



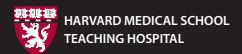
# Radical Views...

from the Department of Radiology

Volume 8, Number 11  
MAY 2016



Beth Israel Deaconess  
Medical Center



Aideen Snell, MSW  
Manager, Service  
Excellence Program  
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## Administrative Professionals' Week

(April 24-30, 2016) highlights the important role of administrative professionals in all sectors of the modern economy worldwide. This year, we in Radiology were able arrange several events to show our appreciation of the work carried out by administrative professionals, i.e., administrative assistants, support services staff, image archivists, etc. to highlight their importance to the organization and to enhance their work-related skills. Many thanks to our department photographer Michael Larson for being able to document most of these events, capturing our appreciation without showing our mouths full of treats!

Above left: Director of Operations **Donna Hallett**, Support Services Supervisor **Deolinda Depina**, MRI Tech Manager **Ines Cabral-Goncalves**, Manager of Service Excellence **Aideen Snell**, Manager of Support Services **Peter Cousins** and Ultrasound Supervisor **Juanita Cook**.

Dear All,  
Wednesday April 27th is Support Appreciation Day for the Radiology Support Staff.  
As you travel throughout the department today, reach out to the staff and show your appreciation for a job well done.

Best Regards,  
Peter Cousins  
Manager,  
Support Services

Call Center staff enjoyed lunch and Radiology backpacks displayed by Carol Norman (see inset) with Dept Mgrs who also came to show their appreciation. L to R: Maria Andrade, Ines Cabral-Goncalves, Peter Cousins, Donna Hallett, Eboni Baptiste, Deolinda Depina, Walter Smith, Nilsa Aponte, Verneak Robinson-Haynes (Holding Eboni's new baby), Juanita Cook, Christopher Doman and Sheldene Hope-Spencer.



LungHealth CT Lung Cancer Screening Program Coordinator Lauren Taylor and Dr. Alexander Bankier also provided a lunch for our Call Center Staff at the Renaissance Center to recognize their dedication to providing the best customer service for this new high volume program.

Save the Date



23rd Annual  
Risa & Felix  
**Fleischner**  
Graduation Dinner

6:00 - 10:00 pm  
Thursday, June 16th, 2016  
Exchange Conference Center  
212 Northern Ave., Boston, MA



**IN HONOR OF ADMINISTRATIVE PROFESSIONALS' WEEK: April 24-30, 2016**



Peter presents backpacks to Jermaine Christian and Valerie Joseph.



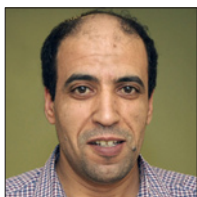
Daryl Kilby, Alina Khudaverdyan and Macarthur Cherenfant.



Above L to R: Valerie Joseph, Aideen Snell, Peter Cousins, Cleonice Magan, Naney Sisay, Alexis Hartfield, Jermaine Christian and Cristelle Calixto.



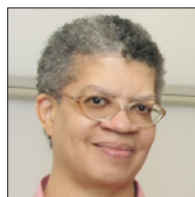
Nathalia Vasquez



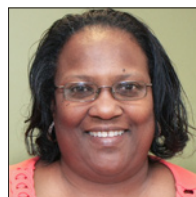
Cherki Benchraka



Maritza Delvalle



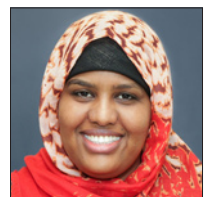
Diane Diggs



Norma Estwick



Natalee Frazer



Farrah Issa

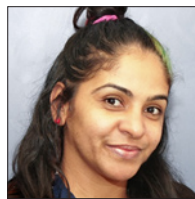
Image Archivists were also presented with Radiology backpacks last month and Image Archive Supervisor Nathalia Vasquez says an appreciation event is planned for later in the year.



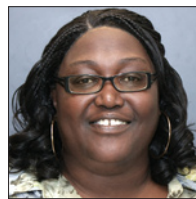
Carol McCan



Maryann Michali



Natalia (Gina) Noldsiero



Susan (Sue) Nelson



Shineka Prince



*Not shown: Sandra Cortez and Emilia Velazquez*



**IN HONOR OF ADMINISTRATIVE PROFESSIONALS' WEEK: April 24-30, 2016**



Lunch, roses and chocolates for the administrative staff: Donna Wolfe, Maxima Baudissin, Diana Moran, Linda Lintz, Andrea Baxter, Barbara Lawrence, Dawn Federman, Lynne Mills and Dineen Smythwick



Also for the administrative staff was a breakfast sponsored by the department's nursing team.  
L to R: Donna Wolfe, Maxima Baudissin, Martha Foote, Ruth Feldman, Michelle Geraghty, Shakinah Sequea, and Lucy Wilson.

# Radiology Calendar MAY 2016

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 <b>Mon</b> Section Meetings: 3:00-4:00 ED section meeting [ED annex, WCC]		Weekly <b>Wed</b> 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 <b>Thurs</b> Section Meetings: 12:00 - 1:30 Abd [WCC-354] 12:00-1:00 MSK	<b>Friday Grand Rounds: 12 noon</b> Sherman Auditorium, East Campus (unless stated otherwise)
<b>2</b> 8:15 - 9:00 IR Board Reviews (Olga Brook)	<b>3</b> 8:00 - 9:00 Body MRI basics and cases (Kate Troy)	<b>4</b> 8:15 - 9:00 CT Body Protocols Update (Olga Brook) <b>12:00 - 1:00</b> DTI and TBI Imaging (Salil Soman)	<b>5</b> 7:30 - 9:00 Breast board review (Priscilla Slanetz)	<b>6</b> 7:30 - 8:15 Breast board review (Shambhavi Venkataraman) <b>12:00-1:00</b> Grand Rounds: Instituting a Culture of Professionalism (Joann Shapiro, BWH)
<b>9</b> 7:30 - 9:00 MSK Board Reviews (Jennifer Ni Mhuirheartaigh) 12:00-1:00 MRI Meeting [Ansin 2] <b>12:15-12:50</b> <b>*Boston Chamber Symphony Concert</b> Sherman Auditorium (Avlana Eisenberg, conducting)	<b>10</b> 7:30 - 9:00 MSK Board Reviews (Jim Wu) 10:30-11:30 NMMI meeting [GZ-103]	<b>11</b> 8:00 - 9:00 Malpractice 101 (Ronald Eisenberg) 7:15-8:00 US meeting [WCC-304A]	<b>12</b> 7:30 - 9:00 Nuclear Medicine Physics (Matthew Palmer)	<b>13</b> 7:30 - 8:15 ED Exam Case Review (Chiefs) 12:00-1:00 No Grand Rounds
<b>16</b> 7:30 - 9:00 Plain film ED review (Leo Tsai) [First year attendance required]	<b>17</b> 8:00-9:00 IR Meeting [West Recovery]	<b>18</b> <b>12:00 - 1:00</b> Pedi Neuro (Neel Madan)	<b>19</b>	<b>20</b> 7:30 - 9:00 ObGyn board review (Deborah Levine) 12:00-1:00 Grand Rounds: 4th Year QA Talks
<b>23</b> 7:30 - 8:15 Nucs (TBD) <b>8:15 - 9:00</b> Wellness Event (Program Directors) [Visit by the "Pause for Paws" pet therapy group]	<b>24</b> 7:30 - 8:15 Nucs (TBD) 10:30-11:30 NMMI meeting [GZ-103]	<b>25</b> 7:30 - 8:15 Nucs (TBD)	<b>26</b> 7:30 - 8:15 Nucs (TBD)	<b>27</b> 7:30 - 8:15 Resident Case Conference (Chiefs) 12:00-1:00 Grand Rounds: 4th Year QA Talks
<b>30</b> Memorial Day	<b>31</b> 7:30 - 8:15 TBD (Andrew Singer) 8:15 - 9:00 CT colonography (Bettina Siewert)			

## \* Free lunchtime concert!

The Boston Chamber Symphony, conducted by Avlana Eisenberg, will once again be performing in Sherman Auditorium on Monday, May 9th, 12:15-12:50pm. The program will feature works by Beethoven, Debussy, and Strauss. All are welcome!



**Did you know that Avlana Eisenberg**, Music Director of the Boston Chamber Symphony (*and daughter of our Cardiothoracic/MSK Radiologist Ron Eisenberg*), has conducted orchestras throughout the world. A Fulbright Fellow in Paris and winner of Glamour Magazine's Top Ten College Women, Eisenberg began conducting while an undergraduate at Yale University, where she founded and directed the Silliman Symphony and was honored with Yale's V. Browne Irish Award for Excellence in the Performing Arts. Eisenberg is an active guest conductor and has served Assistant Conductor of the Baltimore Opera, the Mid-Atlantic Symphony, the Young Musicians Foundation, and University of Michigan's Life Sciences Orchestra, as well as cover conductor for the Baltimore Symphony and the Reno Philharmonic Orchestra. Eisenberg began studying violin with her mother, **Zina Schiff**, and now holds a Master's Degree in Orchestral Conducting from the University of Michigan and a Graduate Performance Diploma from the Peabody Institute. Eisenberg also holds a J.D. from Stanford Law School and is currently on the faculty at Harvard Law School.



## MAY 2016 GRAND ROUNDS:



Friday, May 6, 2016: 12 noon - 1:00 PM Sherman Auditorium

### Instituting a Culture of Professionalism

**Jo Shapiro, MD, FACS** - Division Chief, Otolaryngology - Head and Neck Surgery, Brigham & Women's Hospital; Associate Professor of Otology and Laryngology, HMS

Dr. Shapiro serves as Chief, Division of Otolaryngology in the Department of Surgery at Brigham and Women's Hospital. In October 2008, she became the director of the new **Center for Professionalism and Peer Support at BWH**. She has had multiple educational leadership roles including: Senior Associate Director of Graduate Medical Education for Partners HealthCare, Founding Scholar of the Academy at Harvard Medical School, Director of the Otolaryngology Clerkship for HMS, and President of the Society of University Otolaryngologists as well as Chair of their Committee on Faculty Development. She is on the faculty of the Harvard Leadership Development for Physicians and Scientists.

