

Radical Views...

from the Department of Radiology

SEPTEMBER 2018 **Beth Israel Deaconess Medical** Center



FROM THE CHIEF Jonathan B. Kruskal, MD PhD

I am pleased to announce that James Rawson, Vice Chair of Operations and Special Projects will oversee our medical education programs including medical student, residency and fellowship programs. Dr. Rawson's educational leadership experience prior to joining BIDMC includes his work as course director for medical students, radiology residents/fellows, business majors and graduate students as well as practicing physicians, health policy makers and industrial engineers. He also co-directed and taught a program for 2nd year residents to develop leadership skills. As an early supporter of digital learning, he has used on-line educational modules for teaching



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medical physics, quality and teaching skills to residents. In 2017, he was recognized for his educational contributions by the Radiological Society of North America with their prestigious Honored Educator Award. We look forward to Dr. Rawson's leadership and innovations in our education aims.



I am also delighted to announce that Yu-Ming Chang has been appointed as our new Residency Program Director as of September 1st and he has already started to create his leadership team. Yu-Ming joined our Faculty in 2015 following the completion of his fellowship here in Neuroradiology. He earned his MD/PhD in Medicine, Anatomy and Neurobiology at BU School of Medicine and completed his residency at Boston Medical Center. Many of



you know Yu-Ming as a passionate educator and superb teacher, and his teaching efforts have been recognized annually through several teaching awards.

I very much appreciate that Yu-Ming will be taking over the leadership of our superb residency training program, and look forward to supporting him and his team in the years ahead.

I am equally happy to announce that **Pritesh Mehta** will be one of the Associate Program Directors of our radiology residency program. In 2017 Pritesh joined our faculty also following the completion of his fellowship in Neuroradiology as well as our residency program here. He graduated from Case Western Reserve University School of Medicine and completed an executive business program at Harvard Business School. He plans to carry over and integrate many of those relationships within radiology to help foster innovation at BIDMC. He brings a strong passion for teaching and scholarship. Please join me in welcoming Yu-Ming and Pritesh to their important new roles.





I would also like to welcome cardiothoracic imager **Ritu Gill** who has taken on an additional role as Director of our medical student education program, at BIDMC. Ritu earned an MBBS in Science and Surgery from the Government Medical College in Amritsar, India and completed a fellowship in Oncoradiology at Dana Farber Cancer Center and another fellowship in Cardiothoracic Radiology at Brigham & Women's Hospital. She went on to earn an MPH in Clinical Effectiveness from Harvard School of Public Health and also participated in the Women's Leadership Program sponsored by the BWH Faculty and Diversity Development Program. These efforts reflect Ritu's commitment to academic education and I look forward to her contributions to our medical students' experience in radiology.

Department Accolades (cont'd):

Congratulations **Olga Brook**, abdominal imager (and QA Officer), clinical director of CT, and interventional radiologist on her promotion to Associate Professor of Radiology at Harvard Medical School in the Clinical Innovation track. Olga has distinguished herself in many arenas all under the scholarship umbrella of engineering improved outcomes for our patients. Olga is nationally recognized in the quality improvement domain through her work on a broad range of topics including error mitigation, root cause analysis, standardizing outcomes, staff and patient safety initiatives, customer satisfaction, dose reduction and peer learning. We all know Olga as a hard working and determined

outcomes-focused scholar, and I am delighted that her work on improving outcomes has now been recognized by her many colleagues at the national level. Olga is uniquely skilled at translating her efforts into peer-reviewed original scientific manuscripts, and I look forward to seeing this trajectory continue to even greater heights! I am also especially pleased and proud that our medical school recognizes quality improvement efforts in the clinical innovation domain as exemplified by Olga. We are all so proud of her. Please join me in congratulating her on this much deserved recognition. -JBK

Olga has published 28 papers just in 2017-2018 (for a total of 112 publications, of which 62 were original papers) with numerous fellows and residents whom she has mentored and we look forward to more.



Radiology Resident Achievements

HSQIC: Radiology is incredibly well-represented at the this year's **GME Housestaff Quality Improvement Council** at BIDMC by the induction of five of our residents (*below, L to R*): **Kimeya Ghaderi** (2nd yr), **Alexei Kudla** (4th yr), **Michael Luo** (4th yr), **Ronald Mercer** (3rd yr) and **Amalie Thavikulwat** (1st yr) as Quality officers for 2018-2019.



