

VOL 21
Fall 2020



UNIVERSITY OF WISCONSIN SCHOOL OF MEDICINE AND PUBLIC HEALTH • DEPARTMENT OF RADIOLOGY

The INSIDE VIEW

FROM THE CHAIR



The plaque that graces the Bascom Hall entrance, memorialized by the Class of 1910, reprises the words of UW President

Charles Kendall Adams in his 1894 defense of a professor teaching progressive theories not popular with every niche of the community. It reads "...In all lines of academic investigation it is of the utmost importance that the investigator should be absolutely free to follow the indications of truth wherever they may lead," and "...We believe that the great state University of Wisconsin should ever encourage that continual and fearless sifting and winnowing by which alone the truth can be found." No words could apply more to the valiant efforts of our department faculty and staff who are challenging norms and using innovation to uncover new and exciting truths to aid the medical world and to improve outcomes in the care of our patients. In this *Inside View*, see how our own Dr. Jamey Weichert and co-PI Zach Morris from the Department of Human Oncology are breaking new ground to develop new cancer imaging and therapy agents. Learn about the innovative leadership that is being demonstrated individually by our amazing women leaders and collectively by the group Women Physicians in Radiology. See how our department is tackling the important issues of diversity and inclusion in our workplace, and beyond. Understand how Artificial Intelligence is enabling discovery, from improving the detection of COVID-19 pneumonia to advancing quality improvement in breast cancer screening. It is a great tradition, and responsibility, and therefore we are honored to continue our sifting and winnowing in search of the truth.

- Thomas M. Grist, MD, FACR
Chair, UWSMPH Department
of Radiology

DR. JAMEY WEICHERT RECEIVES \$12.5 MILLION NIH/NCI P01 GRANT FOR ADVANCED CANCER RESEARCH

Dr. Jamey Weichert, faculty member of the UW Department of Radiology in the Imaging Sciences Section, and Director of the Contrast Agent Development Laboratory, recently received a \$12.5 million dollar, five-year NCI P01 grant from the National Institutes of Health. Dr. Weichert's research is focused on the development of new cancer imaging and therapy agents. The lab uses known biochemistry pathways to design molecules that selectively target cancer cells and cancer stem cells.



This specific grant is for Dr. Weichert's project entitled "Molecular Targeted Radionuclide Therapy for Tumor Immunomodulation and Enhancing Immunotherapy Response." Dr. Weichert and Zachary Morris, MD, PHD, Assistant Professor

in the Department of Human Oncology serve as co-principal investigators of the multi-disciplinary grant which studies the impact of combining targeted radionuclide therapy (TRT) with immunotherapies on tumor microenvironment with the goal of stimulating the immune system to recognize and kill cancer cells as well as induce T-cell immunity against the target cancer.

"Preclinical results thus far suggest a high cure rate is feasible in several different tumor types," said Dr. Weichert. "Our hope is to show that low radiation doses of TRT can enable the ability of the immune system to recognize and kill tumor cells systemically while also inducing T cell memory specific to solid cancers."

Developed in the Weichert lab, NM600, a third-generation tumor-selective alkylphosphocholine (APC) chelate capable of selectively delivering a variety of imaging and therapy metal isotopes to a variety of tumor types, is utilized as the TRT agent which is capable of delivering relatively low radiation doses found to be necessary for immuno-stimulation in a variety of tumor types regardless of anatomic location, including the brain. Other theranostic agents currently used in the clinic or in late stage trials will also be combined with immunotherapy. TRT agents will be radiolabeled with beta- and alpha-emitters to study the relative efficacy of using different types of radiation as well.

The grant combines four projects with three new core

facilities. The projects include new TRT agents (Drs. Weichert and Morris) used in combination with three prominent immunotherapy approaches including immune checkpoint inhibitors (Drs. Morris and Weichert) immunocytokines (Drs. Sondel and Morris) and DNA-based prostate cancer vaccines (Drs. Doug McNeel and Weichert). Three core labs will support these studies including a isotope production and radiochemistry core lead by Jon Engle and Reinier Hernandez (Medical Physics and Radiology), a new advanced dosimetry core lead by Bryan Bednarz and Joe Grudzinski (Medical Physics and Radiology) and biostats core lead by KyungMann Kim (Biostatistics).

"It appears that there is a distinct radiation dosing window of opportunity for TRT to modulate tumor cell immune response," Dr. Weichert said. "We have found that using advanced PET or SPECT imaging of the TRT agent is necessary for accurate and personalized TRT dose determination. Rodent findings will be translated into companion canine cancer patients at the UW School of Veterinary Medicine in collaboration with Dr. David Vail," Dr. Weichert said. The grant is accompanied by a generous \$2.1M institutional match being provided from the Chancellor's Office, Carbone Cancer Center, School of Medicine and Public Health, and the Departments of Radiology, Human Oncology, and Medical Physics.