She was one of the first woman division chiefs at Brigham and Woman's Hospital, and she is on the Senior Advisory Board for the Office of Women's Careers at BWH. She has an active surgical practice treating adults with oropharyngeal dysphagia as well as general pediatric otolaryngology. She was recently named as a finalist for the Schwartz Center Compassionate Caregiver Award. Dr. Shapiro received her B.A. from Cornell University and her M.D. from George Washington University Medical School. Her general surgery training was at University of California, San Diego and then UCLA. She did her otolaryngology training at Harvard followed by a year of a National Institute of Health Training Grant Fellowship in swallowing physiology. She has been a faculty member in the Department of Surgery at BWH since 1987.

Her extensive bibliography related to her Grand Rounds Talk at BIDMC includes:

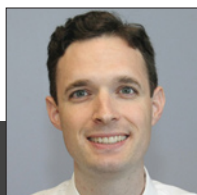
Plews-Ogan M, May N, Owens J, Ardelt M, **Shapiro J**, Bell SK. Wisdom in Medicine: What Helps Physicians After a Medical Error? Acad Med. 2016 Feb;91(2):233-41. PMID: 26352764.

Harrison R, Lawton R, Perlo J, Gardner P, Armitage G, **Shapiro J**. Emotion and coping in the aftermath of medical error: a cross-country exploration. J Patient Saf. 2015 Mar;11(1):28-35. PMID: 25695552.

**Shapiro J**, Whittemore A, Tsen LC. Instituting a culture of professionalism: the establishment of a center for professionalism and peer support. Jt Comm J Qual Patient Saf. 2014 Apr;40(4):168-77. PMID: 24864525.

Jagsi R, Weinstein DF, **Shapiro J**, Kitch BT, Dorer D, Weissman JS. The Accreditation Council for Graduate Medical Education's limits on residents' work hours and patient safety. A study of resident experiences and perceptions before and after hours reductions. Arch Intern Med. 2008 Mar 10; 168(5):493-500.

**Congratulations:** Graduating 4th yr resident **Matt Miller** who presented "Acute Chest Pain: Avoiding Pitfalls in Imaging" (and senior author **Diana Litmanovich**) which was awarded a Certificate of Merit at this year's American Roentgen Ray Conference (ARRS) conference in Los Angeles in April, 2016.



#### Abstract Excerpt:

Background Information: Acute chest pain is a leading cause of emergency department visits. CT angiography plays a vital diagnostic role in such cases, but there are several common pitfalls associated with the imaging of acute chest pain that can lead to an incorrect diagnosis. These pitfalls fall broadly into three categories: errors in acquisition, errors in image interpretation (including misses, mimics, and misinterpretation), and errors in communication.

Educational Goals/Teaching Points: We identify the most common misses, mimics, and misinterpretations made on acute chest pain imaging and describe strategies to avoid them. We list the most common errors in communication related to acute chest pain imaging and describe steps that can be taken to prevent them.

Conclusion: CT angiography plays a vital role in the evaluation of acute chest pain, but recognizing the common pitfalls in image acquisition, interpretation, and communication is essential to accurate and timely diagnosis. This educational exhibit describes and illustrates the most common imaging pitfalls in the imaging of acute chest pain to facilitate accurate diagnosis in the emergency setting.

#### **Acute Chest Pain:** Avoiding Pitfalls in Imaging

Matthew M. Miller, MD, PhD, Diana E. Litmanovich, MD





Radiologists Olga Brook, Shambhavi Venkataraman, and Salomao Faintuch represent us at the Annual Affiliated Physicians Group (APG) Specialist Fair attended by over 150 PCPs, NPs, PAs and practice managers at The Four Seasons Hotel, Boston. This was a great opportunity to share our expertise with referring physicians and become better acquainted with our community providers.  
 [Not shown: Muneeb Ahmed, Koenraad Mortelet, Marty Smith]

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### Oncology Services in Interventional Radiology

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**Department of Radiology**

Pre-treatment selective angiogram  
 Post-TACE Contrast MR  
 Tumor necrosis contrast MR

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- Or contact Maxima Baudissin at 617-754-2523, [mbaudiss@bidmc.harvard.edu](mailto:mbaudiss@bidmc.harvard.edu) to schedule an interventional radiology consult at 38011

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at Beth Israel Deaconess Medical Center  
**Department of Radiology**

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 American College of Radiology  
 Proud to be accredited by the American College of Radiology as a Breast Imaging Center of Excellence

We provide comprehensive breast imaging services at the BIDMC main campus and at several other convenient locations throughout the Greater Boston area

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 • Or email us at [brooks@bidmc.harvard.edu](mailto:brooks@bidmc.harvard.edu)  
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For more information, visit us at:  
<http://bidmc.org/breastimaging>

Breast Imaging  
 at Beth Israel Deaconess Medical Center  
 Department of Radiology  
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### Mass Vein Care

[massveincare.com](http://massveincare.com)

at Beth Israel Deaconess Medical Center  
**Department of Radiology**

**Beth Israel Deaconess Medical Center** HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

### Interventional Radiology in Endocrine Disease

A. RF probe within the adrenal adenoma  
 B. Post ablation shows reaction around the adenoma and a small gas bubble (arrow)

at Beth Israel Deaconess Medical Center  
**Department of Radiology**


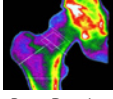
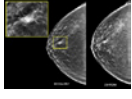






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- Or email us at [brooks@bidmc.harvard.edu](mailto:brooks@bidmc.harvard.edu)  
[faintuch@bidmc.harvard.edu](mailto:faintuch@bidmc.harvard.edu)  
[ahmed@bidmc.harvard.edu](mailto:ahmed@bidmc.harvard.edu)



## BIDMC Radiology in the Community: Annual APG Specialists Fair, Wed., Apr. 6 at the Four Seasons Hotel, Boston

In addition to the 6 updated brochures (featured on page 4), we also gave APG providers the new **Radiology Community Site Grid for Referring Physicians** (below) originally commissioned by HMFP Radiology Manager Jane Corey at the behest of Tracy Flynn, Regional Director APG. We are hearing from the practices that it is easy to follow and great to have at the check out points. *Thanks to Audrey Bosse, Director, Physician Liaison Services (HMFP @ BIDMC, Inc.) for distributing these packets.*

 <b>Community Radiology</b>	 Bone Density	 Breast Imaging	 CT	 X-Ray	 Mass Vein Care	 MRI	 Nuclear Med	 Ultrasound (US)
HMFP Radiology <b>1101 Beacon St.</b> , Suite 3W, Brookline <b>617-754-0450</b> <i>Manager: Jane Corey</i> <i>Supervisors: Victoria Albano, Marian Howes</i>	Mon - Fri: 8:30 am - 4 pm	Screening Mammo: 2D and 3D Mon - Fri: 7:15 am - 5 pm  Diagnostic Mammo: Tues, Wed, Fri	Breast and Interventional US for core biopsies and cyst aspirations: Tues, Wed and Fri	Mon - Fri: 8 am - 5 pm				General Ultrasound Mon - Fri: 7:20 am - 5 pm
Beth Israel Deaconess Health Care <b>Chelsea</b> 1000 Broadway <b>617-754-9500</b> <i>Please request Chelsea at the point of booking</i> <i>Manager: Judy Farina</i>		Screening Mammo: 2D Mon - Fri: 8 am - 5 pm		Mon - Fri: 8 am - 5:30 pm				General Ultrasound Mon, Tues, Thurs: 8 am - 4:30 pm
Beth Israel Deaconess Health Care <b>Chestnut Hill</b> 200 Boylston St., Newton <b>617-754-9500</b> <i>Please request Chestnut Hill at the point of booking</i> <i>Manager: Robert Butler</i>	Mon - Fri: 7:30 am - 4:30 pm	Screening Mammo: 2D and 3D Mon - Fri: 7:15 am - 5 pm	Mon - Fri: 8 am - 4:30 pm	Mon - Fri: 8 am - 9 pm  Sat - Sun 9 am - 7 pm	Mon & Fri: 8 am - 4 pm			General Ultrasound Mon - Fri: 8 am - 4:30 pm  Thyroid Clinic: Tues & Thurs 7:30 am - 4:30 pm MSK Ultrasound & Injections: Mon and Wed: 8 am - 4:30 pm
Beth Israel Deaconess Health Care <b>Lexington</b> 482 Bedford St. <b>781-528-2520</b> <i>Managers: Judy Farina and Janet Carpenter</i>		781-528-2560 Screening Mammo: 2D Mon - Thurs: 7 am - 6 pm Fri: 7 am - 4:30 pm Diagnostic Mammo: Mon, Thurs	Breast and Interventional US for core biopsies and cyst aspirations: Mon, Thurs	Mon - Fri: 8 am - 5:30 pm				General Ultrasound Mon - Fri: 7 am - 4:30 pm  Interventional US Thyroid biopsies: Mon, Thurs
BIDH-Needham 148 Chestnut St. <b>781-453-3053</b> <i>Director: Bill Hallett</i>		Screening Mammo: 2D Mon - Fri, Wed Evening, + 1 Sat per month Diagnostic Mammo: Mon, Tues, Fri	Breast and Interventional US for core biopsies and cyst aspirations: Mon, Tues, Fri	Mon - Fri: 7 am - 5 pm	X-Ray Mon - Sun Fluoroscopy Mon - Fri: 8 am - 3 pm	Mon - Fri: 6:45 am - 11 pm  Sat/Sun: 7 am - 7 pm	Mon - Fri: 7 am - 2:30 pm	General Ultrasound Mon - Fri: 7 am - 8 pm  Sat: 8 am - 1 pm

# The Gallery presents *Reflections, Landscapes & Critters* by *Leo Hannenberg*

"When I'm not supporting our voice recognition system, I get great joy walking through the parks in the greater Boston area capturing the beauty of the lakes and rivers as well as the creatures I meet along the way. I have been a photographer for more than forty years and my father was an impressionist painter whose style still influences my work." - Leo

To view more of my reflections and landscapes, please visit [www.leohannenbergphotography.com](http://www.leohannenbergphotography.com)



Photographer & Applications/Data Analyst in Radiology Informatics

Please contact Donna Wolfe if you, too would like to share your photos, paintings or sculptures: [dwolfe@bidmc.harvard.edu](mailto:dwolfe@bidmc.harvard.edu) or 4-2515

Note that Leo's show will be on display until the end of May when we will present the work of our next artist!