HSQIC is an interdepartmental group that focuses on collaboration among residents across the hospital to find improvement opportunities and to conduct quality improvement projects. The group is open to all residents, but the selected officers will receive additional focused training in quality, present their work at the Silverman Symposium for quality and patient safety, and serve as resident representatives on hospital initiatives as well as sharing hospital priorities with their colleagues at the departmental level.

"In return for QI education and training, they will serve as QI liaisons building links across the different training programs, participating in QI project work and providing consultant recommendations to hospital QI committees".

- Alicia Clark, MD, Associate Program Director, HSQIC





Congratulations **Chief Resident Michael T. Johnson** for being chosen among a record number of extremely qualified applicants for a limited number of fellowship slots to receive an American College of Radiology, 2018 – 2019

Rutherford-Lavanty Fellowship in Government Relations. This fellowship consists of one week

in the Washington D.C. area with ACR's Government Relations department, hopefully when Congress is in session, pending the 2019 Congressional calendar.

RSNA ARRS



Congratulations 2nd year resident **Elisa Franquet** for being selected for the RSNA/ AUR/ARRS Introduction to Academic Radiology (ITAR) Program which will be held during the 2018 RSNA Annual Meeting in Chicago. ITAR is co-sponsored by RSNA, the Association of University Radiologists (AUR), and the

American Roentgen Ray Society (ARRS) to introduce residents to academic radiology in the second year of their residencies.

Participants will learn the importance of research in diagnostic radiology, witness the excitement of academic careers and meet successful clinical radiology researchers.



As RSNA's 104th Scientific and Annual Meeting approaches (November 25-30), consider taking this opportunity to reconnect with alumni and invite them to *stay in touch* with BIDMC Radiology by accessing Radical Views: http://radnet.bidmc.harvard.edu/education/newsletters.asp Check out our BIDMC Radiology Alumni Society page and access our monthly Radical Views



Department Accolades (cont'd):

Congratulations **Matt Palmer, PhD**, Manager of Imaging Physics, who was recently appointed to the ABR DR Core exam committee in Tucson where they met to assemble the Nuclear Radiology (Physics) and RISE materials* for the 2019 Core exams. Matt joins the committee with two other members who are former Harvard Joint Program in Nuclear Medicine (JPNM) alumni: Jen Kwak and the Chair, Umesh Oza.



August 2018 DR Core Nuclear Rad Committee Clockwise from left: Exam developer Terri New; Chair Umesh D. Oza; Matthew R. Palmer, PhD; Philip H. Kuo; Jennifer J. Kwack, MD; Twyla B. Bartel, DO; and Ephraim E. Parent, MD.

The Process of Creating ABR Examinations:

The mission of the American Board of Radiology (ABR) is to serve patients, the public, and the medical profession by certifying that its diplomates have acquired, demonstrated, and maintained a requisite standard of knowledge, skill, and understanding essential to the safe and competent practice of diagnostic radiology, radiation oncology, and medical physics. Examinations are one of the most important steps in the overall certification process, and the ABR is invested in ensuring that its exams promote confidence in the integrity of certification decisions.

ABR exam questions are written by numerous committees of approximately 600 subject matter experts who practice in the many specialties of radiology. These individuals donate their time and expertise to develop exam content.

*Initial Certification for Diagnostic Radiology:

In addition, a portion of the Radioisotope Safety Exam (RISE), one of the requirements for Authorized User (AU) eligibility status, is included within the Core Exam. Physics questions are integrated into each category, so no separate physics exam will be administered. However, performance on the entire set of physics items will be evaluated as a component in scoring the exam.

Introducing new members of our team



Please welcome Katelyn Sullivan who joined our education office residency/ fellowship coordinator team this summer.



