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The Journal of AHRA: The Association for Medical Imaging Management

Clinical Decision Support: Implementation Lessons



By Sheila M. Sferrella, MAS, RT(R), CRA, FAHRA

Referral Management: An External Market Analysis



By Usha Nandini Raghavan,
PhD, Christoph Wald, MD, PhD, MBA,
and Christopher Hall, PhD

Incidence of Bullying in the Radiology Workforce: A Single-Institution Study

By Edward I. Bluth, MD, FACR, Joseph Savoie, MHA,
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Critical Aspects of Multigenerational Team Building

By Jason T. Costanza, MS, RT(T), CMD
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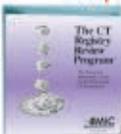
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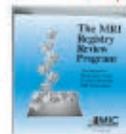


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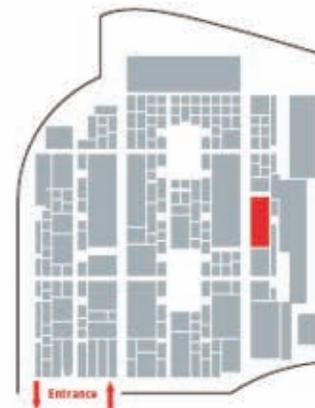
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Onward, Friends...

By Debra L. Murphy, CAE

The first column I ever wrote for *Radiology Management* in 2006 was titled “Diversify for Success.” I had no idea just how much I would learn over the next 11 years about the truly diverse nature of healthcare, imaging, and leadership. This issue marks the last for me as managing editor of the journal.

Waaaay back in 2006, we were talking about PACS storage and site visits, CR, and the potential for crossover with imaging and cardiology. And there were only 553 CRAs (today there are 1,190). But we were also talking about modifiers, customer service, and performance management—so not everything changes. Who knew that the regulatory world of pesky DRA cuts in 2005 would be a blip compared to the CDS, XR-29, and CR/DR reimbursements cuts of today? Imagine what 2028 has in store.

Thanks to AHRA, I have become a better leader. Or, more accurately, “a” leader. This little thing you all do with leadership in medical imaging transcends industries. I have been listening to your educational sessions, watching all of you at meetings, and reading every word of this publication (for the record: that’s approximately 70 issues, 800 articles, and a gazillion words). As a collective, you’re an inspiration. It was a privilege to be a small part of helping you do your jobs better, which ultimately helps your patients, which ultimately (ultimately) makes the world a teenier bit nicer to be in.

Many of you have become colleagues and friends and so this is merely a see you later, not a good bye. Onward, friends . . . 🍀

Deb Murphy (was) the Deputy Executive Director at AHRA. She (was) also managing editor of Radiology Management. She considers it an honor to have been a part of this amazing organization—and it made that time her son was put in a Pigg-O-Stat slightly less frightening.

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Rowing the Boat in the Same Direction

By Paul Dubiel, MS, RT(R), CRA, FAHRA

I grew up in a part of Brooklyn by the Atlantic Ocean called Sheepshead Bay. From an early age, I have always been around and in the water. My father and uncle would take my sister and me to Coney Island every Sunday morning in the summer for a couple of hours of swimming and sandcastle building. We arrived there early, way before the crowds showed up and way before the water had enough time in the sun to get above freezing, but we didn't care—we were at the beach.

Once I started going to school my best friend at the time loved to go fishing and I started to go with him every chance I had. We fished in the bay, off the piers, in a mariner, everywhere there was water and a fish we were there. When we started high school, we graduated to going on one of the many fishing boats that filled Sheepshead Bay that took people from all over New York City out on the ocean with the hopes of catching enough fish to make the trip worth the effort.

One of my first jobs in life was to make sure the people who came on the boat rented a fishing pole and tackle if they didn't bring their own. Later, selling beer and soda was added to the tackle rental business (yes, I was underage selling beer, but I was at sea and land laws don't apply). Since there were long breaks between fishermen buying tackle and beer I had plenty of time to fish and just watch what was going on around

me. What I know today, but didn't know then, was that I was watching a number of staff and boat-mates coming together and working as a team to provide customer service for a bunch of fisherman with different levels of experience wanting to catch fish.

It took a while, 40 years to be exact, for me to see the hierarchy and structure of what was going on during those many fishing trips. What at times looked like anarchy was actually controlled chaos with the captain in charge giving the first mate orders to ensure the safety of the people on board. The first mate then worked with the other mates on the boat to ensure what the captain said was followed out. This wasn't as easy as it seemed since, just like in your department, there are a number of different characters involved at all different levels of training and competency all trying to create a safe and pleasant environment for their customers. There were experienced mates who the first mate relied on to do the more complicated tasks and then a variety of mates either in training or working their way up the ladder to do more complicated tasks and, with that, get more pay.

Just like in your department the mates were not all equal in ability or drive. While many mates wanted to take on more responsibility and move up the ladder, with some eventually wanting to sit in the captain's chair,

others were just happy having a job, doing the minimal amount of work to get by, and waiting for the next best thing to come along to jump ship for a better opportunity. Sounds like your department, doesn't it?

I just finished reading a book by Daniel James Brown called *The Boys in the Boat*. It's the story of the University of Washington rowing team and their struggles to get to the 1936 Olympics in Berlin. Back in the early part of the 20th century rowing was as popular as college football is today and the University of Washington was considered a powerhouse in the rowing world. But it wasn't always that way. The book focuses on the struggles the rowing team had to face to get to the Olympics. The story focuses around the different men who came to the university for a chance to row and to make a better life for themselves and their families. The book takes place around the time of the Depression, so many of the rowers involved had to struggle to get the funds to get to college and needed to work through their stay to make ends meet. They came from different cities, different circumstances, different ability levels, but with one goal—to be the best and win the gold medal in Berlin. When they started as freshmen they weren't the high caliber, finely honed team they were when they arrived in Berlin. They were a bunch of talented individuals not

used to having to rely on others to get where they needed to go and be successful as a team. That job was left to the coach who was more than a coach, but also a mentor and father figure.

His job was to assess the talent he had available, determine who was the best fit for the team, and tweak the team so the best combination of rowers were in the same boat. He also had to make sure those rowers came together and functioned as a team and not as a bunch of individuals only looking out for themselves; and constantly motivating, correcting, and praising for a job well done. When you think about it, isn't that what we as imaging leaders are also meant to do? Isn't our first responsibility to the people we lead to give them guidance and direction to make them the best they can be and in turn provide optimal service and care to our patients and their families? I know this is becoming harder and harder to accomplish with all the distractions in healthcare. It's not easy to focus on staff when the pressure to reduce staff and hit productivity targets is so great, but for us to be successful and for us to make our staff successful we need to step back and make sure we are all rowing that boat in the same direction. No one can make that happen better than you. I won't give away the ending of the book, but I do recommend you read it because it goes into much more detail about the lives of the men in the boat and how they pulled it all together. I promise you won't be disappointed.

On a different note, I need to say goodbye to an integral team member of this journal who has been the backbone and driving force of the journal since 2006. Deb Murphy, the true editor of the journal, is moving on after 11 years at AHRA. When she told me she was leaving I immediately thought it was a combination of my bad jokes, silly puns, and mangling of the written English language, but she assured me that had nothing to do with her decision (although once she found out I was a NY Giants fan she just couldn't deal with me any longer). Seriously, though, Deb will

be missed by all of AHRA and especially me. She has guided and molded one of the most successful and reputable journals for over 10 years and has taken me from a reluctant writer, to an Editorial Review Board member, to the editor-in-chief, and I could not have done it without her (so blame her if you don't like my articles). AHRA and I will truly miss her and wish her well as she starts a new chapter in her life. I won't say goodbye, but until we meet again. You will be missed. 🌻

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ACA and CDS Update

By Bill Finerfrock and Nathan Baugh

In late July, Republican plans to repeal and replace the Affordable Care Act (ACA) by the August recess were dealt a stinging blow. In a make-or-break plan to pass an ACA repeal and replace bill with only GOP support, Senate Republicans came up one vote short in a late night vote-o-rama.

By a vote of 49–51, the Senate rejected a last-ditch proposal by Senate Majority Leader Mitch McConnell to pass something—anything—that could move the repeal and replace initiative to the next step in the legislative process: a House/Senate conference committee. Instead, Senators Lisa Murkowski (R-AK), Susan Collins (R-ME), and John McCain (R-AZ) joined the entire Democratic caucus and voted against a so-called “skinny” repeal and replace bill.

The “skinny” bill included only the most popular (at least among Republicans) aspects of ACA repeal and replace. The goal was not necessarily to pass a small bill, but simply to get the legislation through the Senate and into a conference committee with the House.

Majority Leader McConnell argued that he could strike a broader grand-bargain in the conference committee that could win GOP only majorities in both chambers. However, the defeat of the “skinny” bill means that McConnell must go back to the drawing board. And go back to the drawing board they will. To paraphrase the immortal words of the great American humorist Mark Twain, “reports of the death of ACA repeal and replace efforts are greatly exaggerated.”

While previous setbacks to ACA repeal and replace were followed shortly thereafter by breakthroughs in negotiation, this latest road block appears likely to force Republicans to focus on other items before returning to healthcare. However, it would be a mistake to conclude that healthcare reform is “dead.” President Trump has made it clear that he wants Congress (ie, Republicans) to continue to work on repeal and replace legislation and appears to be turning up the political pressure on the Senate to reconsider the issue.

Furthermore, we expect that the Senate Committees with jurisdiction over healthcare policy, the Senate Finance Committee and the Senate Health, Education, Labor and Pensions (HELP) Committee, will hold public hearings on the ACA and potential reforms. While these hearings themselves will be bipartisan, it is unlikely they will result in bipartisan legislation. This attempt at reaching out to the minority party could set the stage for a future repeal and replace initiative.

It should be noted that in voting with the Democrats on the “skinny” bill, Senator McCain seemed to cast his vote more out of anger over the process used to get to a vote, rather than the substance of the proposal under consideration. This suggests that were the Senate leadership to pursue a more transparent and open process, the leadership could regain Senator McCain’s support and get the Senate GOP to “yes.”

With ACA repeal and replace stalled for the time being, President Trump has

some difficult decisions to make. His administration has significant authority to change aspects of the ACA through regulation; the most publicized of which is the continued payment of the so-called cost-sharing reduction (CSR) subsidies. These subsidies are payments from the federal government to insurance companies that are designed to lower the out-of-pocket healthcare costs for individuals making less than 250% of the federal poverty line.

Due to a pending court case between the federal government and Congress, President Trump has the ability to effectively halt the payments at any moment. A federal District Court has already ruled that the original payments made by the Obama Administration were made without legal authority to do so. The Obama Administration appealed the ruling and the judge’s decision was put on hold pending the outcome of the appeal. President Trump could decide to drop the appeal and accept the District Court’s ruling. Insurers warn that such an action will result in higher premiums on the individual market.

The Trump Administration also has control over the advertising budget for plans on the individual market. Will they actively market healthcare.gov plans to individuals to increase enrollment? We’ve already seen nearly 1 million fewer people enrolling through the Exchanges in 2017 compared to 2016 at the same time.

Herein lies the difficult decision facing President Trump: should he take

steps to undermine key aspects of the ACA which would almost guarantee its failure? Doing so would force Congress to take steps to either replace the ACA with something else OR pass legislation making major changes to the ACA in hopes of retaining some of the more popular components. In doing so, however, millions of people could lose health insurance coverage waiting for Congress to act. Or, does the President move to stabilize the individual market in the hope that with time, the GOP Congress will still come to a consensus on repeal and replace?

