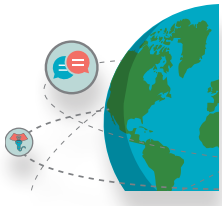
WINTER 2023

JOHNS HOPKINS MEDICINE

Radiology Update

THE RUSSELL H. MORGAN DEPARTMENT OF RADIOLOGY AND RADIOLOGICAL SCIENCE



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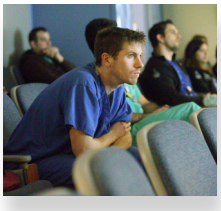

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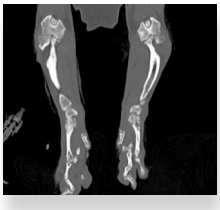

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CHAIR'S MESSAGE

The past year in the Johns Hopkins Russell H. Morgan Department of Radiology and Radiological Science has been full of changes as we worked towards innovation and excellence in patient care, research, and education.

Our leadership team celebrated the retirement of Dr. Paul Bottomley after nearly 30 years of his pioneering and distinguished work, as well as the promotion of Dr. Shivani Ahlawat as our director of diversity, equity, and inclusion and Dr. Sridhar Nimmagadda as the new director of the PET Service Center. In addition, we welcomed Susan Press as our new radiology functional unit administrator and Danielle Karavedas as the new chief administrative officer. Finally, at Johns Hopkins Bayview Medical Center, Dr. Jenny Hoang assumed the role of chair of Bayview Radiology, and Cheryl Shoats joined as the interim radiology administrator.

I look forward to working closely with these new and existing leadership team members to further strengthen Johns Hopkins Radiology.

CLINICAL

The past few years have been full of challenges as our clinical staff and faculty strive to maintain our high standards of patient care. We have committed to finding new ways to thrive and flip restrictions into opportunities for closer connections through virtual environments during this time. This has influenced residents and education and reached far into clinical workflow, intra- and inter-department collaborations, and communication with referring providers outside Johns Hopkins.

We are continuing to establish a second site in Columbia while the planned Belward Farms in Rockville is on pause for now. In addition, I'm thrilled to announce that the breast imaging radiologists at Sibley Memorial Hospital have officially joined the Johns Hopkins Department of Radiology faculty, bringing us one step closer to One Radiology integration.

The outpatient imaging site at Green Spring Station saw the opening of a third MRI, allowing us to meet patient demand better. In addition, we are progressing on plans to install a new PET/CT and construct a hot lab in Pavilion I, enabling us to bring more PET/CT services to ambulatory settings.

Karen M. Horton, M.D.

RESEARCH

Our research faculty have made tremendous strides in grant funding through non-federal and federal sponsors. We continue to provide critical seed and bridge funding, protected research time, and mentorship through internal radiology awards and programs.

One particularly exciting development out of many is the work being done by Dr. Rebecca Krimins, who is pioneering research into radionuclide therapy in veterinary patients. Her advancements in this growing field hold promise for human clinical applications.

A key priority continues to be supporting clinical faculty in their research work. We're proud to highlight Drs. Clifford Weiss, Lilja Solnes, and Shadpour Demehri's unique approaches to their specialties and bringing bench to bedside to treat patients with the latest advancements.

Beyond our department at Johns Hopkins, numerous Radiology faculty members have received individual honors, awards, and invitations to national and global organizations to recognize their expertise and ground-breaking work.

EDUCATION

One of the most critical values our faculty provide is their instruction and interaction with our residents and fellows. By creating an inclusive and diverse environment to foster learning and growth, we saw our fourth year of being ranked #1 in U.S. News & World Report's Best Radiology Programs and are now ranked #5 globally. This couldn't have been possible without every department member's high level of engagement, and it is so rewarding to see others recognize this commitment, dedication, and quality.

For any trainee interested in learning more about specific topics such as clinical educators, health policy, informatics, or global health, we formalized special distinction tracks to ensure comprehensive mentorship. We also saw the return to in-person learning and conferences while ensuring we maintained virtual systems to utilize as needed.

We look forward to the new year, knowing that we have already overcome previously unimagined challenges. As always, alumni and donors are welcome to reach out to me with any questions.

Sincerely,

Karen M. Horton, M.D.
Martin W. Donner Professor of Radiology
Director, Russell H. Morgan Department of Radiology and Radiological Science

Mr. Johns Hopkins changed the course of history with one bold stroke of his pen by signing a will that would create The Johns Hopkins University.

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Johns Hopkins LEGACY SOCIETY

Radiology Goes Virtual: **Connecting with Colleagues Across the Miles**

The Johns Hopkins Department of Radiology and Radiological Science has a wide geographical footprint, with approximately 100 radiologists and 60 trainees serving patients at two academic hospitals, two community hospitals and four outpatient sites throughout the Baltimore/Washington D.C. area.

In addition to the long-time faculty members based in these locations, some of the newest hires to the department include radiologists reading remotely in other states.

With faculty in so many locations across the miles, it can be challenging to bring people together.

Now, colleagues in Baltimore and Bethesda can connect in an instant, sharing ideas and issues at the click of a button, thanks to the Radiology Virtual Department (RVD).

The RVD is the brainchild of radiology professor **Jenny Hoang**.

An expert in neuroradiology with research interests in thyroid nodules and cancer, Hoang is currently chair of radiology at Johns Hopkins Bayview Medical Center. While she was developing the RVD, she was serving as vice chair of radiology enterprise integration and medical director of Johns Hopkins Medical Imaging.

In these roles, working with a variety of faculty, staff and trainees, Hoang knew she needed to find a way to bring everyone together.

She quickly set to work.

"My goal was to construct a virtual environment for the educational and clinical efforts of Hopkins Radiology," Hoang explained.

She created the RVD using Microsoft Teams. All Johns Hopkins radiology faculty and trainees were added to a team. New members were given a link to request access.

Within the RVD team, there are channels for each radiology subspecialty. Division users "live" within their respective subspecialty and can access shared posts and files, meeting schedules, agendas and more. With the click of a button, they can see who was on shift on a clinical day and message them about a case.

When meetings are held within subspecialty channels, other radiologists can drop into the meeting. Meeting links can be shared with clinicians so they "meet" virtually with a radiologist for a screen share consultation.

"This is a way clinician can enter the reading room without physically entering the reading room," Hoang noted.

RVD is also a repository of information. There are channels for functional groups — policy, procedure, IT, research — offering department policy, contact numbers, codes of conduct, copies of the vice chair newsletter, resident rotations and more.

And there are fun groups to boost morale and build community — everything from foodies to fitness fans.

Hoang aimed to make the RVD a fun, easy place for faculty and trainees to gather to share information and ideas, to come together despite the miles between them.

She began developing the RVD in the summer of 2020. Like her colleagues, she had spent the first months of the COVID-19 pandemic isolated at her home workstation.

As the weather warmed and case levels evened out, Hoang and her colleagues began making their way back into reading rooms.