Donna Hallett, BSc Chief Administration Officer

Katelyn comes to us from a community resource specialist role at BIDMC in HCA where she provided resource

assessment on patients requiring assistance in accessing community resources. This role required creative thinking, problem solving and knowledge of established systems to independently determine a plan to meet patients' complex needs. We feel that with these skills she will be a quick learner and a great addition to our team. Katelyn can be reached at 7-3552 and is located in Sherman-231 along with our other residency/fellowship coordinators. *When not in the office, Katelyn enjoys spoiling her nieces and nephew.*

Also, please welcome **Jill Augusta** to the Radiology team as the new Department Administrator. Jill is a recent MBA graduate from Simmons College. She previously worked for the Division of Plastic Surgery at Brigham and Women's



Hospital, where she ran a plastic surgeon's clinical practice for three and half years. Jill is located on the West Campus on the 3rd floor in the Rosenberg building and can be reached at 4-2697. A champion of positive energy, Jill enjoys running and donuts.

Calling all directors & managers:

With more than 650 members in our department working at numerous practice locations, it has become quite helpful to have posters of faculty and trainees, technologists by modality, nursing, support and administration rosters. Please send any updates to dwolfe@ bidmc.harvard.edu so these can be accurately maintained.



Congratulations Matt for being a part of this process!

Please note that our monthly Radiology Calendars for Academic Year 2018 are now available at Schedules; just click on Grand Rounds (under General) and Monthly Calendar (under Lectures, etc.) for the most up-to-date listings at: https://apps.bidmc.org/departments/radiology/schedules/schedules.asp

Grand Rounds

Depositional and Metabolic Lung Diseases: CT Findings with Pathologic Correlation

presented by Tomás Franquet, MD, PhD

Friday September 14 • 12 noon Rabkin Board Room, Shapiro

Please welcome Dr. Tomás Franquet, MD, PhD - Associate Professor, Department of Radiology, and Director, Chest Imaging Section, Department of Diagnostic Radiology, Hospital de Sant Pau, Universitat Autonoma de Barcelona, Barcelona, Spain.

Dr. Franquet earned his MD and completed his residency at the University of Navarra, Pamplona, and a fellowship in Thoracic Imaging under Nestor L. Mueller at Vancouver General Hospital, British Columbia, with whom he co-authored the textbook "Imaging of Pulmonary Infections". He has coauthored four other books including "Diseases of the Lung: Radiologic-Pathologic Correlation."

To date, he has written 46 book chapters and 104 peer reviewed articles. His most recent publications include:

Ketai L, Franquet T. Imaging Thoracic Infections: New Answers for Old Questions. J Thorac Imaging. 2018 Sep;33(5):271-272. PMID: 30130319.

Gafoor K, Patel S, Girvin F, Gupta N, Naidich D, Machnicki S, Brown KK, Mehta A, Husta B, Ryu JH, Sarosi GA, Franquet T, Verschakelen J, Johkoh T, Travis W, Raoof S. Cavitary Lung Diseases: A Clinical-Radiologic Algorithmic Approach. Chest. 2018 Jun;153(6):1443-1465. 2018 Mar 6. PMID: 29518379.

Franguet T. Imaging of Community-acquired Pneumonia. J Thorac Imaging. 2018 Sep;33(5):282-294. PMID: 30036297.

The Gallery presents photos up the boot of Italy by Alla Sosinov







Gallery presentations generally run for 2 months each. If you would like to show in the Gallery, contact Medical Editor Donna Wolfe (4-2515)





Aideen Snell, MSW, CPXP Manager, Service Excellence Program x72570 asnell@bidmc.harvard.edu

AIDEEN SNELL: SERVICE EXCELLENCE & ACTION PLANNING (SEAP) REPORT

Radiology Action Planning Committee on Patient Engagement

September TIP of the Month:

To quote Bryant H. McGill: One of the most sincere forms of respect is actually listening to what another has to say

"While it's important to know your own value, it's also important that you value the contributions of your coworkers. Listen closely in team meetings and treat ideas from your colleagues with the same respect you'd want them to give to you. If you don't agree with something, voice your disagreement by focusing on improving the positive aspects of the idea, instead of demeaning the parts you don't agree with. Don't make work a competition – celebrate achievements with your coworkers instead of comparing yourself to them. Take genuine interest in what your team members are saying, and apply it to your daily tasks. They'll appreciate that you took the time to listen, and respect that you're able to apply what you've learned."

September is a great time for new beginnings. We've had a beautiful summer, hopefully taken some time to rest on a beach or spend time with friends and family. School begins, children are excited to have new supplies and backpacks. Here in New England we start to notice the crisp air coming in at night which triggers pleasant memories of warm sweaters, football and colorful foliage.



