



SUMMER 2015 BULLETIN

The Pennsylvania Radiological Society

A Chapter of the American College of Radiology

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Overdiagnosis: Collateral Damage for our Preemptive Strikes

Is it surprising that physicians who are involved in the diagnosis of disease are also implicated in overdiagnosis? Surely not! Then why do we recoil at the mention of overdiagnosis? Why is overdiagnosis of cancer by screening a taboo topic for radiologists?

Taboos are not healthy for a scientific community. Science is not healthy for taboos. It is for this reason that I orchestrated a special edition in **Academic Radiology** on overdiagnosis. The edition will be out in August. I urge you to read the articles. You may not agree with everything, or with most of what has been written, but you cannot disagree with the fact that the issue of overdiagnosis, of breast cancer in particular, is receiving considerable attention in the media.

We can take charge of overdiagnosis. But in order to take charge we must acknowledge that a) overdiagnosis exists and b) overdiagnosis is something for which we share some responsibility. Increasingly, disease is defined at imaging, which is to say often it is the radiologist, not the pathologist, who defines disease. Furthermore, what we say in our reports leads to biopsies. Often biopsies are appropriate. Sometimes, it is like telling people to take the wrong exit off the freeway.

Writing in the issue, H. Gilbert Welch MD MPH, from the Dartmouth Institute, said “like it or not—what you radiologists say influences what we clinicians do.” Welch hit the nail on the head. So here it is, in a nutshell, ladies and gentlemen: with relevance comes responsibility. If we are not responsible for overdiagnosis and overtreatment then it logically follows that we are number generators not clinicians. I know you don’t really think that. And so, if we are clinicians, and I strongly believe we are, then we are culpable in overdiagnosing.

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Message from the President

In May, the Executive Committee and Board of Directors of the Pennsylvania Radiological Society met in Washington at the annual American College of Radiology meeting. This was the ACR’s first annual meeting under a new format, combining

leadership and governance activities with an extensive clinical component. Over 100 concurrent educational sessions were offered, including 48 SAM sessions.

I want to thank our new Executive Director, Monica Kline, for the outstanding job she and John Kline did to ensure that our meetings ran flawlessly. They handled everything including obtaining meeting rooms and times, putting together an excellent agenda (which was accessible online for the first time), arranging a terrific Fellowship dinner, assisting the PRS members-in-training who attended the meeting, along with a couple of hundred other things that I don't have the space, time or memory to enumerate.

On behalf of the PRS, I want to congratulate Michael Spearman, M.D., FACR and Terry York, M.D., FACR on becoming our Society's newest Fellows of the American College of Radiology. Also, I wish to thank all of the members of the PRS Executive Committee and Board of Directors for making the trip to Washington and contributing their collective wisdom and input, which remain vital to the continued success of the Society. I also need to thank all of our Councilors and Alternate Councilors who spent many hours reviewing the ACR resolutions, going over them in caucus and then discussing, debating and voting on them during the ACR Council Reference Committee sessions. And a very special thanks to Eric Rubin, M.D., for the tremendous job he did in his role as our Senior Councilor.

One of the highlights of ACR 2015 was the opening Presidential Address by Paul Ellenbogen, M.D., FACR. By painting a scenario of a dystopic alternate universe without an American College of Radiology, Dr. Ellenbogen's words emphatically reminded us why the College is, and always has been, invaluable to our profession.

There were some other points that Dr. Ellenbogen made that, while perhaps self-evident, are worth repeating:

"Radiology is a profession, not a business. The practice of Radiology is an art, not a trade."

And, delivered to a standing ovation:

"Do not focus on RVUs, which were developed to promote fair and equal payments. They were not intended to measure productivity of individuals."

I had the opportunity to attend quite a few of the CME sessions at ACR 2015. One of the most interesting was a session on ultrasound evaluation of thyroid nodules and the role we, as radiologists, play in the diagnosis (and overdiagnosis) of thyroid cancer. Some take-home points (interpret them as you wish):

- The incidence of thyroid cancer in the U.S. has risen threefold since 1975 so there are now 62,450 cases diagnosed each year. This makes it the eighth most common cancer in the U.S., the fifth most common among American women.
- Deaths from thyroid cancer have not changed over the same time period (1,890/year; 50% from the anaplastic subtype).
- There are over 600,000 Americans walking around with a diagnosis of thyroid cancer.
- 36% of people over age 30 who die from other causes have thyroid cancer at autopsy.
- After South Korea began a national thyroid cancer screening program with ultrasound, thyroid cancer incidence increased 15-fold. *It is now the most common cancer in South Korea.* 56% of them are 1 cm or less in size; 25% are less than 5 mm. Mortality has not changed.
- In the U.S., there is a geographic correlation between the incidence of thyroid cancer and access to health care (and, especially, to the prevalence of endocrinologists).
- Most cancers discovered by ultrasound are considered localized to the gland and have a 99.9% 5-year survival. In fact, as many as 90% may actually have lymph node micrometastases. But, even regional disease has a 5-year survival rate of 97.8%.
- Surgery for thyroid cancer is associated with 5% morbidity and a mortality rate of 1:1000.
- A Japanese study of over 1,000 patients with papillary carcinoma of 1 cm or less ("microcarcinoma") showed no difference in survival between early surgery versus periodic ultrasound follow-up (for up to 10 years). For those papillary microcarcinomas that were followed, 84% were unchanged in size or had grown less than 3 mm and 97% were nodal disease free at 10 years. This observational approach had no effect on mortality.