"I was told by the NCI that this is the first ever TRT-based P01 grant – and it is very rare to get them approved on the first try," Weichert said. "My lab's total extramural grant support currently totals \$19.2M, all of which is focused on TRT immune modulation. The P01 also funds a new Advanced Dosimetry Core as well as a new Radiochemistry Core, both of which will eventually support our departmental clinical theranostics initiative" Weichert continued. "It all started with a UW2020 grant (\$500K) in 2016 which has since spawned over \$30M in follow-on funding! A huge strength of our application was the amazingly strong collaborative team which provides exceptional expertise in immunotherapy, radiotherapy, advanced dosimetry, isotope production and radiochemistry development, and TRT agent discovery and development. Moreover the team is experienced in translating technology to clinical trial status. Very few other institutions possess this unique level of expertise and resources.

NEW WIDE-BORE MRI
MACHINE INSTALLED IN
RADIATION ONCOLOGY (p. 2)

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DEPARTMENTS OF RADIOLOGY AND HUMAN ONCOLOGY ADVANCE COLLABORATIONS WITH NEW WIDE-BORE MRI SCANNER

The Departments of Human Oncology and Radiology recently unveiled a new MRI scanner in the radiation oncology clinic at University Hospital. This machine will enhance patient care and provide opportunities for multidisciplinary collaboration aimed at advancing MRI use in radiation oncology.

The location of this GE Healthcare 1.5T wide-bore MRI scanner within the radiation oncology clinic is particularly convenient for cancer patients. As needed, they can obtain CT and MRI imaging in a single location. The new scanner provides high-precision MR imaging for diagnosis and radiation treatment planning with superb soft-tissue contrast. In addition, MRI provides the ability to measure physiological motion, such as breathing and cardiac motion. The scanner's size and suite of associated radiation therapy tools will enable simulation planning for patients in their precise radiation treatment position.

"What that means for patients is that we have more accurate alignment between different datasets we use to devise cancer treatment plans," says Dr. Carri Glide-Hurst, DHO director of radiation oncology physics.

The new MRI scanner will support a variety of radiation treatment methods. One priority is to obtain the most up-to-date information of a patient's disease state prior to stereotactic radiosurgery (SRS)—a form of high-dose of radiation treatment for primary brain tumors, brain metastases, and other intracranial conditions.

Another high priority for the MRI scanner

is to support gynecological brachytherapy, a type of radiation therapy that delivers radiation internally by placing a radiation source in or near a tumor through the use of applicators that are placed under anesthesia.

"Additional MRI time for brachytherapy patients will enable optimal treatment planning and image-guided adaptive brachytherapy, which can result in improved tumor control and decreased toxicity," says Dr. Kristin Bradley, a Department of Human Oncology (DHO) professor who specializes in gynecological brachytherapy.



The new GE Healthcare 1.5T wide-bore MRI scanner is unveiled in the UW Hospital Radiation Oncology clinic. The new scanner provides high-precision MR imaging for diagnosis and radiation treatment planning with superb soft-tissue contrast, and has the ability to measure physiological motion, such as breathing and cardiac motion.

"Having this scanner housed within the clinic minimizes travel distance and time for patients, which is important for patients receiving general anesthesia."

In the future, the new scanner may enable high-quality imaging in the treatment position for selected breast cancer patients. "This could help us more precisely identify the lumpectomy cavity, visualize the brachial plexus, or assess residual lymph nodes after neoadjuvant chemotherapy," says Dr. Bethany Anderson, a DHO associate professor who specializes in treating breast cancer.

The new MRI will also be valuable in radiation planning for cancers where soft tissue contrast is important, such as in the abdomen or pelvis.

Through a comprehensive research agreement with GE Healthcare researchers from

DHO and Radiology will work with GE engineers to develop software and hardware technologies to advance the use MRI in radiation therapy. For example, this partnership could open up new imaging opportunities to measure the effects of cancer treatment on patients.

"MRI provides great soft-tissue contrast and ways of assessing tumor response to therapy. With a state-of-the-art MRI scanner it's possible to develop quantitative response biomarkers," says Dr. Thomas Grist, Chair of the Department of Radiology.

"The use of MRI in radiation treatment planning could also help identify treatment effects on radio-sensitive tissues," says Dr. Scott Reeder, professor and chief of MRI in the Department of Radiology. Several collaborative projects will explore this idea.

"I'm excited by the opportunity to collaborate with an engaged, dynamic, and talented group of health care providers in radiation oncology and to contribute to helping patients in new ways through our combined expertise," Dr. Reeder says.

Dr. Grist adds: "We have amazing expertise in diagnostic imaging and radiation oncology, great support from Medical Physics and GE Healthcare all aimed at improving the treatment of cancer in this effort. By having this scanner physically located in the department where radiation therapy is delivered, we will accelerate our ability to translate more than four decades of MRI research and innovation into clinical practice to improve the health of our patients."

