Carolina.
- Radiology schedulers reached out to patients directly to schedule screening exams, the radiologists added additional hours to accommodate more screening appointments, and the health system deployed a mobile mammography unit to increase access to screening.
- These combined efforts have resulted in a 39% increase in monthly mammogram orders year over year.

Breast cancer is the most common cancer affecting women in the U.S. While mammography screenings are proven to reduce breast cancer mortality rates, many women forgo the annual exams.[1]

Recognizing this, one South Carolina health system took action. Working with radiologists, referring physicians, and scheduling staff, the population health team at Bon Secours St. Francis Health System, a market of Bon Secours Mercy Health, launched Save a Life, a campaign to increase access to mammography screening for women in the Greenville, South Carolina, area.

Since the team permanently adopted the program in March of 2018, following a successful pilot, the number of mammograms Bon Secours St. Francis Health System has performed has risen significantly. The campaign led to a 39% increase of monthly mammogram orders year over year, contributing to the health system's 256 positive breast cancer diagnoses in 2018.

Tami Johnson, director of business development at Bon Secours St. Francis, proposed the initial Save a Life campaign model and was instrumental in coordinating the efforts of the campaign.

Identifying the Gap

Bon Secours St. Francis began the Save a Life campaign after it identified a care gap among its Medicare patient population. As part of an Accountable Care Organization (ACO), Bon Secours receives regular reports from payers and the Centers for Medicare and Medicaid Services about qualifying patients' preventative health services, such as mammography screenings.

After reviewing this data for 2017, Tami Johnson, director of business development at Bon Secours St. Francis, and the health system's population health team noted continuity-of-care gaps in mammography services for Medicare Shared Savings Program (MSSP) and Medicare Advantage Managed Care patients.

The report showed that approximately 30% of Bon Secours St. Francis' MSSP and Medicare Advantage Managed Care patients were forgoing mammograms, and around 50% of those who had mammograms received the screenings out-of-network. Recognizing the value of closing these gaps from both a business and continuity-of-care standpoint, the Save a Life campaign initially targeted those patient populations.

"We wanted to encourage patients to remain in-network for care not only because the health system receives incentives through its ACO but also because patients benefit when they receive care in one network," says Keith Newnam, vice president of population health management for Bon Secours St. Francis. "For example, when a patient receives care in one network, the medical record delivers more efficient follow-up and care management alerts that can provide physicians with important health history information. Though out-of-network physicians may scan and send documents to our health system, those documents may not be as easily accessible in the record or may be absent entirely."

> "We focused on breast cancer screening because we know that early diagnosis improves outcomes."
>
> –Keith Newnam

Setting a Goal

Through Save a Life, Bon Secours' population health team aimed to schedule 90% of its MSSP and Medicare Advantage Managed Care patients for in-network breast screenings. To solidify this goal, the team included imaging — mammography in particular — in the health system's 2018 continuity-of-care goals.

"We focused on breast cancer screening because we know that early diagnosis improves outcomes," Newnam says. "Plus, mammography screening doesn't require an order from a primary care physician, so schedulers can schedule patients and help improve our coverage without putting extra strain on the ordering physicians."

With its goal set, the population health team met to discuss ways to achieve its objective. During one meeting, Johnson recalled an initiative that she had participated in when she worked in the radiology scheduling department: Whenever a woman called to arrange an imaging exam, the scheduler would check her medical record to see whether she was due for a mammogram.

If so, the scheduler would offer to make a mammography appointment. "We did this for three weeks and scheduled 55 patients for mammograms," Johnson recalls. "It was very successful. Tapping into the power of the frontline staff has been effective in the past, so we wanted to see if we could start there and replicate this effort."

This idea was the seed that grew into the Save a Life campaign.

Launching the Campaign

In the fall of 2017, population health administrators named Johnson the Save a Life campaign project manager, and she embarked on a plan to establish a proactive scheduling initiative in which radiology department schedulers would call MSSP and Medicare Advantage Managed Care patients who were overdue for mammograms. After calculating how many patients the schedulers would need to reach to achieve its goal, the Save a Life team determined that four radiology schedulers could manage the outreach program.

To start, Johnson reached out to Dana Hagy, director of women's imaging and diagnostics at Bon Secours St. Francis, who liked the idea but knew the mammographers would have to adjust their work hours to meet the objective. When Hagy presented the idea to the mammographers, they were initially apprehensive. "Nobody likes change," Hagy explains. "But we had open discussions about this process and gave the mammographers five to six weeks before we implemented the new schedule. They made the adjustments because they recognized the positive impact this would have on patient care."

Johnson and Newnam met with the revenue cycle director to secure additional funding for the schedulers' extra work hours. The four schedulers each added six to eight additional hours to their weekly schedules, time they dedicated exclusively to identifying and calling MSSP and Medicare Advantage Managed Care patients who were due for mammograms.

The schedulers initially used a report generated by population health analysts to identify patients for the program. To make identifying patients easier, Bon Secours St. Francis' population health, quality, and information technology departments partnered to develop an electronic medical record (EMR) alert that automatically flags patients who are overdue for mammograms and prompts the schedulers to ask the patients about scheduling a mammogram.

Keith Newnam, vice president of population health management for Bon Secours St. Francis, was excited to watch people from diverse departments unite over the best interests of the patients for the Save a Life campaign.

Communicating with Patients

Once they identified a candidate for screening, the schedulers would call the patient and follow a script that Johnson provided to facilitate the discussions. The script had patient convenience in mind: "Okay Mrs. Jones, your CT is scheduled for Monday, April 2, 2018, at the downtown campus at 8:30 a.m. I see here you are also overdue for your screening mammogram. I would like to schedule that for you, as well."

In the beginning of 2018, all of the radiology schedulers began participating in an effort that broadened the initiative to include inbound calls: When a call came in from an MSSP or Medicare Advantage Managed Care patient whose medical record indicated she was overdue for a mammogram, the scheduler would ask whether she wanted to schedule a mammogram, too.

In March, quality performance and informatics teams began reaching out to patients using the patient portal through its EMR messaging system to encourage MSSP and Medicare Advantage Managed Care patients who were overdue for mammograms to schedule their exams.

Mobilizing for More Mammograms

Before the Save a Life campaign began, Bon Secours St. Francis was already looking for ways to make mammography screening more accessible. As a result, the St. Francis Foundation, a charitable organization that supports Bon Secours St. Francis, funded the purchase of a mobile mammo unit equipped with 2D mammography screening capabilities in 2012.

As the Save a Life team monitored the MSSP and Medicare Advantage Managed Care populations eligible for mammography screenings, they leveraged the mobile mammo unit to schedule more patients for mammograms. They selected the ZIP codes with the highest volume of these patients and deployed the mobile unit to local businesses and Bon Secours Medical Group Practices in those areas. "Our mobile unit makes screenings more convenient for patients, particularly those who do not live near a screening center," Johnson says. "We have patients tell us that they wouldn't have been able to get screened if it hadn't been for the mobile unit." The mobile mammo unit is deployed five days a week, adding up to 25 additional screening slots per day, all of which are generally full.

The Save a Life team now plans to extend its mobile mammography reach. Based on the first unit's success, the St. Francis Foundation is poised to fund a second unit, which will be equipped with 3D mammography screening capabilities that provide a layered and clearer image of dense breast tissue. The unit will double the availability and scope of the service. "A lot of women don't make the time to have their screening procedures done," Hagy says. "Trying to reach out to them and make screenings convenient can make all the difference. This truly is a lifesaving program."

PHOTO COURTESY OF BON SECOURS ST. FRANCIS.

Since opening in 2011, the Bon Secours St. Francis Pearlie Harris Center for Breast Health has provided advanced breast imaging technology to patients in the Greenville, S.C., area.

Ramping Up to Meet Demand

As schedulers recruited more patients and the mobile unit made mammography screening more accessible, it quickly became apparent that the radiology department needed to expand its hours to accommodate the increased volume. The population health team monitored data from the campaign's first few months and estimated that approximately 300 more appointments per month were needed to accomplish the screening goals.