- The cost in the U.S. for work-up and management of thyroid nodules is \$1.6 billion/year and is projected to be \$3.5 billion by 2030.
- A conservative estimate is that 120,000,000 American adults have thyroid nodules. If all were managed by current guidelines, the annual cost would be \$132 billion.
- *In the U.S., thyroid cancer is the most common cause of personal bankruptcy among all causes, with a rate 3.5x that of the general U.S. population.*
- In the last 10 years, there has been one lawsuit claiming a failure to diagnose thyroid cancer; ultrasound was not involved and it resulted in a judgment for the defendant physician.

The ACR is working on “TIRADS”, a standardized system of reporting for thyroid sonography, modeled on BIRADS, LungRADS, etc. It is a two-part project. The first part, developing a lexicon, is just about finished. The group now has to begin work on recommendations. Also, the American Thyroid Association is putting finishing touches on its revised guidelines for management of thyroid nodules. Expect both to stress the following ultrasound findings: hypoechogenicity (especially “marked” hypoechogenicity), presence of calcifications/echogenic foci, shape of margins, “tall-greater-than-wide” and whether or not the nodule is uniformly solid. Importantly, neither group has found vascularity useful. Also, we will probably learn size does matter, after all (sort of). Stay tuned.

I would like to remind everyone again about our nascent project, “Ask a Radiologist”. This interactive website for the public remains in its embryonic stage. We need to “pre-load” it with Questions and Answers from the PRS membership so it has a sufficiently large, searchable database of Q&As to provide it with even rudimentary functionality for those who visit it.

I’d like to thank those of you who did submit Q&As, raising our total to about two dozen, but we need a lot more. The Ask a Radiologist ad hoc committee believes the site’s database should contain about 100 Q&As before launching.

So, please, consider spending a minute thinking of a question that a patient might ask you about any aspect of diagnostic or interventional radiology, radiation oncology or radiation biology/safety and how you would respond. I’m sure each one of us can recall at least one such real-life interaction in his or her career. All we are looking for is a short question (a single sentence will suffice) and an answer of two, three or four sentences.

You and your practice will appear at the end of the response.

Send your submissions to me at m.pollack@rcn.com.

When we go live, the submissions from the public will be anonymous, of course. We plan to make full use of print and social media to advertise the website. When appropriate, answers will contain links to other websites (e.g., Image Gently, Image Wisely, Radiology info, etc.) for additional information.



100TH ANNUAL MEETING

The Pennsylvania Radiological Society
Thursday, October 1 - Saturday, October 3, 2015
Rittenhouse Hotel, Philadelphia, PA

The 100th annual meeting of the Pennsylvania Radiological Society is only a few months away. We have an outstanding program planned at the Rittenhouse Hotel in Philadelphia.

Rooms are limited so do not delay making your reservations!

Bob Pyatt has once again put together a terrific CME course, which, for the first time, will span two days. The first series of lectures will be held on Friday, October 2, from 1 to 5 PM. Lectures continue on Saturday, October 3, from 8 AM until noon.

The Saturday session will conclude with a brief but enthralling presentation on the history of radiology in Pennsylvania by Luther Brady, M.D., FACR in honor of Jack Harris, M.D., FACR (more on Dr. Harris below). Dr. Brady is arguably the pre-eminent radiation oncologist of our time. He is a well-known history buff and sought after speaker. One of his prior presentations, among many others, was a history of radiation oncology in Philadelphia at the Philadelphia Roentgen Ray Society on the occasion of the centennial of Roentgen's discovery of the X-ray.

Saturday afternoon will be set aside as a time for attendees and their families to take advantage of the many entertaining venues available in Philadelphia. The Centennial Planning Committee, consisting of Bob Pyatt, Beverly Coleman, Rich Taxin and myself, along with Monica Kline, have been working to arrange transportation to several attractions, including the revamped Philadelphia Zoo, as well as docent-led tours of the Philadelphia Museum of Art and the Barnes Museum. If there is enough interest, we will work to secure tickets to matinees at one or more of Philly's fine theatres.

The Saturday night banquet will be held in honor of John H. (Jack) Harris, Jr., M.D., FACR. Dr. Harris was a radiologist at Carlisle Hospital from 1959 to 1979, serving as departmental chairman for 11 years. He also held a professorship in radiology at Jefferson from 1977 to 1979. In 1980, Dr. Harris joined the staff at Memorial Hermann Hospital in Houston, Texas and was chief of Emergency Radiology and, later, chairman of the department of radiology at the University of Texas Medical School at Houston (where I was lucky enough to have been one of his residents). He is the father of the subspecialty of emergency radiology, having literally written the book on the subject; *Harris and Harris' Radiology of Emergency Medicine* is currently in its 4th edition. Dr. Harris served as President of the PRS as well as Chairman of the Board of Chancellors of the ACR.