Here in Radiology we are ending FY18, planning budgets for the new fiscal year. We are also planning a Respect Initiative for our department to improve how we

work together and treat each other in this environment. We spend a lot of time at work and it is important for each and every one of us to feel valued and heard. The

Radiology Department is amazing with all of us working hard, focused on always putting the patient first, drawing on the strength of our teamwork and respect for each other to improve patient centered care. I'm excited about this work and look forward to sharing more about it with you during the coming months! - Aideen

Speaking of patient centered care... Recently Interventionalist Dr. Ammar Sarwar was pictured on our BIDMC welcome page:

AmmarSarwar was on the main page https://www.bidmc.org





September 2018 Radical Views / 6

Purpose:

The BIH Radiology Foundation Pilot Research Minigrants are designed to enable departmental investigators to gain experience in defining objectives and testing hypotheses in preparation for external grant applications and/or manuscript submissions. These awards are intended to support preliminary or pilot phase scientific projects, and are not intended to supplement major funding that has already been secured.

Amount: One-year grant of up to \$15,000.

Eligibility Requirements:

Awards are restricted to full-time faculty, part-time faculty, fellows, residents and research staff employed by the Department of Radiology only. Applicants at the level of Assistant Professor or below require co-signature on the application by a departmental mentor, and early involvement of the mentor in the proposal development is strongly encouraged.

Nature of Projects:

Any area of basic, clinical, or translational research related to radiology is eligible to apply for support.

Submission Procedures and Deadlines:

Submissions are reviewed in two annual cycles.

- Submissions received by May 18, 2018 will be considered for funding beginning July 15, 2018.
- Off-cycle applications will be considered based on availability of funds. Up to \$90,000 will be awarded by this program each academic year. Proposals (hardcopy or electronic) should be submitted electronically to Mary Addonizio at maddoniz@bidmc.harvard.edu

Proposal Format:

The application should consist of two narrative single-spaced pages that include: Specific Aims, Background & Significance, Preliminary Studies (if any), a brief Design and Methods section, a timeline, and a section describing how this grant will lead to preparation of an external grant application and/ or submission of a high-impact manuscript. A separate Budget page with justification must also be submitted. Please note that these grants are not intended for salary support of the applicant or co-investigators, or to cover statistical support.

Questions:

Please contact Mary Addonizio (maddoniz@bidmc.harvard.edu) if you

have any questions about the application process. For questions about appropriate science, methods or research emphasis, please contact any member of the **Research Steering Committee**.



Mary Addonizio, MBA Radiology Research Program Manager 7-2975 • Ansin-240

Review Process:

All complete applications will be peer-reviewed by **Research Steering Committee** faculty: Drs. Jonathan Kruskal, Leo Tsai, Muneeb Ahmed, and Alexander Bankier. External ad hoc reviewers may be sought for applications with methods outside the committee members' expertise.

Review Criteria:

Submitted proposals will be reviewed for their intrinsic merit, synergies with other activities and priorities of the Department, and the likelihood that funding will have a positive impact on completion of the research project. Because these grants are intended for pilot studies, investigators who already have externally funded research projects must clearly indicate why these funds are necessary.

Reports and Presentations:

Award recipients must present a one-page written report to the Departmental Research Committee within 30 days of project completion. This report should include a section indicating any future plans for the research. In addition, reports should include an appendix with any reprints or preprints of manuscripts, or any request for external funding (i.e., NIH or RSNA submissions) resulting from the study. Please submit the report to Mary Addonizio (see above).

This month we have mounted a list of the **Upcoming Annual Scientific Meetings** (see page 8) which will be updated as new information becomes available.



*Please contact Medical Editor Donna Wolfe as soon as possible if you would like any assistance in creating/editing your presentations. Also, see our other research resources on pg 9.