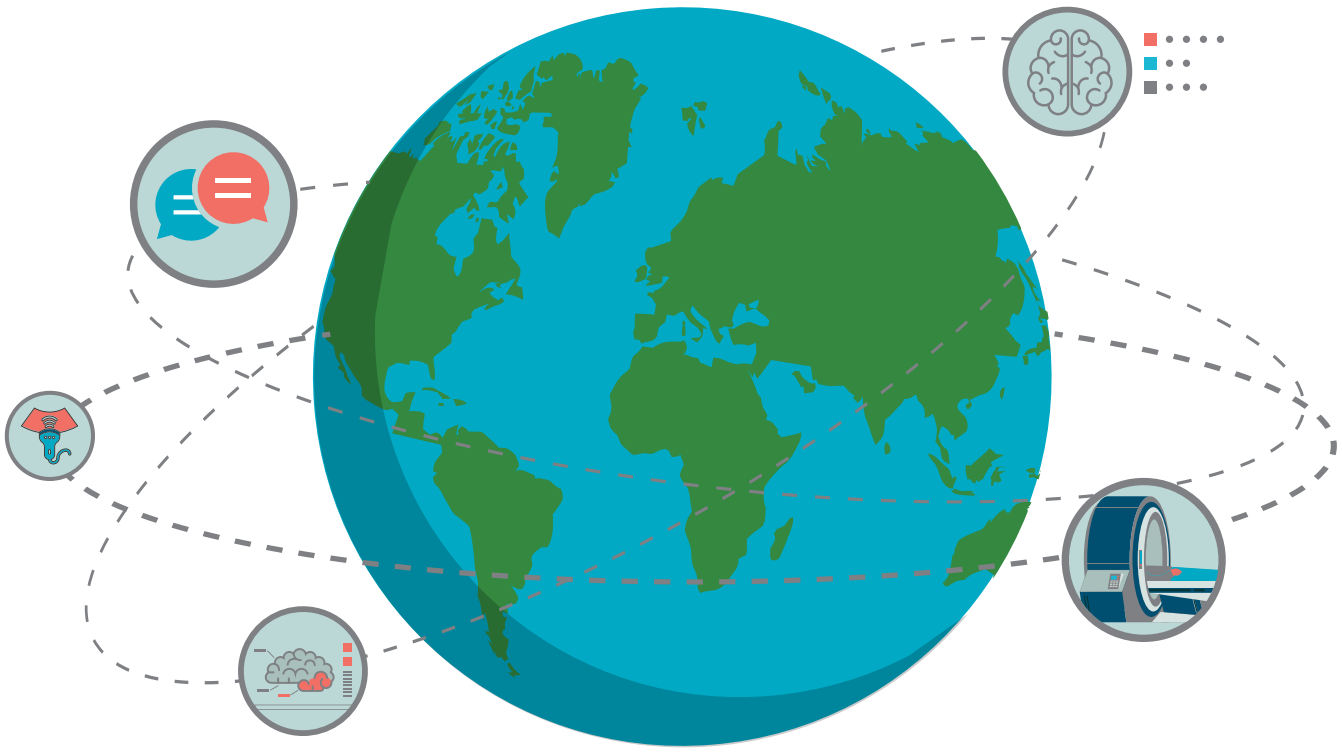
But it was quickly apparent that things were quite different.

This was not the reading room Hoang remembered, with multiple people bent over one screen, pointing at images and sharing expertise. Social distancing, a prohibition on using the same keyboard and other necessary safety measures meant that, even in the same room, radiologists remained largely isolated.

Seeing the need to develop a sense of community, Hoang further developed the RVD. She hoped to draw faculty and trainee users to the new platform and, once there, make it a useful place that kept people coming back.

She worked with the radiology marketing team to develop an engaging infographic to share with the department. Using eye-catching images and easy, conversational language, the chart included information on how to access the Radiology Virtual Department, as well as user tips, the current number of users and more.

The rollout started slowly, with low engagement from users in July 2020. However, as Hoang promoted the RVD through word of mouth and at faculty meetings, engagement



rose sharply throughout August and September. By the end of September 2020, the RVD boasted 146 active users — a marked success.

Not only were users coming, but they were staying and using the platform.

Users quickly found the RVD to be a much easier way to reach colleagues, a low-effort way to contact others when the previous option was most likely reaching out to a pager.

The chat feature has become an invaluable way for faculty to share information with trainees and for trainees to ask questions of faculty.

During the height of the pandemic, daily virtual teaching conferences allowed faculty, residents and fellows to coordinate — posting images directly into chat for discussion. With the click of a button, faculty mentors could offer feedback, while trainees could easily click and enlarge images on their own screen from wherever they were working.

"Teams has been a really great way to teach and give feedback," Hoang said.

The RVD has also allowed colleagues to connect, ask questions of each other, distribute work and cover for each other, while chat and video conferences have become a quick, easy way to share key findings with providers.

In one example, Hoang points to an interaction she had with a radiation oncologist. She shared a meeting link, he hopped on and they were quickly able to connect in real-time.

"It's like we're meeting together, but we are not in the same room, she said. "But we are still able to share findings with each other and have a discussion."

The RVD continues to thrive today. In the wake of the platform's success, new virtual departments have been created for Johns Hopkins Bayview Medical Center as well as the multidisciplinary tumor board.

Looking back, Hoang believes she met her goal — constructing a virtual environment for the educational and clinical efforts of Johns Hopkins Radiology — but she also created more than that.

Meeting virtually in a friendly space served as a morale boost for many, offering fulfillment both professionally and socially during an isolating time.

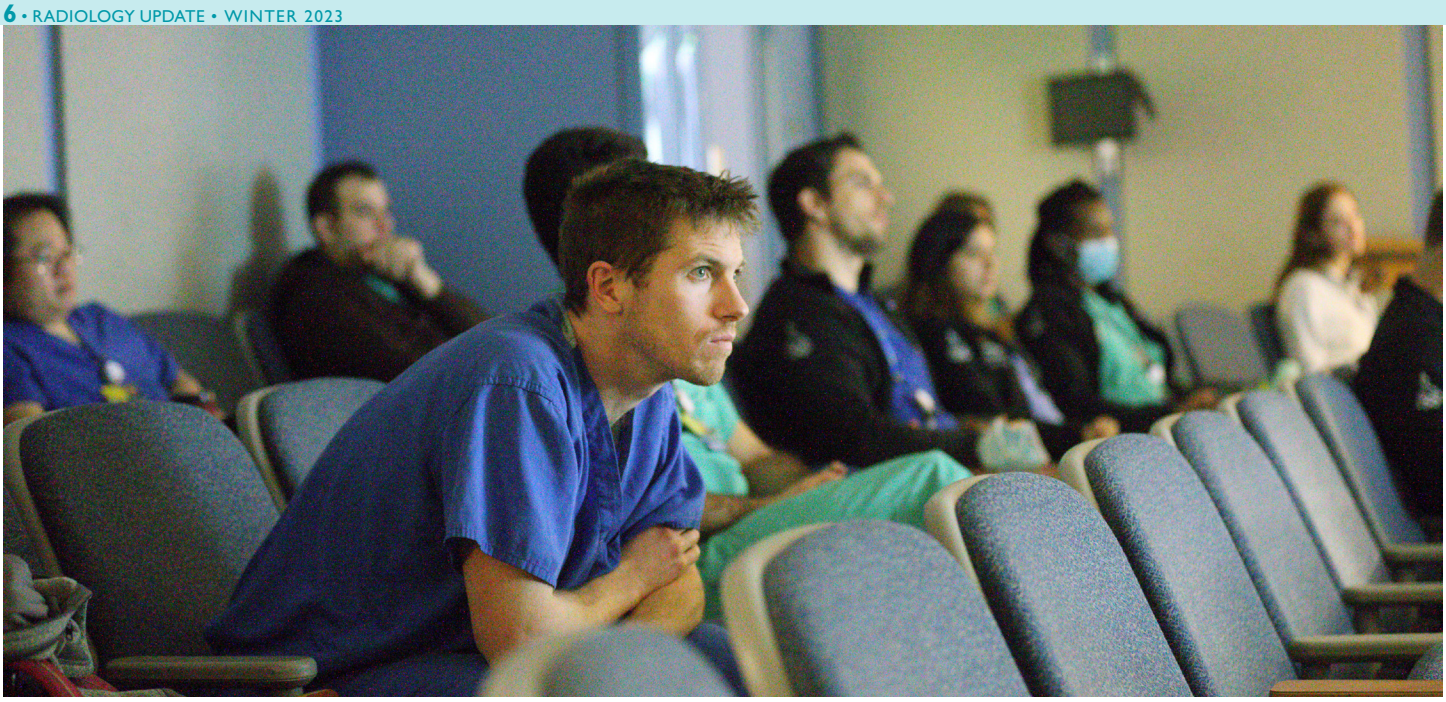
"Teams became our water cooler," Hoang said.