There is an argument to be made for both sides. On one hand, actively pushing the system into collapse may provide the leverage necessary to pass true reform in Congress. On the other hand, the public may blame President Trump, not President Obama, if it appears as if he is sabotaging the law. And, perhaps most important, millions of people could lose their health insurance coverage while waiting for Congress to act.

A third option for the Trump Administration is a “hands off and let it fail” approach. However, even this option carries political risk. If the system does indeed fail on its own—a contested proposition—who will the public blame? Will the Republicans or Democrats own the negative healthcare headlines at that point?

The Trump Administration had hoped to avoid having to make these decisions, preferring instead to implement the transition out of the ACA and into the Republican replacement. However, now that the ACA remains the law of the land, at least for the time being, these difficult decisions are being thrust upon the Trump Administration whether they like it or not.

While inside-the-beltway political predictions have had a rough year, we would expect one of the following outcomes:

1. Republicans revive efforts to pass “repeal and replace” legislation after holding hearings to show that the

“regular order” approach would still result in unanimous opposition by Senate Democrats.

2. Republicans and Democrats find some common ground on a few “fixes” to the ACA. A bipartisan “Problem Solvers” caucus has indicated that they are interested in pushing this option.
3. There is no further legislative action on the ACA or healthcare this year.

Delay on Clinical Decision Support Mandate

On July 13th, the Centers for Medicare and Medicaid Services (CMS) published the 2018 Medicare Physician Fee Schedule Proposed Rule.¹ The big news is that CMS is proposing to delay the Clinical Decision Support/Appropriate Use Criteria (CDS/AUC) mandate by a full year. The effective start date is now January 1, 2019. AHRA advocated for this delay and we are pleased to see that CMS recognized that there are operational considerations to make before implementing such a significant mandate.

The timeline can get a little confusing so we wanted to breakdown what has been proposed:

1. **Voluntary Reporting Period.** CMS will implement a voluntary reporting period sometime around July of 2018. At this point in time, the Medicare claims system will be ready to accept and process claims that include AUC consultation information. However, AUC consultation and reporting is not required during this voluntary reporting period.
2. **Educational and Operational Testing Period.** This period is proposed to begin on January 1, 2019. CMS explains that “During this period, ordering professionals would consult AUC and furnishing professionals would report AUC consultation information on the claim, but we would continue to pay claims whether or not they correctly include such

information. This educational period allows professionals to actively participate in the program while avoiding claims denials during the learning curve.” CMS notes that it does not expect to continue the educational and operations testing period beyond the first year of the AUC program.

AHRA will seek further clarification on how this period is intended to work. The most obvious questions that come to mind are: Will a claim that has NO AUC information whatsoever still process? Or will CMS expect claims to have SOME AUC information (correct or not) in 2019?

3. **Full Implementation.** If the timeline holds as proposed, full implementation will begin on January 1, 2020. At this point, CMS will expect all required AUC information to be correctly appended to all applicable imaging claims. Claims that fail to meet this requirement would be denied.

Of course, the CDS/AUC timeline is just one aspect of the mandate. CMS also proposed how they expect the AUC information to be added to each and every applicable claim. As a refresher, the required AUC data elements are:

- Which qualified CDS mechanism was consulted by the ordering professional;
- Whether the service ordered would adhere to specified applicable AUC, would not adhere to specified applicable AUC, or whether specified applicable AUC were not applicable to the service ordered; and
- The NPI of the ordering professional (if different from the furnishing professional).

To implement these billing elements, CMS is proposing a series of G-codes, one per CDS mechanism as well as three to-be-developed modifier codes which would indicate adherence, non-adherence, or the non-applicability of the service.

CMS writes that “G-codes would be a line-item on both practitioner claims

and facility claims. We would expect that one AUC consultation G-code would be reported for every advanced diagnostic imaging service on the claim. If there are two codes billed for advanced imaging services on the claim then we would expect two G-codes.” CMS would also develop additional modifiers to describe situations where an exception applies such as emergency medical condition or significant hardship exception for the ordering professional.

AHRA has concerns about the G-code plus modifier approach and the Regulatory Affairs Committee will engage with CMS throughout the implementation of the CDS/AUC mandate. We will be sure to keep the community updated through the AHRA Forum, website, and of course, this column on all the CDS/AUC developments as they occur. 📢

Reference

¹Centers for Medicare & Medicare Services (CMS). “Medicare Program; Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Part B for CY 2018; Medicare Shared Savings Program Requirements; and Medicare Diabetes Prevention Program.” July 21, 2017. Available at: <https://www.federalregister.gov/documents/2017/07/21/2017-14639/medicare-program-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other-revisions>. Accessed August 7 2017.

Bill Finerfrock is the president and owner of Capitol Associates, a government relations/consulting firm based in Washington, DC, who has partnered with AHRA on their regulatory affairs issues. Nathan Baugh is an associate with CAI. They can be contacted at bf@capitolassociates.com and baughn@capitolassociates.com.



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Clinical Decision Support: Implementation Lessons

By Sheila M. Sferrella, MAS, RT(R), CRA, FAHRA

The credit earned from the Quick Credit™ test accompanying this article may be applied to the operations management (OM) domain.

EXECUTIVE SUMMARY

- A brief background of Clinical Decision Support (CDS) is provided, as well as an overview of a survey that AHRA conducted in early 2017 to assess where members are in the implementation process. Some were interviewed and a summary of lessons learned from different types of organizations across the country are provided.
- Allow a timeline of 12-18 months for budget approval, planning, interfaces, testing, and implementation. Both the results of the survey data, as well as the detailed stories here, show that this should be the baseline expectation.
- Notable lessons learned from the AHRA members who have implemented: set clear goals and develop a compelling story; develop processes for nurse practitioner/ physician assistant orders, written vs. electronic orders, and verbal orders; and it's an absolute necessity to develop reporting at implementation.

Utilization of Appropriate Use Criteria (AUC) was introduced in Section 218(b) of the Protecting Access to Medicare Act (PAMA) of 2014 for advanced diagnostic imaging studies which include CT, MRI, and nuclear medicine (including PET). The Centers for Medicare & Medicaid Services (CMS) set the original deadline for consulting AUC as January 1, 2018. In the Medicare Physician Fee Schedule (MPFS) Proposed Rule released on July 13, 2017, CMS is proposing to delay this date to January 1, 2019. The requirement is that the ordering professional must consult AUC through qualified CDS mechanisms (CDSMs) which were included in the rules (see Box 1). In addition, CMS states that the AUC information must include the CDSM used, AUC applicability, and the NPI of ordering professionals on all claims. This includes payments received through the Outpatient Prospective Payment System (OPPS), MPFS, and Ambulatory Surgery Center (ASC) payment systems for all Medicare outpatients. Emergency medical conditions are an exception. Critical Access Hospitals (CAHs) are also exempt since they are not paid under the previously mentioned payment systems.

If the ordering professional does not consult AUC, neither the imaging provider (technical fee) nor the interpreting

radiologist (professional fee) will be paid for the imaging procedure. Each imaging provider will need to report information on each claim for every procedure where consultation is required that identifies whether the ordering provider complied with AUC. Beginning in 2020, CMS will identify the 5% outlier physicians and may require them to use prior authorization for advanced imaging studies for two years. CMS will use the following eight priority clinical areas to determine which ordering physicians fall into the outlier category:

1. Coronary artery disease (suspected or diagnosed)
2. Suspected pulmonary embolism
3. Headache (traumatic and non-traumatic)
4. Hip pain
5. Low back pain
6. Shoulder pain (to include suspected rotator cuff)
7. Cancer of the lung (primary or metastatic, suspected or diagnosed)
8. Cervical or neck pain

In February 2017, AHRA sent an online survey on CDS to over 5,000 members. The survey was completed by 365 individuals for a response rate of 7% (the number of facilities represented

■ Box 1. PLEs and CDSMs as of June 2017

Approved Provider Led Entities (PLEs)

American College of Cardiology Foundation
American College of Radiology
Brigham and Women's Physicians Organization
CDI Quality Institute
Intermountain Healthcare
Massachusetts General Hospital, Department of Radiology
National Comprehensive Cancer Network
Society for Nuclear Medicine and Molecular Imaging
University of California Medical Campuses
University of Washington Physicians
Weill Cornell Medicine Physicians Organization

Qualified Clinical Decision Support Mechanisms

Applied Pathways CURION™ Platform
Cranberry Peak ezCDS
eviCore healthcare's Clinical Decision Support Mechanism
National Decision Support Company CareSelect™*
National Imaging Associates RadMD
Sage Health Management Solutions Inc. RadWise®
Test Appropriate CDSM

Clinical Decision Support Mechanisms with Preliminary Qualification

AIM Specialty Health ProviderPortal**
Cerner CDS mechanism
Evinance Decision Support
Flying Aces Speed of Care Decision Support
LogicNets' Decision Engines
MedCurrent OrderWise™
Reliant Medical Group CDSM
Siemens Healthineers Clinical Decision Support Mechanism
Stanson Health's CDSM

was 13%). Sixty-one percent of respondents had not begun implementing CDS and 9.3% were not even sure what it was. See Figure 1.

In letters and communications with CMS, the AHRA Regulatory Affairs Committee had maintained that it would take hospitals 12-18 months on average to implement CDS once a vendor is selected and money approved in the budget. The survey affirmed this position. The survey

also affirmed the significant investment for healthcare organizations to be compliant with CDS implementation. See Figures 2-4.

AHRA Member Stories

In this survey, volunteers were asked to share stories about their CDS journeys. These leaders were interviewed, and following is a summary of lessons learned

from organizations across the country. One consistent thread is that the CDS vendor selected is based upon the Electronic Health Record (EHR) used in their organization.

Critical Access Hospital in the Northeast

This facility has Meditech EHR. Information technology (IT) initiated a capital request for CDS that was approved. The imaging director never saw the contract nor was involved in the process. The PACS system must be updated or CDS won't integrate. IT then had to write code to integrate CDS into Meditech. Installation of CDS is targeted for September 2017 and an EHR update is scheduled for May 2018.

Children's Healthcare System in the Northeast

This facility is using Epic EHR. Imaging leadership used the momentum around risk based contracts and standardized clinical care pathways to implement CDS early on and presented to the enterprise value based committee of the organization. The organization's value based committee supported the move to help reduce the cost of care and promote appropriate care. The organization worked with the Society for Pediatric Radiology (SPR) to continue development of the appropriateness criteria for pediatric imaging. They have a large number of care pathways in the institution, which positively correlated with the CDS appropriateness. One of the early issues identified was that CDS was not integrated into Epic the way the team thought it would, which required significant development work with the CDS vendor. The imaging team chose to roll out CDS by modality, not by specialty. Only about 15-20% of their orders come from outside referring physicians so they are not using it yet for outside referrals. Some of the learning moments include balancing appropriateness, cost of the study and relative radiation dose. There was concern that trainees could use CDS and select a cheaper study rather than a more expensive, more appropriate study

Q1: Have you implemented or begun implementing Clinical Decision Support (CDS)?

Answered: 365

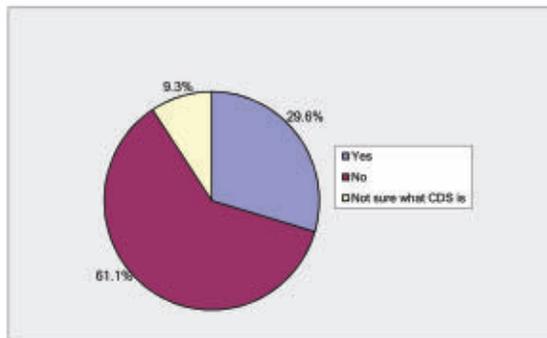


Figure 1 • AHRA Survey Question 1

Q2: How long did it, or do you expect it to, take your organization to fully implement (EXCLUDING budget approval timeline)?