-Rob Kelly

WOMEN PHYSICIANS IN RADIOLOGY MAKING GREAT STRIDES

The Women Physicians in Radiology (WPR) committee was founded in 2009 by Drs. Susan Rebsamen, Elizabeth Sadowski, Lynn Broderick, and Elizabeth Burnside. The mission of WPR was twofold: to facilitate the success of women in all ranks of the radiology community and to promote academic and clinical excellence in all faculty, residents, and students, regardless of gender identification. The group sponsors several events every year, including journal clubs, book discussions, and social events with discussions that focus on issues affecting women in the medical workplace. The WPR leadership has also developed and integrated a Resident Professional Development lecture series within the residency curriculum, which includes topics such as Work Life Balance, Interviewing Skills, Contract Negotiation, and Malpractice.

When the group began in 2009, there were 16 women



while promoting the professional development and advancement of women within the field of radiology. Many women faculty hold leadership positions within the Department of Radiology and beyond.

More recently, WPR has formed new partnerships with groups such as the Medical Student Radiology Interest Group to create a pipeline for mentorship within the School of Medicine and Public Health. The WPR continues to find opportunities for growth through identifying and serving the needs of women radiologists.

DIVERSITY UPDATE



*Dr. Daniela Martin, UW Radiology
Director of Diversity and Inclusion*

Education

"Fostering an Inclusive and Diverse Environment" is UW Radiology 2020's

Professional Development Curriculum theme. We paired with UW Health's Diversity, Equity, and Inclusion Program and will deliver a total of three workshops to our faculty, trainees, and leadership staff this academic year.

The first workshop, "Addressing Bias in Healthcare" was delivered by UW's DEI Program Coordinator, Naomi Takahashi, MSW, LCSW. It introduced the term implicit bias by examining data on disparities in our local community and built awareness of how bias impacts us at interpersonal, institutional, and systemic levels. It was received with enthusiasm by the department. The second and third workshops this fall and winter will cover "Addressing Microaggressions in Healthcare" and a topic tailored to feedback from the department. Beyond this, the midterm goals will shift towards incorporating professional development activities for faculty, leadership staff, and the residency program that will be more personal and interactive. Events being explored include workshops from UW's Women in Science & Engineering Leadership Institute (WISELI): "Searching for Excellence & Diversity" and "Breaking the Bias Habit (BBH)", and BRIM, an initiative run by Dr. Molly Carnes' Center for Women's Health Research.

BBH and BRIM are based on the first randomized controlled study of a bias reduction workshop in an academic setting proved to be effective. Culturally Aware Mentoring training for mentors, an initiative lead by Dr. Angela Byars-Winston, is also being considered. In 2021, we will incorporate ground- rounds dedicated to diversity, health equity, and inclusion.

Recruitment

For our residency, an Ad-Hoc Diversity Committee of faculty and staff was created to understand where we are and how can we become a program that mirrors and understands all our communities. Manuel Santiago, M.Ed., Director of Multicultural Affairs, and co-Interim Chief Diversity and Inclusion Officer was invited to our residency retreat to share the success story and strategies UWSMPH has implemented this past decade. Our recruitment of medical students from underrepresented backgrounds has increased from 5% in 2009 to 29% and 33 % in 2019 and 2020 respectively. Holistic application reviews played a major role, among other strategies. As a result of the discussions amongst the Ad Hoc Diversity Committee and Manuel Santiago's presentation, the residency application review strategy was refined for this upcoming recruitment season. We will strive to have every application reviewed by two people, incorporate AAMC tools in the process, and continue to include strategies to mitigate our biases. Our applicants will also be invited to UW Health/ UWSMPH "Diversity Social Hours" to connect and network with SMPH staff, residents, fellows, and faculty from groups underrepresented in medicine. For 2021, we will incorporate in-person second look visits for our top candidates, so they can learn more about UW and talk to stakeholders about their

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UW WOMEN RADIOLOGISTS ARE LEADERS

State and National Leadership and Service

Pamela Propeck, MD, FACR: ABR Trustee and ABR Breast Online Longitudinal Assessment Chair

Lynn Broderick, MD, FACR: ACR Chair Thoracic Subcommittee on Practice Parameters, WI Radiological Society President/Chair Fellowship Committee, ABR Senior Editor Online Assessment Thoracic

Susan Rebsamen MD, FACR: Wisconsin Radiological Society President

Daniela Martin MD: ACR Appropriateness Criteria Expert Panel on Thoracic Imaging

Elizabeth Sadowski, MD, FSAR: ACR ORADS MRI Educational Committee Chair

Elizabeth Burnside, MD, MPH, MSA, FACR: ACR Harvey L. Neiman Health Policy Institute Board of Directors

Meg Lubner, MD, FSAR: Head of GI Scientific Subcommittee, ARRS

Amy Fowler, MD, PhD: Vice-Chair, NRG Oncology Imaging Committee and Chair, Society of Nuclear Medicine and Molecular Imaging Breast Cancer Imaging Outreach Working Group

Institutional Leadership and Service

Elizabeth Burnside MD, MPH, MS, FACR: Senior Associate Dean, Deputy Director of Institute of Clinical Translational Science

Elizabeth Sadowski, MD, FSAR: UW Office of the Vice Provost for Faculty and Staff Affairs, Hostile and Intimidating Behavior Liaison