"I thought the campaign was so brilliant that I wished I had thought of it myself, but when we were first presented with the data, 300 appointments sounded like an impossible number," says Matthew T. Chaney, MD, diagnostic radiologist for Upstate Carolina Radiology and medical director of Bon Secours St. Francis' Pearlie Harris Center for Breast Health. "We worked with the mammographers to extend our hours to cover the additional appointments and provide this critical service."

Dana Hagy, director of woman's imaging and diagnostics at Bon Secours St. Francis, insists that easier access and convenience is key when promoting mammography screening services.

The Pearlie Harris Center for Breast Health extended its hours to 8 p.m. from Monday through Friday and added hours from 7 a.m. to 7:30 p.m. on Saturdays. Bon Secours St. Francis also opened an additional screening room at another location, and all of the system's screening and diagnostic centers began accommodating walk-in patients who arrive without mammography appointments. "We had to get creative with schedules," Hagy says. "Once staff saw how popular these evening and weekend appointments were and how thankful patients are for these additional hours, they were happy to be a part of this effort."

While the campaign was meeting an important patient need, the new hours and additional exams significantly increased the radiologists' workload. The Pearlie Harris Center alone saw up to 80 patients on Saturdays and several after-hours patients Monday through Friday. "With only one radiologist at the center, we struggled to keep up with both the screening exams and the diagnostic and follow-up exams that often require immediate attention," Chaney says.

Luckily, Upstate Carolina Radiology regularly monitors productivity and adjusts staffing and workloads several times a year based on which sections are growing the most rapidly. Due to the increase in mammography screens, the radiology center's productivity increased and was therefore generating more revenue than originally projected. This allowed the center to staff an additional radiologist in April of 2018, an investment that Chaney says has more than paid for itself. "Adding a second radiologist helped immensely. Now one of us focuses on screenings while the other does the diagnostics," he says.

> "If we could get 100% of the women who needed mammograms in and screened, that would be the greatest success we could ever have."
>
> –Keith Newnam

Expanding on Results

Since the start of the Save a Life campaign, Bon Secours St. Francis has seen a 39% increase in its monthly screening mammogram orders year over year, and its radiology department has completed 11.7% more mammograms for MSSP patients than at the same time in 2016. This is equivalent to 859 more patients through November of 2018 than at the same time in 2016. By working together, leadership, radiology schedulers, and care managers scheduled 195 documented mammograms through outbound calls alone, two of which were abnormal findings that resulted in surgery. Overall, this collaboration contributed to the 5,255 MSSP patient screenings and 2,282 Medicare Advantage Managed Care patient screenings conducted in 2018 at Bon Secours St. Francis.

Matthew T. Chaney, MD, diagnostic radiologist for Upstate Carolina Radiology and medical director of Bon Secours St. Francis' Pearlie Harries Center for Breast Health, extended the center's hours for the Save a Life campaign.

The population health team credits the Save a Life campaign's success to the radiology team's hard work. "Often with screenings, a lot is left up to the patient. With the Save a Life campaign, we have flipped the tables," says Marcus E. Blackstone, MD, internist at Stoneview Internal Medicine and physician lead for quality for the Bon Secours Medical Group at Bon Secours St. Francis. "You can't do this without the radiology department buying in, so we are incredibly grateful for their effort and flexibility."

During Breast Cancer Awareness Month in October of 2018, the Save a Life team expanded the campaign beyond MSSP and Medicare Advantage Managed Care patients to all patient demographics. Identifying and registering all qualifying patients for mammograms is now part of the standard workflow. "It's the right thing to do," says Newnam, whose wife is a breast cancer survivor. "If we could get 100% of the women who needed mammograms in and screened, that would be the greatest success we could ever have."

The campaign now involves more than 10 departments, including quality, informatics, registration, and care management. The Save a Life team has also coordinated with primary care physicians and referrers from obstetrics, gynecology, cardiology, and other departments through meetings and phone conversations to get even more women in for breast cancer screening. It has also added alerts to the EMR's notes section, encouraging clinicians to discuss mammography care gaps with their patients and encourage them to schedule screenings.

In addition to expanding the Save a Life program's impact on mammography screening, the group plans to investigate ways to use this same approach to address care gaps in areas such as colonoscopy and diabetic screenings, and it hopes other health institutions will find their own ways to leverage it. "This approach is like a spider web," Johnson says. "It starts in the center with one focus and then stretches outward to cover other areas. If you know your part and your area of influence, consider how you can use it to make a positive impact on patient care. It's an effective way to begin treating the whole patient."

By Chelsea Krieg

ENDNOTE

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Now It's Your Turn ››››

Follow these steps to begin a campaign to increase access to screening care and tell us how you did and what you learned at imaging3@acr.org or on Twitter with the hashtag #Imaging3.

- Identify care gaps in a patient population and discuss opportunities for closing the gaps by collaborating with other departments.
- Leverage the electronic medical record to flag patients who are overdue for screenings or other preventative care appointments, and conduct inbound and outbound campaigns to set appointments.
- Consider extending hours and adding personnel to accommodate patient needs.

The Language of Health Equity

By Efrén J. Flores, MD, officer for radiology community health and equity at Massachusetts General Hospital, with Angel Román, BS, and Zoe Nelson, BA

> "Recognizing the barriers is the first step in the call to action to address racial and ethnic disparities. Physicians can help patients overcome these obstacles, and we, as radiologists, are uniquely poised to make that happen. In radiology, we stand at the crossroads of every specialty. We are in a prime place to inspire broad change and to create teams that are focused on addressing disparities. We can spur collaborations with other medical specialties, community stakeholders, and initiatives to enhance the effectiveness of public health interventions that increase access to care."
>
> –Efrén J. Flores, MD, *ACR Bulletin*
> acr.org/Health-Equity-Special-Section

Diversity

Diversity occurs when people from a range of backgrounds, such as national origin, language, race, color, disability, ethnicity, gender, age, religion, sexual orientation, gender identity, and socioeconomic status, are represented. Without diversity within our health systems, health equity will not be achieved.

Population Health Management

Population health management is the process of improving the clinical health outcomes of a defined group of individuals or community through improved care coordination and patient engagement supported by appropriate financial and care models. The groups could be determined by geographic area, specific disease, or another defined characteristic.

Inclusion

Inclusion occurs when a person is valued, respected, and supported. When this sense of belonging is achieved, everyone can feel welcomed in an environment, no matter their background. In healthcare, inclusion is necessary to achieve health equity.

Health Equity

Health equity is achieved when no one is held back from having the opportunity to achieve their full health potential due to social determinants of health, such as race, ethnicity, gender, socioeconomic status, or sexual orientation.

In an equitable system, individuals receive different levels of support based on their needs. In essence, health equity is social justice in healthcare, as it aims to remove the systemic societal barriers to health and healthcare.

Equality

In health, equality means that everyone, no matter their background, receives the same treatment, which will be given under the same conditions. However, this is *not* the same as equity, which is a more powerful way of ensuring that everyone has the opportunity to attain their full health potential.

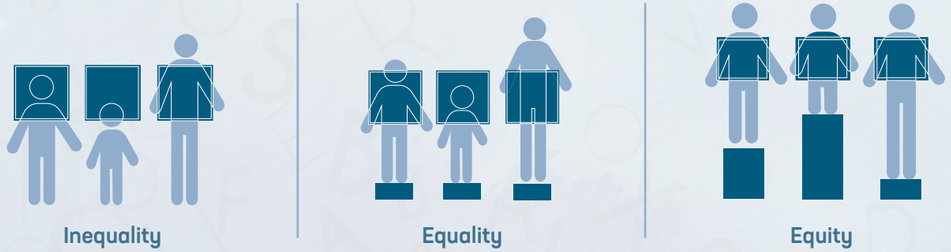
For example, equality means that everyone who is eligible has the opportunity to get lung cancer screening. Equity, on the other hand, accounts for the fact that some people have different needs or barriers to care and may need additional assistance to overcome these barriers to access lung cancer screening and maximize the health benefits.

Barriers to Care

A barrier is anything that prevents individuals from accessing timely care or achieving certain healthcare goals. The five "As" are cited as the most common barriers to care: affordability, accommodation, availability, accessibility, and acceptability.

