A Message from the Chair

**BIDMC Department of Radiology** 

# It is my pleasure to announce that Jesse Wei, MD, has been appointed our new Clinical Director of CT here at BIDMC. Jesse is well-known for his operational

Dear Colleagues,

excellence, consistently demonstrating exceptional clinical acumen and expertise, quality improvement results, and technology innovation, and I know he will excel in this position. I would also like to take this opportunity to publically thank Olga Brook, MD, for all she has done as our Clinical Director of CT since 2016. Her leadership in outcomes engineering, quality and performance improvement, and clinical and technical operations, as well as her impressive scholarship, has truly shaped

our CT division into what it is today. Thank you, Olga. As many of you may know, Jesse joined us in 2002 as a Radiology resident after earning his MD from Harvard Medical School's Division of Health Sciences and Technology and completed an MRI

fellowship with us in 2007. In addition to becoming a staff radiologist for BIDMC, BID-Needham, and Harrington Hospital in 2007, Jesse was appointed Clinical Director of Radiology Informatics and

Imaging.

within the department. Additionally, he remains involved in several research activities, including as a clinical reviewer and collaborator in multiple hepatic, pancreatic, and prostatic tumors. in thanking Olga for her superb CT service.

Sincerely, Jonny Jonathan B. Kruskal, MD, PhD, FSAR, FACR Melvin E. Clouse Professor of Radiology at Harvard Medical School Chairman, Department of Radiology, Beth Israel Deaconess Medical Center

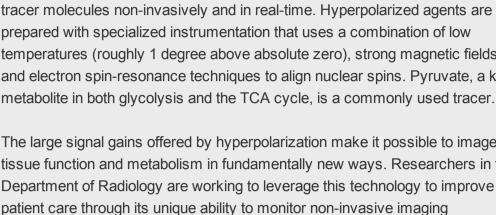
**Research News** 

Hyperpolarization is a technology for aligning, or polarizing, the nuclear spins in

technology in the context of renal and cerebral perfusion imaging. R01 funding is the original and historically oldest NIH grant mechanism for healthrelated research and development.

a contrast agent or metabolic tracer. Agents prepared in this way have dramatically enhanced nuclear magnetization and, as a result, produce MR signals up to 100,000 times stronger than in conventional imaging. This makes it possible to image the transport, uptake, and metabolic transformations of

tracer molecules non-invasively and in real-time. Hyperpolarized agents are prepared with specialized instrumentation that uses a combination of low temperatures (roughly 1 degree above absolute zero), strong magnetic fields. The large signal gains offered by hyperpolarization make it possible to image tissue function and metabolism in fundamentally new ways. Researchers in the



successful intervention. Hyperpolarized pyruvate provides a measure of glycolysis through its conversion into lactate. A variety of targeted therapies are known to modulate glycolytic flux, and studies at BIDMC are underway to assess hyperpolarized MRI as a tool to monitor early response to therapy in breast cancer. In one striking example, hyperpolarized MRI enables visualization of a nearly complete shutdown of lactate formation in a model of breast cancer just 30 minutes after administration of an inhibitor of lactate dehydrogenase (LDH), the enzyme that catalyzes the final step in glycolytic fermentation. In collaboration with Gerburg Wulf, MD, PhD, from the Department of Hematology/Oncology and Cody Callahan from the Preclinical MRI Core Facility, Aaron Grant is studying the effects of a new generation of phosphoinositide 3-kinase (PI3K)

biomarkers such as glycolytic flux, blood flow, tissue pH, and redox. While hyperpolarization research is chiefly in the preclinical phase, dozens of clinical

Hyperpolarization holds substantial promise for diagnosis and treatment

that is up-regulated in many cancers and is generally reduced following

monitoring in cancer through its sensitivity to glycolysis, a metabolic pathway

identified a link between these effects and expression of PFKFB3, a potential therapeutic target.