Upcoming Annual Scienfic Meetings	Conference Date	Abstract Deadline	
AAPM - American Association of Physicists in Medicine	July 14-18, 2019	ТВА	
ARRS - American Roentgen Ray Society	May 5-10, 2019	August 30, 2018, 5pm ET	
ACNM - American College of Nuclear Medicine	Jan 17-19, 2019	Opens Aug. 30, 2018	
ACR - American College of Radiology (Quality & Safety Conference)	Oct 26-28, 2018	Closed	
ACR - American College of Radiology (Leadership Conference)	May 18-22, 2019	ТВА	
AIUM - The American Institute of Ultrasound in Medicine	Apr 6-10, 2019	Oct. 2, 2018, 8 pm ET	
ASER - American Society of Emergency Radiology	Sept 26-29, 2018	Closed	
ASFNR - American Society of Functional Neuroradiology	Oct. 15-17, 2018	Closed	
HNR - American Society of Head & Neck Radiology Sept. 26-30, 2018		Closed	
ASNR - American Society of Neuroradiology (Boston)	May 18-23, 2019	ТВА	
AUR - Association of University Radiologists	Apr 9-12, 2019	Sept. 26, 2018	
SBI/ACR - Society of Breast Imaging	Apr 4-7, 2019	12-Nov-18	
ECR/ESR - European Society of Radiology	ТВА	ТВА	
ENRS - The Eastern Neurological Radiology Society	ТВА	ТВА	
ESGAR - European Society of Gastrointestinal and Abdominal Radiology	June 5-8, 2019	ТВА	
ESTI - European Society of Thoracic Imaging / Fleischner Joint Meeting	May 9-11, 2019	ТВА	
HSPI - Healthcare Systems Process Improvement	Feb 20-22, 2019	Opens September 29, 2018	
ISCT - International Society for Computed Tomography	Sept 14-16, 2018	Closed	
ISMRM - International Society for Magnetic Resonance in Medicine	May 11-16, 2019	Nov. 7, 2018	
ISS - International Skeletal Society	Sept 26-28, 2018	Closed	
NASCI - North American Society for Cardiovascular Imaging	Sept 22-25, 2018	Closed	
RSNA - Radiological Society of North America	Nov 25-30, 2018	Closed	
SAR - Society of Abdominal Radiology	Mar 17-22, 2019	General Paper/poster Oct. 2, 2018 Power Science Dec. 5, 2018	
SCBTMR - Society of Computed Body Tomography	Oct 6-10, 2018	Closed	
SCMR - Society for Cardiovascular Magnetic Resonance	Feb 6-9, 2019	Sept. 18, 2018 11:59 pm EDT	
SFN - Society for Neuroscience	Nov 3-17, 2018	Closed	
SIIM - Society for Imaging Information in Medicine	June 26-28, 2019	Dec. 14, 2018	
SIR - Society of Interventional Radiology	Mar 23-28, 2019	Sept. 27. 2018	
SNIS - Society of Neurointerventional Surgery	July 22-25, 2019	ТВА	
SNMMI - Society of Nuclear Medicine and Molecular Imaging	June 22-25, 2019	ТВА	
SRU - Society of Radiologists in Ultrasound	Oct 5-7, 2018	Closed	
SSR - Society of Skeletal Radiology	Mar 10-13, 2019	ТВА	
STR - Society of Thoracic Imaging	Mar 24-27, 2019	ТВА	

RESEARCH RESOURCES



Zheng Zhang, PhD - Assistant Professor in Biostatistics at Brown University is available to BIDMC investigators to help support statistical design needs for research proposals for immediate

or future grant applications.

Please be sure to forward any requests/proposals to use Dr. Zhang's statistical consulting services to Mary Addonizio, Radiology Research Program Manager, at maddoniz@bidmc.harvard.edu

Radiology Research Assistance

If you are interested in submitting an application for either internal/external research funding or hiring a student, fellow, or other, please contact **Bridget Russo** for assistance.



Bridget Russo Research Administrator

Ansin 249 / P: 617-667-7427 bkrusso@bidmc.harvard.edu

PUBLICATION CALL OUT: IMAGING3.0

Drs. Ahmed, Brook, Kruskal and Sarwar were recognized by ACR detailing their contribution towards higher quality healthcare in the following article (pgs 10-12).



For all those who use or would like to use the services of our inhouse statistician **Alexander Brook, PhD**:

Please involve him in the design of your project as soon as feasible. Allow at least 2 weeks between giving him a reasonably complete

data set and receiving a first substantial report from him. If a short deadline cannot be avoided, please give him a heads-up as early as you are aware of the situation, but at least a month in advance, to allow him to plan his other obligations accordingly.