Inequity happens when individuals do not have access to the resources they need to live a healthy life due to the systemic barriers that result in marginalization of certain groups of people.

The Differences Between Inequality, Equality, and Equity



SOURCE: CARLOS R, FLORES E. HEALTH EQUITY. *J AM COLL RADIOL*. 2019. DOI.ORG/10.1016/J.JACR.2019.02.04

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Case Study Published September 2020

Advocating for Change

Forging and maintaining relationships with legislators and advocating for patients are tangible ways to provide quality care.

KEY TAKEAWAYS

- Advocating for patients is a concrete way for radiologists to demonstrate value.
- Cultivating relationships with elected officials is key to helping pass legislation that matters to the radiology specialty and its patients. Advocacy also helps legislators and the general public understand radiologists' role in healthcare.
- Once a bill has passed, radiologists must conduct outreach to inform the general public of its benefits and answer patients' questions.

"Screening saves lives" is an adage that radiologists frequently espouse. Often, however, patients forgo potentially lifesaving screenings, like mammography, because of access issues — including cost, time spent away from work, and lack of childcare. So, when opportunities arise to help solve some of these issues through legislation and outreach, radiology advocates (or "radvocates," as they call themselves) rise to the cause.

Such was the case for Amy K. Patel, MD, medical director of the Women's Imaging Center at Liberty Hospital and assistant professor of radiology at the University of Missouri-Kansas City School of Medicine, when she learned that the Missouri state legislature would be considering a bill to mandate insurance coverage of 3D mammography during its 2018 session. At the time, Medicaid and Medicare covered 3D breast tomosynthesis mammography in Missouri, but not all private insurers did — leaving patients to pay out of pocket for this advanced screening.

"Missouri has access-to-care issues, and many patients can't afford to pay for this procedure out of pocket," Patel says. "It's concerning that patients can't access this lifesaving procedure because 3D mammography is proving to find more cancers when they are much smaller compared to 2D mammography, which can result in less invasive treatment for the patient. It also makes lesions more conspicuous to our eye compared to 2D mammography and benefits patients with dense breasts, which can obscure lesions and make them more difficult to see on a static 2D mammography image."

Recognizing the opportunity to improve care for Missouri women, Patel and other members of the Missouri Radiological Society worked with legislators on a bill that would require insurance companies to cover 3D mammography in accordance with the ACR's Appropriateness Criteria®, which say that average-risk women should be screened annually starting at age 40. They then conducted outreach to help generate legislative support for the bill.

Amy K. Patel, MD, medical director of the Women's Imaging Center at Liberty Hospital and assistant professor of radiology at the University of Missouri-Kansas City School of Medicine, advocated for legislation to cover the cost of 3D mammography for women in the state.

In April of 2018, the radiologists' work paid off when the Missouri legislature unanimously approved the bill. Now, women throughout Missouri have access to annual 3D mammography screening beginning at age 40, with no out-of-pocket costs. "This bill improves access to care, as private insurers in the state of Missouri are now required to cover both 2D and 3D mammography annually beginning at age 40. Under previous legislation — which had not been amended since the early 1990s — insurers were only required to cover 2D mammography every other year beginning at age 50. So, many more women will be covered under this new legislation and not have to pay out of pocket," Patel says.

Related Content

View the ACR Appropriateness Criteria® for breast cancer screening at acr.org/ACBreastScreening.

Getting Involved

Patel's involvement in the Missouri measure was a natural fit. She has been interested in advocacy since her residency, when the Kansas Radiological Society and her mentor, John Lohnes, MD, encouraged her to get involved in the ACR, which ultimately connected her to advocacy work. "During my first ACR meeting as a first-year radiology resident, I was hooked. I knew that it was crucial to get involved in this governing body of my profession, and I knew that getting involved early was imperative," Patel says. "Dr. Lohnes also introduced me to Dr. Geraldine McGinty, who is also one of my beloved mentors and whom I attribute much of my career success to thus far."

With her mentors' support, Patel applied to and received the 2015 ACR Rutherford-Lavanty Fellowship for Government Relations, which allows residents to work alongside ACR government relations staff to learn about state and federal legislative and regulatory processes. The fellowship also teaches residents about ACR's advocacy work and governmental factors that play important roles in shaping radiology. "Combining my love of politics with the realization that I could be a part of the process to advocate for patients was a win-win in my eyes," Patel says.

From there, Patel became increasingly involved with other advocacy groups, such as the Radiology Advocacy Network and RADPAC. In 2017, when she took a breast imaging position in Massachusetts, Patel joined the Massachusetts Radiological Society, which afforded her the opportunity to leverage her advocacy skills as part of the mammography committee — work that would prove beneficial when she moved to Missouri.

While Patel was in Massachusetts, state Sen. Joan B. Lovely (D) introduced a bill that mandated insurance coverage for 3D mammography, as well as other supplemental screenings. To help garner support for that bill, Patel and other radiologists testified at the Massachusetts statehouse, sharing their expert insights about the benefits of 3D mammography. (At the time this Imaging 3.0 case study was published, this bill was still being legislated.)

> "Missouri has access-to-care issues, and many patients can't afford to pay for this procedure out of pocket."
>
> –Amy K. Patel, MD

Crafting Legislation

Meanwhile in Missouri, legislative affairs were heating up, and the Missouri Radiological Society and the Missouri State Medical Association (MSMA) were poised to partner on advocacy efforts. "The Missouri Radiological Society and the MSMA are relatively small organizations, so we always work together," explains Karen Goodhope, MD, FACR, immediate past president of the Missouri Radiological Society. "The MSMA often needs our support, expertise, and backup on laws that relate to radiation safety and radiology. In turn, they lobby on our behalf."

In December of 2017, the Missouri Radiological Society received word that state Rep. Dean Plocher (R) was introducing H.B. 1252, mandating insurance coverage of 3D mammography. Insurance companies would be required to reimburse physicians administering 3D mammography for women receiving a baseline mammography at age 35, biannual mammography for women ages 40 to 49, and annual mammograms beginning at age 50. Insurers would also be required to cover 3D mammography if a physician recommended it for a patient who did not fall into these categories and was at-risk due to a family history of breast cancer.

"I was grateful for the chance to introduce this lifesaving, cost-saving bill," Plocher told the *Missouri Times*.[1] "The success rates for breast tomosynthesis (3D) versus traditional X-rays are encouraging, and I believe this legislation will truly act to improve healthcare for women and men and serve as a lifesaving measure."

Before Plocher could introduce the bill, however, members of the Missouri Radiological Society wanted to work on its wording. "When we first reviewed the bill, the suggested intervals for mammography did not align with what radiologists would recommend," says Goodhope, adding that rather than the ACR's guideline of annual mammograms starting at age 40, the bill included different screening intervals based on various ages (for example, biannual exams for high-risk patients ages 40 to 50, then starting annually later).

"Without our intervention, the bill would have been completely uninformed and not aligned with established guidelines from the radiology specialty. As physicians, we must be paying attention to things like this for our patients because while legislators may mean well, they're usually laypeople from a medical standpoint and don't have the specialized knowledge needed to serve the best interest of patients," Goodhope says.

Communicating with Representatives

While working in Boston, Patel accepted the medical director position at Liberty Hospital in Missouri through Alliance Radiology. The move was a return home for Patel, who completed her fellowship at Washington University in St. Louis, attended medical school at the University of Missouri-Kansas City School of Medicine, and was born and raised in rural Northwest Missouri. "By the time I decided to take the job in Missouri, the Missouri Radiological Society knew I was relocating," Patel says. "They also knew I had been working on the mammography bill in Massachusetts." Patel reached out to Goodhope and offered to help edit the Missouri bill and to testify at the statehouse in support of the legislation.

Together, Patel and the Missouri Radiological Society crafted a letter that the MSMA general counsel and director of government affairs, Jeff Howell, sent to Plocher. The letter stated that both the

ACR and the Society of Breast Imaging recommended that annual mammography screening begin at 40 and provided data to support the guideline. Plocher agreed with their suggested changes and amended the bill.