# BIDMC Radiology at SIR 2016, Vancouver, British Columbia, Canada



In addition to the following five contributions to the 41<sup>st</sup> SIR (Society of Interventional Radiology) Annual Scientific Meeting, April 2-7, 2016, presented by our trainees, our IR staff also participated as Panelist, Moderator and Invited Speakers:

**Muneeb Ahmed:**  
Panelist: Regional liver tumor therapy: How do we put all this information together and how does it translate into clinical practice?  
Speaker: Oncogenic pathways and their relevance to interventional oncology  
 Molecular Oncology: Pathways that can be targeted  
 Complex pancreatic-hepato-biliary interventions  
 Malignant Biliary obstruction current strategies

**Olga Brook:**  
Moderator: Arterial Embolization: Uterine Fibroid Embolization  
**Ammar Sarwar:**  
Speaker: Health economics: Coding to coordinated care

**Quang Nguyen, Ammar Sarwar, Seth Berkowitz, Muneeb Ahmed, Olga Brook. Structured reporting of interventional radiology procedures: effect on efficiency, clarity and value.**

**Quang Nguyen, Almamoon Justaniah, Ammar Sarwar, Muneeb Ahmed. Does immediate peri-hepatic hematoma or contrast extravasation after hepatic tumor ablation require angiography?**

**Jawad Hussain, Ammar Sarwar, Brian Dillon, Megan Anderson, Muneeb Ahmed. Percutaneous ultrasound-guided cryoablation for symptomatic plantar fibromas.**

**Edward Ahn, Johannes Boos, Olga Brook, Salomao Faintuch, Muneeb Ahmed, Almamoon Justaniah, Quang Nguyen.**

**Uterine artery embolization with gelfoam for symptomatic uterine arteriovenous shunting [Poster]**

**Quang Nguyen, Edward Ahn, Leo Tsai. From vision to reality: a guide to the biomedical design and development process for interventional radiologists. [Poster]**

SIR was also a great chance to meet up with BIDMC alumni such as Gethin Williams (Nuc Med Research Fellow 2005-2007, Resident 2007-2010, IR Fellow 2010-2011) now an attending in El Paso, TX; BIDMC interventionalist Ammar Sarwar and Shoey Ganguli (Resident 2003-2007, now an IR attending at MGH).

## Uterine Artery Embolization with Gelfoam for Symptomatic Uterine Arteriovenous Shunting

Edward H Ahn, Johannes Boos, Quang Nguyen, Almamoon Justaniah, Salomao Faintuch, Muneeb Ahmed, Olga R Brook  
 Department of Radiology, Beth Israel Deaconess Medical Center, Boston, MA

**Objective**  
 To evaluate the technical success rate, clinical success rate, and complications of bilateral uterine artery embolization (UAE) performed with gelfoam for symptomatic uterine arteriovenous shunting

**Background**  
 Uterine artery embolization (UAE) is a rare cause of uterine bleeding which, left untreated, can lead to significant anemia. Hemorrhage. Uterine artery embolization can be seen with a variety of benign and malignant gynecologic conditions, including uterine arteriovenous malformations, retained products of conception, and gestational trophoblastic disease, and endometrial cancer<sup>1-4</sup>.

Uterine arteriovenous malformations (UAMs), one cause of uterine bleeding, have traditionally been classified as either congenital or acquired. Congenital uterine UAMs are rare with an unknown incidence. Acquired uterine UAMs usually occur due to an intervention or trauma, e.g., spontaneous abortion followed by DIC, therapeutic abortion, or cesarean section. The diagnosis of a uterine UAM should be based on imaging findings, clinical history, and negative HCG.

Conventional angiography remains the current imaging gold standard of diagnosis for AV shunting with findings of a tangle of vessels with pooling of contrast (Fig 1A) and identification of an early draining vein (Fig 1B). Our institution has had success applying dynamically acquiring uterine MR angiography for diagnosis AV shunting by identifying early draining veins on an arterial phase (Fig 1C).

In the past, hysterectomy was the primary treatment approach for uterine UAMs. Currently, AV shunting is commonly treated with angiography with permanent embolic agents such as glue or coils. Experience at our institution has found that using gelfoam alone is sufficient for the embolization of symptomatic uterine vascular lesions with AV shunting.

**Methods**  
 This retrospective study was approved by our IRB and informed consent was waived. A retrospective review of all uterine artery angiograms between January 2013 and September 2015 performed at our institution (a tertiary referral center) in patients of reproductive age with known or suspected symptomatic uterine arteriovenous shunting.

For all angiograms, right common femoral artery access was obtained with a 3 French sheath. A 5 French Invergard curve catheter was then used to gain access into the anterior division of the internal iliac artery, through which a large bore microcatheter was placed into the uterine artery. Bilateral uterine artery embolization was performed in all procedures using gelfoam slurry created from gelfoam pledgets mixed with iodinated contrast. Post-embolization angiograms demonstrated results in the bilateral uterine arteries and completion angiograms were obtained to assess for the presence of extra-uterine blood supply.

Main outcome measures were technical success and clinical success. Technical success was defined as angiographic resolution of AV shunting at the end of the procedure. Clinical success was defined as cessation of bleeding, resolution of findings on subsequent imaging studies, or minimal estimated blood loss (EBL) on subsequent elective DIC procedure. Complications after UAE were also reviewed.

**Results**  
 Twelve women (mean age 34.6 years, age range 21-45 years) underwent 12 uterine artery embolization procedures for the treatment of AV shunting with associated uterine bleeding. All 12 patients had recently undergone gynecologic procedures or experienced obstetric events. These included 4 DIC procedure, 3 medical abortions, 3 spontaneous vaginal deliveries, 1 cesarean section delivery, 1 vacuum aspiration abortion, and 1 missed abortion. All patients presented with symptoms of uterine bleeding, ranging from intermittent to progressive heavy bleeding. The average time from imaging event to initial presentation was 44.1 days (SD 13.1).

All patients underwent pelvic ultrasonography upon presentation. In all cases except one, ultrasound demonstrated a vascular abnormality (Fig 2A). Due to the sonographic findings and continued bleeding, these patients were referred to interventional radiology for UAE. In one case, a bedside ultrasound was performed by the primary care provider without recorded image and was interpreted as "massive" without mention of a hypervascular lesion. This patient continued to experience significant bleeding and was eventually referred to interventional radiology for angiography. Seven patients also underwent an MRA specifically procured to further assess for AV shunting. Of these MRA, six were consistent with AV shunting with early draining veins seen (Fig 2B). Findings on angiography were diagnostic of AV shunting in all cases with only minimal drainage from the uterine artery to pelvic veins (Fig 2C,D). No extra uterine supply was identified in any of the cases.

**Conclusions**  
 Uterine artery embolization for symptomatic uterine arteriovenous shunting has a high technical and clinical success rate when performed with gelfoam alone. Careful embolization in these high-flow shunts is required to minimize the risk of non-target embolization.

**References**  
 1. Baskin G, et al. Arteriovenous malformations of the uterus and cervix: an angiographic study. *Am J Obstet Gynecol*. 1981;133:100-104.  
 2. Galloway D, et al. Radiology of gynecologic arteriovenous malformations. *Obstet Gynecol*. 1981;57:100-104.  
 3. Galloway D, et al. Radiology of gynecologic arteriovenous malformations. *Obstet Gynecol*. 1981;57:100-104.  
 4. Galloway D, et al. Radiology of gynecologic arteriovenous malformations. *Obstet Gynecol*. 1981;57:100-104.

## From Vision to Reality: A Guide to the Biomedical Design & Development Process for Interventional Radiologists

Quang Nguyen MD, Edward Ahn MD, Leo L Tsai MD, PhD

**Getting Started**  
 Before starting the design process, assess resources, needs and goals to define a coherent development process.  
 • Take inventory of purpose, priorities and specific goals  
 • Identify available resources and their associated key strengths and weaknesses  
 • **Rainstorming** - Prioritize and evaluate observed problems and key associated insights  
 • Identify screening criteria to evaluate ideas for product development, which are commonly used by investors to determine what to fund. Initially, screening criteria fall into three categories:  
 • **Market Feasibility** - Does anyone want it?  
 • **Technical Feasibility** - Can we make it?  
 • **Financial Feasibility** - Can money be made?  
 • Estimate the full burden and cost of the product, estimate an appropriate selling price and project sales growth.  
 • In addition, consider how much the development process time and money it will also go to where you are now to product level.