"We had socials," she noted, adding, "The RVD really helped us become more of a community at a time when we were physically distant."

Using chats, video calls, GIFs, emojis, user polls and more, faculty, residents and fellows were able to stay in touch across the miles.

It is Hoang's hope that other Johns Hopkins departments explore the benefits of developing their own robust virtual departments.

"We created a community," she concluded, "at a time that was bleak and dark for many people due to the lack of social interaction and the effect of the pandemic on personal lives." ■



Residents attending a morning conference at The Johns Hopkins Hospital.

Residents Return to In-Person Conferences/Learning

In March 2020, much of life came to a standstill with the beginning of the COVID-19 pandemic. For the radiology residents of the Russell H. Morgan Department of Radiology and Radiological Science, the sudden onset of social distancing meant a rapid change to a big part of life — the daily morning conference.

"The morning conference is an essential aspect of our training," explained **Sahar Soleimani**, a fourth-year radiology resident and one of three chief residents for the 2022–23 year.

Morning conferences are a consistent element in residents' schedules. Held Monday through Friday mornings, the 90-minute conferences include lectures given by a faculty member or guest speakers.

During the gatherings, residents learn from a variety of clinicians and researchers both within and from outside of Johns Hopkins. It's an opportunity to interact by asking questions and discussing new ideas, triumphs and challenges, with experts, mentors, and peers.

The time also includes on-the-spot case conferences to challenge residents' ability to act quickly and effectively. Residents are given real-world cases and images to discuss, which assesses the residents' abilities and offers new information.

Prior to the onset of the pandemic, the conferences were held in person at The Johns Hopkins Hospital. Each weekday morning, residents would have the chance to gather face to face, to ask questions and to engage in discussions and case studies with faculty mentors and one another.

That routine was disrupted with the COVID-19 pandemic. Undaunted, faculty and residents quickly established a virtual morning conference space on the Zoom platform. In just a matter of weeks, the enterprise moved entirely online.

Despite the necessarily rapid transition to virtual meetings, faculty and residents quickly embraced new technologies and new ways of teaching and learning.

"It was very impressive to see how everyone, faculty and residents, came together quickly to figure out a new way of doing things," Soleimani said.

"The transition, though sudden, was as smooth as we could have hoped," she added. "The faculty were really amazing at stepping up, as were the residents."

Aggie Boron started as an internal medicine resident with Johns Hopkins in the midst of the pandemic — July 2020.

Though it had been less than four months since the sudden shift away from face-to-face morning conferences, Boron found the virtual option as supportive and educational as she had hoped.

She even saw the bright side in meeting remotely. Virtual gatherings, Boron noted, allowed for a wider variety of guest lecturers, as they did not need to navigate the logistics of bringing an in-person speaker on to the campus.

And the connectivity of the Johns Hopkins campus via Zoom means that colleagues are rarely more than a quick email or message away.

For her part, Boron also felt incredibly well-protected — both for herself and her patients — during the pandemic. She credits Johns Hopkins and the radiology department for implementing rigorous safety measures, including virtual gatherings, masking requirements, social distancing and limiting the number of people in reading rooms.

For more than two years, morning conferences remained virtual as COVID-19 and its variants made gathering in person unsafe. Each time case numbers started to decline and a return to in-person learning was discussed, it seemed a new variant would lead to a spike in cases once more.

Finally, with cases and restrictions easing, as of July 1, 2022, residents began meeting in person for the first time in over two years.

For Boron, it was an odd but welcome feeling to gather together in person for the first time in her residency. It is a feeling that she quickly grew to love.

Now a third-year resident, Boron serves as the diagnostic radiology residency program's lecture curriculum ambassador. In this role, she creates the morning conference schedule and serves as a liaison between residents and faculty/guest speakers.

She has been an important part of the transition back to in-person conferences.

This has included managing logistics, scheduling speakers, sharing information and encouraging colleagues to attend in-person gatherings.

The return to face-to-face meetings, according to Boron, has been well received so far.

"Faculty are excited to present face to face again," she said. "And residents are glad to be back."

"Some elements are lost in a virtual setting," Boron continued, specifically that people tend to ask fewer questions and the presenter can't read audience members' facial expressions as easily during the lecture.

By comparison, in-person presentations tend to allow audience members to feel more comfortable participating. Being able to see participants in the room directly also allows the presenter to note the audience's reactions and adjust accordingly.

Soleimani cited the "bonding experience" of meeting for face-to-face morning conferences as a key part of the residency experience. Residents can learn from one another, as well as form relationships with radiology faculty.

While faculty members are available via email and other virtual options, it can often be an intimidating and impersonal option for residents. Additionally, messages can get lost in the inbox of a busy faculty member who receives hundreds of emails a week.

By contrast, in-person gatherings allow residents and faculty to approach one another in person, via pre- and post-meeting conversation as well as question-and-answer sessions during presentations.

This more informal time allows for a greater degree of familiarity and respect, enhancing the experience on both sides.

Morning conference time is also protected and free from clinical responsibilities for residents. This means that, despite an often hectic schedule for busy residents, there remains time set aside for learning, study and professional connection.