In the meantime, Patel and Goodhope both reached out to state senate representatives to garner support for the bill. Goodhope sent an email to her state senator introducing herself as the president of the Missouri Radiological Society and explaining why she supported H.B. 1252.

Patel called Rep. Marsha Haefner (R), a senior state representative who had the authority to generate support from other representatives and with whom Patel had a personal connection through mutual friends. During the phone conversation, Patel explained why she supported the bill and offered to send Haefner a handout that she could share with her legislative colleagues about why radiologists recommend mammography at 40.

Patel says that this type of outreach to elected officials is critical to successful advocacy. She notes that beginning a relationship is as simple as sending an email to a legislator and his or her legislative assistant. From there, she says, radiologists should continue to keep in touch with the officials' legislative assistants. "Over time, you're more likely to get access to the elected official themselves, and then you can develop that relationship further," she says. "The more you cultivate relationships with people in your local legislative offices, the more likely you are to garner support, because your representative will view you not just as a constituent or a doctor but as a partner."

Moving Beyond Passage

In Missouri, once legislation has been introduced, representatives often discuss and vote on it with little notice. For testimonies, the Missouri Radiological Society often calls on a general radiologist who lives in Jefferson City, Missouri's capital, and therefore can get to the statehouse on short notice, Goodhope says.

In the case of H.B. 1252, the legislators discussed the bill in April of 2018, unbeknownst to the Missouri Radiological Society. While Patel did not get a chance to testify, both the house and senate unanimously approved the bill. "I found out about the legislation passing when I received the weekly MSMA legislative update. We are almost always notified about these bills ahead of time by the MSMA and our lawyer. I was delighted it passed so quickly," says Goodhope.

Although the bill passed, Patel's work wasn't done: It was time to educate the public about the legislation and its impact on patient care. "If the public doesn't know about the bill, or if they don't understand it, they can't take advantage of it," says Patel, noting that radiologists should take the lead to disseminate information to both the public and to other physicians about new imaging-related legislation. "The last thing you want is someone who is not knowledgeable about radiology publicly commenting on the legislation," she says.

Such was the case with Missouri's 3D mammography bill — Patel noticed articles in which breast surgeons were commenting on the new law without any input from radiologists. "Breast surgeons do incredible work, but they may not be privy to the inner workings of mammography. It was important for me to get out and explain why 3D mammography is technologically superior for patient care and share that the majority of Missouri women can now take advantage of it because they don't have to shoulder the cost. Previously, many women were not able to afford it," Patel adds.

Spreading the Word

Patel contacted her hospital's marketing and public relations department about spreading the word to patients about the legislation. "I told them that I wanted to do everything I could, whether it was the news or speaking engagements. I accepted every opportunity they offered, and I'm still accepting," says Patel, who has appeared on televised news segments, interviews on the radio, and in various newspaper articles.

H.B. 1252 took effect in January of 2019. Patel says she's received an overwhelmingly positive response from patients. "We had a patient come in who had seen me on the news. She asked to meet with me and when she did, she was in tears — she had wished for legislation like this for a long time," Patel says.

> "The more you cultivate relationships with people in your local legislative offices, the more likely you are to garner support."
> –Amy K. Patel, MD

In addition to informing the general public, Patel has also arranged for her state legislators to visit her and her team at Liberty Hospital. The visits give legislators a firsthand chance to see the impact of the legislation that they helped pass. This is important, Patel says, because it helps them better understand patient needs and encourages them to work more closely with physicians. "Most elected officials think radiologists still look at films on a view box," Patel notes. "Without seeing the work we do every day, how can legislators understand that radiologists are imaging experts?"

Patel worked with the Liberty Hospital Foundation, the hospital's charitable foundation that often assists with women's health needs, and the hospital's marketing and public relations department to invite the legislators to visit her group. RADPAC can also help radiologists arrange site visits with their legislators. As long as they work with their schedules, elected officials are usually receptive to these visits, Patel says. "One of my state senators visited for about 20 minutes the other day, and we have already discussed future legislative efforts," Patel explains. "Even short site visits can result in big changes and important coverage for our patients."

Continuing the Effort

With H.B. 1252 now law, Patel is committed to continuing her advocacy work, and she encourages other radiologists to get involved, as well. "Advocacy is a huge value that radiologists can provide in the care of our patients, and as healthcare transitions to value, it's important that we're seen doing this work," Patel says.

For radiologists interested in joining advocacy efforts, Patel recommends that they begin by reaching out to their state radiological societies or by asking the ACR for help with state contacts. Those wishing to get involved at the national level should contact RADPAC or the ACR Government Relations team, Patel suggests. Both have resources to help radiologists get started with advocacy, understand the issues, and make contacts, she says.

Patel invites all radiologists to join the cause. "Political advocacy is everywhere. We're looking for radvocates across the country," says Patel. "We know healthcare is competitive; we know insurance providers are pushing back on reimbursements. But we can't change anything unless radiologists take initiative and get involved."

By Meghan Edwards

ENDNOTES

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Now It's Your Turn ››››

Follow these steps to advance your own advocacy efforts and tell us about your successes and lessons learned at imaging3@acr.org or on Twitter with the hashtag #Imaging3.

- Contact your state radiological society, RADPAC, or the ACR Government Relations team to find out how to get involved in advocacy.
- Contact your local state legislator or their legislative assistant to begin cultivating a relationship.
- Invite legislators for a site visit to educate them about your day-to-day work and the expertise of radiologists.

ACR Advocacy

The ACR advocates on behalf of the radiology profession and ACR membership with Congress, federal agencies, and state legislative and regulatory bodies.

Learn more at acr.org/advocacy.

Case Study Published September 2019

Lung Screening in an Urban Setting

Radiologists in the Bronx lead a lung cancer screening program targeting an underserved, high-risk urban population.

KEY TAKEAWAYS

- Inspired by the results of the National Lung Screening Trial, physicians at Montefiore Health System collaborated across disciplines to develop a lung cancer screening program to reduce mortality rates in their high-risk population.
- Screening program directors meet regularly with referring physicians throughout the hospital network to raise awareness and build trust.
- With automated enrollment forms and follow-up reminders in the electronic medical record system, the screening program reduces the burden of patient management for referring physicians.

PHOTO COURTESY OF MONTEFIORE HEALTH SYSTEM.

Linda B. Haramati, MD, MS, FACR, director of cardiothoracic imaging, and Andrea C. Furlani, MD, a cardiologist and future radiologist, review a chest scan at Montefiore Health System.

David Feliciano's friend went to the doctor for what he thought was just a cough, but imaging revealed something much more serious: Stage 4 lung cancer. "By the time he finally got his lungs checked, it was too late, and four months later, he was gone," Feliciano says.

Feliciano, himself a former smoker, learned a valuable lesson from his friend's results: Lung cancer typically doesn't present symptoms until the advanced stages, when the disease is more difficult to treat and nearly impossible to cure. "You don't want to wait until you have symptoms to find out you need treatment. You want to catch it right away," says Feliciano, who smoked for 40 years. "That's why I get checked every year."

When it comes to lung cancer, early detection is lifesaving. Three-fourths of lung cancer cases aren't diagnosed until the disease has spread, reducing the five-year survival rate to just 5%.[1] But if lung cancer is detected early, the five-year survival rate can be as high as 90%.[2] Lung cancer screening programs, like the one Feliciano is enrolled in at Montefiore Health System in New York, aim to increase survival by catching lung cancer early.

"We have systems like mammography to detect breast cancer and colonoscopy to detect colon cancer, but lung cancer always lacked a screening pathway until we introduced low-dose CT (LDCT)," says Chirag D. Shah, MD, director of the pulmonary and critical care fellowship at Montefiore. "With a framework for lung cancer screening, we can really impact patient care."

Montefiore is located in the Bronx, which has the second-highest smoking rate of New York City's five boroughs. The hospital's screening program targets an ethnically diverse, underserved urban population at high risk for lung cancer. Since Montefiore's program launched in December of 2012, the system's radiologists have screened more than 2,200 patients and detected 55 cancers — about half of them Stage 1 and 2 lung cancer.