Answered: 275

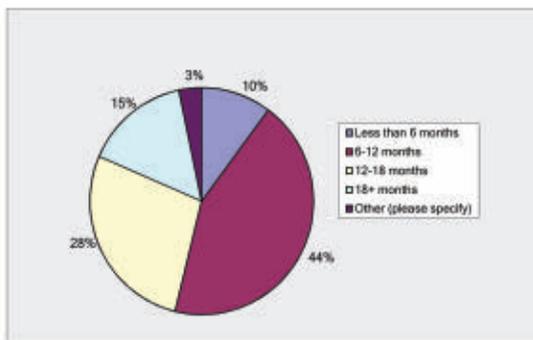


Figure 2 • AHRA Survey Question 2

Q3: How long does it take to get budget approval for an operating expense like CDS?

Answered: 272

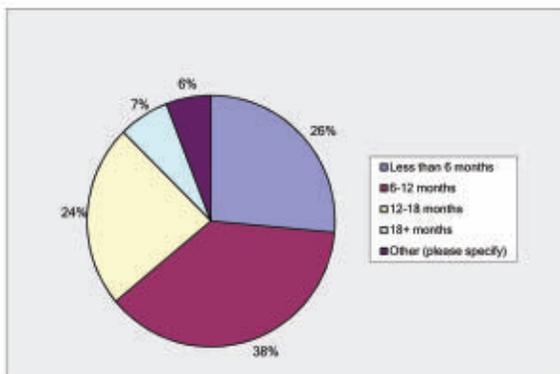


Figure 3 • AHRA Survey Question 3

thereby using cost as a more important driver than appropriateness. Messaging was done to alleviate this request and it continues to be monitored. Especially in pediatric studies, the relative radiation dose is of utmost importance and this needs to be weighed with appropriateness and cost. The biggest change management factor was that the “reason for study” was changed from a free form field to a structured selection to enable CDS functionality. This was a major change to the current Epic workflow and required significant communication from leadership around the reason for the changes.

Large Healthcare System with Four Hospitals in the Northeast

This system uses Cerner EHR and is in the middle of implementation. The funding for CDS (\$75,000) was approved two years ago, but did not include resources for project implementation. The system has their own health insurance plan. The first focus was to reduce utilization of inpatient and then move to outpatient to reduce insurance costs for their health plan. They are focused on collaborating with employed and community providers who are in risk arrangements with them via their Physician Hospital Organization (PHO). The team did a lot of education around the decisions with senior administrative and medical leaders, insurance company leaders, hospitalists, and key stakeholders throughout the organization. There is still ongoing education and expansion to community providers. The organization developed a steering committee for this project which included: vice president of quality, chief medical officer, chair of radiology, physician leaders, chief information officer for the PHO, and the radiology informatics lead. The system has 550 employed physicians. The initiative required a dedicated project manager, and they have engaged an outside firm to provide project management support at a cost of approximately \$8,000/month. A team went to RSNA twice to look at CDS vendors and selected the ACR Select product.

Q4: How much will be the total investment in CDS?

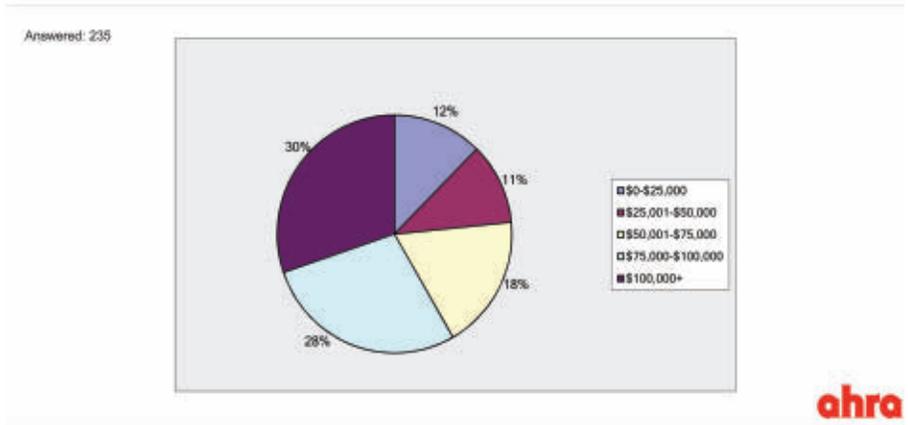


Figure 4 • AHRA Survey Question 4

The process restarted at the end of August 2016. The chair of radiology, key radiology staff, and the project manager worked for several months to build the mapping orders. The clinical informatics team taught the physicians, developed slide decks, and developed an interactive learning module for electronic distribution. The team piloted Phase I with hospitalists and residents on one floor, received great feedback, and made some changes. Phase II was slated for June-July 2017 with employed physicians, primary care, and specialty care. Phase III will be external referring physicians. The message for external providers will need to be different than employed physicians. It will need to be easy for outside referring physicians to use and include a compelling reason for them to use it. The organization wants to be the first to market in their region, encouraging referring providers to use their product vs another organization's product. The system is doing all they can to promote and ensure value (helping them order more appropriately, reducing costs if they are in risk contracts, overall enhancement of continuum of care, etc). The estimated five year cost of ownership for CDS is \$324,000.

Community Hospital with 100 Beds and Many Clinics in the Midwest

The hospital implemented Cerner EHR four years ago. Imaging performs about

70,000 procedures a year: about 50% for the ED, 20-25% are inpatient, and the rest are outpatient. They were the first Cerner site to go live with ACR Select CDS.

Imaging received CDS budget approval in October 2015. Implementation planning began in the spring of 2016 with an installation target of September 2016. The hospital is a member of a health insurance plan which required CDS for all hip and knee replacements. The initial group included orthopedics, family practice, and internal medicine. The hospital leadership identified the three groups of physicians and decided to allow free form for diagnosis entry, but the physicians were able to bypass CDS and avoid the process. Reporting on appropriateness was done but only sent to administration without any corrective action.

The team had to stop and start the whole process over with a hard stop for diagnosis. Most physicians are employed and there are a few outside referring physicians. The first time around there were issues with the interface between CDS and Cerner which took an immense amount of time to correct. For physician and staff training, the team made videos, posted on their education site and developed handouts for staff. It was a struggle to get IT to help, but they were engaged the second time. Radiologists become involved when asked, but do not vet any

orders. With this second round, monthly reports are provided by the vendor (since February 2017).

A variety of lessons were learned from the first attempt. Nurse practitioners had difficulty selecting the most appropriate study. The orthopedic surgeons were offended by the process and some entered inappropriate comments into the order. When the process was restarted, the chair of orthopedics invited leadership to the departmental meeting to discuss the need for CDS. Leadership also attended the family practice and internal medicine departmental meetings and developed a physician advisory committee. The day of implementation, there were multiple imaging and IT resources stationed in the clinics to support the ordering practitioners. Early in the process it took a huge amount of time for mapping the procedures with the vendors—much more than anticipated. Getting the interfaces to work properly was also a big challenge.

Large Health System in the Pacific Northwest with Outpatient Centers

The radiology practice here staffs three health systems. One of the health systems has had CDS implemented for inpatient and ED services for two years. It was well received by providers. Implementation was in silent mode, and the vendor has since recommended against that method as the providers don't receive immediate feedback and thus learn to enter the data differently to avoid prompts. This included providers finding workarounds that negated the desired guidance. The second health system budgeted CDS in October 2015 and the plan was to do a silent "go live" in August 2017. The contract was signed in January 2017 and the kick-off meeting occurred in late April 2017. The system planned to implement for outpatient services and ED only. The system has since learned the Epic EHR cannot differentiate the CDS for ED only and thus inpatient implementation is required as well. Go live is now scheduled for mid-September 2017. Since the EHR doesn't currently prompt the

inpatient or ED providers to enter diagnosis, the health system anticipates CDS will generate additional work for the providers and potentially lead to resistance. In addition, the practice worked with the ACR R-scan product and retrospectively reviewed orders. The system and radiology practice learned that it's likely CDS will push more orders to MRI from CT given current ordering patterns.

Large Tertiary Care Health System with Six Hospitals in the Southeast

This system implemented Epic EHR six to seven years ago but have not yet implemented CDS. The imaging and IT directors went to RSNA in November 2015, and money for CDS was allocated in the IT capital budget for FY 2017. A small capital outlay for training was also budgeted. In late 2016, RFPs were distributed to ten CDS vendors. Out of the ten, five responded, three did not respond, and two responded but did not meet the minimum requirements.

The project was based on outpatient and ED since there was a perceived over utilization issue. A decision was made to collect ordering practices on inpatient only. Since Epic implementation several years ago, the system has collected high utilization reports without knowledge of the physicians. Only 30% of physicians are employed. There are no outpatient imaging centers as part of the system, but there is significant imaging center competition in their marketplace.

Three Hospital System in the South

This system is converting to Cerner (November 2017) and budgeted for CDS in December 2016. When the Chief Information Officer (CIO) asked the imaging director what CDS was at a meeting, the imaging director presented to senior leadership and medical staff on expected implementation dates and proposed penalties to providers and facilities.

The education process began in March 2017. They have chosen to start with outpatient and ED and selected four modalities: CT, MRI, PET, and nuclear medicine. The ED physicians are employed and are

The three challenges are paper orders, fax orders, and verbal orders.

looking for CDS to help with ordering. Twenty five percent of the physicians are employed and the remainder are in private practice. Imaging is working with the medical staff to load the mapping. The system chose not to make indications a hard stop as Cerner does not have a way to check CDS.

The three challenges are paper orders, fax orders, and verbal orders. The imaging director thinks they are okay with fax orders because they go through a fax server, but they are struggling with outside physicians who want to continue to call in verbal orders. The radiology group initially took a hands off approach and has only recently engaged, but is waiting for CMS proposed rules on penalties. The system has NPs and PAs but have not received any data yet on their ordering practices.

The imaging director plans to implement inpatient studies since there is over utilization of MRI. They also plan to use CDS for inpatient PET/CT as vetting for appropriateness.

Large Multispecialty Clinic in the Midwest

This facility began using CDS about three years ago. This past year, the CDS system had hard stops built in if clinical etiology/efficacy guidelines for the exam were not met. If the study didn't meet the criteria score, the requesting provider had the option for a peer to peer discussion with a MD reviewer. They cannot get the discussion without a radiology decision support number or authorization number issued by their CDS program.

Large Health System with Hospitals and Rural Affiliates over Three States in the Midwest

This organization chose a system-wide approach to CDS. In the local market, about 30% of physicians are employed and

the rest are private practice. The system implemented Epic EHR in August 2012.

The system has clinical service groups who help to standardize around best practices. Radiology owned the CDS project and partnered with IT and the chief medical informatics officer (CMIO) group. In January 2015, they rolled CDS out to the major affiliates. The CDS tool works within their Epic EHR and CT, MRI, PET, and nuclear medicine are the modalities chosen for the Best Practice Alert (BPA). The BPA fires for all patient types—inpatient, outpatient, and ED.

At the time, the decision was made to allow physicians the ability to enter free text instead of requiring indication selection to assure there was no negative impact to patients during the transition. After two years' experience, the system has made changes to strive for less free text entry. Physician champions have been identified in various specialties to help continue the education around the need for CDS and to gain further support.

During the first two years it was determined that the reporting available for the CDS product in the EHR platform was not robust or user friendly enough. The desire to share data in an easy to access, user friendly format drove the organization to develop their own reporting in Tableau (report writer in Epic). The new reports can be filtered down by test, indication, provider, location, and payer. Comparing and sharing of the reports has allowed the organization to decrease free text entries by 40% and improve the percentage of indicated tests. This tool further allows the organization to see what the providers' actions were (ie, continue with current test, select test with a higher indication, or cancel test).

