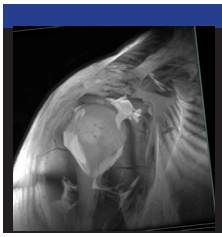


Radical Views...

from the Department of Radiology

Volume 7, Number 8

MARCH 2015

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

FROM THE CHIEF

Jonathan B. Kruskal, MD PhD

Of note …

Check out the four Publication Callouts by

Priscilla J. Slanetz, MD MPH, Director of Breast Imaging Research and Education

Da Zhang, PhD New physicist

Mai-Lan Ho, MD Radiology alumnus

and

an ACR Case Study based on BIDMC Radiology!

➢ Thank you Bettina & Suzanne for Radiology Cockpit Gradient Survey:

Dear Radiology colleagues,

Bettina Siewert, MD - Vice Chair of Quality

Over the last couple of months, Suzanne Swedeen and I have spoken to you at various departmental meetings about the "radiology cockpit gradient survey". What is that all about? For many years, we've all become more actively engaged in promotion a safer health care environment. Achieving these improvements is predicated on people feeling comfortable speaking up to their coworkers, at every level, to alert them to potential problems or oversights.

Suzanne Swedeen, RN MSN - Quality Improvement Specialist

Barriers to speaking-up are very common. In a 1977 survey of airline pilots, 40% of co-pilots reported barriers to speaking up to their captain around safety issues. As a result work was done to eliminate these barriers and because of this work, today people are much safer flying on a plane than being treated in a hospital. In health care, we all work together in similarly tight teams and being able to communicate without barriers is a key component to our success. Personally, I remember at least 5-6 incidents over the years where one of you kept me from making a major error by providing a critical piece of information that had slipped by me, such as a contrast allergy, a patient being on anticoagulation before a procedure, etc. I will be forever grateful for your willingness to speak up.

As a Department, we hope to foster an environment in which everybody feels comfortable sharing information or raising a red flag when he or she is not sure about something. The patient's safety and the success of the team depend on that.

The "radiology cockpit survey" is designed to help us understand what barriers exist against speaking up in our Department and to guide us in instituting changes to ensure the safest care environment possible for our patients.

Your candid input is central to this effort. Based on your responses, Suzanne and I will develop and implement programs tailored to address the barriers that you identify. For example, depending on the results, we could introduce programs for developing language skills (how do I interrupt a process to bring up a safety issue?), team building (value and respect of all team members' input), and/or group coaching.

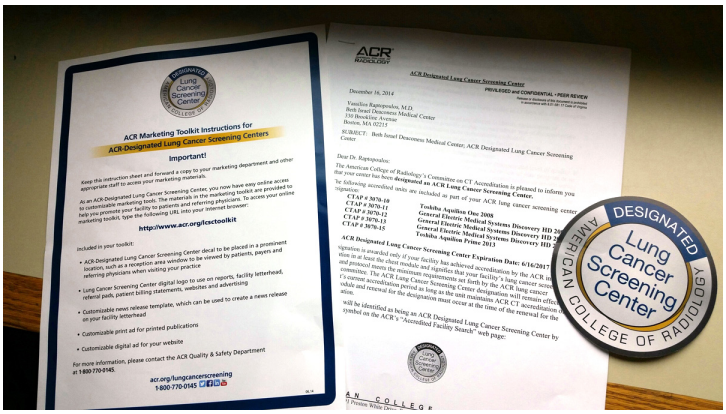
We are planning to send the survey out via email in the first week of March and it will be available for 2 weeks. We hope that you feel comfortable participating in the survey. The survey is anonymous (we are using survey monkey) and potentially identifying questions are kept to a minimum. If you are willing to share a story in the free text box, we would appreciate it, as it may point us in the right direction and bring up something that we have not thought of.

We look forward to sharing the survey results with you in our May newsletter and the resultant action plans in our June newsletter.

With sincere appreciation for your time and input,
- Bettina and Suzanne

DEPARTMENTAL NEWS:

➢ Congratulations to Cardiothoracic Imaging



Our **CT Lung Cancer Screening Program** proposal has been certified by the American College of Radiology. The program is now an "ACR designated lung cancer screening center".

I think this is a great success, and I would like to thank everybody who has been supportive of this initiative, in particular Lori Maiorano, Tim Parritt, and Carol Wilcox who put a lot of work into our submission.

I also believe that this accreditation confirms our vision about how such a program should be built.

Finally, I hope that this accreditation will help to translate this now accredited program into clinical practice very soon.

Sincerely,

– Alex A. Bankier, MD PhD
Chief, Cardiothoracic Imaging

➢ Welcome Jim Conklin, RT (N), (CT) (ARRT), PET -

Amidst all this historic weather, please welcome Jim Conklin, our new manager of the Nuclear Medicine & Molecular Imaging (NMMI) section following Dace Jansons' retirement in January 2015 after 35 years of service at BIDMC. Jim comes to us from Boston Medical Center (BMC) where he served as Supervisor of Nuclear Medicine/PET/CT (Molecular Imaging), responsible for managing the imaging systems in a multi-modality, fusion-based department where SPECT/CT and PET/CT are performed with a variety of CT techniques on 3 campuses, since 2004. He also has significant research, teaching and training experience from both BMC – as well as the University of Iowa Hospitals and Clinics (so of course he is no stranger to snow!), where he earned a bachelor's degree in Biology. Beginning in 2001, Jim spent the next 17 months as a Peace Corps volunteer in Gabon, Central Africa where he worked with local health care providers to promote HIV/AIDS awareness. He opened and maintained the HIV/AIDS/Reproductive Health Office offering counseling and social marketing of family planning techniques. Jim is also fluent in French!

Please welcome Anuradha (Anu) Shenoy-Bhangle, MD

Beginning March 15, **Anu S. Shenoy-Bhangle** joins our Community Radiology section and will be working primarily at Harrington Memorial Hospital in Southbridge, MA as an abdominal imager specializing in bowel imaging and non-vascular abdominal processes. She returns to Boston where she completed two fellowships in Pediatric Radiology (2009-2011)and Abdominal Imaging & Intervention (2011-2014) at Mass General Hospital.

Anu completed her medical degrees (MBBS, MD) and residency training in Mumbai, India and joined the radiology faculty at New York Presbyterian Hospital/Columbia University after finishing her MGH fellowships, in 2014.

Between 2004-2007, she also served as a consultant radiologist for the Wockhardt Group of Hospitals, a Harvard Medical International Affiliate in Mumbai, India.