Recently updated...

Lung cancer screening guidelines from the U.S. Preventative Services Task Force recommend screening for adults aged 50 to 80 who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 year. View the guidelines at bit.ly/LungScreening2021.

"Early stage disease is the most likely to be cured," says Linda B. Haramati, MD, MS, FACR, director of cardiothoracic imaging at Montefiore, who spearheaded the program's development. "By participating in a screening program, people with a smoking history have an opportunity to get ahead of lung cancer and seek lifesaving treatment."

Support for Screening

In 2011, the National Cancer Institute published the findings of the National Lung Screening Trial (NLST), which established the evidence to support lung cancer screening. (Learn more at bit.ly/Lungtrial.) The results revealed that annual LDCT screening could lead to a 20% reduction in lung cancer mortality rates, compared to standard chest X-rays.[3]

Around the same time, the Centers for Medicare and Medicaid Services (CMS) selected Montefiore as one of 32 Pioneer Accountable Care Organizations (ACO). (Learn more at bit.ly/CMS_ACO.) Under this model, Montefiore focused on providing enhanced care coordination and illness prevention for Medicare beneficiaries, so its administrators instantly saw the lung cancer screening program as a way to meet these goals and improve patient outcomes related to lung cancer. "Montefiore had just become an ACO, so it was a propitious moment to get everyone on board with a program like this," says Haramati, who has a joint appointment in the department of medicine.

With the goal of developing a lung cancer screening program, Montefiore's head of pulmonary medicine initiated the first meeting among physicians from the surgery, oncology, radiology, and radiation oncology departments. Although all of the physicians supported the idea of lung cancer screening, the radiologists took the lead, sharing the NLST data and other screening information with their colleagues.

"The strong body of evidence supporting lung cancer screening generated a lot of enthusiasm among participants," says Haramati, who's also a professor of radiology at Albert Einstein College of Medicine. "But we knew from mammography that image-based screening has to be done right to be effective. We're not doing diagnostic imaging; we're screening healthy people, so we had to find a way to target and track eligible patients. Instead of starting from scratch, we decided to apply the lessons we learned from mammography to make this program successful as a radiology-centered service."

Linda B. Haramati, MD, MS, FACR, director of cardiothoracic imaging at Montefiore, led implementation of a successful lung cancer screening program at Montefiore Health System.

> "Even with limited resources, screening programs can still improve patient care."
>
> –Linda B. Haramati, MD, MS, FACR

Initial Resources

In modeling the lung screening program after mammography, Haramati and the multidisciplinary committee identified three key resources they needed to launch the initiative: a special order in the electronic medical record (EMR), a system to report results consistently, and a coordinator to manage patients and data.

"First, we wanted to make sure that we screened only eligible patients, which at the time were current and former smokers between the ages of 55 and 74 with a smoking history of at least 30 pack-years," Haramati says. "The only real resource we needed from administrators was a special order in our EMR to enroll patients who met the eligibility criteria. They bought into it because the evidence showed that lung cancer screening would benefit patient care."

With approval for the special order, Haramati developed an intake questionnaire to ensure that patients referred into the program met the screening criteria. She worked with the EMR's tech team to set up the special order so that when referring physicians enrolled patients, the questionnaire popped up automatically to confirm their eligibility.

Next, Haramati turned her attention to developing a consistent method for reporting results. Since standardized guidelines for lung cancer screening did not yet exist, Haramati met with the chief of mammography to develop guidelines based on BI-RADS® — and then switched to LUNG-RADS® when the ACR published its first set of guidelines in 2014. (Learn more at bit.ly/ACR_BIRADS and bit.ly/ACR_LungRADS.)

To schedule exams and manage follow-up appointments, the screening program needed a dedicated bilingual coordinator. The radiology department agreed to move a half-time clerk into the role. The coordinator, Aracelis Jimenez, now a pillar of the program, called new patients to confirm that they met eligibility requirements before scheduling exams, and then manually tracked their results and follow-up recommendations with assistance from medical students and residents, including Hannah Milch, Mark Kaminetsky, Abraham Kessler, Robert Peng, and Edward Mardakhaev.

It took the committee about a year to gather these initial resources. Montefiore screened its first patient in December of 2012.

Patient Enrollment

As the program got underway, the committee's biggest concern was enrolling patients. They worried because Montefiore's patients differ dramatically from the NLST population. "The majority of patients in the trial were more affluent than our patients in the Bronx — most

of whom come from low socioeconomic backgrounds and have limited access to healthcare," explains Anna Shmukler, MD, a radiologist at Montefiore and co-director of the lung screening program.

With CMS' coverage determination still a few years away, Montefiore had to consider the cost of screening for its underserved patient population. "We're the poorest county in New York's 62 counties," Haramati says. "Hospitals in Manhattan were charging between $400 and $700 per scan, but if our patients had to pay that much for exams, it would have been a huge burden on them. So, if their insurance company wouldn't cover it, we charged a reduced rate of $75."

Even with the relatively low cost, the team worried about convincing patients to join the program. "We were concerned that we'd be identifying the disease at a later stage because our patients tend to seek medical care only after they're already symptomatic," Shmukler says.

Haramati knew the best way to reach high-risk patients early was through their primary care physicians (PCPs). With this in mind, Montefiore's radiologists began reaching out to referring clinicians about the screening program. When PCPs ordered CT scans for patients with emphysema or a history of smoking, for example, Shmukler would call them back and explain how to enroll these high-risk patients into the new screening program.

Anna Shmukler, MD, a radiologist at Montefiore and co-director of the lung screening program, has been integral to the program's outreach.

"If the screening order makes it simple and practical for referring physicians to ask the right questions to determine who's a good fit for a CT scan, you'll end up with a more consistent program," Shah says. "Patients are going to be skeptical, so equipping their PCPs to explain the program face-to-face can build trust and confidence."

When his PCP explained that screening could detect lung cancer early enough for treatment, Feliciano agreed that an annual scan was important. He had his first exam in 2016 and hasn't missed his annual visit since. "My doctor is always telling me we've got to nip it in the bud," says Feliciano, 65. "So it's good to have this exam done once a year because of the amount of time I smoked."

Initially, some referring physicians, like Shah, worried about the amount of paperwork and patient management the program added to their already heavy workloads. "I had to keep a list of all my patients who were getting screened and then try to track them down when it was time for their next screen," Shah explains. To overcome these concerns, the screening program needed more robust resources.

Added Resources

The first upgrade came in 2015, when Montefiore adopted a new EMR that allowed for a more automated enrollment process to help referring physicians order screening exams and track follow-up recommendations. The second boost came in 2017, when renowned abdominal radiologist Judy Yee, MD, FACR, became chair of the radiology department.

"Dr. Yee is a big advocate for image-based screening, so even before she joined Montefiore, she met with me to discuss the need for additional resources in the lung cancer screening program," Haramati says. "After Dr. Yee started in her new role, one of the first things she asked for was a nurse practitioner to serve as a clinical coordinator for our program."

Judy Yee, MD, FACR, radiology department chair at Montefiore, is a major advocate for lung cancer screening.

Yee partnered with the chair of radiation oncology and the director of the Montefiore Einstein Center for Cancer Care, who each agreed to fund half of the coordinator's salary. In 2018, Maria Serrano, ANP-BC, AOCN, who had more than 20 years' experience as a nurse practitioner at Montefiore, joined the program as clinical coordinator. "We were lucky to get one of the most experienced nurse practitioners in our institution," Haramati says. "She has experience in thoracic surgery and oncology and knows many of the referring physicians throughout the institution — personal relationships that are extremely beneficial to our program."

Leveraging her relationships with referring clinicians, Serrano expanded the screening program's outreach efforts. She and Shmukler began visiting primary care sites throughout the system to present the lung cancer screening program in weekly meetings and grand rounds, emphasizing that the program adds little work for referring physicians. "Some referring physicians were reluctant because they're already overwhelmed with paperwork," Haramati says. "With our clinical coordinator, we have the resources to unburden them of some previous barriers to referring patients."