Our Honored Speaker will be Stephen Friend, M.D., PhD. Trained as an oncologist and pediatrician, Dr. Friend has held faculty positions at Harvard Medical School and Fred Hutchinson Cancer Center in Seattle. He is a pioneer in genetic research and integrating systems biology approaches to complex diseases. Dr. Friend is currently director of Sage Bionetworks, a nonprofit institution dedicated to conducting large scale biomedical research through active patient participation, transparent, open science, crowd-sourcing and broad networks of collaborative analysis (linked through a common software platform). He is a featured speaker on TED.com and has been recognized by the White House as a "Champion of Change." As a speaker, Dr. Friend is in great demand and we are honored he accepted our invitation. His talk will be "The Benefits of Sharing Data and Insights as We Enter the Participant Centered Digital World" and will address methods for incentivizing data sharing and how this paradigm can apply to mammography.

Last, the Philadelphia Roentgen Ray Society will be holding its meeting on Thursday, October 1, 2015 at the College of Physicians, located at 22nd and Market Streets, a short walk from the Rittenhouse. The Philly Roentgen Ray has extended an invitation to all PRS members. The meeting will run from 5:15 PM to 6:45 PM and will include cocktails, dinner and CME. Consider arranging your schedules so you can attend.

I look forward to seeing you in Philadelphia.

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Beware of "rule out" indications: The Case of ARVC

A 27-year-old complains of palpitations. The cardiology workup raises suspicion for arrhythmogenic right ventricular cardiomyopathy (ARVC). The recommendation: an implantable cardioverter-defibrillator (ICD) in case of a fatal arrhythmia. Should she get the device? When does the risk of the procedure outweigh the risk of a fatal arrhythmia? Risk-benefit assumes she actually has ARVC – a bigger assumption than we might like to believe.

ARVC is a rare cardiomyopathy which can lead to sudden cardiac death. It has a genetic predisposition which is incompletely understood. A task force was convened in 1994 and 2009 to develop guidelines for diagnosis. Cardiac MRI helps in diagnosing by quantifying right ventricular ejection fraction and identifying regional wall motion abnormalities.

In order to declare ARVC, the patient must meet two major criteria; one major and two minor criteria; or four minor criteria.

Cardiac MRI provides either a major or a minor criterion. Criteria may come from electrophysiologic testing, biopsy, genetic testing or a family history. The guidelines were developed and revised after a review of the literature. When studying a rare disease statistical biases are unavoidable. This means that we do not know when we call disease there actually is disease.

There is a challenge in diagnosing a rare disease with a spectrum of severity in the absence of a consistent gold standard, the arbiter of truth. Without a gold standard, there is uncertainty about the presence of the disease and its true prevalence.

We want to diagnosis ARVC early and intervene before sudden cardiac death. But often we want a lot without thinking about the side effects of what we want. To diagnose early disease we must lower the threshold for defining the disease and lower the threshold for its suspicion. This leads to false positives, overdiagnosis and overtreatment. Overtreatment with ICD is not trivial. Radiologists must be very circumspect of the “rule out ARVC” mindset. It is important to speak to the physician to find out the actual level of clinical suspicion. A false diagnosis is life altering for the patient.

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Congratulations!

Harvey L. Nisenbaum, M.D., FACR, FAIUM, FSRU, Past PRS President, Chairman, Department of Medical Imaging at Penn Presbyterian Medical Center in Philadelphia, PA, was elected President of the World Federation for Ultrasound in Medicine and Biology (WFUMB-<http://www.wfumb.org>) at the WFUMB World Congress 2015 Meeting, March 21-25, 2015 in Orlando, FL. WFUMB is a federation of 6 organizations: AIUM (American Institute of Ultrasound in Medicine), AFSUMB (Asian Federation of Societies for Ultrasound in Medicine and Biology), ASUM (Australasian Society for Ultrasound in Medicine), EFSUMB (European Federation of Societies for Ultrasound in Medicine and Biology), FLAUS (Federation of Latin America Societies of Ultrasound), and MASU (Mediterranean and African Society of Ultrasound). WFUMB has over 50,000 members, involves over 50 countries, and is dedicated to the advancement of ultrasound by encouraging research, promoting international cooperation, disseminating scientific information, and improving communication and understanding in the world community using ultrasound in medicine and biology. One important mission is to help bring sustainable ultrasound (US) programs to all the underserved areas of the world to help improve their healthcare.

At the graduation ceremonies of the University of Pennsylvania Perelman School of Medicine (PSOM) on May 16, 2015, Dr. Nisenbaum was awarded a Special Dean’s Award. This award recognizes outstanding achievements in medical education by the PSOM faculty members, particularly in the development of new, innovative educational programs. With the enthusiastic support of the leadership of PSOM and a generous grant, he was able to help develop and implement the Ultrasound Curriculum in the PSOM. Dr. Nisenbaum believes the appropriate use of ultrasound has become a core skill that all future physicians will need to learn.