Radiology Calendar MARCH 2015

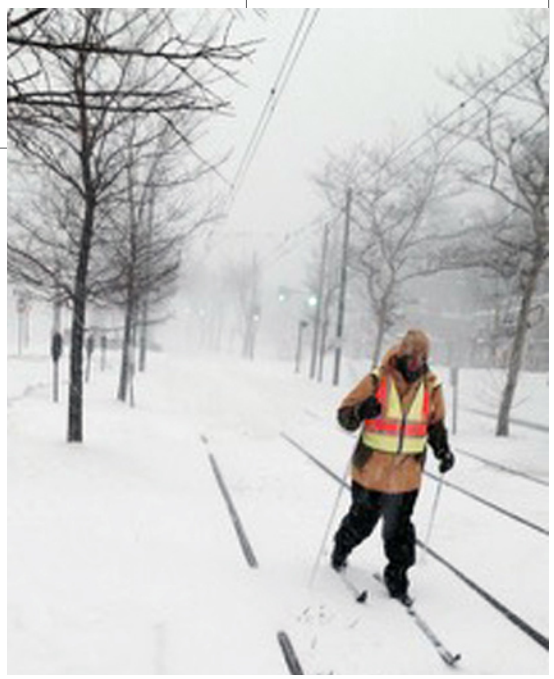
Check for the most up-to-date schedule at: **https://apps.bidmc.org/departments/radiology/residency/conferences/displayMonth.asp**

Mon	Tues	Wed	Thurs	Fri
Weekly Mon Section Meetings: 3:00-4:00 ED section meeting [ED annex, WCC]		Weekly Wed Section Meetings: 11:00-12:00 MSK clinical conference 12:00-1:00 CardioThoracic, GI/GU Oncology 3:00-4:00 Mammo [TCC-484]	Weekly Thurs Section Meetings: 12:00 - 1:30 Abd [WCC-354] 12:00-1:00 MSK	Friday Grand Rounds: 12 noon Sherman Auditorium, East Campus (unless stated otherwise)
2 7:30 - 9:00 Chest TBD (Paul Spirn)	3 7:30 - 8:15 Fungal and mycobacterial infection (Janneth Romero) 8:15 - 9:00 Chest TBD (Ronald Eisenberg)	4 7:30 - 8:15 MR Basics (Aaron Grant) 8:15-9:00 MR Tissue properties, contrast, etc. (Leo Tsai)	5 7:30 - 8:15 Neuro Cases (David Hackney) 8:15 - 9:00 Neuro Cases with Fellow (Yu-Ming Chang) 2:00-3:00 West MedRads - Body Senior	6 7:30 - 8:15 Health 12:00-1:00 pm Grand Rounds: The Breast Imaging QA Experience (Shambhavi Venkataraman, MD)
9 7:30 - 9:00 Mammo (TBD) 12:00-1:00 MRI Meeting [Ansin 2]	10 7:30 - 9:00 Mammo (TBD) 5:00-6:30 Mentoring Meeting Promotions at HMS at the junior faculty level. What is new? What do faculty need to know?" (Dr. Carol Bates, Asst. Dean for Faculty Affairs, HMS) [Kirstein Living Rm] 10:30-11:30 NMMI meeting [GZ-103]	11 7:30 - 9:00 Mammo (TBD) 7:15-8:00 US meeting [WCC-304A]	12 7:30 - 9:00 Mammo (TBD)	13 12:00-1:00 pm NERRS / No Grand Rounds
16 7:30 - 9:00 CAREER WEEK (TBD)	17 7:30 - 9:00 CAREER WEEK (TBD) 8:00-9:00 IR Meeting [West Recovery]	18 8:00 - 9:00 Financial Planning (Martin Connolly) [Representative from Northwestern Mutual Financial Planning to talk about managing our money]	19 7:30 - 9:00 Physics (TB) 2:00-3:00 West MedRads - Body Senior	20 12:00-1:00 pm Chiefs' Rounds
23 7:30 - 8:15 Lung cancer staging (Phillip Boiselle) 8:15-9:00 Lung cancer screening (Phillip Boiselle)	24 7:30 - 8:15 Sarcoidosis (Alexander Bankier) 8:15 - 9:00 Chest cases (Alexander Bankier) 10:30-11:30 NMMI meeting [GZ-103]	25 7:30 - 8:15 Neuro Cases (Rafael Rojas) 8:15 - 9:00 Neuro Cases with Fellow (Cynthia Wallentin)	26 7:30 - 8:15 Neuro Cases (Rafeeque Bhadelia) 8:15 - 9:00 Neuro Cases with Fellow (Kimberly Smith)	27 12:00-1:00 pm Grand Rounds: Cancer Imaging and Precision Medicine: Standing at the Crossroads (Annick Van den Abbeele, MD)
30 7:30 - 9:00 Mammo (TBD) 5:00 - 8:00 Possible ED exam (ED staff)	31 7:30 - 9:00 Mammo (TBD)			

RADIOLOGY DURING THE STORMS OF 2015

Right: Thanks to HMFP Business Office Coordinator **Liz Arsenault** for sending this photo in to summarize our winter of 2015 and (*far right*) thanks to **Dr. Debbie Levine** for this photo of **Dr. Colin McArdle** skiing to work on the MBTA tracks!

Thanks again to everyone in Radiology for their heroic efforts during our historic snowfalls.



MARCH GRAND ROUNDS

Friday, March 6th, 2015
12 noon - 1:00 PM • Sherman Auditorium

The Breast Imaging QA Experience

Shambhavi Venkataraman, MBBS, MRCP - Director of QA/QC in Breast Imaging, BIDMC; Instructor in Radiology, HMS

Dr. "Sham" Venkataraman earned her MBBS from Stanley Medical College at the University of Madras in India and served as a resident in Pediatrics (Royal College of Physicians, London, UK), and Diagnostic Radiology Central Sheffield University Hospitals, Sheffield, UK) before coming to America where she continued her training as an Abdominal MRI Research Fellow and Resident in Nuclear Medicine at the University of North Carolina Hospital, Chapel Hill before finishing her residency in Diagnostic Radiology at Westchester Medical Center, Valhalla, NY. She stayed on at BIDMC as a breast imager following completion of her fellowship here in Women's Imaging, in 2007. In 2009 she was appointed Director of QA/QC in breast imaging and between 2009-2011, she also served as Director of Quality Control & Analysis (ACR/MQSA) in Breast Imaging, where she was responsible for the mammography audit and state accreditation. In 2014, she has taught courses in Quality Assurance in Mammography under the auspices of NERRS and Brigham & Women's Hospital, Boston.

Friday, March 27th, 2015
12 noon - 1:00 PM • Sherman Auditorium

Cancer Imaging and Precision Medicine: Standing at the Crossroads

Annick D. Van den Abbeele, MD, FACR - Chief, Department of Imaging, Dana-Farber Cancer Institute; Associate Professor of Radiology, HMS

We are pleased to welcome our DFCI neighbor Dr. Van den Abbeele to BIDMC Radiology. In addition to her leadership as Chief of the Department of Imaging at DFCI, she also serves as the founding Director of the Center for Biomedical Imaging in Oncology (CBIO) at DFCI as well as the Co-Director of the Tumor Imaging Metrics at DF/Harvard Cancer Center (HCC). Dr. Van den Abbeele received her MD and residency training in Pediatrics at the Catholic University of Louvain in Belgium before coming to America where she completed a fellowship in Neonatology at Vanderbilt University School of Medicine, Nashville, TN followed by a residency in Nuclear Medicine at Harvard Medical School, and fellowships in Radiology and Nuclear Medicine at the Brigham & Women's Hospital before joining DFCI.