Shared Decision-Making

Serrano and Shmukler also explain that referring physicians can decide how much of the process they want to oversee. When ordering a screening exam, referring physicians can opt to either order a lung cancer screening CT for a patient they've already met with to discuss the benefits and potential risks of screening, or they can order a shared decision-making session with the program's clinical coordinator.

Regardless of which option the referring clinician chooses, the screening staff receive automated pop-up alerts, letting them know that a referrer wants to schedule an exam. From there, they call patients to ensure they meet the screening criteria (which now aligns with CMS) before scheduling an appointment for either the exam or a shared decision-making session with Serrano.

During the shared decision-making session, as required by CMS before patients are screened, Serrano explains the risk factors for lung cancer and describes what patients can expect during and after the exam. If the patient decides to proceed with screening, Serrano then orders the LDCT.

Results Reports

After a patient undergoes a screening exam, one of Montefiore's six chest radiologists interprets the scan, generally within 24 hours, and the EMR automatically generates a letter to the patient and the referring physician outlining the results. Serrano explains to patients ahead of time that if their results are normal (LUNG-RADS-1 or LUNG-RADS-2), the letter will simply say, "We are pleased to inform you that the results of your recent lung cancer screening imaging are normal. See you next year," and they'll get a reminder to schedule their annual exam 12 months later.

If the results are more suspicious (LUNG-RADS-3 or LUNG-RADS-4), Serrano follows up with a phone call to both the patient and the referring physician and urges patients to discuss the results with their ordering doctor. For LUNG-RADS-3 results, the radiologists typically recommend follow-up scans in six months. They send Lung-RADS-4 results to Montefiore's weekly multidisciplinary tumor board for discussion.

Maria Serrano, ANP-BC, AOCN, Montefiore's lung cancer screening program clinical coordinator, leveraged her relationships to expand the program's outreach.

Since Serrano used to head the tumor board when she worked in thoracic surgery, she takes the lead presenting abnormal lung screening results every week. "We can escalate cases so other departments can expedite the patient referral," Serrano says. "It helps facilitate patients getting appointments much sooner, usually within a week."

Growth Goals

With robust resources now in place, Montefiore's lung cancer screening program is poised for steady growth, with two main goals: capture more eligible patients and ensure that enrolled patients return annually. "Ideally, we want 90% compliance with follow-up recommendations, and we've been hovering around 50%. Some patients come back late — 18 months or two years later, instead of annually. Some of them drop out of the system because they got one normal result and decided that's good enough," Haramati says. "It's one of our major priorities to improve that compliance."

The screening team is increasing its outreach and follow-up with physicians to bring more eligible patients into the program and increase compliance. It recently started working with Montefiore's public relations department to coordinate marketing emails, symposiums, billboards, and press coverage to raise awareness about lung cancer screening, while Serrano and Shmukler continue to meet with local medical groups to promote the program. "Informing physicians about the large body of evidence is important," Shmukler says. "We emphasize that lung cancer screening saves lives to help them understand how beneficial this program can be for their patients."

As Montefiore's program continues to grow, it models how effective lung cancer screening can be — even in the inner city. "There are many resource-poor areas where lung cancer screening can be developed to benefit patients and save lives," Haramati says. "Even with limited resources, screening programs can still improve patient care."

For patients like Feliciano, a quick annual exam is a small price to pay for peace of mind. "Hopefully I never develop lung cancer," he says, "but if they do find something, at least they can find it early enough to start treatment."

By Brooke Bilyj

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Now It's Your Turn ››››

Take these actions to begin developing a lung cancer screening program at your institution and tell us about your successes and lessons learned at Imaging3@acr.org or on Twitter with the hashtag #Imaging3.

- Develop a lung cancer screening order in your EMR to automate enrollment for high-risk patients, reducing the administrative burden for referring physicians.
- Dedicate the clinical personnel to take responsibility for patient and data management and outreach to referring physicians.
- Collaborate with a multidisciplinary team of experts to discuss abnormal screening results and expedite patient follow-up.

Case Study Published August 2019

Early Detection Matters

Radiologists in Michigan collaborate with administrators and care partners to develop a successful lung cancer screening clinic and enhance population health.

KEY TAKEAWAYS

- After numerous trials proved that low-dose CT lung cancer screening could reduce mortality rates, a radiologist in Michigan spearheaded a dedicated clinic in line with Imaging 3.0™ and other leadership practices he learned through the ACR's Radiology Leadership Institute.®
- The lung cancer screening clinic has served nearly 2,500 patients to date, with a 3% lung cancer detection rate and a Stage 4 detection rate that is 8% better than the national average.
- To encourage maximum participation, the team focused on eliminating potential hurdles for both patients and referring physicians.

Related Content

View a related video (bit.ly/JacksonRadiologyVideo) to learn more about how Samir Parikh, MD, MBA, and his team at Jackson Radiology Consultants established a robust lung cancer screening program.

More people die of lung cancer than any other cancer. According to the American Cancer Society, lung cancer accounts for a quarter of all cancer deaths in the U.S.[1] The good news is that when lung cancer is diagnosed early, the five-year survival rate can be as high as 90%.[2]

Multiple research studies show that lung cancer screening decreases lung cancer mortality. Data from the National Lung Screening Trial (NLST) in 2011 showed a 20% reduction in lung cancer mortality in patients who received low-dose CT (LDCT).[3] (Learn more at bit.ly/Lungtrial.) Based on the study, the U.S. Preventive Services Task Force made lung cancer screening with LDCT a public health recommendation in 2013. And both the Centers for Medicare & Medicaid Services (CMS) and private insurers now cover lung cancer screening for qualified individuals — with no copay or cost-sharing by the patient. (See coverage qualifications at bit.ly/CMSDecision.)

Despite these advances, millions of smokers and former smokers who qualify for lung cancer screening are not getting the preventative scans that could save their lives. So, a cadre of radiologists is stepping up to lead lung cancer screening programs that break down the barriers to patients getting the care they need before it's too late.

One such radiologist is Samir J. Parikh, MD, MBA, who launched a lung cancer screening clinic in Jackson, Michigan, in 2015. Since its inception, the clinic has served nearly 2,500 patients, with a 3% lung cancer detection rate. The goal of the clinic is to detect lung cancer early, when there is still time for lifesaving treatment — and it's working. At a national level, 44% of lung cancers are not detected until Stage 4. In Jackson County, the late-stage cancer rate is just 36%.

Here's how a dedicated team of caregivers implemented this lifesaving lung cancer screening program, enabling earlier detection and treatment of this deadly disease.

Recognizing that radiology is central to lung cancer screening, Samir J. Parikh, MD, MBA, a diagnostic radiologist at Jackson Radiology Consultants, collaborated with care partners to establish a dedicated clinic.

Stepping Up to Lead

As the healthcare industry recognizes that lung cancer screening saves lives, radiologists like Parikh are also positioning themselves to deliver more value-based care for patients. Trained in cardiopulmonary radiology with a focus on lung diseases, Parikh immediately recognized that radiology is central to lung cancer screening and volunteered to lead a lung cancer screening program for his health system, Henry Ford Allegiance Health.

"Lung cancer detection starts with a CT of the lungs, so the radiologist is at the center of the entire chain of care," Parikh says. "As we began considering a lung cancer screening program, I was also learning about Imaging 3.0™ and other leadership practices through the Radiology Leadership Institute.® Learning about the importance of value over volume and leadership best practices sparked me to ask the question, 'How can I make a difference in patient care?'" (Learn more at acr.org/imaging3 and acr.org/RLI.)

For Parikh, the answer was to ensure that his practice was among those developing and implementing a lung cancer screening program. Parikh is a diagnostic radiologist at Jackson Radiology Consultants, a small private practice serving Henry Ford Allegiance Health, a medium-sized community hospital in Jackson County. He shared his idea for the clinic with his colleagues at the eight-radiologist practice, and they were immediately on board.

Improving Population Health

Parikh is a member of the health system's multidisciplinary lung disease site team, a group dedicated to improving care around this particularly deadly cancer. As such, he began talking with other care partners on the site team, including pulmonologists, thoracic surgeons, and hospital administrators, about establishing a lung cancer screening clinic in 2015 as an adjunct to its existing lung nodule program.