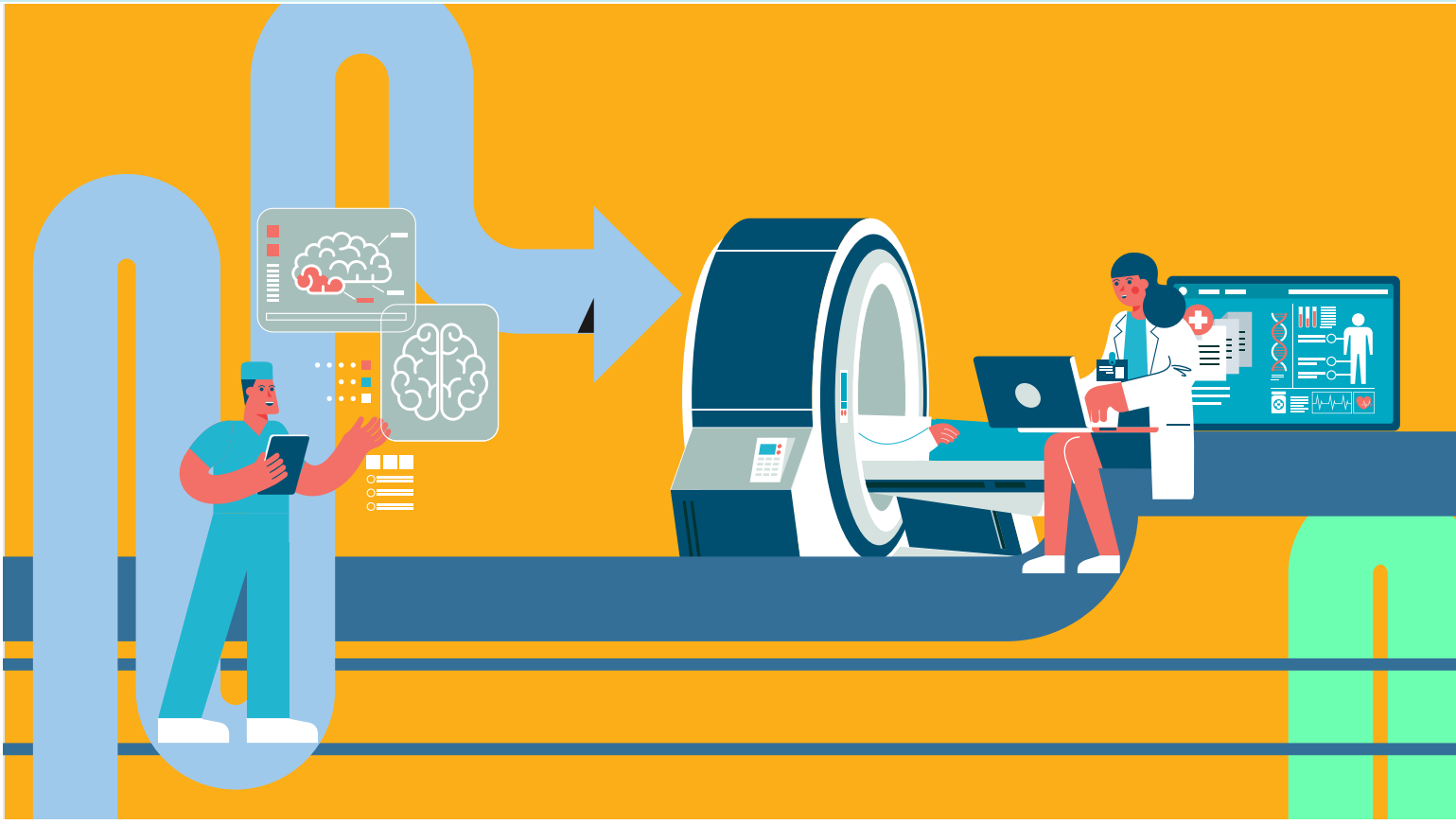
A faculty member lecturing during a morning conference in the Stoll Conference Room.

Soleimani noted, "In-person morning conferences are a really great opportunity for faculty and residents to connect in a meaningful way that is not at a workstation."

While in-person conferences are ongoing at The Johns Hopkins Hospital, the virtual option will remain available as needed for remote speakers and residents working from other locations, including Johns Hopkins Bayview Medical Center and Johns Hopkins Medical Imaging sites.

"We're trying our hardest to make everything as in person as possible," Boron said, while adding that things remain flexible.

She concluded, "It is just so great to see everyone face to face again, working together, side by side, to enhance our skills and offer world-class care to our patients." ■



Special Distinction Tracks Within the Radiology Residency

Radiology has been at the forefront of medical science since Roentgen's discovery of the x-ray in 1895. The field continues to evolve at a rapid pace, and today's radiologists must be ready.

At The Johns Hopkins Hospital, residents in the diagnostic and interventional radiology residency programs can customize their education and experiences by following one of five elective special distinction pathways.

"The distinction tracks are something really special that we offer," explained **Erin Gomez**, assistant professor of radiology and director of the diagnostic radiology residency program.

This program is the brainchild of Pamela Johnson, professor and vice chair of quality and safety in radiology, who developed the concept during her time as radiology residency director.

The aim of the special distinction pathways, according to Gomez, is to "make sure we have the most comprehensive curriculum for residents."

The pathways allow residents to further develop their skills, with the mission of creating clinically excellent radiologists and future leaders in the field.

Residents can tailor their education to their career interests, customizing their research and study to better reflect their goals.

"We have very ambitious residents," noted **Cheng Ting Lin**, associate professor of radiology and director of the quality informatics fellowship track.

"We continue to expand the tracks because every resident's interests and career path are different," he added.

In addition to quality informatics, the special distinction pathways include clinical educator, health care policy, global health and the research scholar track.

Each track is led by a specialized radiology faculty member. Residents in the tracks work directly with faculty to pursue additional research and gain hands-on experience. Each participant completes a special project and receives a certificate upon graduating from the residency program.

The goals of the quality informatics track are to improve quality and safety in health care and to explore the practical applications of informatics tools. Lin successfully mentored three residents along this track in recent years. Working with Lin, the residents attend meetings and monthly QI conferences and participate in informatics research.

Gomez is the director of the clinical educator pathway.

Residents in this track develop a curriculum, debut it in an educational setting and receive feedback. This often leads to additions to the program curriculum that are resident driven. For example, residents participate in a mock call program to better prepare them for thinking on their feet during overnight shifts. This experience was developed by a former resident in the clinical educator pathway.

The health care policy pathway, headed by professor of radiology **Katarzyna Macura**, encourages residents to become active with national radiology organizations, including the American College of Radiology. Residents in this track have participated in lobbying activities in Annapolis, Maryland, and Washington, D.C., and have met with political leaders interested in hearing the perspective of radiologists.

For residents interested in a wider view of medicine, the new global health track, established in 2021 and directed by professor of radiology **Doris Lin**, provides a look at radiology on a worldwide scale. The aim is to improve access to radiological and imaging services in the global community.

"The global health track is designed to enable residents to develop and hone skills necessary to generate, organize and execute a global health project, aimed at improving access to medical imaging services among underserved populations around the world," Lin explained.

As part of their work in the track, residents get the chance to organize an international or domestic global health project, apply for international travel grants and attend the annual RAD-AID International Conference. RAD-AID is a nonprofit group that provides imaging services around the world.

One of the most customizable pathways is the research scholar track. Headed by **Martin Pomper**, professor of radiology and director of nuclear medicine and molecular imaging, the track is highly specific to each resident, their career interests and the project they choose to pursue. Within this track, residents get the chance to research and get work published with world-renowned experts from across the department.

Residents who opt to pursue a special distinction pathway usually enter the program in the second or third year of their four-year residency. Projects take approximately one year to complete.

The special distinction pathways program is unique to Johns Hopkins. Few other radiology programs offer the number or variety of tracks to follow, nor the opportunity for residents to create and customize tracks based on their career goals and interests.

According to Gomez, the residents themselves are the drivers of the program.

"Our residents are so incredible; they come up with great ideas," she said. "We give them a framework and a plan to bring their ideas to life." ■

Radiopharmaceutical Therapy in Veterinary Patients

Veterinarian **Rebecca Krimins** is at the cutting edge of medical research at Johns Hopkins, and her work has the potential to benefit millions of patients — human and animal.