Note that Dr. Van den Abbeele has also co-authored recent papers with BIDMC alumni Katie Krajewski (Abdominal Imaging Fellow and Resident) and Mizuki Nishino (Thoracic Imaging Fellow and Resident):

Krajewski KM, Franchetti Y, **Nishino M**, Fay AP, Ramaiya N, **Van den Abbeele AD**, Choueiri TK. 10% tumor diameter shrinkage on the first follow-up computed tomography predicts clinical outcome in patients with advanced renal cell carcinoma treated with angiogenesis inhibitors: a follow-up validation study. Oncologist. 2014; 19(5):507-14.

Krajewski KM, **Nishino M**, Franchetti Y, Ramaiya NH, **Van den Abbeele AD**, Choueiri TK. Intraobserver and interobserver variability in computed tomography size and attenuation measurements in patients with renal cell carcinoma receiving antiangiogenic therapy: Implications for alternative response criteria. Cancer. 2014 Mar 1; 120(5):711-21.

The Gallery at WCC-304B

Betsy Grady, *Manager, Diagnostic Radiology & Avid Traveller*

The new Gallery show features Betsy Grady's mementos of her travels to Europe, including one she brought back for her own furry friend.

As always, please contact Donna Wolfe if you, too would like to share your photos, paintings or sculptures: dwolfe@bidmc.harvard.edu or 4-2515

PUBLICATION CALL OUT: Breast-Density Legislation – Priscilla J. Slanetz, MD MPH

The NEW ENGLAND JOURNAL of MEDICINE

Participation in organized radiology does pay off -- not only by impacting how we practice medicine but also by providing opportunities for advancing one's academic career. As Chair of the mammography committee of the Massachusetts Radiological Society, I worked closely with other breast imagers and we spent last year guiding legislators to pass a workable breast density notification law in our state. To aid with its implementation, efforts then focused on building a multidisciplinary group, the Massachusetts Breast Risk Education and Assessment Task Force (MA-BREAST), which developed consensus guidelines on which women might benefit from supplemental screening. As part of this process, it was clear that many referring physicians did not have sufficient understanding of the complexities related to breast density, its role as a risk factor, and the pros and cons of various imaging options. This perspective arose out of the need to educate a broader audience. Thankfully, the NEJM recognized the need to do so as well.

– Priscilla Slanetz

Perspective

FEBRUARY 12, 2015

Breast-Density Legislation — Practical Considerations

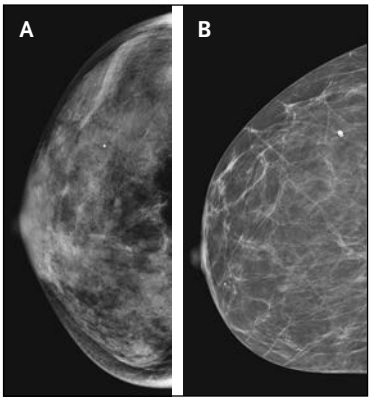
Priscilla J. Slanetz, M.D., M.P.H., Phoebe E. Freer, M.D., and Robyn L. Birdwell, M.D.

Ever since Nancy Cappello, a Connecticut woman who hadn't been told that her mammograms showed dense breast tissue, was diagnosed with stage 3 breast cancer in 2004 and advocated for a new state law, there's been a growing movement to educate women about breast density and the potential role of supplemental screening in early cancer detection. Cappello's state was the first to pass a law requiring physicians to offer supplemental whole-breast ultrasonography to women with dense breasts — defined as containing more than 50% fibroglandular tissue — and mandating that insurers cover the additional screening.

Since then, the number of breast-density laws in the United States has grown rapidly: as of January 2015, a total of 21 states had adopted such legislation. Laws vary considerably among states, with some requiring only that physicians notify women with dense breasts of their status and others stipulating that supplemental screening be offered to such women. Most state laws, however, do not mandate insurance coverage of additional screening, though the lack of such coverage could increase income-based health disparities.

In addition to legislation on the state level, the Breast Density and Mammography Reporting Act was introduced in Congress in October 2013. This legislation mandates that patients be sent a letter that not only informs them about their screening results but also includes information about their breast density and recommends supplemental screening for those with dense breasts.

The movement to inform women about their breast density has been driven primarily by grassroots organizations and laypeople. The medical community has been more cautious because the ability to detect breast cancer is affected by many factors beyond the limitations of screening mammography, and evidence supporting supplemental screening is lacking. First of all, dense breasts are normal and common; they are seen in approximately 40 to 50% of all women undergoing mammography (see figure). Since dense tissue can mask cancer, the sensitivity of film mammography is 62 to 68% in women with dense breast tissue, as compared with more than 85% in women with fatty breast tissue. Digital mammography, which has higher-contrast resolution and a better signal-to-noise ratio than film mammography, somewhat ameliorates the masking phenomenon, with sensitivity above 82% in women with dense breast



Mammographic Images of an Extremely Dense Breast (Panel A) and a Fatty Breast (Panel B).

tissue.[1] Nevertheless, assessment of breast density is subjective, since the radiologist estimates the amount of fibroglandular tissue visually.

A recent change in the radiologic reporting system will probably result in classification of an even greater percentage of women as having dense breast tissue, because instead of considering a woman's average breast density, the system will categorize any breast with a dense area as a dense breast. Given the subjective mode of assessment, it's quite possible that the same woman's breasts may be classified as dense one year and not dense the following year. Computer algorithms that calculate breast density are now available but have not been widely adopted. It's unclear whether these tools will facilitate more accurate determination of breast density. In reality, despite its limitations, mammography remains the only imaging method that has been shown to reduce the rate of death due to breast cancer — by 15 to 30%, according to multiple large, prospective, randomized, controlled studies.[2]

Proponents of supplemental screening argue that women with dense breast tissue are at increased risk for breast cancer. On the basis of available evidence, the breast-cancer risk in these women is believed to be 1.2 to 2.1 times that in women with average breast density. In comparison, the risk of breast cancer is doubled in a woman with a first-degree relative with breast cancer and increased by a factor of 8 in a woman known to carry a *BRCA1* or *BRCA2* mutation, regardless of breast density. Assessing a woman's risk for breast cancer is complicated, since there's no ideal model that considers all risk factors, and none of the available risk models include breast density. Currently, only women who are deemed to be at high risk — those with a lifetime breast-cancer risk of more than 20% — undergo supplemental screening with magnetic resonance imaging. Supplemental screening has been shown to be cost-effective in these women, with an additional 8.5 cancers identified per 1000 women screened.[3] There are no data to support this approach in women at average or intermediate risk for breast cancer.

There is currently little evidence to support widespread supplemental screening ultrasonography, although several state laws suggest offering whole-breast ultrasonography to all women with dense breasts or to some women at high risk for cancer. Automated ultrasound systems are now available and make implementation more feasible. Supplemental screening ultrasonography in women with dense breasts and above-average risk for breast cancer has resulted in the detection of an additional 3.2 cancers per 1000 women screened, but the benefit is probably lower among women with dense breasts and otherwise average risk. In addition, even among women with above-average risk, such screening has extremely high false positive rates; in several studies, only 6% of follow-up biopsies were positive,[3,4] which suggests that supplemental screening unnecessarily increases rates of biopsy, costs, and patients' anxiety. False positive rates are markedly lower for screening mammography, which detects 4 to 5 cancers per 1000 women and is associated with positive biopsy rates of 25 to 35%. The rates of callbacks and follow-up studies after supplemental screening ultrasonography also greatly surpass those for screening mammography. What's more, there are no long-term data showing reduced mortality among women who are screened with supplemental ultrasonography.