Meg Lubner, MD, FSAR: President, UWH Medical Board

Kara Gill, MD: Medical Director of the AFCH Imaging Pavilion

Amy Fowler, MD, PhD: Co-Director, Breast Cancer Research Advisory Network (BCRAN); UW Carbone Cancer Center

Lori Mankowski, Gettle, MD, MBA: UW SMPH Chapter of the AAMC Group on Women in Medicine and Science Steering committee

Vice Chair/Department Leadership

Jessica Robbins, MD: Vice Chair of Faculty Development

Daniela Martin, MD: Director of Diversity and Inclusion
Department of Radiology Division/Associate Division Chiefs

Tabby Kennedy, MD: Division Chief of Neuroradiology
Robertta Strigel, MD: Division Chief of Breast Imaging and Intervention; Chief of Breast MRI

Kara Gill, MD: Division Chief of Pediatric Imaging

Meg Lubner, MD: Associate Division Chief Abdominal Imaging and Intervention

Imaging Modality Chiefs

Carolyn Haerr, MD: Leader, Mammography for Unity Point/Meriter

Pamela Propeck, MD, FACR: Chair of Community Division Steering Committee and Leader, Mammography for GHC and Mauston

Meg Lubner, MD: Modality Chief of CT and CT Research

Lori Mankowski Gettle, MD, MBA: Modality Chief of Ultrasound and Ultrasound Research

Jane Lyon, MD: Pediatric Radiology and Fetal Body MRI Modality Chief

Susan Rebsamen, MD: Director Pediatric Neuroradiology

Residency Leadership

Mai Elezaby, MD: Associate Residency Program Director and Head of the Residency Selection Committee

Lori Mankowski Gettle, MD, MBA: Associate Residency Program Director

Allison Grayev, MD: Associate Residency Program Director

Nevein Ibrahim, MD: Associate Director of the Nuclear Medicine and Molecular Imaging Residency Program

Medical Student Leadership

Allison Grayev, MD: Co-Director of Phase 1 (pre-clinical) Radiology Curriculum

Tabby Kennedy, MD: Assistant Block Leader Acute Care, Phase 2, Co-Director of the Phase 3 Senior Diagnostic Radiology Elective

Jane Lyon, MD: Director of the Pediatric Radiology Rotation within Care Across the Life Cycle, Phase 2

Daniela Martin, MD, Mai Elezaby, MD, and Allison Grayev, MD: Faculty mentors for the Radiology Interest Group

DIVERSITY (From p. 3)

interests. For faculty recruitment, we are also evaluating how to improve. Leadership will include a diversity liaison in all new faculty search committees who completed the Search-for Excellence & Diversity training.

Mentoring

Women Physician in Radiology (WPR) was founded in 2009 by #RadXX leaders Drs. Susan Rebsamen, Elizabeth Sadowski, Lynn Broderick, and Elizabeth Burnside. WPR sponsors multiple yearly events, including journal clubs, book discussions, and social events to discuss/focus on issues affecting women in the medical workplace. WPR leadership also developed and integrated a Resident Professional Development lecture series in the residency curriculum. Residents suggest topics to keep up-to-date. A WPR Steering Committee was formed in 2019 to discuss growth opportunities. New partnerships with the Radiology Interest Group will focus on outreach with medical students. In January, new co-chairs will continue to lead these efforts along with Dr. Robbins to identify new opportunities and partnerships.

Outreach

This summer, two pilot scholarships for medical students of underrepresented background in radiology were created and funded by the department. The first will be offered to first year medical students interested in learning about radiology and will consist of a paid summer internship. The second will be offered to 3rd and 4th year medical students applying to radiology as a visiting elective program. Goals are to encourage students from diverse backgrounds to explore radiology, increase awareness of opportunities in academic medicine, connect with mentors/sponsors, engage in project/research, and encourage them to apply to our program. Increasing our presence in the medical school, the department held the webinar "Applying to Radiology: Fact or Fiction?" for the first- and second-year medical students in Sept 2020. We are partnering with the office of multicultural affairs for a second event soon to offer mentorship and research opportunities for our students. For mid-term goals, we are evaluating ways to expand our outreach efforts and solidify pipelines through ACR PIER, LSMA, SNMA, NHMA, and other pre-health student local organizations (AHANA, PALMA, AISES). A Diversity and Inclusion section is now incorporated in our newly redesigned website. It will be used as a communication platform with the public and to keep our initiatives and efforts up-to-date. Feel free to reach out to Dr. Martin at mmartin3@uwhealth.org if you have questions or suggestions.

Future

Our department will work on creating its own vision and mission statements on DEI. Many mid- and long-term ideas are being considered and will be shared as they solidify. We want to recognize these efforts as a priority and will be exploring the best ways to incorporate them into the expectations of our faculty, trainees, and staff.