Krimins is pioneering research into radiopharmaceutical therapy in veterinary patients. While she does not directly treat humans, her work is advancing radiation treatments for pets that may someday benefit people.

Krimins is an assistant professor in the Department of Radiology and Radiological Science and founder/director of the Veterinary Clinical Trials Network at The Johns Hopkins University, where she collaborates with other experts to bring newly developed therapeutic and diagnostic tools to veterinary patients.

"The diseases I treat and therapies that I use are translational to humans," Krimins explained. "I look at therapies and collaborate with specialists to share findings in pets that may benefit people."

In recent years, Krimins has focused much of her work on developing radiopharmaceutical therapies for veterinary patients.

Also known as targeted molecular radiation therapy, radionuclide therapy or radio-theranostics, the therapy involves introducing radioactive material designed to work in specific locations of the body to treat a medical condition including cancer.

Radiopharmaceutical therapy has been used to treat human patients since the 1940s, and it remains a rapidly-growing field. Radiopharmaceuticals can be used for diagnostic imaging purposes as well as treatments. For example, flourine-18-DCFPyL is a radiotracer that binds to prostate specific membrane antigen (PSMA). In men with prostate cancer, 18F-DCFPyL PET imaging allows physicians to visualize specific locations in the body where the cancer has metastasized. Research into radiopharmaceutical therapy in veterinary patients began in the 1980s.

"I look at therapies and collaborate with specialists to share findings in pets that may benefit people."

— REBECCA KRIMINS

By the 1990s, Iodine-131 (sodium iodide) was being commonly used to treat feline hyperthyroidism.

During I-131 treatment, patients must spend up to a week at the veterinarian's office due to the potential of human exposure to radiation. This can be a major drawback of treatment for pet owners considering treatment options.

Within the past two years, two new radiopharmaceuticals have been approved for therapeutic purposes in veterinary medicine: yttrium-90 (hydrogel solution) and tin-117m (colloid solution).

Krimins uses Y-90 hydrogel therapy to treat solid cutaneous malignant tumors. It can also be used inside the body following removal of an intra-cavitary malignant tumor to ensure all cancer cells are eradicated.

The radioactive material is prepared and administered for each patient individually based on the type and location of the cancer and other factors. The Y-90 hydrogel is injected into the tumor at 5 millimeter spacings.

Therapy is outpatient; animals can go home the same day as treatment. This newer radiopharmaceutical is not excreted, and it does not migrate or irradiate healthy tissue, Krimins noted.

Post-treatment, owners are advised to limit prolonged direct contact between humans (especially children and pregnant women) and the treated tissue for several weeks following treatment to limit any potential exposure.

In her research, Krimins offers several case studies of patients treated for malignancy with Y-90 hydrogel.

Francis, an 11-year-old Yorkshire terrier, had a cancerous high-grade soft tissue sarcoma removed, but still had signs of cancer around the edges of removed tissues (known as dirty margins). Since his treatment in January 2022, Francis is thriving and remains cancer-free.

Oliver, a 12-year-old domestic shorthair cat, had a fibrosarcoma in a limb. The limb was amputated, but the fibrosarcoma grew back at the amputation site. Oliver was treated twice with Y-90 hydrogel, most recently in July 2022, with no tumor recurrence to date.

The other new radiopharmaceutical therapy, tin-117m, uses an isotope of tin in a colloid suspension to treat osteoarthritis in dogs, a common condition in older dogs. Osteoarthritis is a chronic degenerative condition associated with inflammation of the joint. Tin-117m injected into the joint cavity can cause a long-lasting reduction in the inflammation and pain associated with arthritis. A single intra-articular injection can provide relief for 12 months.

Pets can be treated outpatient with tin-117m and go home the same day. Humans should avoid prolonged direct contact with the injected joint(s) for two weeks following treatment.

"When administered correctly, the treatment is very safe with no adverse reactions reported," Krimins noted.

With promising results, happy patients and pet owners, Krimins is hopeful that her work with radionuclide therapy in veterinary patients will offer new treatments and a better quality of life for pets as well as human patients. ■

CT image of bilateral forelimbs of Francis, a Yorkshire terrier

Showcasing Clinician-Researchers in Radiology

Since its inception, Johns Hopkins has pursued a tripartite mission — reflected in the three sides of Hopkins' iconic triangle symbol — of research, education and patient care. It is a mission that continues today.

Pursuing excellence as both a clinician and researcher is no easy feat. In Johns Hopkins' Department of Radiology, however, it is a feat worth pursuing. As **Karen Horton**, Director of the Department of Radiology, states, "Research is a critical component of Johns Hopkins and, within our own department, we're dedicated to advancing radiology through our dedicated research faculty as well as with our clinician scientists. These clinician-scientists offer a unique take on bench-to-bedside research, including cross-departmental collaboration, which can be seen in the work of three faculty members, **Clifford Weiss**, **Lilja Solnes**, and **Shadpour Demehri**."

Weiss serves as director of interventional radiology research, medical director of the Johns Hopkins Center for Bioengineering Innovation and Design, director of the Johns Hopkins HHT Center of Excellence and director of the Johns Hopkins Vascular Anomalies Center.

His clinical and research work centers on vascular and interventional radiology, with a focus on the diagnosis and treatment of vascular malformations. He is also working on development of bariatric embolization, a cutting-edge procedure for the treatment of obesity.

According to Weiss, such work would not be possible without the support and value placed on clinicians pursuing research interests.

For Weiss, the emphasis on research is critical for many reasons. Johns Hopkins' reputation for both clinical and research excellence, as well as giving faculty the space to pursue their passions, is a key tool in recruiting the best and brightest to the institution.

"In the end, our goal is to treat people and make sure people are treated better."

— CLIFFORD WEISS

Ultimately, patients benefit from clinician-researchers who can treat them as a whole person, bringing treatments and therapies from research bench to patient bedside.

It was this focus on clinician research that drew associate professor Lilja Solnes to Johns Hopkins.

Solnes' areas of clinical expertise include diagnostic radiology, oncology and nuclear medicine. She and her colleagues are building a theranostics clinic for the diagnosis and treatment of diseases such as prostate and neuroendocrine tumors. With her colleagues, she is working to bring novel theranostics agents from the lab into use in human trials.

"I'm here to really push the boundaries of medicine," Solnes says, adding, "New therapies, diagnostic agents — it really fulfills me."

One such novel therapy Solnes is working on with colleagues is the use of lutetium-177 to treat metastatic prostate cancer that has become resistant to other treatments. Lu177 PSMA therapy involves administering the radioactive agent intravenously to kill cancer cells while sparing normal cells in the surrounding area. This agent was developed by Martin Pomper, Johns Hopkins

radiology professor and director of nuclear medicine and molecular imaging.

It is such cutting-edge research, reinforced by a supportive department and world-renowned colleagues, that keeps Solnes passionate about her work at Johns Hopkins.

"Hopkins is unique in the supportive environment they give you to pursue both clinical work and research," she noted, continuing, "It is rooted in Johns Hopkins' history of being at the cusp of medicine."

"I'm here to really push the boundaries of medicine, new therapies, diagnostic agents – it really fulfills me."