Given recent concerns raised by the U.S. Preventive Services Task Force about false positives and increased patient anxiety with routine mammography screening, it would be unwise to adopt supplemental ultrasound screening without careful consideration of the risks and benefits. In addition, there is growing concern about overdiagnosis and subsequent overtreatment of breast cancer related to the increased sensitivity of newer imaging techniques. It is well known that not all detected cancers — especially ductal carcinoma in situ — will become clinically significant during a woman's lifetime. There is a great need for tools that can differentiate between clinically significant and insignificant tumors, which remains a challenge.

Implementation of breast-density legislation has been inconsistent. In Connecticut, clinicians

variably refer patients with dense breasts for whole-breast ultrasound screening, with some practices referring 100% of such women and others referring none. Furthermore, only 45% of Connecticut women who were referred for follow-up ultrasonography actually received it.[5] Still, breast-density legislation provides an opportunity to strengthen patient–provider relationships by encouraging physicians to engage women in a conversation about the risks and benefits of screening, regardless of breast density.

In this era of cost containment, and given the limited data supporting screening ultrasonography, a rational and cost-effective approach to screening is needed. So how should the medical community address the growing concern over breast density and breast-cancer detection? It is critical that radiologists work with other specialists and primary care physicians to develop evidence-based recommendations regarding situations in which supplemental screening is advisable and which method is most efficacious. For example, some practices now use digital breast tomosynthesis, which leads to increased cancer detection while limiting the need for additional imaging in women with dense breast tissue, according to preliminary data.

An audio interview with Dr. Slanetz is available at NEJM.org

Having dense breast tissue does increase a woman's lifetime risk of breast cancer, but it's important for providers to place this risk in perspective for each patient. Risk stratification will be an essential tool in determining the best screening plan for each woman. It would be helpful if the medical community could reach a consensus on how best to advise women with dense breasts with regard to the limitations of various screening tests and the role of any supplemental screening. Then, practitioners could base patient care on existing evidence and each woman's individual risk. Such an approach might well maximize cancer detection and minimize the downsides of screening — especially false positives and the risks of overdiagnosis and overtreatment.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Department of Radiology, Beth Israel Deaconess Medical Center (P.J.S.), Harvard Medical School (P.J.S., P.E.F., R.L.B.), the Department of Radiology, Massachusetts General Hospital (P.E.F.), and the Department of Radiology, Brigham and Women's Hospital (R.L.B.) — all in Boston.

1. Kerlikowske K, Hubbard RA, Miglioretti DL, et al. Comparative effectiveness of digital versus film-screen mammography in community practice in the United States: a cohort study. Ann Intern Med 2011;155:493-502.
2. Smith RA, Duffy SW, Gabe R, Tabar L, Yen AM, Chen TH. The randomized trials of breast cancer screening: what have we learned? Radiol Clin North Am 2004;42:793-806, v.
3. Tice JA, Ollendorf DA, Lee JM, Pearson SD. The comparative clinical effectiveness and value of supplemental screening tests following negative mammography in women with dense breast tissue. Institute for Clinical and Economic Review, 2013 (http://www.ctaf.org/sites/default/files/assessments/ctaf-final-report-dense-breast-imaging-11.04.2013-b.pdf).
4. Berg WA, Blume JD, Cormack JB, et al. Combined screening with ultrasound and mammography vs mammography alone in women at elevated risk of breast cancer. JAMA 2008;299:2151-63.
5. Hooley RJ, Greenberg KL, Stackhouse RM, Geisel JL, Butler RS, Philpotts LE. Screening US in patients with mammographically dense breasts: initial experience with Connecticut Public Act 09-41. Radiology 2012;265:59-69.

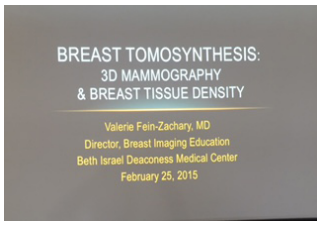
DOI: 10.1056/NEJMp1413728

RADIOLOGY IN THE COMMUNITY - Newton/Needham Women's Chamber of Commerce Health Fair

In an effort to get 2015 off to a healthy start, to kick off the new year with practical advice about feeling better, eating better and moving better, a healthy lunch, free massages, complimentary screenings, helpful advice and plenty of time for networking were offered at the ***2nd Annual Women's Health & Networking*** event sponsored by the Newton/Needham Women's Chamber of Commerce at the West Suburban YMCA in Newton, on Wednesday, February 25th.

In addition to more than 15 interactive health stations hosted by a diverse group of the area's leading health care practitioners, our Director of Breast Imaging Education **Valerie Fein-Zachary** also presented a break out session on 3D breast imaging (3D tomosynthesis)!

Health Fair attendees learned about this new screening technology and about the new Massachusetts breast tissue density law. This break out session provided a great opportunity for questions and answers!



Have you heard about 3D breast imaging?

What exactly does that mean?

What are the pros and cons of this technology for breast cancer screening?

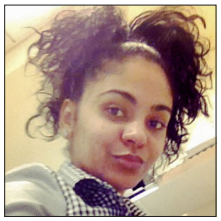
What about my breast tissue density? Is 3D better for me than routine mammography?

Thanks to Marian Howes for these photos

This years free interactive exhibits also included Varicose vein screening by our own Mass Vein Care Screening Program based in Chestnut Hill Square!

KUDOS - Each month, we share the positive feedback we receive about staff members and ask you to join us in congratulating them; as always, we are especially proud to acknowledge an unprecedented constellation of staff for providing outstanding care and service!

Image Archives



Gina Noldsiero should be recognized for her ability to arrive and remain in work during three of the most adverse weather condition days we have had this year. It is because of individuals like her that we are able to continue to provide patient care without "skipping a beat" so to speak. We are truly grateful to have this individual as part of the Image Archive team.

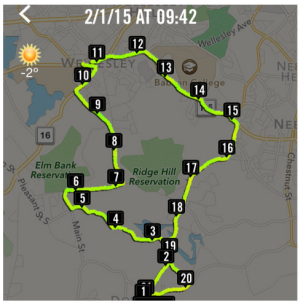
Support Services

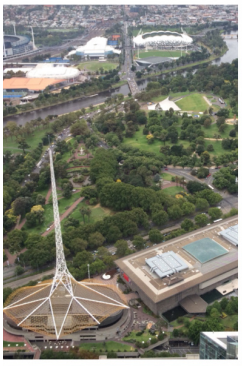
It is an honor to nominate **Daryl Kilby** for a bonus. In the past several months, Daryl has gone above and beyond to ensure that our operations have remained seamless to the patients. We have had a series of unplanned absences, a resignation and LOAs and Daryl has amended his schedule to be here by 6:45 in the morning to stay late and cover the weekends. He does it without expecting any accolades or recognition but simply to make sure we have coverage for all of the areas we support. He has also come up with a creative and thoughtful way to solicit coverage from the staff. In summary, he is a great asset to our department and a true reflection of what teamwork should look like.