DR. HOWARD ROWLEY RECEIVES 2020 GOLD MEDAL FROM AMERICAN SOCIETY OF NEURORADIOLOGY

Howard Rowley, MD, has been awarded the 2020 Gold Medal by the American Society of Neuroradiology. This award honors exceptional service and achievement in neuroradiology and recognizes Dr. Rowley's many contributions to stroke trials, dementia research and advanced imaging techniques, as well as what is perhaps his greatest contribution—his gift for teaching and his ability to distill complex topics into manageable and memorable information.

"This is not really my award. It's an award given to all the people who taught me and supported me, especially my partners in medical physics," said Dr. Rowley, who is a Professor of Radiology, Neurology, and Neurosurgery; Chief of Neurological MRI, and the Joseph F. Sackett Professor of Radiology at the University of Wisconsin School of Medicine and Public Health. "I stand on the shoulders of giants—everyone from janitors to administrative assistants who have made this possible. I'm grateful for all of those connections."

His peers have hailed him one of the greatest educators in Neuroradiology. Dr. Rowley's skill for teaching and his ability to communicate science into easily understandable presentation—in a way that can be practically applied—have defined his career and are recognized throughout the neuroradiology community. He said he hopes the knowledge he has acquired over the past 30 years will be passed on to help others improve their practice of medicine and under-

standing of imaging physics.

"Last year at a meeting someone came up to me and said, 'you won't remember me, but you gave a talk 20 years ago, and I still use your construct'," Dr. Rowley said. "Maybe he's the only person in the world, but I like to think maybe there are 10 or 12 people who I've impacted and that's what motivates me."

Dr. Rowley said he views sharing knowledge as a tool to build collaborative community, generate new ideas and question assumptions, and he has used the COVID-19 pandemic to re-evaluate his teaching methods and reinvigorate as an educator. By disseminating knowledge, he hopes

to inspire others to create even better solutions to problems and incrementally improve the field.

Dr. Rowley is also working to promote health equity by developing brief MRI protocol. MRIs can be very expensive, especially for children or older adults who may require sedation or anesthesia to conduct an exam. Over the past few years, he and his colleagues have led the field in fast imaging, particularly for children with hydrocephalus and patients suspected to have had a stroke or other neurologic emergency. These new protocols find the necessary information for diagnosis within a shorter time, reducing cost and extending the reach of imaging to more people.



RADIOLOGY INTEREST GROUP HOSTS VIRTUAL EVENT



Dr. Larson

Radiology Interest Group faculty mentors Dr. Daniela Martin and Dr. Alison Grayev, along with second year resident Dr. Matthew Larson, recently hosted an online panel for rising M4 students interested in applying to Radiology. The Radiologists fielded questions about changes to the radiology residency application process due to COVID-19 and how to find the best "fit" when everything is virtual. The event was attended by seven students

interested in applying to the residency in the fall, and the panel was able to field numerous questions. The students indicated this session was especially helpful in planning their applications. Those interested in learning more about the UWSMPH Department of Radiology Residency Program, please visit radiology.wisc.edu/education/residency/.



Dr. Martin



Dr. Grayev

UW RADIOLOGY RESEARCHERS FIND MORE PRECISE WAY TO DETECT PNEUMONIA CAUSED BY COVID-19



Dr. Chen

Using a custom artificial intelligence algorithm called CV19-Net, the UW research team dug into a vast resource database of tens of thousands of COVID-19 chest X-rays to show its method could identify pneumonia caused by COVID-19 at a sensitivity of 88%, according to Guang-Hong Chen, PhD, professor of Medical Physics and Radiology at the University of Wisconsin School of Medicine and Public Health.

From the tens of thousands of X-rays available, the team pared down the number of X-ray images to train the artificial intelligence algorithm and then evaluated the performance of the CV19-Net algorithm over 5,900 X-rays from approximately 3,000 patients between Feb. 1 and May 3, 2020.

To compare to diagnoses generated by the human eye, Dr. Chen's team asked three expert thoracic radiologists experienced with COVID-19 pneumonia X-ray images to examine 500 chest X-ray images from the CV19-Net database. The three radiologists were able to correctly perform diagnosis with accuracy of 76%, 68% and 72%. In contrast, the CV19-Net algorithm examined the images and achieved a diagnostic accuracy of 84%.

"It is clear, based on the data; we conclude that artificial intelligence can identify COVID-19 pneumonia better than the human eye," Dr. Chen said. The results of the research were recently published in the journal *Radiology*.

Dr. Chen and the research team that includes Ran Zhang, PhD, assistant scientist in Medical Physics, and Scott Reeder, MD, PhD, professor of Radiology and Medical Physics, both at the UW School of Medicine and Public Health, and other researchers and clinicians at both UW School of Medicine and Public Health and Henry Ford Health System in Detroit, Michigan. Dr. Reeder is also a UW Health radiologist.

The team is currently determining how to utilize this new technology to help health care workers in the field identify COVID-19 cases in just minutes using X-ray techniques rather than more costly and less available computerized tomography (CT) scans, Dr. Reeder said. Such an algorithm could even be deployed into the X-ray machine itself so that the detection of COVID-19 pneumonia could be made before the images are transmitted to the radiologist's computer screen, he said.