**Formation & Generation**  
 The FDA medical device industries & universities have joined to form the Medical Device Innovation Accelerator, a public-private partnership that coordinates development methods, tools & resources for med-device development.  
 Prototyping is used to prove concepts & provide an early indication about whether the concept will work.  
 Highly innovative approaches include early, low-resolution prototyping, which enables more iterations at a low cost and rapid turn-around time.  
 • 3D printing has revolutionized creating first prototypes of physical objects.  
 • On the electronics side, smart products containing embedded computers are often prototyped on the Arduino platform, which offers low cost prototyping and easy use.  
 • Computational modeling & simulation offers new ways to prototype medical devices without having to build hardware.  
 • This industry, but does not eliminate, experience and time consuming animal experiments or other testing.  
**Bench Testing**  
 Bench testing is low cost and used to validate the function of your device before committing to costly animal and human studies. Often, early bench testing for small products is done on a bench version that is scaled up in size. The main limitations of animal testing is that it cannot fully show safety and efficacy of your device in humans.  
 • Because animal model testing results will likely be submitted to a regulatory agency to support safety and efficacy, be thinking of regulatory guidelines from the start of testing.  
**Animal Testing**  
 The goal of pre-clinical animal studies is to decrease the number of tests before clinical studies in humans. While bench testing can show whether the device performance meets target specifications, only animal testing can reveal whether a device has the anticipated biological or physiological effects.  
 • The main limitations of animal testing is that it cannot fully show safety and efficacy of your device in humans.  
 • Because animal model testing results will likely be submitted to a regulatory agency to support safety and efficacy, be thinking of regulatory guidelines from the start of testing.

**Planning & Development**  
**Finalizing**  
 • Investing in your own project is the best evidence that you believe in what you are doing and are willing to assume some of the risk.  
 • A strong signal to early investors: I do not mean, if possible, funding the first, low-resolution prototype is out of your own pocket.  
 • The next stage of funding people who know you (i.e., your family and friends). The sums will be small, but could be sufficient to fund a second prototype to test the responses related to being a patient.  
 • Advantage of the friends and family funding network is they typically are not interested in owning a part of your venture but rather are motivated by wanting you to succeed.  
 • The disadvantage is if you ask too much and are unable to repay, you run the risk of permanently damaging important relationships.  
 • The next step up in funding is turning to private sources, starting with angel investors and venture capital funds.  
 • Angels are solo or group that invest in high-risk projects that could have a high rate of return.  
 • Venture capital funds are the next round and where significant funds can start to flow. VCs are fund managers who invest other people's money and are professional who will take a hard look at your proposition. VCs funding often requires that you give up partial control of the company.  
**Meet Both Development Process**  
 • **Business and Marketing**  
 • Disruptive technology  
 • Clinical device solutions  
 • Markets > 1B  
 • Uncertain regulatory path  
 • Potential for product platform  
 • Strong management team  
 • **Investors are disinclined to**  
 • Small market sizes  
 • Incomplete technology  
 • Uncertain regulatory approval and reimbursement  
 • No working prototype or supportive evidence  
**Startup and pre-startup companies** can also receive funding through the federal government SBIR program.  
 For medical devices, NIH, NSF and DOD do most of the SBIR funding for most startups.  
 • The advantage of this funding is that it is non-dilutive and comes with no strings attached.  
 • The disadvantage is that this funds requires writing a science based proposal that will be reviewed by academics, waiting 6-9 months before finding out whether the proposal is awarded and having to meet government regulations to receive government money.  
**Crowdfunding** options such as Kickstarter are an increasingly common way to fund early stage product ideas and could be used for certain types of products. While Kickstarter does not fund medical devices, emerging start-ups such as MedDevice do fund devices.  
**Resources:**  
 • **Health and Medical Device Technologies** A Systems Based Overview Using Engineering Principles. <http://www.healthandmedicaldevice.com/>  
 • **USDA, Karl's, and Howard D. Granger Product Design and Development**. New York: McGraw-Hill, 2007.  
 • **Stanford Business School** <http://www.stanford.edu/>  
 • **James, Patterson & John M. Patterson, PAUL W. Brinkner: The Power of Encouraging the Heart**. New York: HarperCollins, 2002.  
 • **Professor, David S. Foray, Entrepreneur: Part II: How to Start-Up by Step**. New York: McGraw-Hill, 2003.  
**References:**  
 • **Health and Medical Device Technologies** A Systems Based Overview Using Engineering Principles. <http://www.healthandmedicaldevice.com/>  
 • **USDA, Karl's, and Howard D. Granger Product Design and Development**. New York: McGraw-Hill, 2007.  
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 • **James, Patterson & John M. Patterson, PAUL W. Brinkner: The Power of Encouraging the Heart**. New York: HarperCollins, 2002.  
 • **Professor, David S. Foray, Entrepreneur: Part II: How to Start-Up by Step**. New York: McGraw-Hill, 2003.



## BIDMC Radiology in the Community: Nuclear Medicine & Molecular Imaging (NMMI)



Nuclear Medicine (aka NMMI) volunteer **Irving Rose** was presented with the **Deborah Henry Award** on April 12th by Stephanie Harrison-Diggs and Shannon Lawson, Director

and Program Coordinator of Volunteer Services, respectively. This award, established in 1996 in memory of Debby Henry, Volunteer Services Director from 1980 to 1995, is bestowed upon an outstanding volunteer who has at least 5 years of service, a minimum of 500 hours and who best exemplifies the "spirit of volunteerism".

Irving volunteers in Nuclear Medicine once a week helping out with various schedule related tasks. A volunteer since 2009, Irving has always been a perfect example of steadfastness, punctuality and politeness. He came to BIDMC through the Retired Senior Volunteer Program of Boston run by Boston City Hall and he truly exemplifies the "spirit of volunteerism".

*If you are interested in welcoming a volunteer to your section, please contact Shannon Lawson, Program Coordinator Volunteer Services: [sklawson@bidmc.harvard.edu](mailto:sklawson@bidmc.harvard.edu) or 7-2062.*



BIDMC Volunteer Services Program Coordinator **Shannon Lawson (l)** and Director, **Stephanie Harrison-Diggs (r)**, present the Deborah Henry Award to Nuclear Medicine volunteer **Irving Rose**.



NMMI Mgr. **Jim Conklin**, Patient Service Rep. **Diane Valentine** and Admin. Assoc. **Dawn Federman** with Irving Rose.

### **Nuclear Medicine sets a great example of their planning and organization if you would like to recruit a volunteer for your section . . .**

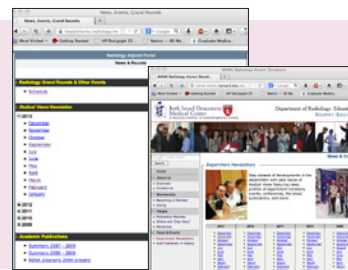
Irving works for us once a week and that fits into both his and our schedule for getting these tasks done. In particular, we save the monthly Joint Program in Nuclear Medicine mailing for him to prepare and send off for the following month. This means sending out approximately 70 seminar mailings to various physicians and staff throughout the medical and surrounding area. In addition, Irving pulls our cardiac charts, prints EKGs and pulls patient orders for both the Clinical Center and East Campuses one week ahead of schedule to allow for any updates or changes with plenty of time before the actual patient appointments. It is not unusual for Irving to send out 50 or more patient letters at one time. The entire process takes Irving between 1.5 to 2.0 hours to complete. We offer a great deal of flexibility with his hours, and he pretty much works independently, knows what has to get done on a weekly basis, and is extremely efficient and organized. We recruited Irving about 6 years ago through Volunteer Services and he became such a wonderful team member, as he helps to keep our division running smoothly and functioning at its highest level of care – and he does this with a smile and great vigor. We are so pleased that his efforts have been recognized with the Deborah Henry Award!

– Dawn Federman, Admin Associate, NMMI

### ***In case you missed an issue of Radical Views!***

All back issues are available on the BIDMC portal under "News and Events":  
<https://portal.bidmc.org/Intranets/Clinical/Radiology/news.aspx>

and ***we also have an outside link on the alumni site:***  
<http://radnet.bidmc.harvard.edu/education/newsletters.asp>



The portal will always have the most current/ revised versions so please keep checking as needed.

## MORE CAKE: Congratulations Graduating Diagnostic Technologists!

April 21, 2016 - Under the direction of our Clinical Instructor, Ana Cordero, students spend 6-24 months as interns in Diagnostic Radiology at BIDMC. This year, 8 students completed their clinical training at BIDMC and will graduate with degrees from their respective Medical Imaging programs at Bunker Hill Community College, Regis College and Massachusetts College of Pharmacy. We wish them the best!



L to R: Joseph Fitzgerald, Erin York, Kerrie Botelho, Victoria Kronillis, Dx Radiology Clinical Instructor Ana Cordero, Kawther Alfaran (Noor), Daniel Friedman, and Gabrielle Mobayed. Not shown: Rosangela DeAndrade

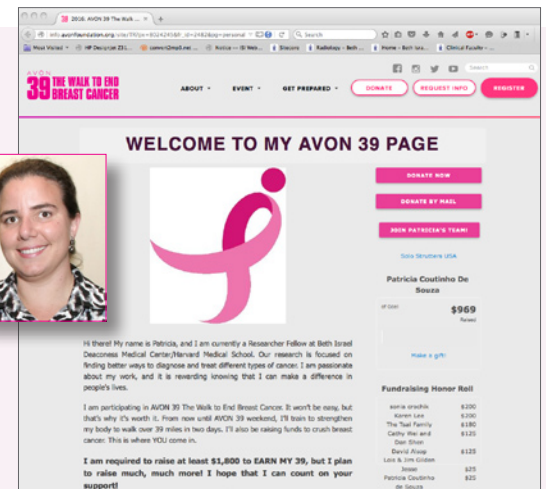
Hi everyone!