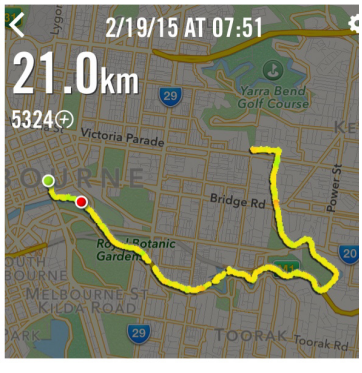
RADIOLOGY IN THE COMMUNITY - Update on Dr. Koenraad Mortele's Boston Marathon Effort

BENEFITING: BIDMC
ORGANIZER: BIDMC
EVENT: 2015 Boston Marathon
EVENT DATE: Apr 20, 2015

Hey all,
Less than 60 days to the Boston Marathon. Hard to believe, especially when you look outside at how much snow there is still on the ground….
Training has obviously been hard, both in Boston and abroad (although I won't get any sympathy for that!).







Locally, roads are narrow, slippery, and the intermittent snow ruins a planned schedule. The "dreadmill" has been used more than anticipated but at least it's warm and safe inside. I was really looking forward to my trip to Australia (lecturing in Melbourne at an intensive Pelvic MRI Course) but found it out that it was summer there and superhot (up to 99^0 F). The car-free trails were fantastic, the lack of snow even better, but I truly hope for a mild April 20th as the really warm weather makes it hard to run too, trust me!
Still haven't reached my fundraising goal, so would appreciate any contributions!

Here is the link:
https://www.crowdrise.com/TeamBIDMC2015/fundraiser/koenraadmortele

To be continued,
Koenraad

An addition to his marathon training, Dr. Mortele also runs this upcoming HMS CME:

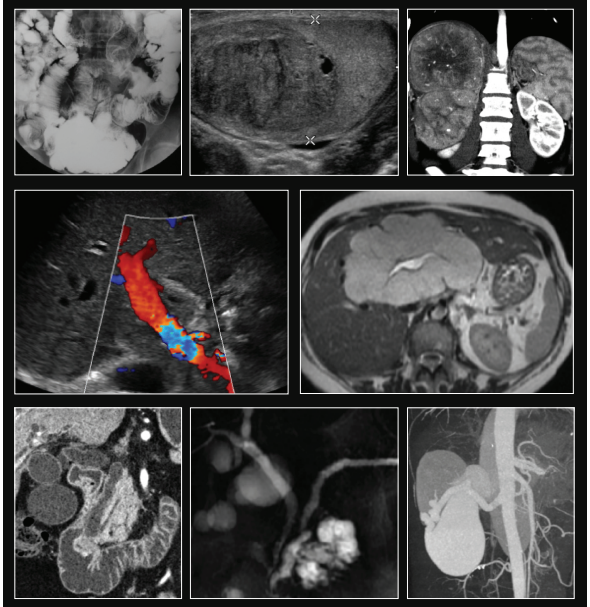
Note the reduced rate for BIDMC Radiology Alumni: ***$600***

HARVARD MEDICAL SCHOOL

Beth Israel Deaconess Medical Center®
Department of Radiology

Abdominal & Pelvic Imaging 2015

A Practical Multi-Modality Review Course of GI and GU Radiology



Monday - Wednesday

June 22 - 24, 2015

Boston Marriott Long Wharf
Boston, MA

Guest Faculty:
Levy• Nelson • Reinhold • Sahani

Course Director
Koenraad J Mortele MD

Earn Up To *22.5 AMA PRA Category 1 Credits*

Alumni Corner

Annie Leylek, MD
PGY-5 Resident

Our department is excited to renew efforts to strengthen ties between our current residents and alumni through the Radiology Alumni Society. We have updated our alumni website (http://radnet.bidmc.harvard.edu/education/alumni.asp), which is now a direct and public link from our radiology department homepage. We always enjoy hearing about our alumni's success! We welcome your BIDMC Radiology Alumni news! Please send your updates and photos to us at RadiologyAlumni@bidmc.harvard.edu. Thanks to Priscilla Slanetz for alerting us to this link for Mai-Lan Ho, BIDMC Resident 2009-2013:

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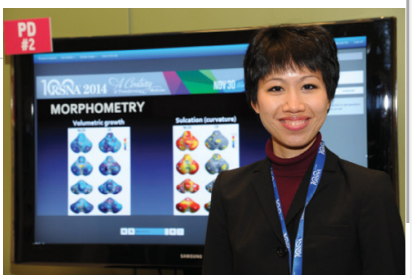
3-T MRI is Imaging Standard for Detecting Cerebellar Hemorrhages in Preterm Infants

February 01, 2015

BY PAUL LATOUR



Dr. Ho with her RSNA 2014 research

3-T MR imaging detects a high prevalence of cerebellar hemorrhages (CbH) in preterm infants—a finding that could carry long-range implications regarding cognitive and motor function, according to research presented at RSNA 2014.

In addition, a standardized scoring system can be applied to assist in grading of overall brain injury and prediction of neurodevelopmental outcomes, said Mai-Lan Ho, M.D., clinical instructor/chief fellow in neuroradiology and soon-to-be assistant professor of pediatric neuroradiology at the University of California, San Francisco (UCSF). "It's very exciting because 25 years ago, people thought that the cerebellum only modulated motor coordination and balance," said Dr. Ho, who was the 2012 RSNA William W. Olmsted Editorial Fellow and received a 2012 Roentgen Resident/Fellow Research Award from the RSNA Research & Education (R&E) Foundation and the 2012 Bracco Diagnostics/RSNA Research Resident Grant.

"Several papers report cognitive and psychiatric deficits in patients with congenital or acquired cerebellar lesions," Dr. Ho said. "That's important for our studies because cerebellar injury in preterm infants may help explain their long-term cognitive impairment."

Daily Bulletin coverage of RSNA 2014 is available at RSNA.org/Bulletin.

Detection of CbH in preterm infants has steadily increased with the introduction of new imaging modalities, said the study's senior author, A. James Barkovich, M.D., professor in residence and chief of pediatric neuroradiology at UCSF. CbH was thought to occur in about 10 percent of preterm infants when 1.5-T MRI was used; however, the proportion jumped to more than 20 percent when 3-T MRI was used, and surpassed 30 percent with the use of susceptibility-weighted imaging at 3T.

The study is ongoing, but in their most recent analysis, the researchers identified 22 of 59 (37 percent) infants with CbH, a proportion approaching the reported prevalence of cognitive impairment in the preterm birth population.

"When you start getting into 35 or 40 percent [with CbH], and you realize 50 percent [of preterm infants] have developmental problems, this is a significant finding," said Dr. Barkovich, the 2012 RSNA Outstanding Researcher. "Maybe this is why we haven't been able to get the neurodevelopmental levels up to normal in 90 or 95 percent like we have with motor function."

Based on Fisher's exact test, the researchers' cohort showed that CbH is statistically associated with intraventricular hemorrhage (IVH), but not with white matter injury (WMI) or ventriculomegaly (VM). Furthermore, they found that at 1 year of age, CbH is associated with cognitive and motor subscores on the Bayley-III Scales of Infant and Toddler Development.