His services can be booked through this link which contains appointment listings and other information to request work: https://abrook.youcanbook.me/

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	Informatics	IR/INR Techs	Lexington Community	
	Nursing	MRI Techs	Needham Community	
	Support Services	Nuc Techs	Research	
	Image Archives	US/VASC Techs		

Log in to the portal: https://inforad.bidmc.harvard.edu/Logon.asp Click on Staff Posters

PUBLICATION CALL OUT: IMAGING3.0

Case Study: Breaking the Backlog



Interventional radiologists in Boston expand their hours for higher quality care and reduced costs.

By Elizabeth Galentine

Key Takeaways:

- The interventional radiology team at Beth Israel Deaconess Medical Center expanded its night and weekend hours to meet an increasing demand for inpatient IR treatment.
- The team hired a new doctor, nurses, and technologists and transitioned some existing staff to staggered shifts to cover the extended hours.
- The new schedule has resulted in more efficient care, with more than 1,200 patients receiving faster care in the first year.

For the past several years, interventional radiology (IR) has been the fastest-growing division of the radiology department at Beth Israel Deaconess Medical Center (BIDMC), a tertiary medical center in Boston. In fact, by 2014, inpatient treatment requests for IR services at BIDMC had increased so much that the division's standard operating hours were no longer sufficient.

At the time, the IRs worked from 8 a.m. to 5:30 p.m. weekdays, with weekend coverage limited to urgent cases. As referring providers made their morning rounds and then submitted mid-day IR requests for IR consults and procedures, the backlog of patients often grew, and the team routinely fell behind.

To try to keep up, the IRs regularly worked into the evening, and the on-call teams did what they could to help with non-urgent cases. Despite these efforts, an average of three IR cases rolled over each weekday night and eight weekend cases were pushed to the following Monday, meaning some patients had an extended stay in the hospital.

With patient care delayed, patients and families started to complain, and referring providers and nurses grew frustrated, too, says Muneeb Ahmed, MD, FSIR, chief of vascular and interventional radiology and vice chair for interventional services at BIDMC. "This peak-and-valley approach to our care delivery process was challenging," he says. "Patients were forced to wait for services that might have allowed them to be discharged sooner or to advance the course of their overall care."

Ahmed and his team knew they had to do something to address the problem. They considered tackling the backlog by adding another angiography suite, but space limitations made that an impractical option. Instead, Ahmed approached hospital administrators about adding additional IR staff and altering the team's hours, extending weekday coverage to 9 p.m. and adding regular weekend shifts from 8 a.m. to 4 p.m. for non-urgent cases.

Since launching the expanded coverage initiative in 2016, the IR department has performed more than 450 procedures over weekends. Previously, these patients would have been forced to wait until the following



Members of the interventional radiology department attend to a patient during a procedure at BIDMC.

week for treatment. Including weeknight service, it is estimated that more than 1,200 patients have received faster care with the additional IR coverage, resulting in earlier discharge, more efficient progression of care, and fewer hospital admissions of patients presenting to the emergency department.

A New Plan

To institute the extended hours and reach this level of efficiency, Ahmed developed a plan in late 2014. He presented the plan during multiple staff meetings to get the IR team on board with the new schedule. Initially, some IRs, like Ammar Sarwar, MD, assistant professor of radiology at Harvard Medical School, were concerned about how the new hours might impact their workloads. "I wondered, 'Will we need to be at the hospital more than before?" Sarwar recalls.

In response to these concerns and to keep existing staff members from burning out, Ahmed proposed hiring additional personnel to help cover the added shifts. He outlined his request for these positions in a business case presentation, which included existing case overflow data and the cost associated with hiring new staff to work with existing team members to cover the extra hours. Ahmed predicted that the team would see four-six cases a day over the weekend, and three cases each weeknight.

To achieve this, the IR administrative team determined that the hospital would need to support the addition of IRs (1.6 FTE), technologists (2.0 FTE), nurses (2.0 FTE),

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Media contact: pr@acr.org

Case Study: Breaking the Backlog





Muneeb Ahmed, MD, FSIR, chief of vascular and interventional radiology and vice chair for interventional services at BIDMC, led an effort to extend interventional radiology's hours at the medical center.

and a nurse practitioner (1.0 FTE). Ahmed says that this plan was designed to maximize the number of cases that the IR physicians could perform by optimizing room turnaround time (using two tech/nurse teams) and using a nurse practitioner to conduct IR consults and prepare patients for procedures.