The “Why” Question

When applying to residency, and perhaps to no one’s surprise, I always wanted to be asked during interview, “Why do you want to be a radiologist?” The “Why” question was an easy one to answer. After all, there was plenty to love about radiology - the challenge of solving a clinical diagnostic dilemma, the impact of catching an unsuspected Pancoast tumor, the satisfaction of revascularizing precious cerebral pneumbra. A better qualified medical student than I could discuss her scientific breakthrough, global health endeavor, and political leadership.

As medical students, we loved radiology for all the right reasons and wanted to talk about them. However, my generation of radiology trainees, the medical students who so eagerly entered this profession now grow concerned. Indeed, my upper class

colleagues were among the first to experience the radiology core exam. They were the first to experience the fourth year clinical concentration. They were the first to finish training not as board-certified radiologists, but board eligible.

The changes do not end with training. No, the world we graduate residency into is brimming with uncertainty. My generation of radiologists will face evolving hiring trends, increasingly impersonal workflow, and dwindling Medicare reimbursement rates. We will be frontline soldiers in the ongoing battle between on-site radiologists and evolving teleradiology practices. We will comprise the proud new face of our profession, tasked to prove its value.

Change can unsettle even the best-prepared residents. I attended a recent Philadelphia Roentgen Ray Society meeting on the impact of the new American Board of Radiology examination changes followed by a panel discussion. Trainees and established radiologists filled the room, the air thick with uncertainty. I sat in the audience trying to absorb all the changes in the new ABR examination, the curricular changes in the final year of radiology, and the rippling effects they may have on the hiring process. Dazzled, I wondered how a modern radiology resident could expect to succeed when the metrics of success is a moving target. Eager for fresh air, I walked around the city before returning home.

Treading the paved urban sidewalk that evening, I walked past one of the new high-rise apartments in the city. When I began residency training three years ago, it was a construction site, little more than a steel frame wrapped in concrete. A year later, the building stood tall with large glass window panes, its lobby furnished with chiseled marble and glistening tiles. A little further to the east, a fresh construction site broke ground, born from the husk of an old store. Nascent city-sponsored self-service bicycle renting eased busy traffic, and pedestrians hurried past taxicabs in favor of rides hailed from the Internet.

Our world changes by the day, and it brings a nervous energy that is equal parts uncertainty and excitement. Practice change occurs at all levels in radiology, often for the better. Increasing awareness of radiation exposure in the public brought dose reduction techniques and dual energy systems into the forefront of CT research. The evolving reimbursement patterns fueled the American College of Radiology's increasing emphasis on value-based imaging. Trainees who joined the profession looking for opportunities to improve care quality will find external change the best platform to introduce innovation.

Finally, some changes are frightening and some exciting, but parts of radiology simply have not changed at all. During a night shift several months ago a neurology resident asked me to review a head CT. The ordering provider did not see an abnormality but, "just wanted to be sure." On a careful second perusal, a thin sheet of dense material revealed to be layering hemorrhage in the left middle cranial fossa, subtle but unmistakable when viewed from proper projection. The patient received close follow-up and the expanding hematoma expediently managed overnight.

The fulfillment of peering into a clinical problem to make an impact on a person's life is a constant in radiology. In fact, so are most of those good answers that had compelled us to choose this profession in the first place. Perhaps therein lies the importance of asking ourselves the "Why" question. During this lengthy and rewarding training process, our answers to, "Why did I want to be a radiologist?" too will change. These answers form the compass as we wade through new uncharted waters. They give us the courage to sail ahead knowing the right direction, ready to tackle the thundering clouds that loom ahead.

I would not have a career any other way.

Po-Hao "Howard" Chen MD
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An end to the invisible radiologist

"[...] but, as a rule, I like to be alone and undisturbed."

H.G. Wells, The Invisible Man

Applying the invisible hand of the free market to patient care is a dubious proposition. The concept of the sick patient as "consumer of healthcare" is inaccurate at best and wicked at worst. It should make even the most callous of stomachs turn when hearing of people being forced to choose between their house and their heart transplant. Although increased access to health insurance is aimed at decreasing such tragic scenarios, hospitals will continue to operate within our economic boundaries; salaries have to be paid, the lights have to be kept on and constant upgrades need to be made. Radiology, a field

of swift technological advances, needs to be at the forefront of budget allocations for the acquisition of the most advanced equipment. Furthermore, increased emphasis on rewarding “quality” and “value” puts departments in an unenviable scramble to demonstrate their worth. But what if one of the business principles that causes the clinician to pause, can actually be the very idea that can make a radiology department flourish as an even more integral component of the healthcare team? What would happen if the traditionally isolated radiologist became more visible?

Let’s talk business. When it comes to diagnostic imaging, the consumer of radiology is not necessarily the patient, it is the ordering clinician. While the bleeding patient has little informed decision-making ability regarding whose care he receives, the patient’s internist and the hospital the patient goes to have an ever-expanding choice when it comes to contracting diagnostic services. Many community hospitals have indeed transitioned to teleradiology services for overnight reads. In an era of ever-increasing focus on quality and pay-for-performance, a radiology department cannot afford not to step back and reevaluate the value of its products. In an era of simultaneously decreasing availability of resources, a modern radiology department cannot afford to remain hidden in the basement reading room. The savvy radiology department is a visible one, and it behooves a savvy radiology department to pay better attention to the needs of ordering clinicians.