As many of you know, I'm walking in the AVON 39 in Boston this year on July 9-10. When I registered for this event, I knew I was taking on a serious challenge: to raise \$1800 and train to walk 39 miles. I'm really feeling the weight of this commitment, but I am determined to finish this and earn my 39! I just can't do this without YOU!

Please consider making a donation, big or small as I'm going to need everyone's help on this one! **Donate here:** <http://www.avonwalk.org/goto/csouzap>

ANY amount will help and be very much appreciated! Everybody will benefit from AVON39: Cancer patients, clinicians, and researchers. Let's do this TOGETHER!!!

Thank you so much!  
Patricia Coutinho de Souza, DVM, PhD  
MRI Research Fellow



Beth Israel Deaconess Medical Center				
Radiology Staff Posters				
Created: 3/24/2016 9:13:20 AM				
Radiology Faculty	Residents Fellows	Breast Techs	CT Techs	US Techs
DX Techs	MRI Techs	Nursing	IR/ENR Techs	Nuc Techs
Chestnut Hill	Admin	Informatics	Support Services	1181 Beacon

### Updated Radiology Staff, Trainee & Technologist Posters

are available on InfoRadiology in pdf format for viewing, downloading, and printing. New this year are **Informatics, Administrative, Support Staff & Community Site** posters!

Log in to the portal: <https://portal.bidmc.org/>  
Click on InfoRadiology → Staff Posters

**Help us stay up-to-date:**  
Please contact Michael Larson ([mlarson1@bidmc.harvard.edu](mailto:mlarson1@bidmc.harvard.edu)) to update your staff (or any other information) on these posters



## QUALITY UPDATE: OUR RADIOLOGY SAFETY TEAM'S PROGRESS



Suzanne Swedeon, RN  
MSN CNIV  
Quality Improvement Specialist

We welcomed our new member **Alexei Kudla**, first year resident.

This month our Safety Workgroup worked on the barrier called "lack of listening". This barrier was named by 52% of staff who do not speak up. Questions in the survey related to this barrier were:

- I don't think anyone will listen
- I have spoken up in the past and nothing has changed

The group discussed the following steps to optimize the listening component of communication. The receiver should:

1. Make eye contact
2. Ask for clarification, rephrase or ask questions to ensure understanding of the suggestion/problem brought forward
3. Clarify if this issue is being brought up to ask for help to solve a problem/issue or to commiserate/vent.
4. Follow up with the staff person with insight into how the issue is being dealt with and any barriers being encountered. This is especially important when an issue cannot be address at this time.

This month we will be discussing the barrier of "challenging authority". Please contact your peers on the committee (see below) with any comments on the topic that you would like to share.



Back row: Hazel Malolos, Bettina Siewert, Bridget O'Bryan and Robert Beeman. Middle row: Suzanne Swedeon, Nicole Caddell, Maggie Cybulska, Jennifer Ní Mhuircheartaigh, Fritz Honore, Macarthur Cherenfant and Donna Hallett. Front row, standing: Meredith Cunningham, Juline Horan. Front row, seated: Leighton Atkins and Aaron Thurston.



Muneeb  
Ahmed



Alexei Kudla



Catherine  
Melchin



Chip Watts



Steve Warren

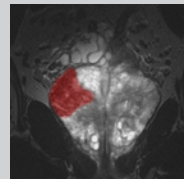


Jim Wu

Mon **June 6 - June 8, 2016** Wed

## ABDOMINAL & PELVIC MRI 2016

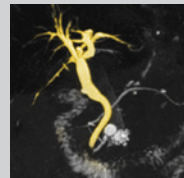
*Imaging Review of GI and GU Tracts*



### Guest Speakers:

**Scott Reeder, MD**  
University of Wisconsin  
Hospital & Clinics

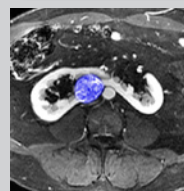
**Evis Sala, MD, PhD**  
Weill Cornell Medical College



**Claude Sirlin, MD**  
University of California  
San Diego

### Course Director:

**Koenraad J. Mortele, MD**



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**Questions?**

Call or email Suzanne Swedeen 4-2768 or or email her at [sswedeen@bidmc.harvard.edu](mailto:sswedeen@bidmc.harvard.edu)



Suzanne Swedeen, RN  
MSN CNIV  
Quality Improvement Specialist

Good May to you all!

As we await the arrival of our Joint Commission friends I thought I would send out (via a daily e-mail) a Joint Commission question of the day in order to keep us all fresh. Please see the first two sent at the end of April. Many of these questions will come from prior education that you have received so you can see how well you've retained the information.

Enjoy!



Department of Radiology



Department of Radiology



## What are Essential Elements of ALL Documentation

- |    |                                 |
|----|---------------------------------|
| A. | Signature                       |
| B. | Date                            |
| C. | Time                            |
| D. | Legibility                      |
| E. | No blanks                       |
| F. | Leave blank when not applicable |
- 
- |    |                |
|----|----------------|
| A. | A,B and C      |
| B. | A,B,C ,D and E |
| C. | A,B and D      |
| D. | A and F        |
| E. | A,B,C,D and F  |

## Who can serve as an interpreter during the consenting process?

- |    |                            |
|----|----------------------------|
| A. | Family member              |
| B. | Any Radiology staff member |
| C. | Patient's nurse            |
| D. | Interpreter services       |
- 
- |    |            |
|----|------------|
| A. | A and C    |
| B. | A, C and D |
| C. | B and D    |
| D. | A, B and C |
| E. | D only     |

## Answer: B

- All documentation must be:
  - Signed: for paper entries handwritten signature only; rubber signature stamps and initials do not constitute authentication by an individual and are not to be used on any documentation
  - Dated
  - Timed - time of documentation not time of event
  - Legible
  - No blanks: items left blank are consider not done/not asked

## Answer : E

Policy # PR-02 Informed Consent: As needed, the healthcare provider shall ensure the consent is communicated by a medical interpreter approved by BIDMC in a language that the patient or legally recognized representative understands. For the patient or legally recognized representative who is deaf / hard of hearing a medical interpreter approved by BIDMC will be provided. See policy PR-17 "Interpreter Services"





Department of Radiology



**SUZANNE SWEDEEN DONS HER OTHER HAT AS KIP COACH IN RADIOLOGY:**

# KIP Coach TIPS

Before Looking at Patient, Personal or Other Protected Information

## Ask Yourself... Should I View?



**Never View or Share**



**Yes - View**

### How are restraints used in Radiology?

- A. When safety straps are used to secure a patient while on exam table.
- B. When wrist restraints are used to correctly position a patient during an exam.
- C. When the patient arrives in Radiology in restraints.
- D. All of the above

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• For personal or medical curiosity</li> <li>• With good intent, i.e., looking up a co-worker's address</li> <li>• When you don't need the information to do your job</li> </ul> | <ul style="list-style-type: none"> <li>• Treatment: Inpatient and ambulatory medical care, clinical research, health care services</li> <li>• Payment: Billing and receipt of payment for services</li> <li>• Operations: activities such as looking at data or performing a review/audit</li> </ul> |
|---|--|

### Answer : C

Positioning devices such as safety straps or wrist restraints used for correct positioning are not considered restraints – it is best to refer to these as “positioning devices”.

Questions? Call or email your KIP Coach: Suzanne Swedeon





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

## AIDEEN SNELL ON THE PATIENT EXPERIENCE

Radiology Action  
Planning Committee's  
Patient Experience  
TIP of the Month

Follow the  
10/5 rule

**10/5:** When you come within 10 feet of contact with a patient, acknowledge the person, and at 5 feet, you greet them. It really is that easy.

- At 10 feet: acknowledge with a nod, eye contact or smile
- At 5 feet: use a kind, appropriate verbal greeting

Using the 10/5 rule with patients and family members improves the patient experience, and using it with co-workers will also improve our organizational culture and ultimately have a positive influence on patient care.

*The following is an excerpt from:*

**Patients Come Second:** *Leading Change by Changing the Way You Lead*

by Paul Spiegelman, Paul Britt Barrett

© 2013

An Inc. Original  
NY, NY  
www.inc.com

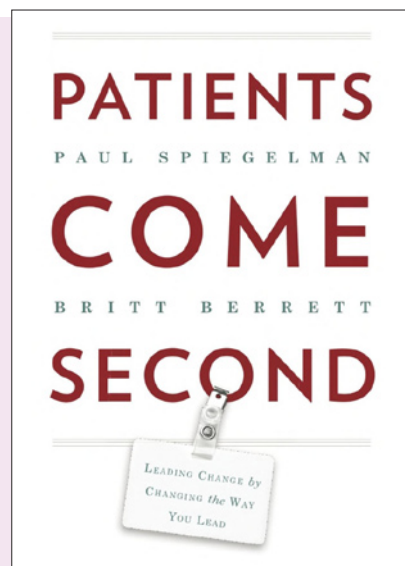
### STRUGGLING WITH WAIT TIMES?

I'd like to share a story that centers around a 10-doctor medical group in the United States that was experiencing tremendous problems with patient satisfaction. Wanting to get to the bottom of the problem the group surveyed its customers and learn that long wait times was the number one complaint from their patients. And effort to address the problem, the group's leadership went to their playbook for answers. First, they hired a few more doctors, thinking that would cut down on those wait times. It didn't work. In fact, patients somehow grew less satisfied.

The group's leaders then invested in new scheduling software to help them spread out their appointments better. But given that did little to improve patient satisfaction scores. It seems that no matter what changes the medical group leaders made, it only further confounded the problem.

The answer to the dilemma ultimately came not from the group's leadership, but from the staff. And the changes they implemented didn't cost a dime. Their solution? The staff simply informs patients as soon as they showed up at the office about the expected wait time and apologized if things were running behind schedule. But they didn't stop there. When the patient was finally shown into an exam room the first thing the doctor did was apologize for the long wait. Then, as the patient left the exam room, the receptionist would not only apologize again for the wait but also offered to schedule the patient's next appointment and think the patient for coming in.