The organization plans to upgrade their Epic platform which will allow greater flexibility of the embedded CDS

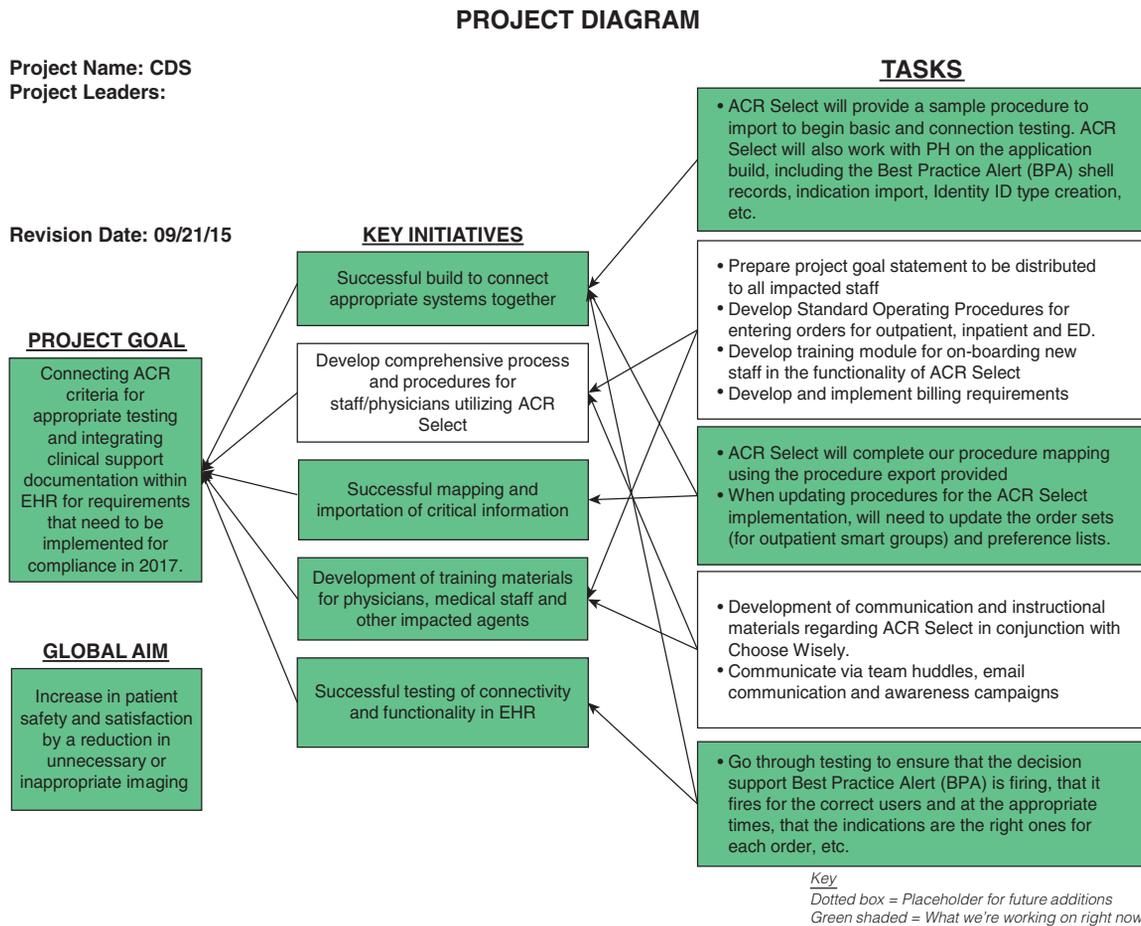


Figure 5 • A CDS project plan identifying the project goal, key initiatives, and tasks.

tool. While all orders placed within Epic go through the organization CDS, providers that do not use the system's EHR encounter some difficulties. The process for outside referrals is cumbersome. The call goes to the hospital scheduling department. The referring physician faxes the order to the hospital and it goes into a fax queue. The order is matched, and the schedulers transcribe the order with the indications and the exact order. Then the order goes through CDS; however, if the indication provided on the faxed order is not an exact match for the one in the system the schedulers have to free text in the indication which results in no Decision Support Number (DSN) being generated. When asked how the rollout could have been improved, the imaging director stated they would have liked to have rolled out the web

portal for those independent providers and educated around the same tool to all referring physicians in a standard fashion. Later this year, the organization will be adding cardiology and oncology indications which will further enhance the product.

The goal is to get all referring physicians to be able to use CDS and to select an indication. However, there is a drop-down box that asks if they consulted a radiologist if the score is low or if they chose to free text. This allows for further development of the program and education to providers. Following established protocols, if the indication selected does not meet the test requirements, the staff will go to the radiologist for further discussion. The radiologist contacts the provider, and the referring physician will need to change the order if there is

agreement that a different test is a better alternative. The technologists try to review the schedules two days prior to identify any outliers to assure a smooth experience for the patient.

The biggest lesson learned was that there was a small group of people who saw physician utilization reports. Sharing of the reports was sporadic initially, but this is the way to change behavior. Implementation was a very time consuming process. Exams need to be mapped to the CDS exams and indications need to be tied to these exams. There was education with the physician liaisons, a written email to physician mailboxes, Epic weekly messages, department specific meetings, and mini presentations in the physician lounges. Physician champions are key to success by getting buy in to the process which adds "clicks" to their

workflow. Implementing CDS is not as simple as uploading the software as there are many nuances that need to be thoroughly vetted, discussed, and educated around.

Five Hospital System in the Midwest with 20+ Outpatient Imaging Centers

At the outset of the project, there were three different radiology groups who covered the network. The motivation to implement CDS was to control utilization for their system health plan as well as meet regulatory compliance. There was a steering team of more than 20 high level representatives. A project plan was developed which identified the project goal, key initiatives, and tasks (Figure 5).

The organization used a three-phased approach for CDS:

1. Implement Choosing Wisely campaign for awareness
2. Implement ACR Select
3. Introduce convergence software solution for exams performed at facilities outside the organization

There were six phases outlined for implementation:

1. November 2015: Implement CDS for the top 5-6 CT procedures
2. January 2016: Remainder of CT procedures
3. March 2016: MRI and PET procedures
4. June 2016: Nuclear medicine procedures
5. TBD: ED and inpatient roll out
6. TBD: Process to be developed for paper orders which account for 40% of all imaging orders

Some of the lessons learned were that despite an implementation timeline of 12 months, CDS could have been rolled out in a shorter timeframe. The process raised awareness of appropriate utilization; specific areas for improvement and those that were performing well were identified. Extensive evaluation of results helped to provide future direction and expansion to the inpatient and ED populations. Communication and education

plans were well developed and circulated via multiple mechanisms with each phase of the plan. There was a high level of support for the project that trickled down to the entire steering committee. There was no physician feedback when the system went live; they heard nothing from the users. The overall appropriateness score moved very slightly and there was no clear goal established to measure success. The delay in implementation from a regulatory perspective caused the project to lose momentum. Feedback (in the form of reports) and accountability must be provided to assure changes in behavior from physician ordering practices. Since behavior did not change, utilization did not improve and the health plan decided to use a RBM to manage utilization.

Conclusion

There were patterns that emerged after speaking with these AHRA members. Below are some lessons learned for planning CDS implementation:

1. Allow a timeline of 12-18 months for budget approval, planning, interfaces, testing, education, and implementation.
2. Radiology administrators and radiologists need to be intimately involved, but also need physician champions outside of radiology.
3. Set clear goals and develop a compelling story. What is the story and why do we have to do this?
4. Define what success looks like, develop metrics and milestones for success, and then measure and report on it.
5. Need a high level of support and visibility from leadership.
6. Develop an education plan and communication plan; multiple mechanisms and multiple venues to educate physicians and practitioners.
7. Do not allow ordering provider free form entry of indication for exam; all AHRA members that started this way changed to require indication and a hard stop.

8. Develop processes for nurse practitioner/ physician assistant orders, written orders, and verbal orders.
9. Absolute necessity to develop and distribute reporting at implementation; utilize reports to change behavior; reports should be at department/ specialty level with comparison to peers.
10. None of the systems in this article have rolled CDS out to outside referring physicians yet; and all describe the need to develop a different process. Make sure the AUC purchase includes the portal for outside referring physicians to utilize for orders.

Sheila M. Sferrella, CRA, FAHRA is president at Regents Health Resources. Prior to her consulting work, she was vice president for ambulatory services at Saint Thomas Health and was the administrator of diagnostic services at Lehigh Valley Health Network in Allentown, PA before that. A graduate of the University of Maryland, she earned a masters of administrative science degree from The Johns Hopkins University. Sheila served as AHRA president from 2001–2002, received AHRA's Gold Award in 2003, and currently serves as the chair of the Regulatory Affairs Committee. She can be contacted at ssferrella@regentshealth.com.

Clinical Decision Support: Implementation Lessons

Home-Study Test

1.0 Category A credit • Expiration date 10-31-20

Carefully read the following multiple choice questions and take the post-test at AHRA's Online Institute (www.ahra.org/onlineinstitute)

The credit earned from the Quick Credit™ test accompanying this article may be applied to the AHRA certified radiology administrator (CRA) operations management (OM) domain.



QUESTIONS

Instructions: Choose the answer that is most correct. Note: Per a recent ARRT policy change, the number of post-test questions has been reduced from 20 to 8.

- 1. Appropriate Use Criteria was first introduced**
 - a. In the CMS 2015 MPFS Proposed Rules
 - b. In the CMS 2016 HOPPS Proposed Rules
 - c. In Section 218 (b) of the 2014 PAMA Act
 - d. As part of the 2017 MACRA/MIPS Program
- 2. CMS will use eight priority clinical areas to determine outlier ordering practitioners.**
 - a. True
 - b. False
- 3. If the referring physician does not consult AUC prior to ordering an advanced imaging study, which of the following statements is true?**
 - a. The hospital is not paid for the imaging study but the radiologist is paid
 - b. Neither the hospital nor the radiologist is paid for the imaging study
 - c. The hospital is paid but the radiologist is not paid for the imaging study
 - d. None of the above
- 4. Appropriate Use Criteria applies to which patient studies?**
 - a. Medicare outpatient CT and MRI
 - b. Medicare and Medicaid CT, PET and Nuclear Medicine
 - c. Medicare inpatient and outpatient MRI, Nuclear Medicine and PET
 - d. Medicare outpatient CT, MRI, Nuclear Medicine and PET
- 5. In the MPFS Proposed Rule released July 13, 2017, CMS has proposed which date to implement when an ordering professional must consult AUC?**
 - a. January 1, 2018
 - b. November 1, 2017
 - c. January 1, 2019
 - d. January 1, 2020
- 6. In the AHRA survey on CDS, what is the average time hospitals said it would take to implement CDS once a vendor is selected and the project has been approved?**
 - a. 12-18 months
 - b. 6 months
 - c. 8-10 months
 - d. 18-24 months
- 7. The AUC requirement is that the ordering professional must consult AUC through CDS mechanisms called CDSMs. Some approved CDSMs are:**
 - a. eviCore healthcare's Clinical Decision Support Mechanism
 - b. National Decision Support Company CareSelect™*
 - c. a and b
 - d. None of the above
- 8. In the MPFS Proposed Rules released July 13, 2017, CMS states that the AUC information must include which of these on all claims?**
 - a. NPI of ordering professional and interpreting radiologist
 - b. NPI of ordering professional, AUC applicability and CDSM used
 - c. Referring physician name, CPT code for study performed and Imaging provider number
 - d. None of the above

R.A.R.E.: Radiation Awareness to Reduce Exposure

By Susan Tate-Potanovic, RT(R)(MR)(CT), CRA

Back in the Fall of 2015, I received an email from AHRA regarding the AHRA & Toshiba Putting Patients First grant. After looking further into the application process, I knew it was a great opportunity for our hospital, Holy Name Medical Center, and our patients. Holy Name is a community hospital located in northern New Jersey with just over 360 beds. Our radiology services include general diagnostic x-ray, CT, MRI, ultrasound, vascular lab, interventional, mammography, nuclear medicine, and PET CT. We average about 175,000 procedures per year.