In return for the hospital's investment, Ahmed noted that reducing inpatient stays would be more financially viable for the hospital, which is reimbursed based on patient diagnoses — not days admitted. What's more, he aligned the proposal with BIDMC's priorities to reduce its high occupancy rates, which at the time were leading to delays in inpatient transfers and patient admissions.

Ahmed presented the proposal to Radiology Chairman Jonathan Kruskal, MD, who then delivered it to BIDMC's chief executive officer. The hospital approved the plan in late 2015. "Hospital administrators recognized the benefits of this approach immediately and agreed to fund the additional positions we needed to move this forward," Kruskal says.

Significant Impact

One year after implementing the new schedule, Ahmed and his team analyzed patient data from 100 weekends to understand how the new hours were affecting care. They did not include weekday data in the analysis, because too much overlap existed between regular and expanded-hour patients to gauge the impact. The team saw 477 weekend patients over that time period, with 32 of the hospital's 33 inpatient units utilizing the expanded hours.

"The fact that almost all of the inpatient units have leveraged the extended hours highlights the impact IR has across the hospital system, which is that we interact with a lot of different patients from different departments," Ahmed says. "The broad scope of IR makes it particularly well-suited to this type of expansion."

Through their analysis, Ahmed and his team also found that, as they suspected, the most significant ways the new schedule has benefited BIDMC and its patients is by advancing care, facilitating discharge, and reducing unnecessary emergency department admissions. They calculated that the approach has directly benefited more than 1,200 patients who have received more timely care as a result.

"Reducing the number of days patients spend in the hospital waiting for various steps in their care improves their outcomes and their quality of life," Ahmed explains. "It also lowers their chances of contracting hospital-acquired infections, while also driving down hospital costs."

Adjustment to Change

The amount of planning that went into the expansion contributed significantly to its success. The IR team had roughly nine months to hire and train new staff, adjust existing schedules, and head off potential conflicts before instituting the new hours in September of 2016.

For example, Ahmed had to ensure that a separation of duties existed between the team working on cases during the newly expanded hours and the previously established on-call team, which remains available for emergency cases. Early on, there was some question about whether or not the team working the regular shift would help stage an emergency patient while the on-call team was en route to the hospital, he says.

"It took us a couple of months to define the workflow and determine who was responsible when," Ahmed says, adding that the solution was to set the elective attending physician as the ultimate responsible party in determining whether a case is urgent or emergent



Ammar Sarwar, MD, an interventional radiologist at BIDMC and assistant professor of radiology at Harvard Medical School, says the extended hours have reduced pressure on the team.

Continued on next page

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Case Study: Breaking the Backlog





Jonathan Kruskal, MD, chairman of radiology at BIDMC, immediately saw the value in adding positions and extending the team's hours.

and who should handle it.

Reduced Pressure

Another challenge the department faced was developing schedules that the IRs and staff actually wanted to work. To resolve the issue, they assigned existing team members to evening and some weekend hours and assigned new hires to cover the remaining weekend shifts.

At first, some team members were concerned that they'd be assigned too many weekends, but many have found the weekends to be among the most pleasant shifts — thanks to a focus on relatively routine tasks without a lot of meetings and phone calls. "We are now adjusting the schedule so that everyone who wants to work a weekend shift gets a turn," Sarwar says.

The team's flexibility and dedication have been critical to the project, Ahmed says. "One reason we were able to implement this successfully was that everybody was committed to providing the best possible care, and everybody knew that extending our hours would enhance our service," he says.

Knowing that routine cases will be covered through the evening and on weekends has been a relief for everyone in the department, Sarwar adds. "It has reduced pressure across the team," he says. "Now, there's a real understanding that you can pay full attention to the patient in front of you without needing to rush. Being able to care for patients in a comfortable manner is always better."