In another recent study, Leo Tsai, MD, PhD, and Qianhui Dou, MD, PhD, in partnership with Muneeb Ahmed, MD, have observed increased lactate and decreased alanine flux in hepatocellular carcinomas, corresponding to greater tumor proliferation in response to off-target hepatic thermal ablation, and have

inhibitors in breast cancer using hyperpolarized pyruvate.

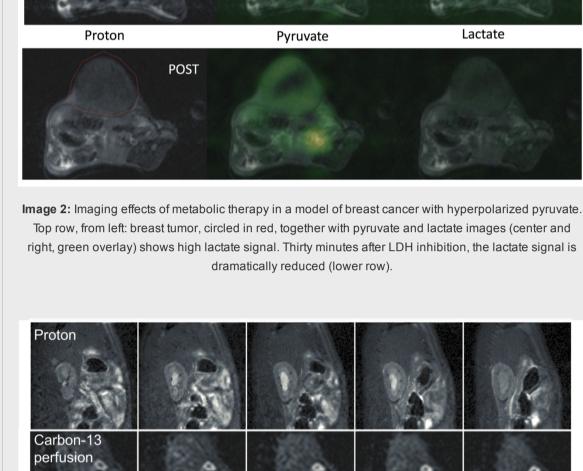
Hyper ense

Image 1: The hyperpolarizer (left) and 9.4T MRI in the Dana 7 Preclinical MRI Core.

**Pyruvate** 

Lactate

Pyruvate



**Medical Education Updates** 

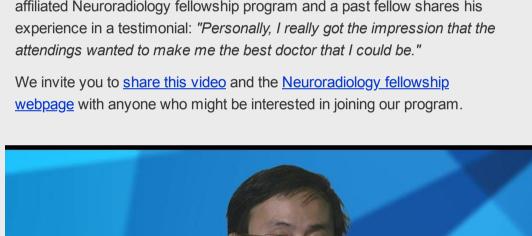
Lactate

Image 4: Proton, pyruvate, and lactate images (left to right) of a rat hepatoma showing marked lactate flux within the tumor (white arrows). The IVC (red arrows) shows inflow of <sup>13</sup>C-pyruvate during injection.

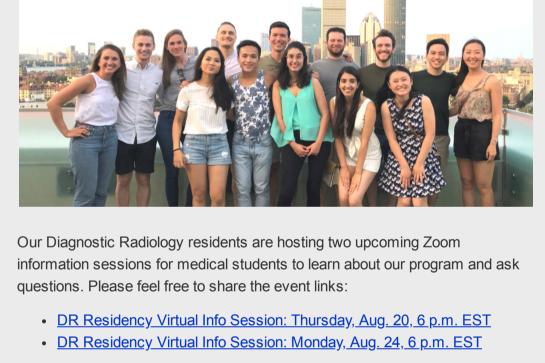
Image 3: Three-dimensional perfusion-weighted imaging of the rat kidney with 1mm<sup>3</sup> isotropic resolution. Top row shows proton fast spin-echo images, lower row shows corresponding perfusionweighted tert-butanol images.

Lactate

Alanine



Yu-Ming Chang, MD, PhD, introduces the BIDMC Neuroradiology fellowship program



**Diversity & Inclusion Spotlight** Anti-Racism Education Self-Study

@trevorlewis\_md & company. #futureradres"

about [the] IR program today!"

Radiology." In the preface, he states **Chest Radiology** that it was written in response to feedback from first-year BIDMC Radiology residents dissatisfied with Ronald L. Eisenberg available books about chest imaging, finding them either too complex or too simplistic. Rather than extensive narratives, the important information is presented in an easy-to-read bulleted format, richly

as many additional images in an accompanying e-platform. In most cases, an individual pathologic condition is presented in one page or less, with the material divided into convenient sections of "clinical information" and "imaging findings." A PDF version of "What Radiology Residents Need to Know: Chest Radiology"

As we settle into a new academic year and welcome new residents and fellows to BIDMC, we are writing to remind our community about BIDMC's policies regarding engaging with the news media as well as non-news communications requests and posting on social media. BIDMC's policies are consistent with those of our academic medical center peers and are designed to ensure we

What Radiology

EXTRAS ONLINE

Residents Need to Know:

Springer

and indicates where employees may be working. Do not offer medical advice or interact with patients and visitors on social Any requests to film (on or off campus) by the news media or other organizations must be coordinated through BIDMC Media Relations.