As a member of the Radiation Safety Committee, I was responsible for presenting the data we received back from our submission of exams to the ACR Dose Index Registry (DIR). I often thought, rather questioned, what are we supposed to do with this data? It did not seem adequate to just report the statistics; there had to be a bigger purpose. Holy Name joined the ACR DIR in 2012 to be included in the process to establish reference doses across the nation. The dose summaries from the CT scanners are directly sent to the ACR DIR. Bi-annually, we receive aggregated reports comparing Holy Name regionally and nationally. Those reports are then discussed at the radiation safety meetings and the committee determines if any protocol changes are indicated. At our meetings, we talked at length about ways

to use the data to educate staff, patients, and physicians on the importance of safe medical radiation practices. We were also in the process of preparing for our Joint Commission visit, while simultaneously incorporating the ACR Appropriateness Criteria link into our HIS, when the email came about the grant.

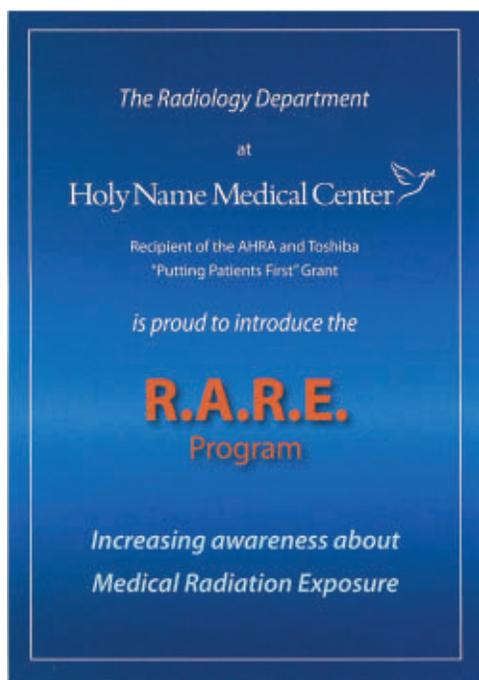
Our R.A.R.E. program (Radiation Awareness to Reduce Exposure) was a vision driven by our manager of nuclear medicine and PET/ CT services at Holy Name Medical Center. She served as the radiation safety officer designee and, together, we shared a vested interest in delivering a program to promote radiation safety within our organization through education and awareness in order to bring it to the community we serve.

The R.A.R.E. program was further developed in conjunction with the application for the grant since we had discussions during the radiation safety meetings to offer an educational program. The initial goal of the program was to raise awareness within our organization that we are advocates for safe medical radiation practices while reducing dose. Knowing that there was a potential opportunity for financial assistance through the grant, it became the motivator to move ahead and develop the program. The vision and planning was to create an interactive lab with a location

large enough to accommodate several modality stations, as well as visitors being able to freely move about from one station to another. The money we received from the grant was applied to the cost of the hall rental, booth and curtain rentals, support staff, photographer, design and printing of the passports, the give-away tote bags and pens, posters and signage, marketing assistance, and refreshments for the visitors. See Figure 1.

The R.A.R.E. program was designed to be an interactive lab that, upon entering, the patient would receive a passport with a scenario, or story, of how you presented to the emergency department. The ten most common admitting diagnoses from the ACR website were used in the program. On that passport, four modalities were checked off at random. You then visited the modality stations that were checked off on the passport and received information regarding that modality. The modality stations each had two volunteers who would give a simple description of that modality, mainly if they were receiving radiation or not. Patients were also given an information packet pertaining to that modality to take with them.

If they received radiation, the passport was stamped with the radiation fan symbol. If they did not receive radiation, they received a stamp with the Image Wisely Owl, or Image Gently Butterfly



History A 15-year-old patient hospitalized for severe anorexia nervosa presents with multiple pituitary hormone abnormalities and hematuria. Patient denies trauma and pain.

Diagnostic imaging Orders

- Ultrasound of Kidney and Bladder
- X-Ray Voiding Cystogram   
- CT Abdomen/Pelvis w/ & w/o Contrast
- X-Ray Abdomen and Pelvis   
- Nuclear Renal Scan   

Holy Name Medical Center 

Figure 1 • An example of one of the passports distributed as part of the program.

if it was a pediatric patient. At the end of the visit through the modality stations, the patient then received a card at the check out desk with the correct order of exams that reflected the ACR Appropriateness Criteria tool for that diagnosis on the passport. Therefore, the patient learned if the exams were ordered correctly utilizing a clinical decision support program.

We had tremendous support from all levels within our organization. Everyone we reached out to for help and guidance were readily available and fully engaged in our plight. On the day of the event, we had thirty radiography students, the radiology modality managers, and radiology nurses navigating visitors through the program.

In all, one hundred visitors ranging from nurses, physicians, support staff, and real patients attended. Upon entering, each guest received a tote bag and pen with the program logo. It was a huge success and we accomplished it as The Joint Commission was in our hospital! Our goal is to share this program

with other organizations because, in the end, we are all here to serve and educate our communities utilizing safe radiation practices.

Although we did not use the official data reports as part of the program itself, it still served a greater purpose since we often questioned what good is the data if it is only discussed at committee meetings? Therefore, the data was used to assure our organization, our patients, and the community we serve that we are committed to promoting and implementing safe radiation practices where there is ionizing radiation.

The feedback we received from staff and visitors was extremely positive and rewarding. The nursing staff that attended requested additional radiation education on the nursing units to capture the entire staff. The medical director of radiology requested the R.A.R.E. program be presented at medical grand rounds as we move forward in our quest to raise awareness and reduce exposure when applicable by utilizing the ACR Appropriateness Criteria link incorporated in our

HIS. The event was held on the last day of our Joint Commission Survey, and while they were not able to attend, the surveyor that we spoke with the day prior to the event embraced the idea of the program and stated it was a great tool to use in our radiation safety endeavors.

The R.A.R.E. program would not have been possible had it not been for the AHRA & Toshiba Putting Patient's First grant. Presently, most hospital organizations are experiencing fiscally challenging times and capital for educational programs is not at the top of the purchase list. I would strongly urge those that have a vision to improve a process or overall patient experience in your organization to apply for the grant. Being involved in this process and program was one of the highlights of my professional career. 

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Referral Management: An External Market Analysis

By Usha Nandini Raghavan, PhD, Christoph Wald, MD, PhD, MBA, and Christopher Hall, PhD

The credit earned from the Quick Credit™ test accompanying this article may be applied to the operations management (OM) domain.

EXECUTIVE SUMMARY

- This article presents experience using a publicly available dataset to extract and track actionable information on the market share of imaging referrals at a service line level.
- Any systematic approach to referral management should include actionable information that can inform marketing and relationship efforts to support a service line growth strategy.
- Strengths, gaps, and opportunities in clinical service line growth were identified. By observing trends, overlaid on a map, competitor strategies were observed. The ability to identify geographical areas assisted decision making regarding expansion and growth plans. And the ability to target physician groups and tailor marketing efforts according to their differential referral behavior was a valuable step towards practical decision making.

Most radiology departments have seen a gradual decline of their inpatient utilization over the past decade.¹ Growth of value based bundled payment models and the migration of imaging services into an outpatient first model has increased the importance of cost containment among most radiology imaging services. Traditional service line strategies which used to focus on high margin, high volume inpatient procedures will prove less and less viable over time. In order for a radiology department to grow and thrive in the new environment, it is even more important to constantly monitor and improve relationships with (external) referring providers.² Any systematic approach to referral management should include actionable information that can inform marketing and relationship efforts to support a service line growth strategy. In addition, it should facilitate tactics to reduce the risk of loss of imaging referrals out of the system.

Understanding prevailing referral patterns for a given imaging practice starts with the answers to a few simple questions: How are specific imaging referral streams trending over time? And for a particular referring provider or provider group, has the absolute number of their orders increased or decreased over the last three years? These two questions

can typically be answered quite easily by a retrospective analysis of data from the radiology information system (RIS) database. However, it is far more difficult to estimate to what degree a particular external group of referring providers split their referrals between different competing imaging providers. In addition, in competitive imaging markets the growth of an individual provider entity depends on its ability to capture market share from competitors. It certainly behooves imaging providers to try to understand the competitors' strategy. What percentage of their imaging referrals originate out of network, and how are they attracting those referrals?

The Centers for Medicare and Medicaid services (CMS) annually releases the so-called "DocGraph" dataset (also known as physician referral dataset), an analysis of which can provide answers to these questions to imaging departments.^{3,4} Most importantly, access to this dataset is free. In this article, we present our experience using this publicly available dataset to extract and track actionable information on the market share of imaging referrals at a service line level. We will also showcase the ability to use this data—at a tactical level—to measure and track referring patterns of individual physician groups, their referral splits,

■ **TABLE 1.** DocGraph Dataset Sample

Id	npi1	npi2	pair_count	bene_count	ref_interval	year
54966723	1000380208	1003802083	25	22	30	2013
54966739	1003000126	1053357988	30	12	30	2013
54966755	1003000126	1154358620	20	11	30	2013
54966771	1003000126	1255370524	51	18	30	2013
54966787	1003000126	1346273869	29	15	30	2013

and loyalty patterns. We argue that it is important for radiology departments to leverage this public data resource to better inform themselves of the rapidly changing local referral landscape.

The CMS “DocGraph” Database

“DocGraph” is an aggregated data set published annually by CMS. Publication of this data was a result of a Freedom of Information Act (FOIA) request submitted by Fred Trotter and can be accessed at <https://questions.cms.gov/faq.php?faqId=7977>. The unique strength of this data is that it gives a view of how physicians and providers team up to provide care to patients. Let us first begin with a closer look at the strengths and limitations of this dataset.

Table 1 is a sample of records from the DocGraph dataset. Each record has two National Provider Identification numbers (NPIs), namely npi1 and npi2. When a patient receives treatment services from npi1 and within 30 days also receives treatment services from npi2 then the patient is a shared patient between the two NPIs. The column “bene_count” corresponds to the unique count of beneficiaries shared between npi1 and npi2 in a given year (2013 in the sample data). For a given patient, if a Medicare claim exists with npi1 and within 30 days another Medicare claim exists with npi2, then it adds 1 to the total of “pair_count.” In other words, “pair_count” corresponds to the number of shared claim counts from patients

seeing npi1 and then npi2. The column ref_interval can be either 30, 60, 90, 180, or 360. In this article, attention is limited to the 30-day reference interval.

Strengths:

- Identifying physicians and physician groups: based on the NPI number, one can identify the individual physician by name, practice specialty, and practice address. This enables the identification of key players in a given market.
- Teaming data: As mentioned, this dataset can help determine how physicians and providers team up to provide care to patients.
- Inferring referrals: While the data by itself does not definitively state a referral relationship between npi1 and npi2, a view over time of the teaming data can indicate referral relationships.

Limitations:

- Characteristics of services: While the data can tell us the *number* of services provided, we cannot tell directly from this dataset what specific services were rendered. For example, if npi1 is a physician in orthopedic specialty and npi2 is a radiologist, we do not know what type of imaging exams were ordered by npi1 and what type of exams were interpreted by npi2. This limits the ability to prioritize relationships based on revenue (or value) as opposed to just volume. However, because that service was provided by someone whose specialty is known to

be radiology, it can be deduced that the service provided was in fact an imaging service.