As a new radiology resident, fresh from the hospital floors during intern year, I was struck by the radiology department’s de facto isolation. In fact, sometimes it is easy to forget that one is working at a hospital at all, although an occasional visit from a clinical team served to remind me that the image on my screen was an actual human being. What can be done to bridge this divide? Radiology will always be central to patient care. However, we have rested on our laurels long enough. In this changing, value-oriented healthcare environment, how can the radiologist become a more visible, and in turn, a more valuable consultant?

In the June, 2015 issue of *RSNA News*, I read about an effort at New York University to improve communication between radiology and other hospital departments. As a quality improvement project, radiologists surveyed referring physicians and sought to improve relationships with clinicians (and, as a result, patient care) by implementing the referrers’ suggestions. As an example—and perhaps unsurprisingly—standardized reports were the most popular request. Similar sentiments have been voiced at my institution, and to my disbelief, this is somehow a controversial issue. Standardized forms and templates have been used time-immemorial to record complex information and they persist to this day in the patient’s chart as H&P forms, SOAP notes and consultation notes. Clinicians do not always have time to look at often-complex imaging studies and they deserve an easy-to-read report. The survival of the thousand-word narrative radiology report is mind boggling. In response to clinician requests, NYU developed structured report templates and a standardized lexicon. Such ideas are far from original, as the RSNA is attempting to address this issue through its Radiology Reporting Initiative. Although a standardized nationwide template would be ideal in a health system with increasing interconnectedness, hospital- or health system-wide standardized reports are a more attainable goal at this time. It should be no surprise that a standardized report is integral to the new pay-for-performance model and conveniently dovetails into proposed PQRS reporting measure sets. A radiology practice without standardized reports will be left behind as CMS shifts the focus on value and quality—undoubtedly vague notions that will nevertheless need to be measured somehow. The importance of standardized reporting is but one example of the valuable information to be gleaned from simply talking to our colleagues.

Does a focus on referring clinicians’ needs mean that our “customer” is always right? Not quite. Although simply listening to our patient-palping colleagues will yield a treasure trove of quality improvement projects, continued outreach must also encompass education about what it truly means to “image wisely.” It is true that a radiologists’ time is already a meager resource. However, the visible radiologist must be available to advise the referring physician when questions arise about study appropriateness. The ACR’s Appropriateness Criteria and the 2012 Clinical Decision Support Best Practice Guidelines have been created to reduce unnecessary imaging, cut costs and improve patient care. How many referring clinicians are aware of—never mind read—this information? They have enough to worry about. A valuable radiology department must educate referring clinicians about the basics of imaging appropriateness for there to be any true progress in curtailing misinformed test ordering. Such conversations may happen at multidisciplinary conferences, where radiologists can interact with and get to know their colleagues. Although we often will never see the patient, it certainly helps to know the doctor ordering the imaging test. Furthermore, multidisciplinary conferences are critical to hospital-wide quality improvement. Previously unconsidered quality issues will arise along with the opportunities to improve upon them. Such relationships are the bedrock for quality improvement and should be rewarded in the new pay-for-performance model.

The constantly evolving (or is it devolving?) healthcare landscape challenges all specialties, and some are better equipped to handle such changes than others. The shift to rewarding “quality” and proving “value” will create not only challenges but also opportunities. Within radiology, a way to demonstrate both our value and our commitment to quality improvement is to

eschew isolation. By increasing communication and building relationships with our referring clinicians, the previously invisible radiologist will become the valuable radiologist.

Further Reading:

- Henderson M. Surveying referring physicians benefits radiologists. RSNA News. June 2015; 13-14.
- http://rsna.org/reporting_initiative.aspx

Alex Boikov

Resident in Radiology
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A Resident in Harrisburg

This spring, I was fortunate to be selected by my residency program to attend the annual Pennsylvania Radiological Society’s “Capitol Hill Day.” Through the generous support of PRS donors, this one-day program serves the purpose of exposing residents to the state legislative process, interacting and educating legislators on medical and radiological issues, and becoming more familiar with the lobbying process and its critical function in government.

Hosted by John and Monica Kline, who have been lobbying on the behalf of Pennsylvania radiologists for years, we were shuttled around the Capitol in a whirlwind day of conferences and meet-and-greets. We discussed with legislators serious issues of import to radiologists across the state, including the recently-passed, contentious “Dense Breast” legislation, as well as a bill currently in the legislature that would require radiologists to provide reports to patients in “plain English.” Other topics discussed included the ever-increasing medical school debt burden, limiting pharmaceutical price increases, and legalization of medical cannabis. The day culminated with a quick visit with Mike Stack, the current Lieutenant Governor.

Although I have always been peripherally interested in public policy and have been a sustaining donor to RADPAC, this was the first experience that allowed me to understand the inner workings of the legislative process and the importance of having advocates to influence policy on our behalf. By design, legislators represent the “common man,” and thus are often ill-prepared to both recognize and address serious issues. We were regaled with stories of legislators concocting up laws after watching a Sanjay Gupta story on TV, or in an attempt to deflect political spotlight from an unrelated issue.