**Selected Radiology Publications** 

- Below is a selection of recent Radiology publications. Faculty names are bolded; trainee names are underlined. If your publication isn't shown here, please <u>submit your citation</u> for inclusion in our next newsletter. 1. Allen BD, Wong TC, Bucciarelli-Ducci C, Bryant J, Chen T, Dall'Armellina E, Finn JP, Fontana M, Francone M, Han Y, Hays AG, Jacob R, Lawton C, Manning WJ, Ordovas K, Parwani P, Plein S, Powell AJ, Raman SV,
- 3. de Margerie-Mellon C, Ngo LH, Gill RR, Monteiro Filho AC, Heidinger BH, Onken A, Medina MA, VanderLaan PA, Bankier AA. The Growth Rate of Subsolid Lung Adenocarcinoma Nodules at Chest CT. Radiology. 2020 Aug 4. Online ahead of print. 4. Durfee SM, Goldenson RP, Gill RR, Rincon SP, Flower E, Avery LL.

Medical Student Education Roadblock Due to COVID-19: Virtual Radiology Core Clerkship to the Rescue. Acad Radiol. 2020 Jul 24.

Contrast-Enhanced Mammography. AJR Am J Roentgenol. 2020 Jul 8. Online ahead of print. 6. Larson DB, Broder JC, Bhargavan-Chatfield M, Donnelly LF, Kadom N, Khorasani R, Sharpe RE Jr, Pahade JK, Moriarity AK, Tan N, Siewert B,

Kruskal JB. Transitioning From Peer Review to Peer Learning: Report of the 2020 Peer Learning Summit. J Am Coll Radiol. 2020 Aug 6. Online

ahead of print. In Case You Missed It

- BIDMC IT Innovation During the COVID-19 Pandemic Video Annual Radiology Meetings and Abstract Deadlines BIDMC Innovation Grants Program | Submission Deadline Aug. 24 Head Outside with MASCO's Summer Program Make Your Summer More Sustainable with These Tips
  - The Inside View is brought to you by the BIDMC Department of Radiology. **Editorial Office:**

- Instructor of Harvard Medical School that same year. Earlier this summer, we had the opportunity to honor Jesse's robust track record of contributions in informatics with our inaugural Recognition Award for Informatics Innovations in From a clinical perspective, Jesse is an outstanding leader in body MRI and abdominal and pelvic imaging, and in particular, the hepatobiliary system. In his role as attending radiologist, he is also committed to advancing our academic mission, which includes providing informatics guidance to trainees and faculty retrospective and multidisciplinary projects involving characterization of renal, Please join me in congratulating Jesse on his much-deserved appointment and
- Hyperpolarization Program Receives New NIH Funding Aaron Grant, PhD, was recently awarded a National Institutes of Health (NIH) Research Project Grant (R01) to further develop hyperpolarization

trials are currently underway.

**Hyperpolarization in Action** 

and electron spin-resonance techniques to align nuclear spins. Pyruvate, a key metabolite in both glycolysis and the TCA cycle, is a commonly used tracer.

**Proton** 

T2-weighted

proton image

Pyruvate

Neuroradiology Fellowship Video Feature

(A)

PRE

Hyperpolarization also offers new approaches to imaging of blood flow through its high sensitivity and low endogenous background. Research at BIDMC has shown that *tert*-butanol provides excellent performance as a perfusion tracer owing to its favorable kinetics in tissue and its long relaxation times. Recent improvements in polarization of tert-butanol have enabled three-dimensional imaging with sub-millimeter resolution in preclinical applications.