The results were spectacular; patient satisfaction scores soared. It turns out the wait times weren't the true issue. Patient expected to wait at the doctor's office! It was the unknown, and the apparent lack of concern, the drove them crazy. Simple as it was, the solution didn't arise until the group leaders were willing to put aside their preconceived notions of what would work, like jiggering with the schedule or adding more doctors, allowing everyone to refocus on what truly drives the patient experience. The leaders had to put aside their egos and ask for help from the folks on the front lines – something many traditional leaders would rather jump off a cliff than do.





Original Research

## Development, Standardization, and Testing of a Lexicon for Reporting Contrast-Enhanced Breast Magnetic Resonance Imaging Studies

Debra M. Ikeda, MD,<sup>1\*</sup> Nola M. Hylton, PhD,<sup>2</sup> Karen Kinkel, MD,<sup>2</sup> **Mary G. Hochman, MD,<sup>3</sup>** Christiane K. Kuhl, MD,<sup>4</sup> Werner A. Kaiser, MD,<sup>5</sup> Jeffrey C. Weinreb, MD,<sup>6</sup> Stanley F. Smazal, MD,<sup>7</sup> Hadassah Degani, PhD,<sup>8</sup> Petra Viehweg, MD,<sup>9</sup> John Barclay, MS,<sup>2</sup> and Mitchell D. Schnall, MD, PhD<sup>10</sup>

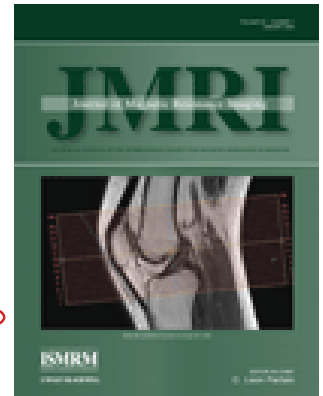
The purpose of this study was to develop, standardize, and test reproducibility of a lexicon for reporting contrast-enhanced breast magnetic resonance imaging (MRI) examinations. To standardize breast MRI lesion description and reporting, seven radiologists with extensive breast MRI experience developed consensus on technical detail, clinical history, and terminology reporting to describe kinetic and architectural features of lesions detected on contrast-enhanced breast MR images. This lexicon adapted American College of Radiology Breast Imaging and Data Reporting System terminology for breast MRI reporting, including recommendations for reporting clinical history, technical parameters for breast MRI, descriptions for general breast composition, morphologic and kinetic characteristics of mass lesions or regions of abnormal enhancement, and overall impression and management recommendations. To test morphology reproducibility, seven radiologists assessed morphology characteristics of 85 contrast-enhanced breast MRI studies. Data from each independent reader were used to compute weighted and unweighted kappa ( $\kappa$ ) statistics for interobserver agreement among readers. The MR lexicon differentiates two lesion types, mass and non-mass-like enhancement based on morphology and geographical distribution, with descriptors of shape, margin, and internal enhancement.

Lexicon testing showed substantial agreement for breast density ( $\kappa = 0.63$ ) and moderate agreement for lesion type ( $\kappa = 0.57$ ), mass margins ( $\kappa = 0.55$ ), and mass shape ( $\kappa = 0.42$ ). Agreement was fair for internal enhancement characteristics. Unweighted kappa statistics showed highest agreement for the terms *dense* in the breast composition category, *mass* in lesion type, *spiculated* and *smooth* in mass margins, *irregular* in mass shape, and both *dark septations* and *rim enhancement* for internal enhancement characteristics within a mass. The newly developed breast MR lexicon demonstrated moderate interobserver agreement. While breast density and lesion type appear reproducible, other terms require further refinement and testing to lead to a uniform standard language and reporting system for breast MRI. *J. Magn. Reson. Imaging* 2001; 13:889–895. © 2001 Wiley-Liss, Inc.

**Index terms:** breast; magnetic resonance; breast neoplasms; breast neoplasm diagnosis; observer performance; kappa

THERE IS A WIDE VARIETY of breast magnetic resonance imaging (MRI) techniques, resulting in varying interpretation criteria for benign or malignant lesions. This results in a major problem in consolidating data from breast MRI studies. A second problem is lack of a standard language to report breast lesion architecture and/or kinetic data. Varying terms have been used to describe findings to distinguish between benign and malignant breast disease on high spatial resolution scans emphasizing lesion morphology (1–5), contrast enhancement studies that describe signal intensity variations over time (6–8), and technologies that collect both high spatial and temporal resolution data (9).

This lack of consensus in terminology impairs comparison of MR research data among studies, decreases the assessment of the applicability of any one MR technique, and impedes the scientific evaluation of the efficacy of MRI for breast cancer. Clearly, there is a need to reach consensus among experts in how to describe lesions found on breast MRI, to standardize MRI reporting, and to reconcile terms describing breast lesion morphology and enhancement. A standard language for breast MRI would unify the breast MR research field by



As you may know, the JMRI (Journal of Magnetic Resonance Imaging) enjoys its 25th anniversary this year. We will mark this occasion with a very special event during the annual ISMRM meeting in Singapore [7-13 May 2016] during which we will celebrate 25 papers published over the years that have stood the test of time.

After a rigorous review process, we identified these 25 papers, and I am honored to inform you that your paper "Development, Standardization, and Testing of a Lexicon for Reporting Contrast-Enhanced Breast Magnetic Resonance Imaging Studies" has been judged to amongst these 25. Congratulations!

– Mark Schweitzer,  
Editor-in-Chief of JMRI

<sup>1</sup>Department of Radiology at Stanford University Medical School, Stanford, California

<sup>2</sup>University of California San Francisco, San Francisco, California

<sup>3</sup>Beth Israel Deaconess Medical Center, Boston, Massachusetts.

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**Ahmed M, Kumar G, Moussa M, Wang Y, Rozenblum N, Galun E, Goldberg SN.** Hepatic Radiofrequency Ablation-induced Stimulation of Distant Tumor Growth Is Suppressed by c-Met Inhibition. *Radiology*. 2016 Apr;279(1):103-17. Epub 2015 Sep 29. PMID: 26418615.

**Alessandrino F, Allard FD, Mortelé KJ.** Ciliated pancreatic foregut cyst: MRI, EUS, and cytologic features. *Clin Imaging*. 2016 Jan-Feb;40(1):140-3. Epub 2015 Oct 31. PMID: 26526788.

Anderson ME, **Wu JS, Vargas SO.** CORR (\*) Tumor Board: Sacral Insufficiency Fractures are Common After High-dose Radiation for Sacral Chordomas Treated With or Without Surgery. *Clin Orthop Relat Res*. 2016 Mar;474(3):630-2. Epub 2015 Dec 7. PMID: 26642785; PMCID: PMC4746151.

**Bellm S, Basha TA, Shah RV, Murthy VL, Liew C, Tang M, Ngo LH, Manning WJ, Nezafat R.** Reproducibility of myocardial T(1) and T(2) relaxation time measurement using slice-interleaved T(1) and T(2) mapping sequences. *J Magn Reson Imaging*. 2016 Apr 4. doi: 10.1002/jmri.25255. PMID: 27043156.

**Boiselle PM.** JTI Welcomes New Members to its Editorial Team. *J Thorac Imaging*. 2016 Mar;31(2):63. PMID: 26891071.

**Boiselle PM, Chiles C, Ravenel JG, White CS.** Computed Tomographic Screening for Lung Cancer Trends at Leading Academic Medical Centers From 2013 to 2015. *JAMA Oncol*. 2016 Feb 11. doi: 10.1001/jamaoncol.2015.6419. [Epub ahead of print] PMID: 26867512.

**Boiselle PM, Reddy GP.** Editors' Recognition Awards for Distinction in Reviewing in 2015. *J Thorac Imaging*. 2016 Jan;31(1):1. PMID: 26656193.

**Brook OR, Beddy P, Pahade J, Couto C, Brennan I, Patel P, Brook A, Pedrosa I.** Delayed Growth in Incidental Pancreatic Cysts: Are the Current American College of Radiology Recommendations for Follow-up Appropriate? *Radiology*. 2016 Mar;278(3):752-61. Epub 2015 Sep 4. PMID: 26348231.

Cavallari M, Dai W, Guttmann CR, Meier DS, Ngo LH, Hsieh TT, Callahan AE, Fong TG, Schmitt E, Dickerson BC, Press DZ, Marcantonio ER, Jones RN, Inouye SK, **Alsop DC;** SAGES Study Group. Neural substrates of vulnerability to postsurgical delirium as revealed by presurgical diffusion MRI. *Brain*. 2016 Feb 26. pii: aww010. [Epub ahead of print] PMID: 26920674.

**Cohen MG, McMahon CJ, Kung JW, Wu JS.** Comparison of Battery-Powered and Manual Bone Biopsy Systems for Core Needle Biopsy of Sclerotic Bone Lesions. *AJR Am J Roentgenol*. 2016 Mar 9;W1-W4. [Epub ahead of print] PMID: 26959290.

**Cole EB, Pisano ED.** Tomosynthesis for breast cancer screening. *Clin Imaging*. 2016 Mar-Apr;40(2):283-7. Epub 2015 Sep 24. PMID: 26472036.

Cooper BG, Stewart RC, **Burstein D, Snyder BD, Grinstaff MW.** A Tissue-Penetrating Double Network Restores the Mechanical Properties of Degenerated Articular Cartilage. *Angew Chem Int Ed Engl*. 2016 Mar 18;55(13):4226-30. PMID: 26934682.