Despite this limited knowledge base, often sensational reactions to current events, and/or ulterior motives for advancing legislation, these elected representatives are ultimately responsible for crafting terribly intricate bills that have direct consequences on my life, work, and the lives of all radiologists. This experience energized me about the importance of staying abreast of current policy relevant to radiologists, and galvanized me to continue to be involved in the policy process. Furthermore, despite the often negative connotation associated with the word lobbyist, I quickly realized that we desperately need advocates like John, Monica, and the PRS to steer debates, keep an eye on upcoming legislation, and “have a seat at the table.” I now recognize the critical importance of paying for that seat.

Michael Paul Yannes MD

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Equipment Utilization Rate Assumption

Over the past 5 years, CMS has incrementally increased the Equipment Utilization Rate (EUR) Assumption to curtail spending on medical imaging. In essence, the EUR is simply one variable in an equation that determines the technical component reimbursement distributed per examination by Medicare under the Medicare Physician Fee Schedule (MPFS).

The technical component is meant to reimburse the overhead costs associated with diagnostic imaging. In 1997, the EUR was set at 50% for all imaging equipment by the Centers for Medicare and Medicaid Services (CMS). It was assumed that imaging equipment—whether an X-ray machine, MRI scanner or CT scanner—was in use 25 out of 50 hours during a typical work week.

The EUR is inversely related to technical component reimbursement. An increase in the EUR means the assumed overhead costs of a practice are spread out over more scans per day, thus resulting in lower technical reimbursement on a per scan basis.

The first increase in the EUR occurred in 2010, and by January 2014, the EUR had increased from 50 to 90%. These adjustments to the EUR apply only to equipment that costs over \$1 million, meaning it applies to advanced imaging such as MRI, CT, and PET but not radiography. These increases in part were the result of reports released by MedPAC and the Government Accountability Office (GAO) between 2005 and 2009 which identified increased utilization of advanced imaging modalities as well as imaging performed in physicians' offices and free-standing imaging centers as sources of rapid growth in health care spending.

The justification for increasing the EUR arose from a 2006 MedPAC survey regarding MRI and CT utilization at imaging centers in six urban areas. By MedPAC's own admission, the survey was not nationally representative and was not designed with the intent to impact policy decisions. Nonetheless, the results of the survey were cited as justification for future EUR increases. Whatever the justification for the EUR increases, the savings have been used both to reduce expenditures within the MPFS and to fund broader government programs. A secondary intent may have been to decrease inappropriate or overall utilization of imaging, although most radiologists are not involved in self-referral and therefore cannot control utilization.

It is difficult to isolate the impact of EUR changes on the practice of radiology, given the number of other reimbursement cuts which have occurred over the same time period. An important aspect of the EUR cuts has been its discrepant impact on non-hospital based imaging centers. The EUR only applies to the MPFS, which reimburses outpatient imaging performed in physician offices and at free-standing imaging centers. Hospital-based outpatient imaging, on the other hand, is reimbursed by Hospital Outpatient Prospective Payment System (HOPPS), and therefore has not been affected by these cuts.

Ultimately, the EUR adjustments have left free-standing and in-office imaging services at a disadvantage. MedPAC has repeatedly hinted a desire to lower reimbursement for hospital-based outpatient imaging to match that of free-standing and in-office imaging centers, although to date this has not yet happened.

While the dust has not yet settled with regards to the new 90% EUR, it has certainly begun to impact the field of radiology. Surveys performed by the ACR and Radiology Business Managers Association (RBMA) have concluded that 90% utilization rate is not representative of actual practice. Nonetheless, imaging centers are attempting to adapt. According to Dr. Ezequiel Silva, Vice Chair of the ACR Commission on Economics, "the 90% EUR assumption has forced practices to increase throughput and reduce clinical staff, which has the potential to lower the quality of the patient's overall experience."

Given the current climate in radiology, clinical ability and quality service is not sufficient to ensure success. Sound business decisions, efficiency and adaptability are more important than ever to ensure survival given decreasing reimbursement. On a broader scale, radiologists must strive for increased visibility within the healthcare team and prove the value of our work, such as through outcomes-based research. In so doing, we can solidify our role and justify our stake in any future healthcare delivery model.

Andrew Wilmot MD
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Reflections on the Residency Match 2015

"In times like these it is good to remember there have always been times like these."

Paul Harvey, American broadcaster

2015 marked yet another nadir in the diagnostic radiology resident match, which has been on a steady decline since 2009, and the single worst year since 1996. 150 positions in radiology went unfilled, representing 13% of the total unfilled positions in the match conducted by the National Resident Matching Program (NRMP) and nearly doubling from the 81 unmatched spots in 2014. Sixty four program directors (28%) were left to search for applicants to complete their incoming 2016 class.