"The algorithm could even page the radiologist to alert them to review the case

in a real-time manner, so that a diagnosis and report can be made within just a few minutes," Dr. Reeder said. "Indeed, it would be a straightforward extension to even generate a preliminary report, before the radiologist has even reviewed the X-ray images."



Dr. Reeder

Dr. Chen and his team are working with scientists at Epic, a Verona, Wisconsin, company that provides health record software to hospital systems, and UW Health to develop the clinical use of the algorithm. The algorithm would produce a COVID-19 risk score immediately after a chest X-ray image is taken, Dr. Chen said.

A next step would be to create a more universal algorithm for COVID-19 screening, he said, not just for COVID-19 cases with pneumonia findings, but also other COVID-19 cases, like people with mild or no pneumonia findings. "Once developed, this could become a fully automatic tool for COVID screening," Dr. Chen said. "Again, it just underscores the power and potential of artificial intelligence in medical practice."

This work received funding from the Wisconsin Partnership Program.

- Emily Kumlien, UW Health Media

DR. JASON STEPHENSON NAMED NEW PERC MEMBER OF WISCONSIN PARTNERSHIP PROGRAM



The Wisconsin Partnership Program (WPP) is pleased to welcome Jason W. Stephenson, MD, to the Partnership Education and Research Committee (PERC). Dr. Stephenson was appointed by Dean Robert Golden, and replaces Dr. Tracy Downs, who has served on the committee over the past four years.

The WPP was established in 2004 through a generous endowment from Blue Cross and Blue Shield United of Wisconsin, to serve the public health needs of the state and to reduce health disparities through initiative in research, education and community partnerships. WPP is a consistent source of funding for many department pilot projects, including the recent COVID-19 work by Guang-Hong Chen, in the above article.

Dr. Stephenson is an associate professor in the SMPH Department of Radiology. Board certified in diagnostic radiology, Dr. Stephenson's expertise, clinical interests and commitment to resident and medical student education will greatly inform and enhance the PERC's work.

The Wisconsin Partnership Program thanks Dr. Downs for his leadership and contributions to PERC. In addition to serving on PERC, Dr. Downs served on the PERC's Executive Committee and provided thoughtful and thorough review and evaluation of PERC grant applications. He also brought a very important voice and perspective to the Partnership Program's health equity work and participated in its inaugural Advancing Health Equity conference.

The Partnership Education and Research Committee broadly represents SMPH faculty, staff and leadership, and allocates and distributes funds designated for education and research aimed at improving the health of Wisconsin residents.

DR. ELIZABETH BURNSIDE RECEIVES ACR GRANT TO SUPPORT CLINICAL INFORMATICS RESEARCH



Dr. Elizabeth Burnside, Professor of Radiology and Associate Dean for Team Science and Interdisciplinary Research, was recently awarded a grant from the American College of Radiology (ACR). The ACR Fund for Collaborative Research in Imaging (FCRI) will support a multi-site project titled: “Algorithms for Accurate Adaptive Audit Methods (A4M).” As an extension of Dr. Burnside’s work in clinical informatics, the A4M project is designed to harness the power of artificial intelligence and medical imaging to advance breast cancer screening quality improvement.

While breast cancer screening in the U.S. has effectively reduced overall breast cancer mortality, not all women have benefited. In the US, the lack of meaningful comprehensive quality improvement capabilities and persistent variability of practice, precludes evaluation and subsequent targeted improvements of mammography screening practices. Scalable and cost-effective approaches are needed to enable U.S. radiology practices and policy makers to better evalu-

ate widespread breast cancer screening performance.

Audits provide the opportunity to understand variability of practice and favorably influence quality of care. A recent Cochrane Review revealed that audit feedback can effectively improve professional performance and patient outcomes. The ACR National Mammography Database (NMD), currently provides mammography audit capabilities to over 400 practices throughout every region of the US. However, the NMD has substantial challenges related to incomplete capture of outcomes data. Developing algorithms to overcome the issue of incomplete data capture is a rapid and pragmatic solution, with the potential to increase the value of NMD as a tool for monitoring quality and outcomes in the near-term. Development of these adaptive audit algorithms would enable the NMD to more accurately measure radiologists’ performance.

The A4M project has the capability to quickly and cost-effectively develop algorithms that empower the NMD to provide more accurate outcomes data to all mammography screening practices.

The goal of the A4M project is to develop adaptive audit methods to account for incomplete outcomes data capture when calculating metrics on University of Wisconsin-Madison (UW Madison) breast cancer screening data. These methods will be validated on data from two additional sites: the Vermont Breast Cancer Surveillance System and the University of California-Davis (UC-Davis), both affiliated with the Breast Cancer Surveillance Consortium (BCSC). The realization of the potential to audit mammography screening widely and accurately could provide a foundation on which quality improvement initiatives could save thousands of lives per year in the U.S.