"A big question has been, 'Can we use imaging to evaluate preterm risk factors associated with neurodevelopmental outcomes?'" Dr. Ho said. "If so, could we identify these patients early and institute earlier preventive or therapeutic measures? It's an exciting concept."

The high volume of admissions to the neonatal intensive care unit (NICU) at UCSF make it one of the few centers worldwide able to investigate CbH in great detail. The group is among the first to focus on cerebellar in addition to cerebral injury.

"The human cerebellum represents 10 percent of intracranial volume, but contains 80 percent of total neurons in the brain," Dr. Ho said. "Fascinatingly, the ratio of neurons between the cerebellum and cerebrum has been relatively preserved throughout evolution, which really does make a case for the cerebellum being a higher order executive center."

Paul LaTour is an RSNA News staff writer.

This has been reformatted to fit Radical Views, for the original please visit: http://www.rsna.org/NewsDetail.aspx?id=14701

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PUBLICATION CALL OUT: ACR publishes Case Studies Based on BIDMC Radiology's Efforts in Imaging 3.0

http://www.acr.org/Advocacy/Economics-Health-Policy/Imaging-3/Case-Studies/Quality-and-Safety/Integrity-in-Imaging

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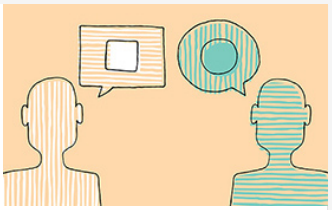
Imaging 3.0: Integrity in Imaging



In September of 2011, the radiologists at Beth Israel Deaconess Medical Center (BIDMC) in Boston, Mass. had to shut down one of their two MRIs for maintenance. Since the hospital wanted to ensure that only the most appropriate studies were performed on the remaining MRI, they set up a system where in-house referring physicians from clinical services called a senior hospitalist in charge every time an MR or CT was ordered. The goal was to confirm that the requested scan was required for diagnosis or treatment, following best practices such as those identified by the ACR Appropriateness Criteria®.

During a two-week period, they discovered that inpatient MRI imaging volume fell by 90 percent without any adverse events. They realized that a conversation between a radiologist and referring physician prior to order entry often led to the selection of appropriate, cost-effective imaging that best answered the clinical question. This temporary workaround sparked a process to make permanent changes that could contribute to the appropriate use of health care resources.

Radiologists at BIDMC initially began by researching the underlying reasons for the use of imaging. According to Ammar Sarwar, MD, radiologist for vascular and interventional radiology and informatics at BIDMC and an instructor in radiology at Harvard Medical School, imaging was sometimes done for medical or legal issues, to ensure that physicians were not missing something potentially dangerous, no matter how unlikely. In other instances, it was the patient who demanded additional imaging to make certain they did not have a disease. Additionally, extra tests were sometimes ordered when patient images from an outside hospital were unavailable.

"As we began discussing ways to address the issue with our referrers, we quickly realized that the phrase 'inappropriate imaging' can create a negative reaction," states Sarwar. "Referring physicians took offense to that, so we searched for an alternative phrase. The one that was received well was 'reducing the uncritical use of imaging.' If I told a referring physician their imaging request was inappropriate, they would view it as a challenge to their clinical acumen, and they still wanted a CT to satisfy their checklist."

SUMMARY

Radiologists at Beth Israel Deaconess Medical Center in Boston, Mass. are working with referring physicians to reduce the uncritical use of inpatient imaging.

KEY TAKEAWAYS

- The radiology team at Beth Israel Deaconess Medical Center (BIDMC) identified specific instances where inpatients received advanced imaging (MRIs and CTs) that was not necessarily needed.
- To reduce the uncritical use of advanced imaging within the hospital, radiologists implemented new policies to involve referring physicians and specialists who regularly order imaging tests.
- Radiologists made changes in their internal communication to better connect with physicians and help manage the care of inpatients more productively.

Imaging 3.0: Integrity in Imaging (cont'd)

Curbing Uncritical Use

In the next phase of the effort, BIDMC radiologists began investigating specific populations of patients where it seemed there was an excess of uncritical imaging. One group they focused on was patients with liver cirrhosis, an illness where relatively large volumes of imaging are often prescribed. To identify areas of uncritical imaging for cirrhotic patients, radiologists at BIDMC involved ER physicians and hepatologists. The hepatologists provided expertise in the stages of the disease process, ER physicians provided context to why they ordered the tests, and radiologists provided expertise in imaging acquisition and interpretation.

Patients suffering from liver cirrhosis usually enter the emergency room in a state of confusion. Since they suffer from an altered mental state, cirrhotic patients are often first given a head CT, because their symptoms may resemble those suffered by patients with an intracranial hemorrhage, which warrants further imaging. "ER physicians will order a head CT if they suspect an acute pathology inside the head, especially when the patient cannot answer any questions," explains Sarwar. "Their decision to pursue imaging in this clinical scenario is clearly not a considered one. Beyond cost implications, there's also a radiation risk because patients with liver disease come back many times in the same state of confusion and receive multiple head CTs. Some patients in our review came in so frequently, they would receive 40 or 50 head CTs within the course of a year, which is a huge amount of radiation directly to the head and eyes."

The BIDMC radiologists discovered that over a five-year period, only one cirrhotic patient (out of 316 patients) had a positive head CT, resulting from a head injury suffered during confusion; the rest were negative.[1]

Changes in Protocol

Because of this analysis of utilization patterns for advanced imaging at BIDMC, radiologists instituted a flag for ER physicians within each patient record. When ER physicians ordered a test, a flag appeared revealing the number of times a patient had received an imaging test in the past year, and physicians are urged to review the patient's medical record to assess whether additional imaging is necessary.

"Prior to the implementation of the flag, ER physicians often ignored a radiologist's plea to reconsider imaging, even after multiple, prior negative exams," Sarwar recalls. "If you tell physicians what they're doing is wrong, that usually doesn't change behavior, because it won't take away their fear of medicolegal repercussions. But if the ER physician, the hepatologist, and the radiologist come together and agree that there should be a hospital guideline not to order a head CT for patients with cirrhosis, this provides legal protection to the physician, since they feel assured they're following hospital policy or local guidelines."

Changes in Communication

On a broader level, a survey was presented to residents and fellows within BIDMC to better understand the issue of over-utilization of imaging. According to the results of this survey, physicians at BIDMC found it challenging to get in touch with radiologists when they needed to determine the most appropriate type of imaging test for inpatients. Implementation of an automated phone tree provided a basic, yet effective, method for physicians to quickly reach the correct radiologist. Sarwar and the telecommunications team set up a streamlined system so callers were able to talk to a radiologist within three touches of a button.

Learn more about BIDMC's process for implementing the phone tree: http://www.acr.org/~/media/ACR/Documents/PDF/Economics/Imaging3/CaseStudies/BIDMC_Phone_Tree_Info.pdf

Next Steps

- Develop connections with referring physicians and with the leadership of the hospital to enact change in your hospital.
- Maintain these connections in order to access and understand data that will help make changes in areas where imaging is uncritical to patient care.
- When presenting data and garnering support from physicians, be wary of using words that may be perceived negatively, such as "wrong test" or "inappropriate imaging."