- Aggregated over time: The data set is available over time since 2009 and currently up to 2015. However, months and dates of services within each year of service set are not known. Any changes in patterns of care can only be observed across years and therefore it is limited in its ability to observe changes in shorter time periods.
- When merged with the National Physician and Provider Enumeration System (NPPES) data, this DocGraph data set can be expanded to capture information about physicians and providers involved. In particular, the merged datasets can help to identify NPIs of radiologists based on their primary practice specialty; and aggregate physicians and radiologists practicing in a given geographical area.

Table 2 shows a sample of the DocGraph dataset when merged with NPPES. The sample shows “pair_counts” (or referrals) from individual physicians to radiologists. It is important to note that these data are not conducive to focusing on where the exams were performed. Instead, it enables the identification of radiologists and radiology groups where imaging exams are interpreted. In the next section, trends and characteristics of radiology groups in a specific market will be discussed, particularly in the market of the radiology department at Lahey Hospital and Medical Center (LHMC).

TABLE 2. DocGraph Data Sample after Merging with NPPEs

np1	name1	address1	city1	state1	primary specialty1	np12	name2	address2	city2	state2	primary specialty2	pair_count	ref_interval	year
1053400879	KIM	65 FREMONT ST	MARLBOROUGH	MA	Orthopaedic Surgery Sports Medicine	1790892834	TRAN	LAHEY/MEDICAL CTR	BURLINGTON	MA	Diagnostic Radiology	73	30	2015
1598874091	BAUMFELD	LAHEY CLINIC	BURLINGTON	MA	Orthopaedic Surgery Sports Medicine	1336106533	WARREN	LAHEY CLINIC/RADIOLOGY	BURLINGTON	MA	Diagnostic Radiology	44	30	2015
1760445530	REMA	130 NORTH ST	HYANNIS	MA	Orthopaedic Surgery	1144491911	MORRIS	41MALL RD	BURLINGTON	MA	Diagnostic Radiology	25	30	2015
1013983907	DRISCOLL	54 BAKER AVENUE EXT	CONCORD	MA	Orthopaedic Surgery	1790892834	TRAN	LAHEY/MEDICAL CTR	BURLINGTON	MA	Diagnostic Radiology	87	30	2015

For the remainder of this article, despite the ability to identify individual physicians in this publicly available file, the provider data will be masked. We have combined individual physicians into practice groups and the practice groups are identified by their specialty and geographical location (includes city and state, but excludes street addresses). As an example, a physician group named in this article as ‘PeabodyOrthopedic-Grp1’ will stand for a group of physicians with orthopedics as their primary specialty, located in Peabody, MA and they all practice in the same street address. The street address is masked and is replaced by ‘Grp1,’ while orthopedic groups in other street addresses within Peabody will be Grp2, Grp3 and so on. Also, the three radiology groups in Lahey IDN will be called LaheyRadiologyGrp1, LaheyRadiologyGrp2 and LaheyRadiologyGrp3.

Opportunities for Lahey Hospital and Medical Center

LHMC is a mid-sized, tertiary care hospital of an Integrated Care Delivery Network (IDN) located in Burlington, MA. Two other hospitals, Winchester and Beverly, are part of the same IDN, Lahey Health System. Each of the three hospitals has an independent radiology group, for a total of approximately 75 radiologists.

The data (see sample in Table 2) are imported into data analytics and visualization software (“Tableau,” Seattle, WA) to visualize insights. Figure 1A shows the geographic areas (towns) in the primary and secondary referral markets from which the radiology groups in the Lahey IDN received 10 or more referrals in 2015. Also shown in this figure are the locations of all hospitals and outpatient centers within Lahey IDN and their competitors in this referral market. While there are many other hospitals and outpatient centers in this service area, only those relevant to our analysis are highlighted.

The tertiary care center of LHMC is located in Burlington and is the dark green bubble in the southern part of the map. LaheyRadiologyGrp1 is responsible for operations within the tertiary care center, as well as the outpatient centers in Lexington and Peabody. On the map, Lexington is to the south of Burlington and Peabody is to the northeast. Winchester hospital is located in Winchester, MA, southeast of Burlington and LaheyRadiologyGrp3 is responsible for the hospital’s radiology related operations, as well as the hospital’s outpatient center located in Woburn, MA. On the map, Woburn is the location between Burlington and Winchester. Beverly hospital is located in Beverly, MA, at the northeastern tip, while the associated smaller Addison Gilbert Hospital is located in Gloucester, MA. LaheyRadiologyGrp2 is responsible for operations in these two hospitals and additionally at the outpatient center in Danvers, MA. On the map, Danvers is to the west of Beverly. The most northerly competing location is Anna-Jaques hospital in Newburyport, MA; to the northwest is Lowell-General Hospital in Lowell, MA; in the northeast, located in Salem, MA is the North Shore Medical Center (NSMC); and to the east of Burlington is the Melrose-Wakefield hospital. In addition to hospitals, there is a competing large outpatient facility in Danvers (part of NSMC). While there are many other hospitals and outpatient centers in the market, only those relevant to this analysis are marked in Figure 1A.

Figure 1B shows the size of imaging referrals from ordering providers located in various towns. It also shows how they are distributed across different radiology groups practicing in the market. We can infer that providers based at LHMC in Burlington are a big referral source and LaheyRadiology-Grp1 is the biggest beneficiary of these referrals. LaheyRadiologyGrp2 receives the biggest portion of radiology referrals originating in Beverly. However, we see stiff competition and resulting opportunity in the Peabody and Danvers

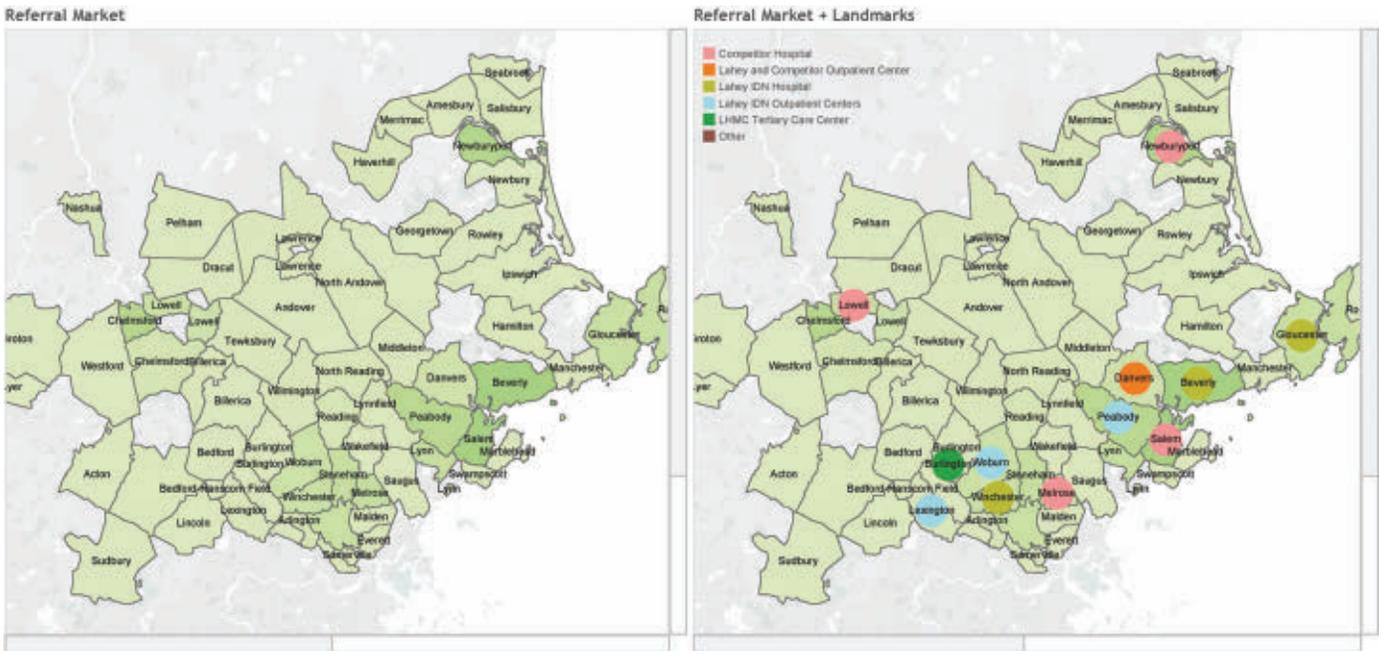


Figure 1 • (a) The regions from where Lahey radiology receives referrals. Locations of hospitals that are part of Lahey IDN and those which are not, as well as outpatient imaging centers are marked on the map. (b) Same as (a), but the size of bubble corresponds to overall (not only Lahey) radiology referrals from physicians in that geography. Colors on the bubble (pie chart) show which radiology group received these referrals. This map is based on DocGraph data for the year 2015.

locations. Radiology groups belonging to the Lahey IDN and SalemRadiology-Grp1 have close to 50% share of referrals each in these areas. In the northwestern part of the catchment area we see that the referrals are mostly shared between LowellRadiologyGrp1 and SalemRadiologyGrp1, while Lahey radiology does not attract a significant number of referrals. Figure 2 shows the time trend in market share among the radiology groups within the market area shown in Figure 1A. Some radiology practices in the Lahey IDN (LaheyRadiologyGrp1, LaheyRadiologyGrp2) have increased their share of referrals between 2012 and 2015, while LaheyRadiologyGrp3 referral volume has remained constant.

Armed with these insights about radiology referral streams, we now take a closer look at referral volume from the perspective of specific originating service lines. In particular, we will look at orthopedic referrals. The referral data (sample in Table 2) is filtered down to the case where np1 (or ordering physicians)

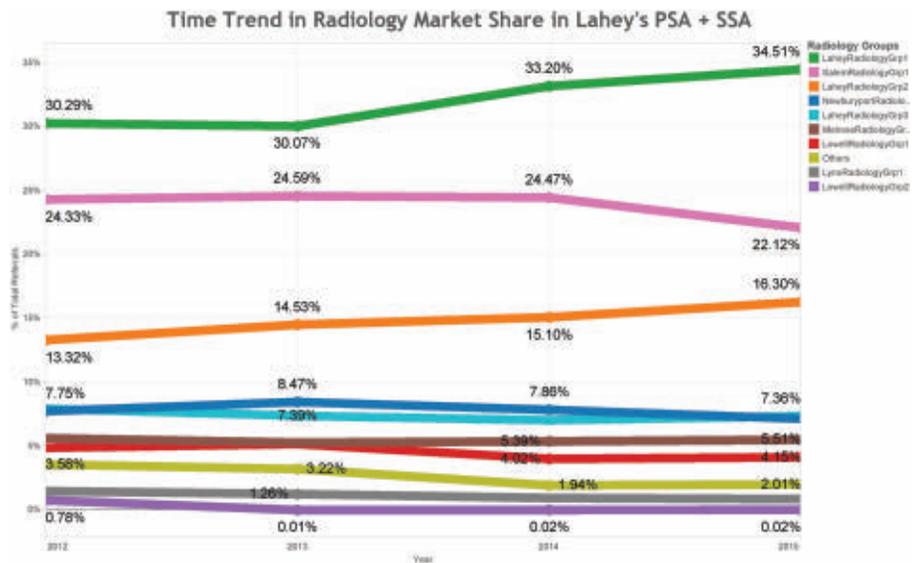


Figure 2 • Time trend in radiology market share across radiology departments / groups.

