For the next several issues of Imaging matters, I plan to share portions of my RSNA Presidential Address: Redefining Radiology – The Road Ahead, November 27, 2021.

The impact of COVID-19 has been far reaching, affecting every aspect of our personal and professional lives. Facing this relentless threat, we were compelled to rethink, and reimagine what we do, how we do it, and—what truly matters to us. The pandemic has also opened our eyes to a myriad of issues in our profession, from workflow inefficiencies, and staffing vulnerabilities, to stark inequities in patient access to our care.

Before the pandemic struck, radiology’s road was fairly smooth. We followed an established route, familiar and comfortable. We endured the occasional traffic jam as regulations and our practices changed, volumes increased, and caseloads piled up. But eventually, the road would open up again and we’d be moving forward.

When COVID-19 arrived, everything stopped. We found ourselves taking a detour down a dark and winding road we had never traveled. Emergency departments and ICUs were quickly overwhelmed. Radiology departments faced staffing shortages, hiring freezes, and revenue loss as noncritical imaging studies were put on hold. Leaders scrambled to develop safety protocols for a crisis unlike any we’ve endured in our lifetime. Research ground to a halt, and patients—out of fear or necessity—put their health care on hold.

No one escaped the reach of the pandemic, but some were particularly vulnerable. In the U.S., Black and Hispanic patients were nearly 3 times more likely to be hospitalized with the virus, and twice as likely to die from it, than white patients. Health care inequities were laid bare, when because of location, lack of insurance or transportation, fear of losing their jobs, or even mistrust of the medical establishment, people were unable to access the critical care they needed.

The way the radiology community came together to address the pandemic was truly inspiring. Radiologists and radiology departments from around the world stepped up to share their experiences, and their challenges, and to offer solutions, and best practices to their colleagues. COVID-19 has reminded us that we cannot be siloed in terms of institutions, countries, or even continents.

We are all part of a large global system, and we are strongest when we work together.

Ohio HB 371 Update

Ohio HB 371, which would require Medicaid and commercial insurance providers in Ohio to cover supplemental screenings, including MRI and ultrasound, for adult women with dense breast tissue or elevated risk of breast cancer, passed the Ohio House November 18, 2021 and had its first hearing in the Ohio Senate Health Committee on January 26, 2022. Reps. Jean Schmidt and Sedrick Denson, co-sponsors in the House, presented statements supporting the bill to the Committee. Sen. Cecil Thomas of Cincinnati serves on the Health Committee, which must approve the bill before it can be voted on by the whole Senate.

Ann Brown, MD testified in support of HB 371 at a hearing of the Ohio Senate Health Committee on February 9.
A Quick Tour of the Radiology Department 3D Printing Lab Facilities

The University of Cincinnati College of Medicine is home to a new showcase in medical technology, the 3D Printing Lab in the Department of Radiology. Our dedicated lab hosts a collection of state-of-the-art software and equipment enabling production of 3D anatomical models in a range of materials best suited to the end application.

Central to the lab operations is image processing, because DICOM images that are interpreted in the radiology department and viewed through the medical system can’t be 3D printed. The reason is that the structures in the images do not have a natural surface. Personnel in the 3D lab are specially trained and uniquely skilled to make surfaces, and then 3D print those surfaces to make meaningful improvements in the quality of life for our patients.

The 3D Printing Lab uses a specialized software called Computer Aided Design (CAD) to manipulate the digital version of the 3D models to simulate surgery or develop custom treatment aids (e.g. device fitting templates, surgical cutting guides, or other patient specific devices).

After the challenging job of digital image manipulation and refinement, the printing begins. The newly renovated space is already filled to capacity. One reason is that we have a new arrival – a 3D printer called the Stratasys J5 MediJet. This device is a mid-level 3D printer that was recently part of an FDA clearance, based on our software package. With only modest costs, the J5 MediJet is capable of printing in full spectrum of color, ranging from transparent to opaque, at speeds comparable to previous generation single material 3D printing processes. UC’s 3D Printing Lab is one of the first 10 institutions worldwide to acquire this technology.