Common Ground

It's not just the IR department and its patients who are happy with the expanded hours. Referring physicians and hospital leaders have praised the change, as well. "Even though the IRs didn't formally announce the extended hours initially, referring physicians and other hospital staff quickly noticed that things were getting done faster," says Donna Hallett, chief administrative officer in BIDMC's department of radiology. "I certainly view this as a wildly successful effort."

In fact, BIDMC leaders are thinking about instituting similar schedules in other departments. "The hospital has benefited from earlier diagnoses, more effective management and treatment, and earlier discharge of patients, all while avoiding unnecessary admissions," Kruskal says. "It's really a win all around and something that could realistically be duplicated in other areas."

For other hospitals considering this type of model, Sarwar says that the first step is to get the IR team on board with the extended hours. "It would have been difficult to implement this without buy-in from the techs, nurses, and physicians," he says, adding that it helped that IR was already "the happiest group in radiology," according to an internal survey in which IR scored a high rate of satisfaction and showed low levels of burnout.

Another key, Ahmed says, is embracing common ground with hospital leadership. "We all agree that this project enhances patient care — which is a priority across the institution," he explains.

Next Steps

- Ensure all members of the IR department are on board and understand the value proposition of extending the team's hours.
- Present hospital administrators with key facts that demonstrate how extended hours will improve patient care and the hospital's bottom line.
- Anticipate conflicts of duty that may arise and head them off with a clear predetermined workflow and chain of command.

Share Your Story

Have a case study idea you'd like to share with the radiology community? To submit your idea please click here.



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BIDMC

Radiology Residents & Fellows MRI Physics Course



National High Magnetic Field Laboratory

2018-2019 Academic Year

Purpose:

To provide fellows and residents with a basic understanding of MR physics, with emphasis on practical aspects of image acquisition such as protocol optimization and troubleshooting. A brief overview of fundamentals of nuclear magnetic resonance will provide an introduction to sources of image contrast in MRI. Techniques for image acquisition will be described, followed by an overview of the major families of MR pulse sequences. Topics such as accelerated imaging, fMRI, and diffusion tensor imaging will be discussed.

Format:

All sessions will be held on Tuesdays, 5-6 pm at the MRI Learning Lab, Ansin 220, starting July 31st.

Text and Topics:

The recommended textbook is *"MRI in Practice,"* 4th Edition (2011) by Catherine Westbrook. Supplementary reading from review articles will be recommended for advanced topics.

For more information, contact: Aaron Grant, PhD: 7-3265



TOPICS

- July 31: The origin of the NMR signal. Nuclear magnetism. Nutation, precession, signal reception. Chemical shift. Relaxation, T1, T2. Spin dephasing, impact of gradients and magnetic field inhomogeneities.
- 2. **August 7:** Sources of contrast in MRI: T1 and T2 weighting, magnetization transfer, diffusion.
- 3. **August 14:** Overview of MR hardware. Image formation part 1. Slice selection, frequency and phase encoding.
- 4. **August 21:** No Lecture.
- 5. **August 28:** Image formation part 2. Basic k-space concepts. Accelerated imaging methods.
- 6. September 4: No Lecture.
- 7. September 11: Signal-to-Noise: Image parameters that govern SNR. Trade-offs in image optimization.



- 9. **September 25:** Effects of flow and diffusion. Flow compensation, time-of-flight, phase contrast, intro to diffusion.
- October 2: Contrast-enhanced MRI. Types of magnetic materials. Relaxivity and image contrast as a function of dose, TR, TE. Dynamic contrast enhanced imaging, angiography. BOLD effect, fMRI.
- 11. **October 9:** Accelerated imaging. Parallel imaging and compressed sensing.
- 12. **October 16:** Diffusion-weighted imaging and DTI in neuro applications.
- 13. **October 23:** Arterial spin labeling in the brain and body.
- 14. **October 30:** Artifacts and troubleshooting.



2018 BIDMC Radiology Publications - A PubMed search for new BIDMC publications is made each month; however, if we miss your paper, please send the reference to dwolfe@bidmc.harvard.edu. Note that 1) Epub dates are included only in publications where the Epub and paper publication dates occur in different years, i.e., Epub in 2017 and paper publication in 2018; and 2) doi addresses are only included until citations are updated with print citations; and 3) <u>Underlined names</u> = relatively current trainees/alumni; **BOLD** names = Faculty/Staff

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