have orthopedic surgery as their primary specialty. Figure 3 shows the map of orthopedic referrals in the market and the share of these referrals among radiology groups. We can see that the

regions of orthopedic referral sources are smaller than seen in Figure 1. This first enables us to get an understanding of the market. Between 2012 and 2014 we notice considerable changes to the relative

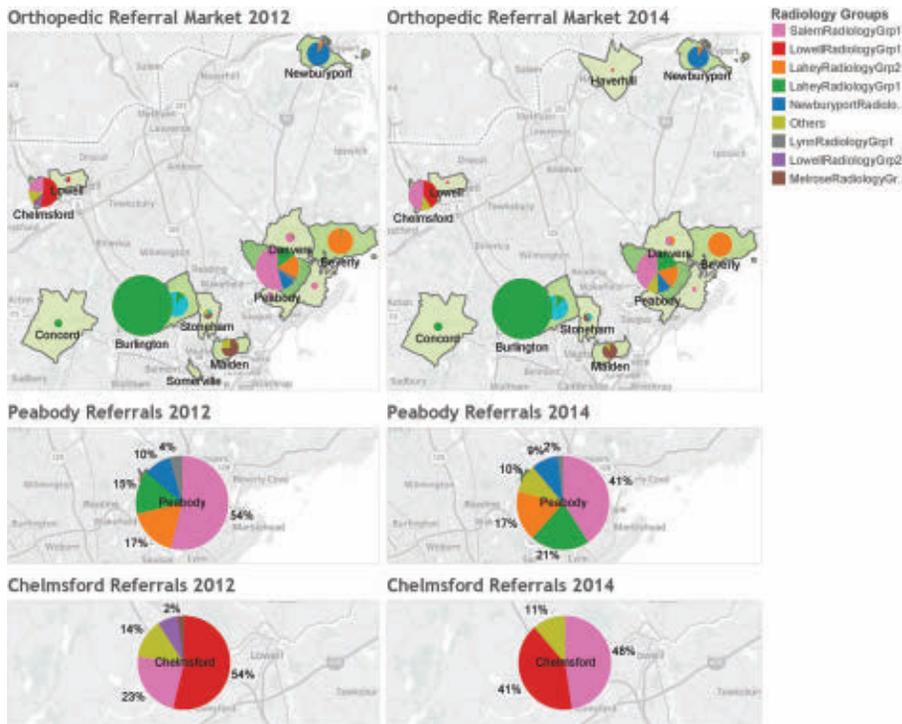


Figure 3 • The orthopedic referral market for the years 2012 and 2014. It also shows, as a pie chart, how these referrals are spread across various radiology groups. We also see a closer look at Peabody and Chelmsford locations between 2012 and 2014.

referral volume. Referral sources from Burlington are the highest contributor and 100% of these are captured by the LaheyRadiologyGrp1. This has remained consistent over the years. We see a similar trend for LaheyRadiologyGrp2. However, we can clearly observe changes over time at Peabody and Chelmsford areas. In 2012, SalemRadiologyGrp1 had greater than 50% share of orthopedic referrals in Peabody, but by 2014 it reduced to 41%. LaheyRadiologyGrp1 has managed to capture a part of SalemRadiologyGrp1's lost share. At Chelmsford, in the north-west, we see that SalemRadiologyGrp1 has gained referrals and LowellRadiologyGrp1 is its equal competitor in that area. At Newburyport (northern most part of the map), the NewburyportRadiologyGrp1 is strong (close to 90% share of wallet) and has remained consistent between 2012 and 2014.

In order for LaheyRadiologyGrp1 to increase its market share, Peabody and Chelmsford are locations to look into

further. We next zoom into orthopedic physician groups in these areas, to understand their referral splitting patterns and loyalties.

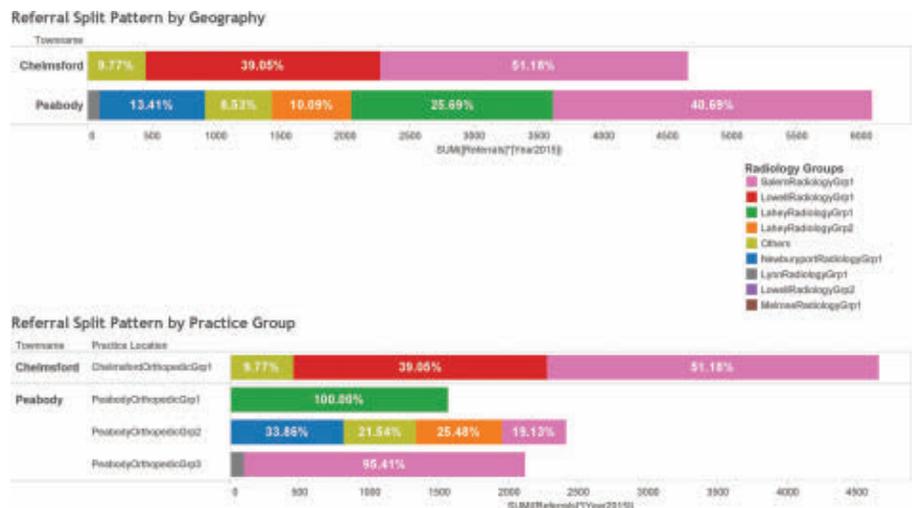


Figure 4 • Referral split patterns of orthopedic physician by geography (Chelmsford and Peabody) and by practice groups.

As seen in Figure 4, the referrals from ordering providers are made to different radiology groups, and the analysis can show their “loyalty” to a particular imaging provider entity. When making decisions on capturing more market share, this analysis can help gauge the extent of effort and reward required. Stated differently, physicians who are already loyal (or contractually obligated) to a different radiology group will be much harder to convert. On the other hand, physicians who have not yet developed loyalties (eg PeabodyOrthopedicGrp2) can be a good starting point.

Interpretations by Non-Radiologists and Self-Referrals

Most radiology exams are interpreted by radiologists. However, physicians who are not radiologists may interpret images and receive payments from Medicare for providing these services. In a recent study, using a 5% national sample of Medicare patients, the authors showed that 20.6% of professional payments for imaging services went to non-radiologists.⁵ When considering both professional and technical components of the fee, nearly 53.8% of all payments went to non-radiologists.

Our method, as previously outlined, cannot take into account imaging referrals when these exams are interpreted by non-radiologists. In particular, in the PSA of Lahey Health System, 29% of Medicare payments for radiology services (professional and technical) went to non-radiologists (71% to radiologists, 19% to interventional cardiologists, orthopedics and urologists; and the remaining 10% distributed among others).⁶

While this is certainly a limitation of our method, it points to the importance of understanding one's external market. In particular, when looking at competition in the orthopedic service line for Lahey Hospital, we identified physician groups in Peabody and Chelmsford. With the help of the Provider Utilization and Payment Data, we found that a majority of payments to orthopedics, for radiology services, are for views of x-rays and bone density measurements. Practices such as those in PeabodyOrthopedicGrp2 provide in-house services on x-rays and bone densities, and are therefore likely to self-refer for these types of exams.

Conclusion

We have demonstrated the use of publicly available datasets to analyze trends in markets for radiology referrals. The DocGraph dataset covers Medicare beneficiaries only and has both strengths and limitations in use. Nevertheless, we are able to utilize the information effectively to gather insights to guide business decisions. For instance, investment of marketing dollars and effort can be targeted.

Looking at trends in market share and by physicians' primary specialization, we were able to identify strengths, gaps, and opportunities in clinical service line growth. By observing trends, overlaid on a map, we can begin to observe competitor strategies and gather insights on why certain shifts in market share occur. Further, we have demonstrated the ability to identify geographical areas to assist decision making regarding expansion and growth plans. And, finally, the ability to

target physician groups and tailor marketing efforts according to their differential referral behavior is a valuable step towards practical decision making.

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Referral Management: An External Market Analysis

Home-Study Test

1.0 Category A credit • Expiration date 10-31-20

Carefully read the following multiple choice questions and take the post-test at AHRA's Online Institute (www.ahra.org/onlineinstitute)

The credit earned from the Quick Credit™ test accompanying this article may be applied to the AHRA certified radiology administrator (CRA) operations management (OM) domain.



QUESTIONS

Instructions: Choose the answer that is most correct. Note: Per a recent ARRT policy change, the number of post-test questions has been reduced from 20 to 8.

- Why must a systematic approach to referral management include actionable recommendations for marketing?**
 - To improve relationships with ordering providers
 - To improve radiology workflow
 - To improve patient satisfaction
 - To improve staff utilization
- Managing relationships with ordering providers is important to the growth of imaging referrals to a radiology department.**
 - True
 - False
- Which of the following are publicly available healthcare data sets?**
 - DocGraph dataset
 - Electronic Medical Records
 - National Physician and Provider Enumeration System (NPPES)
 - A and C
- Which of the following is NOT true about the DocGraph data set?**
 - Can identify physicians by name.
 - Can identify physicians by specialty.
 - Can identify patients' diagnosis categories.
 - Can identify the year of referral relationship.
- Primary service area of a hospital's radiology department is defined as what?**
 - A contiguous geographical area where a majority of the department's referrals come from.
 - A contiguous geographical area within a 5 mile radius of a hospital.
 - A contiguous geographical area where the patients live.
 - A geographical area from where 100% of the department's referrals come from.
- Using the referral data set, we can analyze radiology referral patterns, from which type of ordering providers?**
 - Orthopedics
 - Cardiologists
 - Neurologists
 - All of the above
- The DocGraph is based on claims from which of the following insurance providers?**
 - Medicare
 - Medicare and Medicaid
 - Commercial Insurance
 - All Payors
- Based on the following referral split patterns, which ordering provider is the most loyal to radiology group Rad1?**
 - Provider A whose referrals are split as 30%, 40%, 30% to radiology groups Rad1, Rad2 and Rad3 respectively.
 - Provider B whose referrals are split as 0%, 100%, 0% to Rad1, Rad2 and Rad3 respectively.
 - Provider C whose referrals are split as 50%, 50%, 0% to Rad1, Rad2 and Rad3 respectively.
 - Provider D whose referrals are split as 75%, 20%, 5% to Rad1, Rad2 and Rad3 respectively.



Healing Children

By Mark Lerner

My friend and chief executive officer of Children's National Health System, Dr. Kurt Newman, just published a book about his thirty years as a pediatric surgeon. *Healing Children* is a must read for anyone involved in the medical field. Through his outstanding writing, readers are provided with a front row view of both the invigorating highs and depressing lows of treating some of the bravest kids that you will ever meet. It is especially interesting to me because earlier in my career I had the tremendous pleasure of working at Washington, DC's Children's Hospital with many of the fine doctors and nurses cited by Dr. Newman. But the book is exciting for a completely different reason.

I have written in this *Workforce Planning* column a few times about the life of millionaire and philanthropist Joseph E. Robert, Jr. Dr. Newman was a great friend of Mr. Robert's and the story told in the book about how they got to know each other is fascinating. Dr. Newman first met Mr. Robert's son, Joey, as a patient in 2000. The teenager had been born with *pectus excavatum*, which the Children's CEO explains is a sunken chest. The condition can become extremely embarrassing as children grow up and encounter situations in which they have to get undressed in front of others. After Joey had surgery to correct the deformity, Mr. Robert stayed overnight in the hospital with his son.

This is when problems with Mr. Robert started. From the book¹:

"Early one morning I walked in, and he [Joe Robert] promptly told me how uncomfortable the bed and couch in the room were. 'Last night you know what I did?' he asked. 'I laid a blanket on the floor and slept there. I slept better.' He had stayed at some of the finest hotels in the world, he told me, and they had all sorts of wonderful extravagant comforts, but they did not cost as much as the thousand dollars a night that we were charging him to sleep on the floor.