— LILJA SOLNES

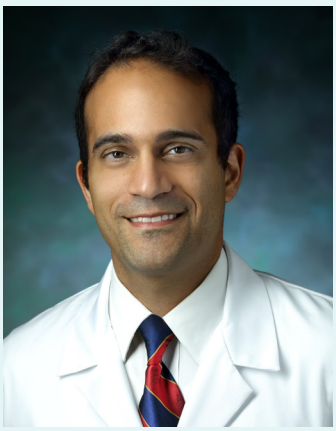
Shadpour Demehri is a professor specializing in diagnostic radiology and musculoskeletal radiology and is co-chair of the radiology physician-scientist incubator program.

Demehri's work focuses on advanced osteoarthritis imaging techniques, including using MRI to predict outcomes and using imaging to examine the effects of potential osteoarthritis drugs. More recently, he has worked with internists to examine musculoskeletal markers extractable from conventional chest CT imaging.

For Demehri, the ability to collaborate with top experts from fields across medicine keeps him excited. He explained that while many institutions tout clinical or research excellence, Johns Hopkins can lay claim to both.

"The culture at Johns Hopkins is unique," Demehri said. He pointed to the ease at which he has collaborated with joint specialists, rheumatologists, orthopaedic surgeons, pulmonologists and cardiologists from across the institution.

He added, "My main point of enthusiasm in this environment is the availability of other people in distinct fields with the same interests."



"The culture of Johns Hopkins is unique…the availability of other people in distinct fields with the same interests."

— SHADPOUR DEMEHRI

Ultimately, for all the clinician-scientists in the department and throughout Johns Hopkins, the goal is clear: Bring cutting-edge ideas from the lab to the clinic for the benefit of patients.

"In the end," Weiss concluded, "our goal is to treat people and make sure people are treated better." ■

Memorializing Bronwyn Jones' Legacy

During a stay in Boston as a visiting professor, Martin Donner, former head of radiology at Johns Hopkins, came to know Bronwyn Jones, who was serving as the head of gastrointestinal radiology at Brigham and Women's Hospital. He invited her to move to Johns Hopkins and she accepted, starting an illustrious and prolific career in gastrointestinal radiology, swallowing research, and mentorship.

Jones was a trailblazer, becoming the first female full professor in radiology and the 28th woman to achieve professorship at Johns Hopkins Medicine. She died on May 29, 2022 at age 79.

Born on November 30, 1943, in Sydney, Australia, Jones was in the first class of the medical school at the University of New South Wales. Out of 110 students enrolled in that six-year program, only 30 graduated. Out of those 30, only three were women and Jones was at the top of her class. She went on to complete her internship and residency training in medicine at the University of New South Wales teaching hospitals before moving to England in 1971 with her husband, the late Warwick L. Morison, who was a professor of dermatology at Johns Hopkins.

In England, Jones finished a radiology residency at the Kings College Hospital in London followed by a fellowship at St. Thomas Hospital. In 1975, she crossed the ocean again to move to Boston where she was appointed as an instructor at the Harvard Medical School and as faculty at Brigham and Women's Hospital. In 1981 she joined Johns Hopkins.

Jones maintained strong ties with the department even after her retirement and ultimately established the Bronwyn Jones, M.D. Professorship. It is the department's first professorship named for a female faculty member, and it will support a faculty member focused in diagnostics who embodies John Hopkins Medicine's tripartite mission of education, research, and clinical care. Dr. Jones had expressed her hope that the recipient will

"I was just always very interested in teaching and helping people come to their full potential."

— BRONWYN JONES

also share her strong passion for GI radiology, including CT and MRI of the GI tract.

As a researcher, Jones was a striking exception to the general research methodology of that time which was to only write observational articles that described what was seen using contemporary imaging techniques. Instead, Jones not only proactively conducted research to define, diagnose, and manage problems related to GI and swallowing structures, she went on to establish spaces for others to easily access the research and then build upon it.

She served many leadership roles within and far beyond Johns Hopkins. Jones was director of the Johns Hopkins Swallowing Center, a founding member, past president, and one of two archivists for the Dysphagia Research Society, and a past president of the Society of Gastrointestinal Radiologists. She was the co-founder and editor-emeritus of the journal Dysphagia, she authored over 120 original papers, and over 60 chapters, and co-authored three books.

Despite the immense output of work and research she was conducting, Jones was committed to mentorship and educating the next generation. In her own words, "I was just always very interested in teaching and helping people come to their full potential."

Having served as a senior adviser for academic faculty affairs in the department, she was a close career mentor to Karen Horton, who serves as the first female director of radiology and radiological science.

They connected over a shared interest in GI radiology and Jones contributed to the first piece of research published by Horton as a Johns Hopkins medical student. Horton says, "When I was a student working with Dr. Jones, I saw a female radiology professor in a very male-dominated field who was able to succeed and excel in academia. This gave me hope and confidence that I could succeed here at Hopkins."

They continued to work together as Horton went on to serve as the chief resident, each taking on new leadership roles as time continued. Jones retired in 2015, but was elated to see Horton step into the interim director role in 2016 then become the full director in 2017, stating "One of the highlights of my career was seeing Dr. Horton become the chair of radiology. There are a lot more senior faculty who are women than there used to be, which is fabulous."

The Bronwyn Jones, M.D. Professorship is an impactful way to honor the legacy of someone who broke ground and led the field during a time when there were very few women in radiology. "I am so proud of what Dr. Jones accomplished and I am devastated that she will not be here to celebrate the professorship with us," Horton says, "She was a personal mentor of mine, and I will miss her." ■

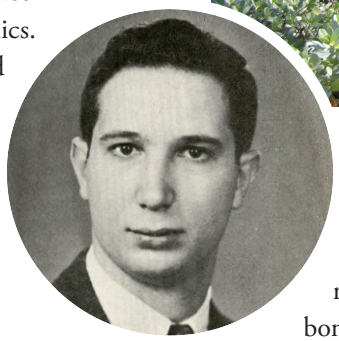
"When I was a student working with Dr. Jones, I saw a female radiology professor in a very male-dominated field who was able to succeed and excel in academia. This gave me hope and confidence that I could succeed here at Hopkins."

— KAREN HORTON

A Responsibility to Give Back

As a Johns Hopkins alumnus and former faculty member of the Department of Radiology, **Stanley Margulies**, understands the importance of advancing the specialty through cutting-edge research discoveries. Margulies received his bachelors, masters and medical degree from Johns Hopkins. He trained and completed his residency and fellowship in radiology alongside colleague Bob Gayler, M.D., and served on the faculty before going into private practice. In appreciation for the outstanding education and training he received, in 2011, Margulies endowed the Stanley Margulies, M.D. Innovation Fund to provide support to advance the mission of the department.

In the early 1970s, Margulies moved to Florida where he grew a private radiology practice with radiology associates starting with four to more than 35 radiologists. The practice supported four hospitals and two outpatient clinics. Margulies then became senior vice president and national medical director of Navix Radiology Systems where, for four years, he helped to oversee the acquisition of radiology practices from Massachusetts to Florida. During Margulies' career, he developed the first cardio-catheter laboratory in South Florida, and introduced one of the first CT scanners.



In establishing the fund, Margulies said, "I'm grateful to the many years of education, training and experience I received at Johns Hopkins. I made this gift in gratitude for the great work it has done and will continue to do. It was a wonderful academic benefit and understanding of radiological sciences."