RSNA Webinar Series: Cardiovascular Manifestations of COVID-19

manifestations, and endovascular therapy for venous thromboembolism. Watch

now on RSNA's YouTube channel or in the Online Learning Center for CME

Virtual Diagnostic Radiology Residency Info Sessions

Diana Litmanovich, MD, together with Rachael

fellow, recently organized and presented COVID-

In this new three-part video series, learn about the cardiovascular implications of COVID-19including cardiac, coronary, and pulmonary manifestations, neurovascular disease, abdominal and lower extremity vascular

Kirkbride, MD, Cardiovascular Imaging

19 webinars via RSNA.

Beth Israel Deaconess Medical Center

credit.

IR Hosts Successful Virtual Happy Hour for Med Students

inspired the following participant feedback on Twitter:

On August 11, our IR/DR residents hosted an informal virtual happy hour for medical students to ask questions and learn about the Interventional Radiology training program, culture, and upcoming interview season. The session drew more than 20 medical students from BIDMC and outside institutions and

"A big thank you to the @BIDMCRad IR program for hosting a great

important in the current application landscape. #irad #futureradres"

what to look for in other programs. Thanks for organizing this

event tonight! Thankful for the opportunity to get to know the program and residents in a relaxed environment before interview season—increasingly

"Very much enjoyed the @BIDMCRad resident virtual happy hour. Was able to learn a lot about your residents and the program, as well as about

"Thank you, residents of @BIDMCRad, for having a candid conversation

Over the last several weeks, the medical center has held a series of listening

modules covering the topics of Race and Racism, Implicit Bias, White Privilege and Colorblindness, and Black Lives Matter and Allyship. Each Monday, new materials—including articles and podcasts, reflection questions, statistics, and relevant BIDMC efforts—will be available. For easy access, the D&I webpage

**Learn More** 

sessions to hear from physicians and staff about how BIDMC can continue to drive change in our workforce and work environment. Through these sessions, there was a common theme: a need and desire for more education surrounding racism, anti-racism, and social justice. Over the next four weeks, BIDMC will be sharing self-paced, self-initiated

link is available beneath the red "myAlert" button on the Portal.

Awards, Honors & Kudos

Ron Eisenberg, MD, has recently

Residents Need to Know: Chest

illustrated with more than 400

is available on the shared drive.

Congratulations and thank you, Ron!

**BIDMC Media Relations Policy** 

Protecting the Privacy of Our Patients and Staff

adhere to federal and state patient privacy requirements.

images in the printed book and twice

published a book titled "What Radiology

Celebrating the Achievements of Our Colleagues

privacy of our patients and colleagues. As a reminder, please: Do not respond to any journalist requests without first engaging with BIDMC's Media Relations team. They can be reached during regular business hours by emailing mediarelations@bidmc.harvard.edu or if the request is urgent or during off-hours, through pager ID #33880. Do not confirm or share any patient information through email, social media, phone calls, or conversations—or any other way. Do not share photos or information that identifies employees or patients

Violation of these policies may lead to disciplinary action, up to and including termination of employment or loss of privileges. Thank you for doing your part in

keeping information secure to protect the privacy of our patients and staff.

It's important that all staff, students, and providers follow these guidelines as part of our commitment to providing the very best care while protecting the

Salerno M, Carr JC. Society for Cardiovascular Magnetic Resonance

2. Appel E, Dommaraju S, Siewert B, Gonzalez RS, Camacho A, Park Y, Brook OR. Clinical Outcomes of Patients with Porcelain Gallbladder <u>Diagnosed on CT</u>. Acad Radiol. 2020 Aug 4. Online ahead of print.

(SCMR) Guidance for Re-activation of Cardiovascular Magnetic Resonance Practice after Peak Phase of the COVID-19 Pandemic. J

Cardiovasc Magn Reson. 2020 Aug 10.

Online ahead of print.

- 5. Karimi Z, Phillips J, Slanetz P, Lotfi P, Dialani V, Karimova J, Mehta T. Factors Associated with Background Parenchymal Enhancement on
  - - Coronavirus Central Updates
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