Dai W, **Varma G, Scheidegger R, Alsop DC.** Quantifying fluctuations of resting state networks using arterial spin labeling perfusion MRI. *J Cereb Blood Flow Metab*. 2016 Mar;36(3):463-73. Epub 2015 Nov 5. PMID: 26661226.

Delling FN, Hassan ZK, Piatkowski G, Tsao CW, Rajabali A, Markson LJ, Zimetbaum PJ, **Manning WJ, Chang JD, Mukamal KJ.** Tricuspid Regurgitation and Mortality in Patients With Transvenous Permanent Pacemaker Leads. *Am J Cardiol*. 2016 Mar 15;117(6):988-92. PMID: 26833208; PMCID: PMC4775321.

Delling FN, Rong J, Larson MG, Lehman B, Fuller D, Osypiuk E, Stantchev P, Hackman B, **Manning WJ, Benjamin EJ, Levine RA, Vasan RS.** The Evolution of Mitral Valve Prolapse: Insights from the Framingham Heart Study. *Circulation*. 2016 Mar 22. pii: CIRCULATIONAHA.115.020621. [Epub ahead of print] PMID: 27006478.

**Dialani V, Gaur S, Mehta TS, Venkataraman S, Fein-Zachary V, Phillips J, Brook A, Slanetz PJ.** Prediction of Low versus High Recurrence Scores in Estrogen Receptor-Positive, Lymph Node-Negative Invasive Breast Cancer on the Basis of Radiologic-Pathologic Features: Comparison with Oncotype DX Test Recurrence Scores. *Radiology*. 2016 Mar 3:151149. [Epub ahead of print] PMID: 26937802.

Dubey P, Lioutas VA, **Bhadelia R, Manor B, Novak P, Selim M, Novak V.** Quantitative microstructural deficits in chronic phase of stroke with small volume infarcts: A Diffusion Tensor 3-D Tractographic Analysis. *Magn Reson Imaging*. 2015 Dec 29. pii: S0730-725X(15)00340-9. doi: 10.1016/j.mri.2015.12.036. PMID: 26743428. [Not listed in Pubmed 2015]

**Dunn DP, Brook OR, Brook A, Revah G, Jawadi S, Sun M, Lee KS, Mortele KJ.** Measurement of pancreatic cystic lesions on magnetic resonance imaging: efficacy of standards in reducing inter-observer variability. *Abdom Radiol (NY)*. 2016 Mar;41(3):500-7. PMID: 27039321.

Foppa M, Arora G, Gona P, Ashrafi A, Salton CJ, Yeon SB, Blease SJ, Levy D, O'Donnell CJ, **Manning WJ, Chuang ML.** Right Ventricular Volumes and Systolic Function by Cardiac Magnetic Resonance and the Impact of Sex, Age, and Obesity in a Longitudinally Followed Cohort Free of Pulmonary and Cardiovascular Disease: The Framingham Heart Study. *Circ Cardiovasc Imaging*. 2016 Mar;9(3):e003810. doi: 10.1161/CIRCIMAGING.115.003810. PMID: 26962126.

Girard OM, Callot V, Prevost VH, Robert B, Taso M, Ribeiro G, **Varma G, Rangwala N, Alsop DC, Duhamel G.** Magnetization transfer from inhomogeneously broadened lines (ihMT): Improved imaging strategy for spinal cord applications. *Magn Reson Med*. 2016 Mar 9. doi: 10.1002/mrm.26134. PMID: 26959278.

Grimm LJ, Ngo J, **Pisano ED, Yoon S.** Men (and Women) in Academic Radiology: How Can We Reduce the Gender Discrepancy? *AJR Am J Roentgenol*. 2016 Apr;206(4):678-80. PMID: 27003048.

Grunwald D, Tapper EB, Jiang ZG, **Ahmed M, Malik R.** A Standardized Assessment of Functional Disability Predicts 1-year Mortality in Patients Undergoing Transjugular Intrahepatic Portosystemic Shunt for Refractory Ascites. *J Clin Gastroenterol*. 2016 Jan;50(1):75-9. PMID: 25984975.

Hu H, Juvekar A, Lyssiotis CA, Lien EC, Albeck JG, Oh D, **Varma G, Hung YP, Ullas S, Lauring J, Seth P, Lundquist MR, Tolan DR, Grant AK, Needleman DJ, Asara JM, Cantley LC, Wulf GM.** Phosphoinositide 3-Kinase Regulates Glycolysis through Mobilization of Aldolase from the Actin Cytoskeleton. *Cell*. 2016 Jan 28;164(3):433-46. PMID: 26824656.



Hylton NM, Gatsonis CA, Rosen MA, Lehman CD, Newitt DC, Partridge SC, Bernreuter WK, **Pisano ED**, Morris EA, Weatherall PT, Polin SM, Newstead GM, Marques HS, Esserman LJ, Schnall MD; ACRIN 6657 Trial Team and I-SPY 1 TRIAL Investigators. Neoadjuvant Chemotherapy for Breast Cancer: Functional Tumor Volume by MR Imaging Predicts Recurrence-free Survival-Results from the ACRIN 6657/CALGB 150007 I-SPY 1 TRIAL. *Radiology*. 2016 Apr;279(1):44-55. Epub 2015 Dec 1. PMID: 26624971.

Inouye SK, Marcantonio ER, Kosar CM, Tommet D, Schmitt EM, Trivison TG, Saczynski JS, Ngo LH, **Alsop DC**, Jones RN. The short-term and long-term relationship between delirium and cognitive trajectory in older surgical patients. *Alzheimers Dement*. 2016 Apr 18. pii: S1552-5260(16)30183-2. doi: 10.1016/j.jalz.2016.03.005. [Epub ahead of print] PMID: 27103261.

Kato S, Foppa M, Roujol S, Basha T, Berg S, Kissinger KV, Goddu B, **Manning WJ**, Nezafat R. Left ventricular native T1 time and the risk of atrial fibrillation recurrence after pulmonary vein isolation in patients with paroxysmal atrial fibrillation. *Int J Cardiol*. 2016 Jan 15;203:848-54. Epub 2015 Nov 11. PMID: 26599750; PMCID: PMC4734756.

Ketwaroo GA, **Morteale KJ**, Sawhney MS. Pancreatic Cystic Neoplasms: An Update. *Gastroenterol Clin North Am*. 2016 Mar;45(1):67-81. Review. PMID: 26895681.

**Kressel HY**. Editor's Recognition Awards. *Radiology*. 2016 Jan;278(1):2-3. PMID: 26690986.

**Kressel HY**. Radiology Editorial Board 2016. *Radiology*. 2016 Jan;278(1):1. PMID: 26690985.

**Kruskal J, Eisenberg R**. Focused Professional Performance Evaluation of a Radiologist-A Centers for Medicare and Medicaid Services and Joint Commission Requirement. *Curr Probl Diagn Radiol*. 2016 Mar-Apr;45(2):87-93. Epub 2015 Aug 14. PMID: 26365574.

**Kruskal JB, Eisenberg RL, Brook O, Siewert B**. Transitioning from peer review to peer learning for abdominal radiologists. *Abdom Radiol (NY)*. 2016 Mar;41(3):416-28. PMID: 26940330.

Lafountain RA, da Silveira JS, Varghese J, **Mihai G**, Scandling D, Craft J, Swain CB, Franco V, Raman SV, Devor ST, Simonetti OP. Cardiopulmonary exercise testing in the MRI environment. *Physiol Meas*. 2016 Mar 17;37(4):N11-N25. [Epub ahead of print] PMID: 26987361.

**Levine D, Kressel HY**. Radiology 2016: The Care and Scientific Rigor Used to Process and Evaluate Original Research Manuscripts for Publication. *Radiology*. 2016 Jan;278(1):6-10. PMID: 26690988.

Levine YC, Matos J, Rosenberg MA, **Manning WJ**, Josephson ME, Buxton AE. Left ventricular sphericity independently predicts appropriate implantable cardioverter-defibrillator therapy. *Heart Rhythm*. 2016 Feb;13(2):490-7. Epub 2015 Sep 25. PMID: 26409099.

Lourenco AP, Baird GL, **Ashkan M, Slanetz PJ**. RVUs, SGR, RUC, and Alphabet Soup:: Utility of an iPad App to Teach Healthcare Economics. *Acad Radiol*. 2016 Apr 11. pii: S1076-6332(16)00118-5. Review. PMID: 27079568.

Manning MA, Srivastava A, Paal EE, Gould CF, **Morteale KJ**. Nonepithelial Neoplasms of the Pancreas: Radiologic-Pathologic Correlation, Part 1-Benign Tumors: From the Radiologic Pathology Archives. *Radiographics*. 2016 Jan-Feb;36(1):123-41. PMID: 26761535.

**Miller MM, Slanetz PJ, Lourenco AP, Eisenberg RL, Kung JW**. Teaching Principles of Patient-Centered Care During Radiology Residency. *Acad Radiol*. 2016 Apr 8. pii: S1076-6332(16)00127-6. doi: 10.1016/j.acra.2016.01.021. PMID: 27067602.

Murphey MD, Roberts CC, Bencardino JT, Appel M, Arnold E, Chang EY, Dempsey ME, Fox MG, Fries IB, Greenspan BS, **Hochman MG**, Jacobson JA, Mintz DN, Newman JS, Rosenberg ZS, Rubin DA, Small KM, Weissman BN. ACR Appropriateness Criteria Osteonecrosis of the Hip. *J Am Coll Radiol*. 2016 Feb;13(2):147-55. PMID: 26846390.

NiMhurchu E, O'Kelly F, Murphy IG, Lavelle LP, Collins CD, Lennon G, Galvin D, Mulvin D, Quinlan D, **McMahon CJ**. Predictive value of PI-RADS classification in MRI-directed transrectal ultrasound guided prostate biopsy. *Clin Radiol*. 2016 Feb 12. pii: S0009-9260(16)00006-4. doi: 10.1016/j.crad.2016.01.001. [Epub ahead of print] PMID: 26880299.