Endnote

1) Donovan LM, Kress WL, Strnad LC, Sarwar A, Patwardhan V, Piatkowski G, Tapper EB, Afdhal NH. "Low Likelihood of Intracranial Hemorrhage in Patients With Cirrhosis and Altered Mental Status." Clin Gastroenterol Hepatol 2014 (Epub ahead of print).

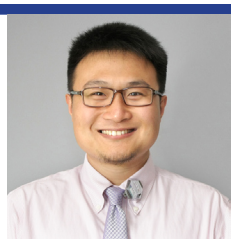
Join the Discussion

Want to join the discussion about how radiologists can work with referring physicians to reduce the uncritical use of inpatient imaging? Let us know your thoughts on Twitter at #imaging3.

Have a case study idea you'd like to share with the radiology community? Please submit your idea to http://bit.ly/CaseStudyForm.

Amena Hassan is a freelance writer

PUBLICATION CALL OUT: Da Zhang, PhD



Dr. Da Zhang's paper, ***Data-driven CT protocol review and management – Experience from a large academic hospital***, was selected as a CME activity for the March 2015 issue of JACR. According to the editor, "Only articles that are important to the field of radiology are selected for CME credit. This article will receive prominent attention, highlighted both in e-mail communications sent out to the ACR membership and on www.jacr.org as one of the current month's CME choices."

As the first author, imaging physicist Dr. Zhang designed the algorithm, implemented the software, performed data collection, analysis and interpretation, and was in charge of the entire composition, review, and editing process.

Dr. Zhang: *Continuing with my focus on new technology in CT, this paper tackled a challenging problem in CT quality assurance -- the management and review of large numbers of CT protocols. Although the principles of managing and reviewing CT protocols are clear, the real task of reviewing all protocols is still formidable, especially for large medical institutes, due to the higher heterogeneity and larger number of CT protocols to be reviewed. This paper reported a novel cataloging process that automatically decomposes (i.e., organizes) heterogeneous protocol names on the scanner and in the exam records into core protocols, and prioritizes the core protocols according to their rate of usage calculated from the database of exam records, to facilitate the task of protocol review and management.*

Zhang D, Savage CA, Li X, Liu B. Data-Driven CT Protocol Review and Management-Experience From a Large Academic Hospital. J Am Coll Radiol. 2015 Jan 7. pii: S1546-1440(14)00637-1. doi: 10.1016/j.jacr.2014.10.006. [Epub ahead of print] PMID: 25577405.

Abstract

PURPOSE: Protocol review plays a critical role in CT quality assurance, but large numbers of protocols and inconsistent protocol names on scanners and in exam records make thorough protocol review formidable. In this investigation, we report on a data-driven cataloging process that can be used to assist in the reviewing and management of CT protocols.

METHODS: We collected lists of scanner protocols, as well as 18 months of recent exam records, for 10 clinical scanners. We developed computer algorithms to automatically deconstruct the protocol names on the scanner and in the exam records into core names and descriptive components. Based on the core names, we were able to group the scanner protocols into a much smaller set of "core protocols," and to easily link exam records with the scanner protocols. We calculated the percentage of usage for each core protocol, from which the most heavily used protocols were identified.

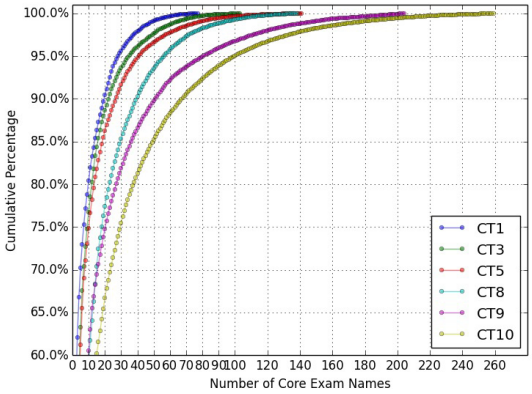


Fig 4. Cumulative percentage of usage vs. the number of core protocols for six scanners (CT1, CT3, CT5, CT8, CT9, and CT10).

RESULTS: From the percentage-of-usage data, we found that, on average, 18, 33, and 49 core protocols per scanner covered 80%, 90%, and 95%, respectively, of all exams. These numbers are one order of magnitude smaller than the typical numbers of protocols that are loaded on a scanner (200-300, as reported in the literature). Duplicated, outdated, and rarely used protocols on the scanners were easily pinpointed in the cataloging process.

CONCLUSIONS: The data-driven cataloging process can facilitate the task of protocol review.

	Scanner protocol name	Core protocol name	Contrast tag	Weight tag	Hardware tag	Low Dose tag	Loc index	Time tag	# of Exams
2	5.19 CHEST ROUTINE 135 - 200 LBS I-/I+ 6/2011 LOW DOSE*	CHEST ROUTINE	I-/I+	135 - 200 LBS		LOW DOSE	5.19	Jun-11	436
3	5.22 CHEST_ROUTINE_UNDER_200LBS 2/2014 *GSI	CHEST ROUTINE GSI		UNDER_200LBS			5.22	Feb-14	237
4	5.20 NON_CON_CHEST_ROUTINE_135_200LBS 6/2011	CHEST ROUTINE	NON_CON	135_200LBS			5.2	Jun-11	200
5	5.21 CHEST_ROUTINE_UNDER_200LBS 8/2013 *GSI	CHEST ROUTINE GSI		UNDER_200LBS			5.21	Aug-13	195
6	5.2 PE PROTOCOL 135-200lbs 3/2010 LOW DOSE	PE PROTOCOL		135-200lbs		LOW DOSE	5.2	Mar-10	160
7	5.18 CHEST ROUTINE UNDER 135 LBS I-/I+ 6/2011 LOW DOSE*	CHEST ROUTINE	I-/I+	UNDER 135 LBS		LOW DOSE	5.18	Jun-11	156
8	5.2 PE_PROTOCOL_136_200_LBS 12/2013 GSI	PE PROTOCOL GSI		136_200_LBS			5.2	Dec-13	153
9	5.22 CHEST_ROUTINE_UNDER_200LBS 8/2013 *GSI	CHEST ROUTINE GSI		UNDER_200LBS			5.22	Aug-13	149
10	5.20 CHEST ROUTINE OVER 200 LBS I-/I+ 6/2011 LOW DOSE*	CHEST ROUTINE	I-/I+	OVER 200 LBS		LOW DOSE	5.2	Jun-11	144
11	5.59 DIFFUSE LUNG DISEASE 135 - 200 LBS 12/2008 LOW DOSE	DIFFUSE LUNG DISEASE		135 - 200 LBS		LOW DOSE	5.59	Dec-08	127
12	5.63 PULMONARY NODULE F/U 136-200 LBS 6/2012 LOW DOSE	PULMONARY NODULE F/U		136-200 LBS		LOW DOSE	5.63	Jun-12	104
13	5.22 CHEST_ROUTINE_UNDER_200LBS 12/2013 *GSI	CHEST ROUTINE GSI		UNDER_200LBS			5.22	Dec-13	99
14	5.2 PE_PROTOCOL_136_200_LBS 7/2013 GSI	PE PROTOCOL GSI		136_200_LBS			5.2	Jul-13	98
15	5.19 NON_CON_CHEST_ROUTINE_UNDER_135LBS 6/2011	CHEST ROUTINE	NON_CON	UNDER_135LBS			5.19	Jun-11	86
16	5.18 NON_CON_CHEST_ROUTINE_135_200LBS 6/2011	CHEST ROUTINE	NON_CON	135_200LBS			5.18	Jun-11	77
17	8.16 CCPO 1 CHEST/ABP UNDER 200lbs 11/2011	CCPO 1 CHEST/ABP		UNDER 200lbs			8.16	Nov-11	63
18	5.21 NON_CON_CHEST_ROUTINE_OVER_200LBS 6/2011	CHEST ROUTINE	NON_CON	OVER_200LBS			5.21	Jun-11	63
19	5.3 PE PROTOCOL >200lbs 3/2010 LOW DOSE	PE PROTOCOL		>200lbs		LOW DOSE	5.3	Mar-10	63
20	5.58 DIFFUSE LUNG DISEASE UNDER 135 LBS 12/2008 LOW DOSE	DIFFUSE LUNG DISEASE		UNDER 135 LBS		LOW DOSE	5.58	Dec-08	62
21	5.1 PE PROTOCOL <135lbs 3/2010 LOW DOSE	PE PROTOCOL		<135lbs		LOW DOSE	5.1	Mar-10	61
22	9.8 FEMUR/ LOWER LEG I- HARDWARE < 200 lbs 12/2012	FEMUR/ LOWER LEG	I-	< 200 lbs	HARDWARE		9.8	Dec-12	24