The A4M project will be led by Dr. Burnside in collaboration with co-investigators Brian Sprague (Vermont Breast Cancer Surveillance System); Diana Miglioretti (UC-Davis); Janie Lee (University of Washington); and Amy Trentham-Dietz (University of Wisconsin-Madison).

UW RADIOLOGY SHINES AT CIRSE 2020 VIRTUAL CONFERENCE

The 2020 Cardiovascular and Interventional Radiological Society of Europe (CIRSE) annual meeting originally scheduled to be held in Munich, Germany in September was switched to an online meeting due to the ongoing pandemic. As one of the largest interventional radiology meetings in Europe, it attracted more than 18,000 active users from 115 countries this year. Several UW faculty, staff and trainees contributed to the meeting’s success with invited lectures, video learning sessions, scientific abstracts and posters showcasing the innovative clinical work and research being done by UW Radiology.



Dr. Fred Lee, Jr, MD, Professor presented a lecture on “Medical Devices: Innovation and Venture Capital, A Beginners Guide.” Dr. Paul Laeseke, MD, PhD, Assistant Professor, delivered lectures on “Quality Control After Tumor Ablation”

and “Microwave Ablation Compared to Radiofrequency Ablation and Stereotactic Body Radiation Therapy for Treatment of Inoperable Lung Tumors.” Prasad Dalvie, MD, Associate Professor (CHS) conducted a video learning session “Transjugular Liver Biopsy: Procedural Tips and Tricks.”

Interventional Radiology fellow Dr. John Sweitlik presented two lectures “A Model-based Approach to Histotripsy Ablation Target Prediction Using Cone Beam CT and Fluoroscopy,” “Routine IVC Filter Retrieval: a Cost Minimization Analysis of Loop Snare Versus Rigid

RADIOLOGY IN THE NEWS



Kevin Johnson, PhD, received a 2020 ICTR Pilot Award for his research “Accelerated MRI Using of Crowdsourcing and Machine Learning Reconstructions.” **Howard Rowley, MD**, and **Laura Eisenmenger, MD**, were also collaborators on this research. In their work, Drs. Johnson, Rowley and Eisenmenger investigate a scheme for crowd sourcing image quality using machine learned metrics from user rankings of corrupted images.

Scott Reeder, MD, PhD, received a 2020 ICTR Pilot Award for his research “Novel Method for Rapid 3D T2-Mapping with Magnetic Resonance Imaging.” Dr. Reeder is the PI and is collaborating with **Diego Hernando, PhD**. The primary goal of this proposal is to develop a novel phase-based T2-mapping method for quantitative tissue characterization using MRI.



Vivek Prabhakaran, MD, PhD, is a collaborator on a research project that received a 2020 ICTR Pilot Award. The project, entitled “Investigation of Neural Network Dysfunction underlying Refractory Epilepsy in Children,” is led by PI Raheel Ahmed, MD, PhD, in the Department of Neurological Surgery at the UWSMPH. The proposal aims to investigate the large-scale cortical network dysfunction that underlies the pathogenesis and clinical outcomes in epilepsy.

Jason Pinchot, MD, is also a collaborator on a research project that received a 2020 ICTR Award. His work, “Spatially-resolved mRNA



Expression in Congenital Vascular Anomalies to Reveal New Therapeutic Targets,” will perform unbiased spatial transcriptomics to quantitate transcriptomic changes across human skin layers for the most common mutations in vascular anomalies. Led by PI Lisa Arkin in the Department of Dermatology at the UWSMPH, this research is critical to establish precisely how these mosaic variants drive disease progression, and subsequently to design or repurpose therapies that specifically target pathologic cells, penetrate to the appropriate depth in skin, and spare normal tissue.

The winners of the 2020 UW Health Rising Star Awards have been announced. Two UW Radiology faculty members are among the recipients. **Daniela Martin, MD**, Assistant Professor in the Thoracic Imaging Section will receive the award at a virtual ceremony in December. Dr. Martin is also the Director of Diversity and Inclusion in the department. The second departmental winner is **Dr. Michael Hartung**, who will also receive the award in December. Dr. Hartung, a member of the Abdominal Imaging and Intervention Section, is the founder of learnabdominal.com, one of the ways he is paving the way for novel educational instruction at the UW and beyond. The Rising Star Awards are peer-nominated, and were created to recognize those who demonstrate exceptional skill in clinical practice or education and their commitment to the mission, vision and values of UW Health.

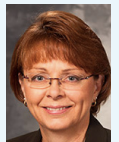


Congratulations to both Dr. Martin and Dr. Hartung!



ICTR Deputy Executive Director, **Elizabeth Burnside, MD, MPH**, has been awarded the inaugural UW Medical Foundation (UWMF) Professorship in Team Science. As stated by the ICTR Executive Director, Allan Brasier, Dr. Burnside was recognized for her excellence in mentorship, leadership, clinical practice, and scholarship. Along with her partnership with Dr. Brasier in leading ICTR as well as the CTSA award, Dr. Burnside also leads roles in the NIH-funded All of Us (AoU) Wisconsin program, the SMPH Clinical and Health Informatics Institute (CHI2), and the Building Interdisciplinary Research Careers in Women’s Health (BIRCWH) Training Program!