**Parker JA**. Value of ABNM Certification and MOC to Diplomates and the Public. *J Nucl Med*. 2016 Apr;57(4):10N-3N. PMID: 27037351.

**Phillips J, Brook A, Tseng I, Sharpe RE Jr, Fein-Zachary V, Slanetz PJ, Mehta TS**. Educational Videos: An Effective Tool to Improve Training in Interventional Breast Procedures. *J Am Coll Radiol*. 2016 Apr 12. pii: S1546-1440(16)00138-1. doi: 10.1016/j.jacr.2016.02.009. PMID: 27084069.

**Pisano ED**. Digital Compared with Screen-Film Mammography: Measures of Diagnostic Accuracy among Women Screened in the Ontario Breast Screening Program-Evidence that Direct Radiography Is Superior to Computed Radiography for Cancer Detection. *Radiology*. 2016 Feb;278(2):311-2. PMID: 26789598. [Editorial]

**Prakash S, Venkataraman S, Slanetz PJ, Dialani V, Fein-Zachary V, Littlehale N, Mehta TS**. Improving Patient Care by Incorporation of Multidisciplinary Breast Radiology-Pathology Correlation Conference. *Can Assoc Radiol J*. 2016 May;67(2):122-9. Epub 2015 Nov 26. PMID: 26632099.

Prevost VH, Girard OM, **Varma G, Alsop DC**, Duhamel G. Minimizing the effects of magnetization transfer asymmetry on inhomogeneous magnetization transfer (ihMT) at ultra-high magnetic field (11.75 T). *MAGMA*. 2016 Jan 13. [Epub ahead of print] PMID: 26762244.

Ridge CA, Yildirim A, **Boiselle PM**, Franquet T, Schaefer-Prokop CM, Tack D, Gevenois PA, **Bankier AA**. Differentiating between Subsolid and Solid Pulmonary Nodules at CT: Inter- and Intraobserver Agreement between Experienced Thoracic Radiologists. *Radiology*. 2016 Mar;278(3):888-96. Epub 2015 Oct 9. PMID: 26458208.

Robson PM, Madhuranthakam AJ, **Smith MP, Sun MR**, Dai W, Rofsky NM, Pedrosa I, **Alsop DC**. Volumetric Arterial Spin-labeled Perfusion Imaging of the Kidneys with a Three-dimensional Fast Spin Echo Acquisition. *Acad Radiol*. 2016 Feb;23(2):144-54. Epub 2015 Oct 29. PMID: 26521186; PMCID: PMC4715920.

Shah RV, Kato S, Roujol S, Murthy V, Bellm S, Kashem A, Basha T, Jang J, Eisman AS, **Manning WJ**, Nezafat R. Native Myocardial T1 as a Biomarker of Cardiac Structure in Non-Ischemic Cardiomyopathy. *Am J Cardiol*. 2016 Jan 15;117(2):282-8. Epub 2015 Nov 6. PMID: 26684511.

Sharpe RE Jr, **Venkataraman S, Phillips J, Dialani V, Fein-Zachary VJ, Prakash S, Slanetz PJ, Mehta TS**. Increased Cancer Detection Rate and Variations in the Recall Rate Resulting from Implementation of 3D Digital Breast Tomosynthesis into a Population-based Screening Program. *Radiology*. 2016 Mar;278(3):698-706. Epub 2015 Oct 9. PMID: 26458206.

**Shenoy-Bhangle AS**, Nimkin K, Aranson T, Gee MS. Value of diffusion-weighted imaging when added to magnetic resonance enterographic evaluation of Crohn disease in children. *Pediatr Radiol*. 2016 Jan;46(1):34-42. Epub 2015 Aug 4. PMID: 26238966.

**Siewert B, Brook OR, Hochman M, Eisenberg RL**. Impact of Communication Errors in Radiology on Patient Care, Customer Satisfaction, and Work-Flow Efficiency. *AJR Am J Roentgenol*. 2016 Mar;206(3):573-9. PMID: 26901014.

**Slanetz PJ, Mullins ME.** Radiology Education in the Era of Population-based Medicine in the United States. *Acad Radiol.* 2016 Apr 11. pii: S1076-6332(16)00122-7. doi: 10.1016/j.acra.2016.01.017. PMID: 27079567.

**Soman S, Prasad G, Hitchner E, Massaband P, Moseley ME, Zhou W, Rosen AC.** Brain structural connectivity distinguishes patients at risk for cognitive decline after carotid interventions. *Hum Brain Mapp.* 2016 Mar 29. doi: 10.1002/hbm.23166. [Epub ahead of print] PMID: 27028955.

**Sun MR, Brook A, Powell MF, Kaliannan K, Wagner AA, Kaplan ID, Pedrosa I.** Effect of Stereotactic Body Radiotherapy on the Growth Kinetics and Enhancement Pattern of Primary Renal Tumors. *AJR Am J Roentgenol.* 2016 Mar;206(3):544-53. PMID: 26901010.

Travis WD, Asamura H, **Bankier AA**, Beasley MB, Detterbeck F, Flieder DB, Goo JM, MacMahon H, Naidich D, Nicholson A, Powell CA, Prokop M, Rami-Porta R, Rusch V, van Schil P, Yatabe Y; International Association for the Study of Lung Cancer Staging and Prognostic Factors Committee and Advisory Board Members. The IASLC Lung Cancer Staging Project: Proposals for Coding T Categories for Subsolid Nodules and Assessment of Tumor Size in Part-Solid Tumors in the Forthcoming Eighth Edition of the TNM Classification of Lung Cancer. *J Thorac Oncol.* 2016 Apr 20. pii: S1556-0864(16)30335-5. doi: 10.1016/j.jtho.2016.03.025. Review. PMID: 27107787.

van Grinsven J, van Brunschot S, Bakker OJ, Bollen TL, Boermeester MA, Bruno MJ, Dejong CH, Dijkgraaf MG, van Eijck CH, Fockens P, van Goor H, Gooszen HG, Horvath KD, van Lienden KP, van Santvoort HC, Besselink MG; Dutch Pancreatitis Study Group. Diagnostic strategy and timing of intervention in infected necrotizing pancreatitis: an international expert survey and case vignette study. *HPB (Oxford).* 2016 Jan;18(1):49-56. Epub 2015 Dec 20. PMID: 26776851. [**Mortele K**, Collaborator]

Wang S, Mei XG, **Goldberg SN, Ahmed M**, Lee JC, Gong W, Han HB, Yan K, Yang W. Does Thermosensitive Liposomal Vinorelbine Improve End-Point Survival after Percutaneous Radiofrequency Ablation of Liver Tumors in a Mouse Model? *Radiology.* 2016 Jan 18:150787. PMID: 26785043.

Yang W, Yan K, **Goldberg SN, Ahmed M**, Lee JC, Wu W, Zhang ZY, Wang S, Chen MH. Ten-year survival of hepatocellular carcinoma patients undergoing radiofrequency ablation as a first-line treatment. *World J Gastroenterol.* 2016 Mar 14;22(10):2993-3005. PMID: 26973395; PMCID: PMC4779922.

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Larson DB, **Kruskal JB**, Krecke KN, Donnelly LF. Key Concepts of Patient Safety in Radiology. *Radiographics.* 2015 Oct;35(6):1677-93. PMID: 26334571.

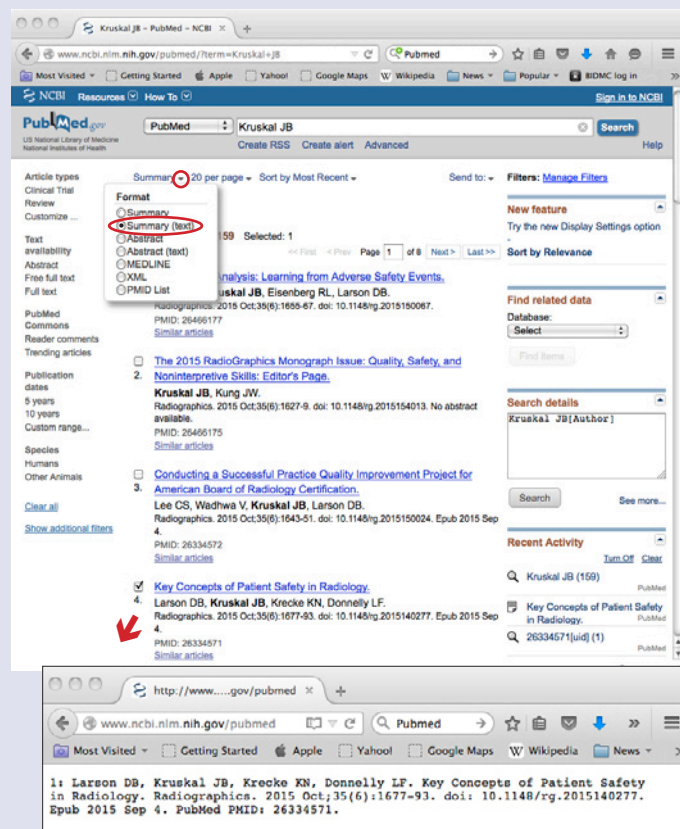
Ying Z, Chen M, Xie X, Wang X, Kherada N, Desikan R, **Mihai G**, Burns P, Sun Q, Rajagopalan S. Lipoicmethylenedioxyphenol Reduces Experimental Atherosclerosis through Activation of Nrf2 Signaling. *PLoS One.* 2016 Feb 9;11(2):e0148305. PMID: 26859892; PMCID: PMC4747573.

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