Fig 3. Long protocol names deconstructed into their core names and various descriptive parts: usage of contrast agents, patient weight information, whether hardware is in the imaged region, labels for low-dose scans, location indexes, and time tags. The last column displays the numbers of exams under different scanner protocols. loc = location.

2015 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 Epub dates are included only in publications where the Epub and paper publication dates occur in different years, i.e., Epub in 2014 and paper publication in 2015.

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Note that publications with PMCID numbers denote NIH-funded author manuscripts. (PMCIDs are also required by BIDMC grant administration policy for further funding applications and are included in this bibliography for your convenience.)

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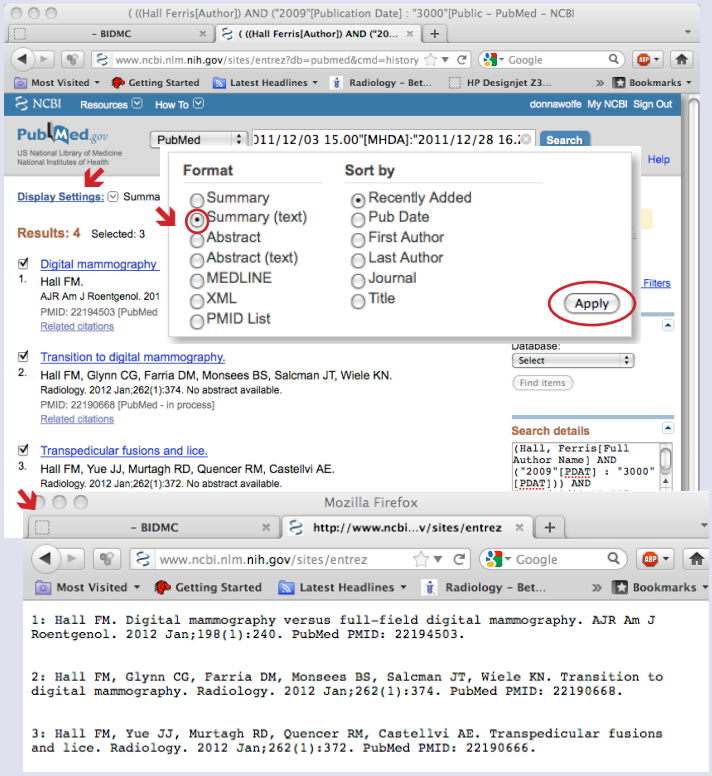

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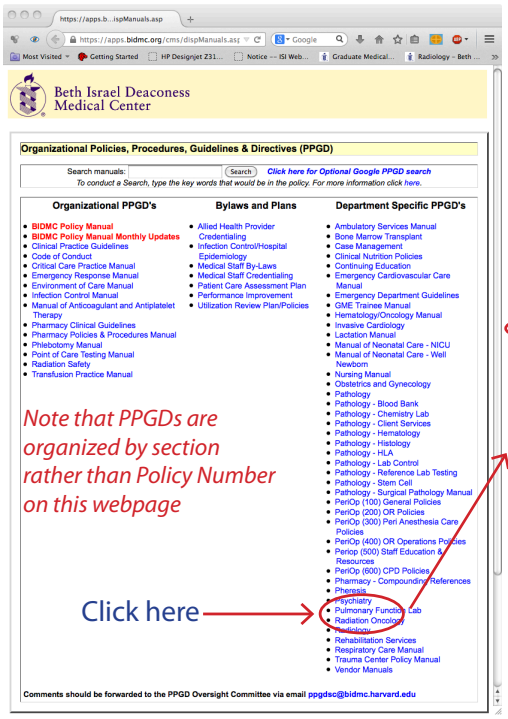
Departmental News: Updated Policy Notifications

Donna Hallett, BSc
Director of Operations

As we announced in July, the following departmental policies, procedures, guidelines and directives (PPGD) have been added, edited or reviewed with no change. To ensure that you are up to date on the newest, most current information, please click on the link below to view the specific PPGD:

https://apps.bidmc.org/cms/dispManuals.asp



New Policies

Care of the Patient Following IV Contrast Extravasation

During a contrast injection, the patient is carefully monitored for risk or evidence of extravasation. Certain patients are at higher risk for extravasation, including those who cannot communicate adequately (e.g. the elderly, infants and children, and patients with altered level of consciousness), severely ill or debilitated patients, and patients with abnormal circulation in the limb to be injected. Also, patients with altered circulation including those with PVD, diabetic vascular disease, Raynaud's disease, venous thrombosis or insufficiency, or prior radiation or extensive surgery to the affected limb.

Management of Contrast Related Events in Radiology

Patient experiencing allergic/allergic-like reaction to contrast agent should have vital signs monitored prn; IV shall be maintained. Any patient with a mild allergic-like reaction should be observed for 30 minutes and re-evaluated. If not improved, observed for an additional 30 min to ensure clinical stability or recovery

CT/MRI Venous Injection Device Guidelines

This is a new policy which places existing venous access guidelines into one PPGD format for both CT and MR. It outlines the venous access devices and the manner in which they may be used for injecting IV contrast manually or via power injector. It reviews PICC line access, PIV catheter gauges and flow rates and guidelines for flushing.

Patients on Dialysis and receiving IV contrast injections for CT exams

Patients undergoing a CT exam with IV contrast are screened for any contradictions; allergies; prior reactions and renal function. In this process patients may be identified as being on varying scheduled levels of Dialysis. The guidelines below are to provide staff in the CT department with a standard set of guidelines in the determination of injecting IV contrast for the exam.