Before acquiring a mid-level printer, the lab could not print in these colors with transparency, so we could not show the nerve location and other critical structures that are embedded within patient anatomy.

While our people and their extraordinary efforts are key to the lab, the lab began with desktop printing, for example the FormLabs Form3 3D printers. We still use them, and we are getting one that will be exclusively used to print guides that will require sterilization. This “clean area” of the lab will again be unique and strategic for the mission of UC and UCH. The Form3 printers allow for printing of biocompatible materials approved for temporary contact with human tissue. This translates into better, cheaper, quicker and more impactful patient care in Cincinnati and the surrounding region. These printers are cost effective and in the “value” price range. Models from the Form3 can be rigid or pliable, transparent or opaque as necessary. For example, the Form3 can print clear, pliable left atrium models for trial fitting a vascular occlusion device in the appendage.

Above is an exact replica of the CT data from a de-identified UCH patient, printed on the Form3. The model is printed in an elastic material so that it simulates the “feel” of the heart. It is also flexible enough so that a non-sterile medical device can be tested in the perfect spot before the procedure.

Dr. Susan Braley was among the physicians who treat UC athletes who appeared in a video recognizing the UC football team at the time of the Cotton Bowl game with Alabama. They wished the “Cats well against ‘Bama and commented on the support the team received from UC and its fans this year. The video was produced by UCHealth Marketing & Communications, and was distributed on UCH social media and e-newsletters.

Stratasys J5 Printer

Two Formlab Form3 Printers

Skull and mandible printed on Stratasys J5.

Braley In Bearcats Video

Dr. Susan Braley, MD, UC Health Chief of Sports Medicine Imaging

Above is an exact replica of the CT data from a de-identified UCH patient, printed on the Form3. The model is printed in an elastic material so that it simulates the “feel” of the heart. It is also flexible enough so that a non-sterile medical device can be tested in the perfect spot before the procedure.
RSNA President’s Banquet

It's not always glamorous, but sometimes it is the RSNA President’s Banquet, November 27

RSNA PRESENTATIONS AND EXHIBITS


Mahoney M. President’s address: Redefining radiology: The road ahead. November 28, 2021.


Mom’s Place

Dr. Jon Jacobson, a bass player in his spare time, organized a band to play a charity fundraiser at Mom’s Place in Chicago on November 27, during RSNA. Second Year Resident Rahul Rao played the drums. Pro-ceeds supported Imaging World Africa for Dr. Jacobson’s shoulder ultrasound outreach program in Uganda. Further information and donation information can be found imagingtheworld.org.

RSNA EDUCATIONAL EXHIBITS


Cincinnati Enquirer Resolution for 2022: Don’t Delay Health Care

Radiology Department Chair Mary Mahoney, MD was quoted in a Cincinnati Enquirer feature January 1, 2022 headlined Your Doctor’s Prescription for a Healthy 2022: Stop Delaying Health Care. The article points out that the pandemic has caused many people to postpone or skip routine medical treatments in general, and specifically breast cancer screenings. Unfortunately, cancer doesn’t wait, and breast cancer diagnoses are now increasing. Dr. Mahoney said that patients have “lost jobs, insurance, child care... and didn’t have time to come in.” She encouraged everyone to make a New Year’s resolution to get back into their health care routine.

VERIFY Trial

Achala Vagal, MD will be a Principal Investigator leading the Imaging team to develop MRI protocols and analyze results for the VERIFY trial. Pooja Khatri, MD, is Lead Principal Investigator for the study. Although there have been over 1,000 randomized, controlled trials of treatment and therapies aimed at improving motor outcomes after ischemic stroke, there have been few advances in rehabilitation practice. Most large trials are unable to detect treatment benefits, largely due to high intersubject variability. There is a critical need for validated clinically relevant biomarkers to identify distinct patient populations to facilitate personalized restorative therapies after acute ischemic stroke.