For NCAA basketball coaches, being in the group of 64 means an invite to the big dance; for radiology program directors, inclusion in the group is not an enviable position. Continuing with the doom and gloom, only 56% of the positions filled

were taken by U.S. seniors. Concerns have been raised that the quality of the applicants is declining; however, data from the NRMP does not support this. The average step 1 USMLE score for radiology applicants has risen from 235 to 241 over the last several years. Applications are overflowing with a diverse portfolio of academic achievements, research, international medical experiences, and leadership positions. Students continue to come to the interview emitting photons from their eyes regarding the contributions of radiologists to patient care, even with the knowledge of a decline in the radiology job market. They have seen the power that imaging has in medical diagnosis, and they want to be at the forefront.

Perhaps we should focus on a bigger picture. In 2013, a record high of 20,055 students enrolled in U.S. medical schools. These medical students will require additional training in residency programs to become gainfully employed as physicians. The multiple specialties that do not have the training positions to accommodate all their student applicants include 5 surgical subspecialties, dermatology, radiation oncology and ophthalmology, and routinely turn away U.S. seniors who are amongst the best in their classes. These students end up matching to radiology during the SOAP (supplemental offer and acceptance program, previously known as the “scramble”).

Being a consolation prize, residency isn't all that bad; average USMLE step 1 and 2 scores and medical school transcripts for the SOAP applicants are comparable to the first round radiology applicants. Of the 145 radiology positions available for these U.S. seniors through the SOAP, only 6 went unfilled. One could question these students' commitment to radiology, however even those students, for whom diagnostic radiology was their preferred choice, may waver and decamp to other fields. It should be emphasized that these are not students who could not make it in any other discipline, rather that they didn't gain admission to the most elite specialties in medicine. These “refugees” entering radiology for the most part seem happy to have a subspecialty residency rather than ending up in primary care. More time and research will be needed to see how these budding radiologists fare in the long run.

One could rightfully argue that radiology has no responsibility to serve as a haven for these students particularly as multiple authors have called for a reduction in the number of radiology residents. Anecdotes regarding job seeking difficulties amongst graduating radiology fellows abound. Real statistics are difficult to obtain as workforce surveys address those who were hired. According to the 2014 ACR commission on human resources work survey, 1069 radiologists were hired, similar to the number of graduating residents and slightly above the 999 positions offered in the 2015 match.

Projections through 2017 suggest the number of radiologists hired will remain relatively flat. At some point, perhaps strengthened by the resurgence of the economy since 2008, some of the 2,251 radiologists over 65 are bound to retire. Even a 10% retirement rate in this group would increase available jobs by 20%. What is currently perceived as a glut in radiologists could turn into a shortage overnight. How many radiologists would relish the thought of having to work even harder because they can't find suitable candidates to hire? Our specialty faced a similar situation in 2000 after residency positions were decreased due to a sagging job market. Once ACGME positions are relinquished, the positions are not easy to restore, and the funding within the institution will have been redistributed to other residencies. If we don't continue an adequate supply of imaging specialists to the market, the amount of imaging performed by non-radiologists (currently more than half of all imaging) will continue to grow. While it is unlikely that we can gain back these procedures, decreasing the number of radiologists will only leave our profession open to lose more “turf.” For many, the opportunity to reclaim the overnight work exists, painful as it may be. In my hospital, there has been a growing trend for physicians in multiple subspecialties to be in house 24/7; it does not improve our image with our clinicians by outsourcing work to unknown entities half a globe away.

The 2015 Medscape Physician Report ranks radiologists #6 in income rank but only #17 in career satisfaction. If we followed the recommendations of Drs. Levin and Rao in their April 2013 JACR article by hiring fellows to improve the job market, it is almost certain that our income rank would drop. But perhaps by slowing the frenetic pace and decreasing the long hours that many radiologists work, the rise in career satisfaction would outweigh the income decline.

In summary, 2015 was the worst year for the first round of the match in nearly 20 years. However, there are well qualified U.S. seniors who select radiology as a second choice, leading to a nearly 100% fill rate for radiology residency spots. Once ACGME positions and/or institutional funding is relinquished, restoring positions and/or dollars will likely be difficult at best. We should consider the

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Patient Test Results Bill. Good intentions, Bad result

Representative Marguerite Quinn (R-Bucks County) has introduced a bill in the Pennsylvania House of Representatives that would require patients be notified directly of the results of any radiological test. Quinn's attempts to get the bill to the governor's desk have been unsuccessful for at least the past three legislative sessions or six years. The current version, HB 1233, is before the House Health committee. Representative Quinn's efforts stem from two constituents who died and were not advised of conditions identified in radiological reports. In those cases, the communication process between the attending physician and the patient broke down. While we recognize that Quinn's efforts are noble, we believe the mandate could cause more problems than the one it seeks to solve.

PRS officers, Legislative Committee members and legislative staff have met with the representative to express concern on a number of fronts. First, Radiologists conduct reports not summaries. Second, the language used in these reports is technical and scientific. Without training, many terms would be unknown. This could result in undue anxiety to the patient. Third, the logistics and cost of creating a notification system would be complicated and expensive. Fourth, the bill requires direct notification if a "significant abnormality" is observed. The language that defines significant abnormality however, is subjective. Fifth, HIPPA requirements are not even addressed in the bill. The most compelling concern, we believe, is that this mandatory notification process short circuits the treatment process. As we have explained in numerous face-to-face meetings, the radiological report is sent to the attending physician to be used in meeting with and treating the patient. We fully recognize that in Pennsylvania, like other states, the records belong to the patient; but it's the process of the flow of that information that causes problems.