Since the inception of the Margulies Fund in 2011, it has supported several significant priorities in the department. Most recently, the Margulies fund has provided funding to the department's BriteStar Program, which aims to support, protect and advance the innovative research mission of the department. The program was established when Karen Horton, became department chair, in 2016, in collaboration with, **Zaver Bhujwalla,** the newly appointed vice chair of research, to re-energize the research divisions.

Last year, **Shadpour Demehri**, associate professor of radiology, was the BriteStar - Stanley I. Margulies, M.D. Innovation Award recipient. Demehri will use the funds to support his research focused on the detection of subchondral bone changes in early knee osteoarthritis. The goal of Demehri's research is to detect early subchondral bone changes as biomarkers in subjects with mild radiographic knee osteoarthritis through advanced high-resolution MRI. "This award has enabled Dr. Demehri to advance as a clinician-scientist. Following receiving the award, Demehri received an NIH R01 in late 2021 that demonstrates the importance of the Margulies Fund in advancing research," said Bhujwalla.

Karen Horton, director of radiology, remains grateful to Margulies for his generous endowment, which will benefit the department now and in the future. Horton commented, "I am proud of our radiology alumni for investing in our future so we can prepare and launch the next generation of specialists in our field." She also commented, "It is tremendously important that philanthropy fuels the department with the ability to advance our innovative, clinical, education and research goals." ■

RADIOLOGY HISTORY

Lessons in and of Radiology

Since its inception, teaching has been an integral part of The Johns Hopkins Hospital and the Department of Radiology has in turn reflected that foundational value. While the leaders of the field were forced to break ground and learn from first-hand experience, by the end of the 1930s, they argued for the creation of formal training programs and certification.

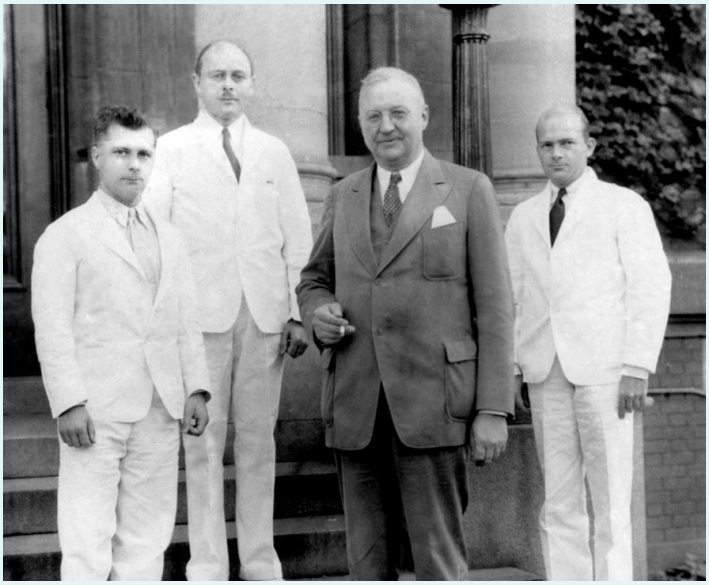
John Pierson, chief of the Johns Hopkins Hospital radiology section, started the first radiology residency in 1934 as a two-year program structured to expose residents to all areas of diagnostic radiology with a separate unit to cover radiation therapy. Within weeks, residents were expected to interpret x-ray exams and perform fluoroscopies.

Residents would gather in the reading room and dictate for all the films from the previous day, except for cases that were particularly interesting or puzzling. That's when Pierson would step in. He also reviewed all the fluoroscopic films, but would first ask residents to read from their own notes before viewing. If a resident missed the pathology, Pierson would offer another chance on the spot. Despite receiving emeritus status in 1949, he continued to visit once a day, between 11 a.m. and noon, until suffering a stroke in 1956.

As the department and residency program expanded, the morning conference before each working day became a staple in the nuclear medicine division. All the staff, fellows, graduate students, technologists, other scientists and visitors would attend to review the presentation of scans from the previous day.

Henry Wagner, chief of the nuclear medicine division, would lead discussion whenever in town. He would often be diverted into spontaneous lectures about other studies and possible diagnoses, which were appreciated by the participants as being useful and interesting, occasionally leading into research project proposals. However, these impromptu discussions could stretch the morning conference into the early afternoon, which caused a pile-up of patients and research timelines as staff and fellows were unable to break away from their chief.

In addition to daily film-reading sessions and lively discussion, outside experts were frequently invited as visiting professors to Johns Hopkins. One early notable in 1951 was