After reviewing the area's demographic data, the team determined that a lung cancer screening program was a particularly worthwhile endeavor for the patient population the health system serves. In Jackson County, 30% of the population smokes, and in Jackson city, 35% of residents are smokers — compared with 23% of residents throughout the state of Michigan. "We have a significantly higher number of smokers in our community than the rest of the state, so many people meet the criteria for lung cancer screening," Parikh explains.

The team also found that, according to the Commission on Cancer registry, 44% of lung cancers in 2010 were not diagnosed until Stage 4 in the U.S. "Based on our at-risk population, we felt like screening could detect lung cancer at an earlier stage," says Mohan G. Kulkarni, MD, a thoracic surgeon affiliated with Henry Ford Allegiance Health in Jackson and physician co-chair of the lung disease site team. "As a result, we can intervene at a point where we can impact the course of the disease and save lives."

With recognition of both need and opportunity, Parikh and Kulkarni came together with other clinicians and administrators from Henry Ford Allegiance Health to form the lung cancer screening program. Karen Yacobucci, administrative director of Henry Ford Cancer Institute (HFCI), Central Region, was the force behind the successful execution of the program.

Results from the clinic demonstrate that when care partners, like Mohan G. Kulkarni, MD, a thoracic surgeon affiliated with Henry Ford Allegiance Health in Jackson, collaborate with radiologists and administrators, lung cancer can be detected more often and at earlier stages.

> "We can intervene at a point where we can impact the course of the disease and save lives."
>
> –Mohan G. Kulkarni, MD

Putting Ideas into Action

When the group started its program in 2015, CMS was not yet covering lung cancer screening, so an important first step in establishing the screening clinic was to find funding to cover the cost for patients. "Immediately recognizing the clinic's lifesaving potential, the health system created a fund with a contribution from The Tony Open, a local charitable foundation seeking to make a difference in the community, to pay for lung cancer screening for qualified patients who couldn't afford it," Parikh says.

After lining up funding, the team began actively implementing the lung cancer screening program, including finding space for the clinic and securing dedicated time to use the CT scanner. Parikh met with his radiology group partners and proposed that he would schedule a block of time each week for lung cancer screening patients. With their support, he schedules one morning a week, from 7 a.m. to noon, for the clinic.

Next, he approached Yacobucci and other administrators and requested the same dedicated time to use the CT scanner for lung cancer screening. He also asked for a place to meet with patients to discuss their scans and findings. "I need that dedicated space and time because I want to speak with every patient," Parikh says. "The hospital administrator looked at the NLST trial data and our demographics and realized it was the right thing to do for our patients."

Other care partners agreed that the face-to-face conversations between the patient and radiologist were critical to the program's success. "Dr. Parikh is not a typical radiologist who spends most of his time in the dark reading images and creating reports," Kulkarni says. "He wants to have patient interactions to ensure anxious patients with potential findings of lung cancer don't leave without having a clear understanding of what comes next."

Breaking Down Barriers

To make the program work effectively, Parikh and the team focused on eliminating potential hurdles for both patients and referring physicians. For patients, the screening clinic provides an easy and seamless pathway from undergoing the initial CT and receiving tobacco counseling to reviewing results of the scan and ordering follow-up imaging and scheduling appointments.

Here's how the process works: When a patient comes in for screening, a technologist conducts the scan, and then the patient

goes to see Carol Zawacki, RN, LMSW, a certified tobacco treatment specialist and health educator, while Parikh reads the scan. "I didn't want patients to have to come back for separate tobacco counseling," Parikh explains. "The goal is to have everything happen on the same day, which encourages people to get the follow-up care they need."

Zawacki says that in-person counseling and treatment is the most effective for facilitating tobacco cessation. "I talk briefly with patients about their relationship with tobacco: the physical addiction, plus the psychological, emotional, social, and behavioral aspects," says Zawacki, who was invited to join the screening team based on her ongoing efforts to counsel lung nodule patients about smoking cessation. "Most people have tried to quit. Most want to quit. I'm a resource to offer support, empathy, understanding, and education."

Evidence shows that patients have a 50% greater chance of quitting smoking when they combine some type of counseling with a nicotine replacement therapy or medication.[4] "While patients are here, I can submit an order for that treatment and then follow up with them afterwards about other support they need to quit," Zawacki says.

Carol Zawacki, RN, LMSW, a certified tobacco treatment specialist, counsels patients on smoking cessation while the radiologist is reading the scans.

> "I talk briefly with patients about their relationship with tobacco: the physical addiction, plus the psychological, emotional, social, and behavioral aspects."
>
> – Carol Zawacki, RN, LMSW

The data shows this on-the-spot tobacco counseling is working. The overall smoking cessation rate for patients in the lung cancer screening program has gone from 13% in 2016 to 15% in 2017. Even better, the quit rate for screening patients with negative screening results increased from 8% in 2016 to 14% in 2017. According to Parikh, these results can be attributed to Zawacki's direct interaction with patients as a tobacco cessation counselor.

Empowering Patients

By the time a patient has finished speaking with Zawacki, Parikh has read the scan, compared it to previous scans, and applied the ACR LUNG-RADS® lexicon. (View the lexicon at bit.ly/ACR_LungRADS.) The patient then joins Parikh and Christi Bartlett, RN, BSN, the screening program's nurse navigator, in the reading room, where Parikh reviews the images with the patient.

In these shared decision-making consultations, Parikh orients the patient with the anatomy, identifies any nodules, and describes the findings. Each consultation takes 5 to 15 minutes, depending on how many questions the patient has for Parikh. Every patient leaves the clinic with exam results in hand.

In instances in which the findings are negative, Parikh stresses that, while there is no indication of lung cancer, patients are still at high risk for developing the disease and should quit smoking. Bartlett makes an appointment for annual screening and reinforces that patients should keep returning to ensure they have a chance to catch developing lung cancer early.

From there, Kayla Brow, lung program coordinator, monitors annual screening patients. Brow enters and tracks all results within the electronic medical record's lung screening dashboard and the HFCI database to ensure that patients have follow-up appointments within the appropriate timeframe. Brow also generates and mails reminder letters to each lung screening patient one month prior to their recommended screening. Before any new or returning patients are scheduled into the lung screening block, Brow verifies the order, reviews the chart to ensure the patient meets CMS criteria for lung cancer screening, and then reaches out to the patient to schedule the exam.

When the findings are suspicious, Bartlett, who is also the lung nodule nurse navigator, contacts the referring provider for appropriate follow-up based on LUNG-RADS. She also facilitates orders for Henry Ford Allegiance physicians to co-sign, ensures proper order authorization, and schedules follow-up appointments — most within 14 days. For outside physicians, Bartlett contacts the physician's office with results and recommendations, then watches to ensure an order for follow-up imaging is placed.

For patients with findings that require follow up, Bartlett stays in close touch to ensure they get the recommended scans. "I reach out to them by phone," she says. "I call three times, and if I haven't spoken with them, I send a certified letter about the importance of keeping their appointments. That's when many people realize it's serious, and they need to come in."

Bartlett also reports back to those patients' referring physicians, letting them know what's happening and what exams and appointments have been scheduled. "Our ordering physicians find it reassuring that our clinic is facilitating all of it. As a result, the referring physicians are more inclined to encourage their patients to come for screening, so everybody wins."

Patients are also comforted to know that Bartlett is there to assist them through the screening process and that they can always reach out to her with questions. "It makes all the difference having someone there for the patients to guide them through and make sure nothing is overlooked," Parikh says. "Our patients know someone is watching out for them behind the scenes. It's reassuring when they know the order has been placed for them before they even leave the clinic."

For patients with suspicious findings, nurse navigator Christi Bartlett, RN, BSN, obtains authorizations and often schedules follow-up procedures before the patient even leaves the clinic.

Finding Cancer Earlier

Based on the clinic's efforts to make screening as easy as possible for patients and referrers, it is making inroads in its goal of catching lung cancer early. "One thing we're all concerned about is missing cancer until it's too late, when the treatment is harder and the prognosis is worse," says Kulkarni. "We tried to come up with a program to capture people before they come in with advanced disease. Our goal is to find cancers at an earlier stage and get that intervention, so we can save more lives."