The advent of electronic medical records systems and the patient notification features of these systems have strengthened the notification process and many safeguards are in place to ensure patients are properly notified. These systems are constantly becoming more robust and effective. PRS officers have made it clear that radiologists are always available to meet with patients but a lot of interaction is with the patient's attending physician.

Offers by PRS to compromise have been made but rejected. For example, we would accept a requirement to notify a patient that a test was conducted and they should contact their physician. We continue to work with committee staff and leadership to ensure our position is known. If the bill passes the committee and the House, we are prepared to make our case in the Senate.

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All About That Dose, 'Bout That Dose

In medicine, July 1 is a day of transition and new beginnings. Graduating trainees leave to start fellowships and jobs, new residents and fellows begin their training, and budding radiologists begin their first jobs.

Over the next 12 months, radiologists nationwide - whether seasoned or novice - will face two major transitions. On July 1, 2015, The Joint Commission's (TJC) Revised Requirements for Diagnostic Imaging Services go into effect. Six months later, on January 1, 2016, the Center for Medicare and Medicaid Services (CMS) will decrease reimbursements for CT examinations performed on "non-compliant" equipment.

If you're thinking to yourself, "Dose reporting, CT equipment, that's the physicists' domain--I'll have her read this column," think again. Our bottom line is at stake. But more importantly, the ACR's Imaging 3.0 initiative teaches us that we should be involved at every step of the imaging examination: before, during and after. Dose reporting and CT equipment compliance, while we don't necessarily have to manage the minutiae thereof, are integral non-interpretive components of CT.

Something for now...

Thanks to S.B. 1237, radiologists in California have just celebrated (mourned?) three years of required dose reporting requirements. Most of them have not been typing, dictating, or copying and pasting volume CT dose index (CTDIvol), dose-length product (DLP) and size-specific dose estimates (SSDE) into their reports. Creative solutions developed by both radiation exposure monitoring vendors and dictation/voice recognition vendors have facilitated the seamless injection of CT radiation

dose indices directly into patient reports. As an unintended consequence, California's radiologists have become increasingly aware of that the range of values for these parameters are for different exam types, and they are more adept at identifying outliers. When TJC announced that they were implementing nationwide CT dose reporting requirements for July 2014, we all expected to follow in California's footsteps.

Surprisingly, TJC both postponed the new requirements for a year, and backed away from requiring radiologists to include CT dose indices in their reports. Instead, dose indices must be recorded for every diagnostic CT exam performed on equipment capable of generating these data, and they must be available for analysis and identification of outliers. To their credit, TJC notes that while CTDI, DLP and SSDE are useful in radiation exposure monitoring, they do not represent actual patient dose, and should not be used as such. You can read more about the new requirements for dose monitoring as well as quality assurance on the ACR's website (<http://www.acr.org/Quality-Safety/eNews/Issue-10-June-2015/New-Requirements>) as well as on TJC's website (http://www.jointcommission.org/assets/1/6/HAP-CAH_DiagImag_Prepub_July2015release_20150105.pdf).

Something for later...

While January 1 is usually met with party hats, noisemakers, falling crystal balls and parades, 2016 will be the bearer of bad news if we remain unprepared. Section 218 of the Protecting Access to Medicare (PAMA) Act that went into effect in March 2015 describes quality incentives for CT. Specifically, starting in 2016, any CT exams performed on equipment that is non-compliant with the National Electrical Manufacturers' Association (NEMA) XR-29 Standard will have the technical component and any applicable prospective outpatient payments decreased by 5%. Starting in 2017, reimbursements will be decreased by 15%.

So what is XR-29? Also known as the Medical Imaging and Technology Alliance (MITA) Smart Dose Initiative (<http://www.medicalimaging.org/policy-and-positions/mita-smart-dose/>) or the Standard Attributes on Computed Tomography (CT) Equipment Related to Dose Optimization and Management, it consists of four components:

- radiation dose structured reports (RDSRs), which allow CT dose indices to be stored as discrete data elements in the DICOM study header;
- automatic exposure control, also known as tube current modulation, that adjusts the X-ray tube current based on the density of the region being imaged;
- XR-25 Dose Check, which produces notifications and alerts on the CT console during an exam when specific thresholds could be exceeded during a scan; and
- pediatric and adult reference protocols loaded on CT equipment.

All CT equipment currently available for sale in the United States is compliant with XR-29. Equipment purchased within the last 5 years can most likely be upgraded by the vendor (at some cost) to be made compliant, however, older equipment may not be eligible for these updates. A white paper from MITA offers some guidance on determining compliance eligibility (http://www.medicalimaging.org/wp-content/uploads/2015/05/Is-Your-CT-Smart-Dose-Compliant_Whitepaper_Final.pdf), and your equipment vendor will have the most accurate information.

If you are a radiologist who interprets CT exams, these changes from TJC and CMS will undoubtedly affect your practice. Don't think you are being pound wise and penny foolish ignoring them. Pennies, ultimately, make a pound.

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