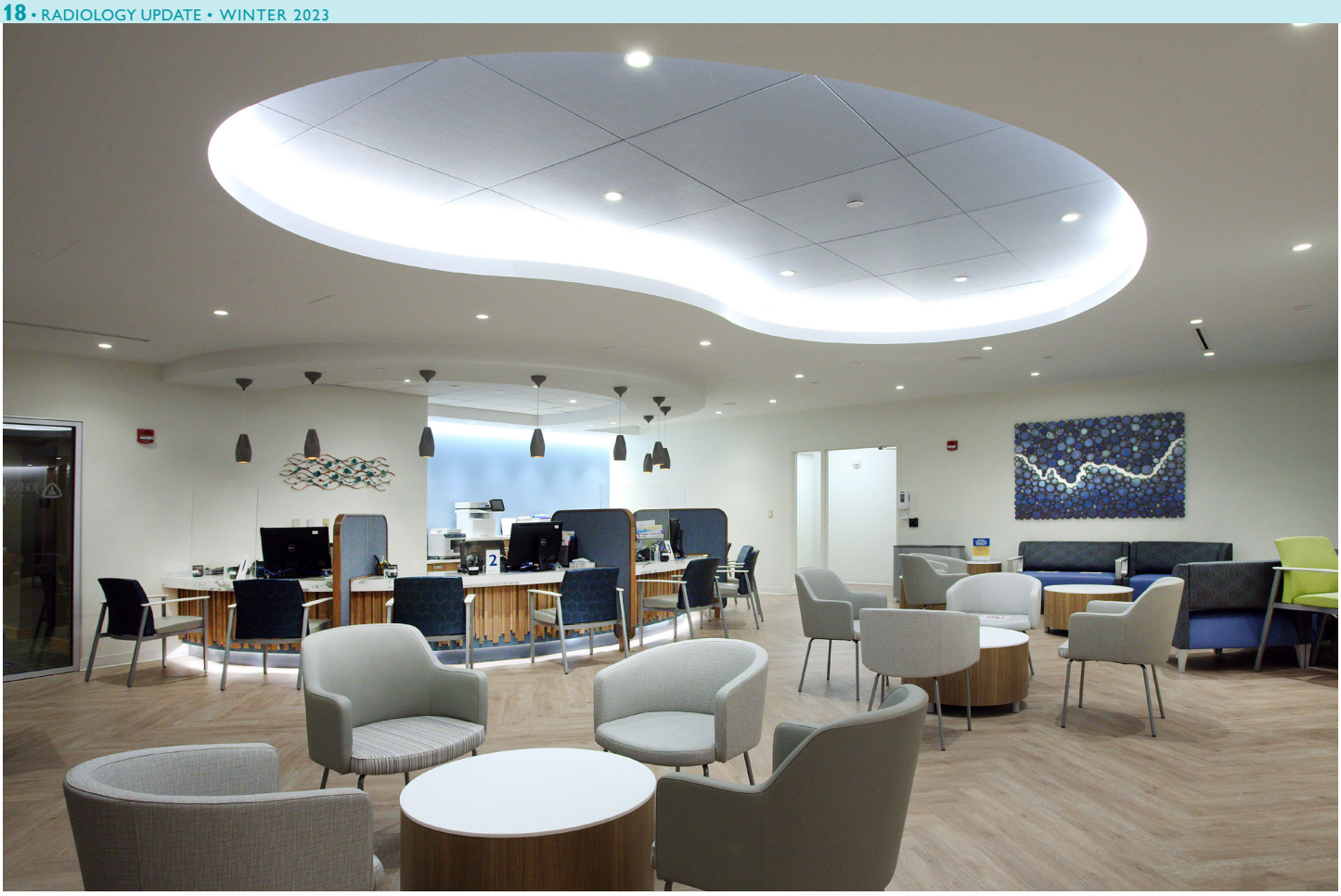


John Pierson with early residents

Merrill Sosman, the Harvard professor of radiology and chief at the Peter Bent Brigham Hospital. He was known to be a superb diagnostician as well as a practical joker. Occasionally, when presenting obscure cases at his hospital's Grand Rounds, he would coach the hospital barber on the diagnosis so the barber could step in when the clinicians have failed.

Knowing that, **Russell Morgan**, then chairman of the department, and **Daniel Torrance Jr.**, a Johns Hopkins radiology resident, planned a prank during Sosman's visit in which they dug up a particularly difficult case and dressed Torrance as a janitor. When Sosman was invited to review this case, which took some time, Torrance entered the room sweeping vigorously before taking a glance at the view box and muttering the diagnosis. Sosman asked a question of this "janitor," received a medically detailed answer in return, and burst out in laughter, almost as much as he did at his own pranks.

Radiology is a field that started with self-taught experts and inventors who were eager to pass on their knowledge and collaborate on ideas to better refine and build up this valuable capability to image the human body. The dedication at Johns Hopkins Radiology to not just continue this tradition but to excel and prioritize it has been recognized globally, and is demonstrated by the over 1,100 applications for its four residency programs, submitted by those from all over the world who are interested in joining and furthering the Johns Hopkins mission for excellence. ■



Johns Hopkins Medical Imaging Updates

Johns Hopkins Medical Imaging (JHMI) sites have been busy this year as expansions to facilities and services promise quality care for more patients across the region. Expansions this last year included a new X-ray suite embedded with the orthopaedics practice in Odenton, construction underway for PET/CT at Green Spring Station and planning for a second location in Columbia.

Service Expansions Across JHMI

Johns Hopkins Medical Imaging continues to expand its cardiac services at outpatient sites. Cardiac MRI is now available at JHMI locations in Bethesda and at Green Spring Station. Other locations also expanded services including extended evening hours at White Marsh for MRI, ultrasound and breast imaging. JHMI sites continue to see an increase in patients self-scheduling appointments online.

Planning Underway for Second JHMI Columbia Site

Progress continues toward a second JHMI location in the Columbia area. In an effort to better serve patients and meet demand in the area, a full-modality imaging center is being planned. A conceptual design plan is currently being finalized for the location.

Bringing Outpatient PET/CT to Green Spring Station

Construction is underway at Green Spring Station to build a PET/CT and Theranostics suite in the Pavilion I at the previous MRI/CT suite. The future clinical footprint footprint will have 4 uptake rooms. The new suite will open in 2023.

Johns Hopkins Expands Operations at Odenton Facility

In January 2022, Johns Hopkins Medical Imaging opened a state-of-the-art X-ray room within the Johns Hopkins orthopaedic practice at 1106 Annapolis Road in Odenton, Maryland. This addition has fostered a seamless transition for patients to receive the necessary imaging for a prompt diagnosis, treatment, and follow-up care all in one location.

With the X-ray team fully staffed, they have provided over 2,000 patient images within the past year.

"We are looking toward expanding hours in the future to offer more evening appointments," said Noel Foster, Columbia site manager who also oversees operations at the Odenton location.

The orthopaedic division is grateful to have the team in their suite. This partnership has not only improved provider satisfaction, but also enhanced the patients' experience by having imaging performed at the same location as their orthopaedic appointment.

2022–2023
CONVERSATION SERIES

Leading Change: **Perspectives from Outside of Medicine**

The Russell H. Morgan Department of Radiology and Radiological Science presented another installment of the series "Leading Change: Perspectives from Outside of Medicine." The series invites business leaders to speak to the Johns Hopkins community about their expertise offering high-quality services and experiences to customers, and how that can be translated to medicine. We welcome your attendance at future lectures.

Additional speakers for winter 2023 will be announced.

All lectures are held via Zoom. The conversations start promptly at 5 p.m. and are followed by a question-and-answer session. If you would like to receive an invitation for each event, please contact Stephanie Blackwood at sblack29@jhmi.edu.

Steffanie Bristol
Head, Biogen Digital Health External Innovation and Alliances, Imaging & AI/ML; pioneering personalized and digital medicine in neuroscience
"AI for Compassion"

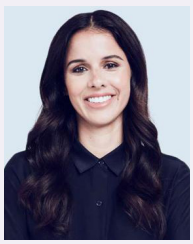
Mangesh Hattikudur
President and co-founder of Kaleidoscope Studios
"Treating All Culture Like Pop Culture! How I used magazines, videos and podcasts to make the world a little smarter and kinder"

David Hellmann
Director, Johns Hopkins Center for Innovative Medicine, professor of medicine
"A Renegades, Rebels and Revolutionaries: Making Medicine a Better Public Trust"

Marla Kaplowitz
4's President and CEO
"The Future of Work"

Lindsay Jurist-Rosner
CEO and co-founder, Wellthy
"A Conversation with Lindsay Jurist-Rosner"

Alvy Ray Smith
Computer scientist and visionary
"A Biography of the Pixel"



Trina Spear
Co-CEO and co-founder, FIGS
"You Are the New Icons: Inspiring the Next Generation of Healthcare Professionals"

Tina Wells
Founder and CEO at RLVNT Media
"The Art of Personal and Professional Reinvention"

RadiologyUpdate

JOHNS HOPKINS MEDICINE

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WAYS TO GIVE...

For those interested in making a tax-deductible contribution in support of any program or research project in the Russell H. Morgan Department of Radiology and Radiological Science, please contact the Development Office at 443-287-7958 or **cvera3@jhmi.edu**, or visit **https://bit.ly/RadGiving**.

If you are an alumnus of Johns Hopkins Radiology and you would like to receive the latest news, please send your email, phone number and mailing address to cvera3@jhmi.edu. Also, if you prefer not to receive mail from us moving forward, let us know and we will promptly remove you from our mailing list.

DOXIMITY

Each year, Doximity and U.S. News & World Report rank U.S. residency programs based on input from alumni that you can read about here: https://bit.ly/ResidencyNavigator, along with comments from current residents or recent graduates. Read the great things that our trainees are saying about the Johns Hopkins diagnostic radiology program: **https://bit.ly/JHUDxRadProg**. If you would like to participate in this process in the future, simply register as a Doximity member at this link: **https://bit.ly/RegisterDoximity**.