The results of the lung cancer screening program speak for themselves. Since the program began, the team has seen nearly 2,500 patients and has found a total of 53 cases with pathologically proven lung cancer at all stages. The program has also detected nine other potentially deadly cancers, including esophageal, kidney, adrenal, transverse colon, abdominal, and lymphoma.

> "Our goal is to find cancers at an earlier stage and get that intervention, so we can save more lives."
>
> –Mohan G. Kulkarni, MD

In 2018, the cancer detection rate for the lung cancer screening program was nearly 3%. And the incidence of Stage 4 cancer was just 36% in 2018 as compared to the national average of 44%. "Many times, our patients think that when we catch cancer, it's too late," says Bartlett. "But if we catch it when it's small, it's not too late. We just need to get you in here, get you checked, and watch out for you. We can make a difference."

With their strong record of success, the team is now focused on getting even more patients in for lung cancer screening. "We are all passionate about reaching out to our community — especially the lower socioeconomic population where smoking is more prevalent — and encouraging people to get the screening that can save their lives," says Parikh.

To that end, Parikh asks patients to share their screening experiences with their families and friends — knowing that people who smoke usually know others who smoke. The team also conducts outreach at events, like Rotary or Lions Club meetings, and at the county fair, parades, festivals, health fairs, and industrial parks, as well as at the hospital's annual "Shine a Light on Lung Cancer" event.

Additionally, the team regularly visits medical practices and referring physicians whose patient populations include a high number of smokers to provide education and promote the screening program. "People are starting to realize that every time a patient comes in for a physical, their doctors need to look into their smoking history and promote lung cancer screening," Parikh says.

Kulkarni believes that having a collaborative team of people who believe in the power of lung cancer screening is the most important factor in the success of their program. "When you have buy-in from the administration along with dedicated clinicians and a forward-thinking radiologist coming together with a focus to improve care for a particular cancer, miracles can happen," he says. "The evidence shows that we can have an impact when we work together."

By Linda G. Sowers

ENDNOTES

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Now It's Your Turn ››››

Follow these steps to establish a patient-centered lung cancer screening program and tell us about your successes and lessons learned at imaging3@acr.org or on Twitter with the hashtag #Imaging3.

- Review findings directly with patients and recognize that LDCT for lung cancer screening is a teachable moment for smoking cessation.
- While patients are in the clinic, order scans and set follow-up appointments to encourage patients to continue screening or treatment and take the burden off of referrers.
- Focus on patient outreach and engagement. Identify a strategy to reach the highest-risk patients, including those in lower socioeconomic groups.

Q&A Health Equity: Radiology's Lane

The ACR will serve as the convener for the house of radiology to focus on the specialty's unique opportunity to promote health equity.

Geraldine B. McGinty, MD, MBA, FACR

Reducing health disparities has long been on medicine's radar, but COVID-19 has put a brighter light on how structural inequities directly impact access and outcomes for a wide swath of patients. Until recently, there has been relatively little focus on the issue when it comes to radiology – but radiologists have a significant role to play.

The *Bulletin* spoke with ACR President Geraldine B. McGinty, MD, MBA, FACR, about the College's plan to convene the Radiology Health Equity Coalition to drive imaging equality across healthcare. The coalition, which will be championed by ACR Board of Chancellors Vice Chair Jacqueline A. Bello, MD, FACR, will be formally announced by McGinty during her presidential address at ACR 2021 in May.

Q. What was the impetus for the ACR forming the coalition?

A. As we looked at the disparities highlighted by the pandemic, as well as the social justice protests of the last year, we realized that we needed to more actively leverage the unique opportunities that radiology has to make a difference in health equity. The ACR's history of demonstrating and ensuring the value of high-quality imaging care across stakeholders is well-established. Focusing all aspects of imaging on improving access to care, identifying missed care opportunities at the community level, and reducing imaging outcomes variability has the potential to reap benefits across the continuum of care and position radiologists as stewards of population health management (learn more in the population health management recorded webinar, "Understanding and Pursuing Health Equity: Opportunities to Take Action," at acr.org/PHM).

Q. What are some of the outcomes disparities that the coalition will address?

A. The coalition will address well-documented outcomes disparities such as higher cancer deaths for underserved populations (due to reduced access to screening and screening recommendations based on flawed data); variations in care based on race and ethnicity, as well as rurality and ZIP code; and documented discrepancies in life expectancy and outcomes that could be affected by access to imaging care. Lung cancer screening presents a significant opportunity because we know we're not screening nearly enough people. There is a specific opportunity in communities of color, where the impact of lung cancer is higher and where we're not necessarily reaching patients the way we should.

Q. What are some of the stakeholder organizations with which the ACR will partner?

A. I foresee every radiologist and every radiology organization playing a part in ensuring that all our patients have access to high-value imaging care. Radiology specialty societies have a track record of cooperation and rapid changemaking when the stakes are high. Our patients are facing pressing issues that can only be solved by a unified and full-strength effort across the radiology community. By building on the expertise that each of our sister societies brings to the challenge of health disparities, we will magnify our effect to make a measurable impact and change the current imaging inequities.

We also plan to work with other organized medicine conveners like the American Medical Association and the American Hospital Association to get input from their experiences and experts. I want to be clear that the ACR doesn't want to own this coalition – we want to work across the entire profession of medicine as we try to influence policy. We want to bring everyone together around a shared set of goals.

Q. How can ACR members get involved with the coalition?

A. As the April 2019 issue of the *Journal of the American College of Radiology*® demonstrates, there are opportunities for all radiologists to drive high-value imaging care for all Americans (read more at www.jacr.org). The ACR is committed to having opportunities for our members to volunteer in health equity efforts. At the chapter level, there are state chapters with diversity committees – that is a great way to get involved in making our radiology workforce more diverse. There are other issues that come up, such as renewal of the protections for coverage for mammography screening – and every ACR member can be involved by asking their elected representative in Congress to support that effort.

Q. Do you anticipate the current divisions in American politics will affect the work of the coalition?

A. The representative and collaborative nature of the ACR offers a place for all perspectives while retaining the core of healthcare professionals' desire to care for all members of their communities of practice regardless of their ability to pay, as noted in the FACR pledge. To me, that transcends any political leanings. We may all have different ideas on how to effect change but that healthy exchange of ideas is exactly what we're hoping to get from this coalition.

By Nicole Racadag,
ACR Bulletin *managing editor*

Bulletin PODCAST

To learn more about the Radiology Health Equity Coalition, listen to the ACR *Bulletin* Podcast at bit.ly/HealthEquityCoalition.

Health Equity at a Glance Understanding barriers to care

How do environmental factors influence imaging appointment attendance?

Radiology information system info from **3 million patient visits** over **16 years** was combined with **U.S. Census** and **weather data** to analyze the impact of environmental factors on failed appointment rates.

3 Factors Affecting Appointment Rates

Commute Distance

Access to Transportation

Weather Conditions

No-show odds increase by over **1%** for every **10 mile** increase in **commute distance** and **4%** with each inch of **snowfall.**

Using predictive analytics can **decrease** the rates of **both outpatient cancellation** and **no-show visits**.

Over the range of observed factors

No-show visit rates decreased from **6%** to **1%**

Cancellation rates decreased from **14%** to **8%**

JACR VISUAL ABSTRACT

Which patients are most likely to receive an inappropriate MRI of the lumbar spine?

Researchers analyzed trends from **2009** to **2014** in the use of **conservative therapy** before **MRI** of the **lumbar spine** for uncomplicated **low back pain**, which is defined by **Medicare** as the **most appropriate** order of treatment.

The study used a **nationally representative sample of Medicare claims**, before and after **Medicare policy changes**.

Patients who were **male**, **older**, **black**, **Hispanic/Latino**, or living in a **low-income** area were more likely to have an **MRI** before **conservative therapy**.

JACR VISUAL ABSTRACT

GRAPHICS BY JESS SISWICK

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