Deb Trieloff, PA, received a glowing thank-you from a patient for her outstanding care. “Thank you to Deb and whoever hired her. They know a good one when they see one,” the patient wrote. She took all the time I needed to help me understand the process (of an injection procedure), what would happen, hurt, not hurt, time of healing and expectations after treatment.” Deb rotates within the section of Musculoskeletal interventions at The American Center as well as diagnostic GI radiology at DHC and Neurointerventional radiology at UWHC. She is an outstanding practitioner who has received many accolades during her years of service.



Endobronchial Forceps-assisted Retrieval Techniques” and a poster “Cystoscopy-assisted Retrograde Repositioning or Retrieval of Ureteral Stents in the Pediatric Population.” MD/PhD student Sarvesh Periyaswamy a collaborator in Dr. Laeseke’s Image-Guided Intervention

lab presented “A Comparison of a Blood Velocity and a Color-coded DSA Technique for Intra-procedural Characterization of Blood Flow Reduction During Transarterial Embolization of the Liver.” Research assistant Carson Hoffman PhD, presented “Intra-Procedural Blood Velocity Quantitation Using Time-Resolved 2D DSA,” which was selected as a featured paper.

Emily Knott, an engineering student working with the Department of Radiology presented an abstract “Mitigation of Respiratory Motion Effects on Histotripsy Ablations in Porcine Liver Models by

Alteration of Ablation Zone Prescription Shape,” and a poster “Histotripsy: a Novel Ablation Modality in Animal Models and Early Clinical Results.” Research intern Annie Zlevor presented “Complication Rate and Effect of Pleural Blood Patching in CT Fluoroscopically-guided Core Lung Biopsies.” Radiology resident Jacob Lescher, MD, presented a poster “Effect of Ablation Confirmation Software on Microwave Ablation Efficacy and Outcomes.”





Department of Radiology

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MEMORABLE IMAGES



Dr. Prasad Dalvie, Associate Professor (CHS), conducted a video learning session "Transjugular Liver Biopsy: Procedural Tips and Tricks" at the recent 2020 Virtual Conference of the Cardiovascular and Interventional Radiological Society of Europe (CIRSE). The University of Wisconsin Department of Radiology had a large presence at the meeting, which had formerly been scheduled to take place in Berlin, Germany. (See full story on page 6-7.)

WELCOME TO NEW FACULTY MEMBERS!



Kelly Capel, MD, joined the department faculty in August as an Clinical Assistant Professor. Dr. Capel is a member of the Neuroradiology

Section. Dr. Capel completed her fellowship in Neuroradiology this past summer with University Hospital and also completed the UW Radiology Residency Program, where she finished as Chief Resident. She completed an internship at Aurora St. Luke's Medical Center in Milwaukee, and received her MD at Rush Medical Center, Chicago, IL.



Minnie Kieler, MD, joined the department faculty in August as an Clinical Assistant Professor in the Community Radiology Section. Dr.

Kieler was previously an abdominal imaging fellow in UW Radiology, and completed the program in July. Dr. Kieler also completed her residency University Hospital in Nuclear Medicine and Molecular Imaging. She received her MB ChB at the University of Manchester in the United Kingdom, as well as an MPH (MPhil) at the University of Cambridge, also in the United Kingdom.



Lindsay Stratchko, DO, joined the department faculty in September. Dr. Stratchko is fellowship trained in Musculoskeletal (University of

Wisconsin) and Interventional Radiology (Penn State University). She is spearheading a new program in MSK Interventional Oncology (IO) in collaboration with the UW Ablation IO group. She will oversee the growth of the MSK IO program that will benefit cancer patients in managing pain and offering innovative therapeutic interventions. She has interest in musculoskeletal ultrasound and non-IO MSK procedures. She currently serves on the Society of Interventional Radiology (SIR) Standards Committee for musculoskeletal and spine procedures. Dr. Stratchko completed her internship at Geisinger Medical Center, Danville, PA, and earned her DO at Philadelphia College of Osteopathic Medicine, Philadelphia, PA.



Dr.
Panagiotopoulos

Husband-wife team joins faculty as visiting assistant professors.

Nikolaos Panagiotopoulos, MD, joins UW Radiology faculty member Dr. Scott Reeder. Dr. Panagiotopoulos previously

served as radiology specialist for the Department of Radiology and Nuclear Medicine at University Hospital Schleswig-Holstein, Lubeck, Germany, where he also completed his residency.

Thekla Oechtering, MD, is also working with Dr.

Reeder. Dr. Oechtering also previously served as radiology specialist for the Department of Radiology and Nuclear Medicine at University Hospital Schleswig-Holstein, Lubeck, Germany, where she completed the residency program.



Dr. Oechtering

Help us **GO GREEN!**

Send your email address to: radnews@uwhealth.org and receive an electronic copy of the next **INSIDE VIEW!**

For news and information about the UWSMPH Department of Radiology, please visit www.radiology.wisc.edu