Midwest Breast Imaging Consortium

The COVID-19 pandemic has taken a toll on medical education, including breast imaging clinics and fellows. The Midwest Breast Imaging Fellowship Consortium was established to address this. Co-founded by UC Radiology’s Rifat Wahab DO, with founding members including Charmi Vijapura MD, the consortium provides a collaborative weekly multi-disciplinary didactic lecture series over Microsoft Teams. During this academic year, the consortium will provide over 40 lectures to our breast imaging fellows, meeting the curriculum recommended by the Society of Breast Imaging. The consortium provides opportunity for professional development by creating a pathway for them to be recognized as regional experts. In addition, the consortium is developing a structured cross institutional mentorship program. The consortium currently consists of seven institutions: University of Cincinnati, Ohio State University, University of Chicago, University of Michigan, University of Pittsburgh Medical Center, Cleveland Clinic, and Johns Hopkins. Additional institutions have been invited to join.

TMIST Study Recognized

The UC TMIST Study team and UC Mammography have been recognized by ACR’s ECOG-ACRIN Cancer Research Group as being among the national leaders in enrolling patients in the study for four successive quarters. TMIST (Tomosynthesis Mammographic Imaging Screening Trial) compares the efficacy of 2D and 3D mammography, and aims to have a patient population that is especially racially and ethnically diverse so the study results will not be biased by the makeup of the sample.

Ergent Zhiva, MD was accepted to attend the Association of University Radiology Management Program, to be held at the AUR Annual Meeting in Phoenix, March 22-25, 2022. Alec Kord, MD and Greg Stark, MD will attend the AUR Academic Faculty Development Program at the same time.

Radiology Featured in Simulation Center Article

An article in UCH’s The Link, titled Simulation Center at Ridgeway Provides Training that Benefits Our Patients Each Day, prominently mentioned Radiology. Brian Pio, Simulation Center Manager, arranges simulations of emergency situations for UCMC teams including Radiology using a dummy simulation patient – nicknamed Hal. Hal can be controlled to enact different case scenarios such as simulating a patient found unresponsive within the Radiology Holding Bay or a hallway. The Simulation Center provides situations where teams can work through a scenario without a live patient. It is then possible to review details such as response times, appropriateness of treatment, and team interaction, and identify opportunities for improvement.

Radiology Quality Coordinator Shari Lecky said, “The purpose of the MOCK Codes is not to test our teams, but to observe the code process in the event of an emergency to ensure the team is knowledgeable, can react quickly and work as a team to save the patient’s life.”
Service Recognition

The Department of Radiology would like to recognize these faculty for their years of service to the UC College of Medicine.

International Day of Radiology

International Day of Radiology (IDOR) is celebrated each year on November 8, the birthday of William Roentgen, the discoverer of X-Rays. This year IDOR specifically recognized the contributions of Interventional Radiology; the UC Radiology IR section celebrated with a cake in their reading room.

PUBLICATIONS


PRESENTATIONS


We Have the Best Doctors – Again

16 UC Radiologists were named in one or both surveys naming leading doctors in the area for 2022. The Cincy Magazine Best Doctors poll asks anyone to name a medical doctor they consider among the best in the region. Cincinnati Magazine’s Top Doctors in Cincinnati survey asks medical doctors to identify who they would turn to if “a family member, a friend or the doctor himself/herself needed medical attention.” UC Radiologists named in the surveys included:

Seetharam Chadalavada, MD – Vascular & Interventional Radiology
Kyuran Ann Choe, MD – Radiology
Alisa Kanfi, MD – Radiology
Bruce Mahoney, MD – Nuclear Medicine
Abouelmagd Makramalla, MD – Vascular & Interventional Radiology
Jonathan Moulton, MD – Radiology
Ross L. Ristagno, MD – Vascular & Interventional Radiology
Jennifer Scheler, MD – Nuclear Medicine
Lawrence D. Sobel, MD – Radiology
Juliana Tobler, MD – Radiology
Alexander Towbin, MD – Pediatric Radiology
Sadhna Verma, MD – Radiology
Doan Vu, MD – Vascular & Interventional Radiology
Rifat A. Wahab, DO – Radiology
Shaun A. Wahab, MD – Radiology
Lily L. Wang, MBBS – Radiology
Lulu Zhang, MD – Vascular & Interventional Radiology