Part of me was irritated by this rich guy complaining about his discomfort. I had seen thousands of parents suffer through thick and thin for their child. A few had complained, often jokingly, about the poor sleeping conditions. *We aren't a luxury hotel*, I wanted to say to Joe, and the kids' beds are what matter, though I couldn't summon the nerve to say it out loud.

A few days later I walked in to check on Joey, but his father cut me off before I could get a word in. 'In no hotel room in the world, not even the dirtiest fleabag of a place, would I ever be awakened six times a night,' he said.

'Joe, look, I'm just a surgeon,' I said. 'I will register your complaints, but I want to take care of your son. I can't change the system.'

'Bullshit!' he said.

His face reddened, and he stepped toward me. 'You think I care if they wake me up?' he asked angrily. 'I don't sleep more than five hours a night wherever I am. Don't need it. But my son right

now needs it. You know what? I walked up and down these halls last night. You have some beautiful kids here. Beautiful families. They bring tears to my eyes, their love and devotion. But your staff and your machines are waking them up over and over, all night long. I'm no doctor, but isn't it during sleep that a child heals? Isn't that when a child grows? Or is that an old wives tale?" (pages 135 to 136).

A few weeks later, Mr. Robert invited Dr. Newman to join him at his office in Northern Virginia. He did not waste any time getting to the point behind the meeting.

"I'm the guy who's going to help you achieve what you can be,' he said. 'We'll fix this place together. You guys have the makings of the best pediatric surgery center in the world. A lot of the pieces are in place. Now we'll find the rest of them and build a program that will be a model for caring for kids for the next century.'

Joe thought that by investing in the facilities and the patient experience, we could make major advances in results. This meant not only creating new operating rooms for families, but also taking a deep look at the comprehensive experience of patients and parents in the hospital and on the floors. Sleep, food quality, Internet access—he was talking about the nitty-gritty of hospital life and tying the experience to overall clinical success.

We shouldn't separate the medical experience from a more holistic experience that would promote healing, he rified.

He envisioned private rooms for every patient so they could heal with their families in relative peace. He urged us to humanize the waiting rooms, because people spend time there in difficult and pressurized circumstances. He said we should consider the parents' professional and emotional needs and provide comfortable beds and chairs for them, as well as washing machines and showers. We should offer high-speed Internet access and rooms for spiritual contemplation. He urged us to bring more light and art and music into the patient experience. He felt our Child Life program, run by a small group of psychologists and social workers who sought to help children maintain a sense of fun and ritual during treatment, should be expanded.

'Holistic,' he kept saying. I was shocked. He was sounding awfully New Age for a hard-charging, cigar-smoking businessman. 'You are taking me by surprise,' I said.

'Why, do I need to be more of a jerk? You like me better that way?'

It was hard to know how to answer.

'Look, you saw me at my worst, just like you see every parent in those circumstances,' he said. 'I was exhausted. I have a complicated family life. I love my son more than anything, and seeing him in pain kills me. It kills me. But you guys fixed that. You gave him a new sense of self in a couple of weeks. You've got me. You've got me forever. Now use me. Let's do something big.'" (pages 138 to 139).

What astounded me about reading these passages was that, seventeen years ago, Mr. Robert was describing the improvements in the patient experience that most of us are striving to achieve today. Mr. Robert went on to orchestrate a \$150 million grant to Children's National from the United Arab Emirates aimed towards the elimination of pain in children during surgery. He died of a brain tumor in late 2011 at the age of 59. 🌱

Reference

¹Newman K. *Healing Children*. New York, NY: Viking; 2017.

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Incidence of Bullying in the Radiology Workforce: A Single-Institution Study

By Edward I. Bluth, MD, FACR, Joseph Savoie, MHA, and Ashley Clary, MHA, FACHE

EXECUTIVE SUMMARY

- The incidence of bullying in the health-care workplace is reported to be more common than in other industries and has been reported to approach 50%.
- Educating the workforce regarding this form of mistreatment is the first step in resolving the problem. Obtaining data about those responsible for producing this problem is paramount in changing the environment and unmasking the problem.
- The survey developed by this one institution could be tested in other radiology departments to make a more comprehensive determination of the incidence of bullying in the radiology profession.

The Human Resources Commission of the American College of Radiology (ACR) reviewed the subject of bullying in the diagnostic radiology and radiation oncology workforce and could not find any specific study that identified the incidence of this problem specific to radiology.¹ Previous studies have evaluated radiation therapists, student radiographers in the United Kingdom, and residents and fellows in training and found that the incidence of bullying is between 48% and 68% among these selected groups.²⁻⁴ However, to our knowledge, a specific study of the complete radiology workforce has not been conducted at a medical institution to determine if this problem affects all types of employees. The purpose of this study was, therefore, to develop and test a survey instrument that could be used in radiology departments to determine the true incidence of bullying and to administer the survey to determine the actual incidence in a specific radiology department.

Potential consequences of bullying in the workplace include anxiety, depression, and health problems in victims as well as harm to patients as a result of the victim's reduced ability to concentrate.

Bullying can also lead to reduced morale and high turnover.

Materials and Methods

The study was reviewed and approved by our institutional review board. A six question survey was developed, approved by the institutional review board, and distributed to the 234 employees of the Department of Radiology at Ochsner Clinic Foundation in New Orleans, LA (Box 1). Ochsner Medical Center is a 473-bed acute care facility within the Ochsner Health System (Louisiana's largest non-profit, academic, health-care system). Ochsner is the only Louisiana hospital recognized by U.S. News & World Report as a "Best Hospital" across four specialty categories, caring for patients from all 50 states and more than 80 countries worldwide each year. Ochsner employs more than 18,000 employees and more than 1,100 physicians in more than 90 medical specialties and subspecialties and conducts more than 600 clinical research studies. A definition of bullying was included on the survey to ensure a common understanding. The definition was derived from a paper sponsored by the Human

■ Box 1. Bullying Survey

We are trying to understand and determine if we have an issue with bullying in our radiology department. We are therefore sending out a short survey to determine if this actually is a problem that should be addressed.

There is no accepted universal definition of bullying. A definition originally proposed by Einarsen et al and later reaffirmed by Tehrani is as follows: "Bullying at work involves repeated negative actions and practices that are directed at one or more workers. The behaviors are unwelcome to the target and undertaken in circumstances where the target has difficulty in defending him or herself. The behaviors may be carried out as a deliberate act or unconsciously. These behaviors cause humiliation, offence, and distress to the target. The outcomes of the bullying behaviors have been shown to cause clinically significant distress and impairment in social, occupational, and other areas of functioning." These actions, however, are different from those used in the Socratic method of teaching in which residents, medical students, or allied health students are challenged on their thoughts and ideas for providing patient care. Please help us by filling out this short survey.

1. Which of the following best describes your occupation?
 - a. Radiologist
 - b. Resident
 - c. Technologist
 - d. Administrator
 - e. Radiology nurse
 - f. Support staff
2. Have you personally experienced any bullying in our institution's radiology workforce?
 - a. Yes
 - b. No
3. Have you personally observed any bullying of others in our institution's radiology workforce?
 - a. Yes
 - b. No
4. Who is the source of bullying? You may select more than one answer.
 - a. Radiologist
 - b. Technologist
 - c. Radiology nurse
 - d. Referring doctor/nurse or physician assistant
 - e. Administrator
5. Have you noticed any change in the incidence of bullying during your time at our institution?
 - a. Yes
 - b. No
6. If you selected yes for question 5, please indicate if bullying is increasing or decreasing.
 - a. Increasing
 - b. Decreasing

■ **Box 2. Overall Bullying Survey Results**

Respondents

103/234 (employees) = 44% response rate

Personally Experienced Bullying

Yes 30/103 = 29%
No 73/103 = 71%

Observed Others Being Bullied

Yes 40/103 = 39%
No 63/103 = 61%

Source of Bullying

15/67 = 22% Radiologists
21/67 = 31% Technologists
4/67 = 6% Radiology nurses
15/67 = 22% Referring physicians/nurses or physician assistants
12/67 = 18% Administrators

Noticed Change in Bullying

Yes (32/103) 31%
If yes
Increasing 31%
Decreasing 69%

Resources Commission of the ACR published in the *Journal of the American College of Radiology* about the subject.¹ The questions were trialed by asking radiology section leaders and managers to preview the questions and responses and give feedback about potential problems or confusion. Responses and questions were modified for clarity as a result of feedback. The survey was distributed via email using the Survey Monkey methodology. The survey was distributed at the end of December 2016 and asked to be returned within a three week deadline. Reminders were sent out via email.

Results

A total of 103 employees completed the survey for a 44% response rate, and results are shown in Box 2. Twenty-nine

percent of personnel reported to have experienced bullying. The incidence ranged from 12% for support staff to 40% of technologists (Table 1). A larger group, 39% of individuals, reported to have seen/observed others being bullied. The incidence ranged from 12% among the support staff to 51% of technologists. Respondents were asked to describe the sources of bullying and could select more than one group. The sources of bullying were identified as technologists (31%); referring doctors/nurses or physician assistants (22%); radiologists (22%); administrators (18%); and radiology department nurses (6%). The sources of the bullying varied depending on the type of respondent. Staff radiologists were the largest group reported to bully residents at 42%, while the largest group bullying technologists were other

technologists at 39%. Of the 31% of individuals who noticed a change in bullying, 69% thought the incidence of bullying was decreasing.

Discussion

Bullying does appear to occur in the radiology workplace, but the 29% incidence of personally experiencing this problem in our radiology department environment appears to be less than previous reports of segments of this workforce population at 48%–68%.¹⁻⁴

Bullying behavior may involve abuse, humiliation, intimidation, or insults; it is usually repetitive; and it causes distress in victims.¹ These behaviors can be carried out either deliberately or unconsciously. The outcomes of bullying are distress as well as impairment in social, occupational, and other areas of functioning. These actions, however, are different from the Socratic method of teaching in which residents, medical students, or allied health students are challenged on their knowledge, thoughts, and ideas about providing patient care.¹ However, even in the Socratic method of teaching abusive behavior can occur. To ensure a clear understanding of bullying by employees, a definition of bullying was included in the introduction to the survey.

Our study showed that more individuals observed bullying rather than personally experienced the problem. While we could not find a previous report for staff technologists, the 40% rate reported by technologist respondents in our study was less than the 68% incidence involving radiation therapists across the United States. The rate of technologists' personal experience of bullying was the greatest among radiology occupations.

In our study, 30% of residents reported personally experienced bullying, a rate less than the 48% incidence of bullying found in an Accreditation Council of Graduate Medical Education study sampling 16 different residency specialties.⁴ In our study, staff radiologists were the largest source of bullying of residents.

■ **TABLE 1.** Bullying Survey Results

	Technologist	Radiology Nurse	Radiologist	Resident	Support Staff	Administrator
Response Rate	45/136 = 33%	8/13 = 62%	30/38 = 79%	10/25 = 40%	8/30 = 27%	2/7 = 29%
Personally Experienced						
Yes	18/45 = 40%	2/8 = 25%	5/30 = 17%	3/10 = 30%	1/8 = 12%	0/2 = 0%
No	27/45 = 60%	6/8 = 75%	25/30 = 83%	7/10 = 70%	7/8 = 88%	2/2 = 100%
Observed						
Yes	27/45 = 51%	3/8 = 38%	7/38 = 23%	5/10 = 50%	1/8 = 12%	1/2 = 50%
No	22/45 = 49%	5/8 = 62%	23/38 = 77%	5/10 = 50%	7/8 = 88%	1/2 = 50%
Source						
Radiologist	5 (13%)	2 (33%)	3 (25%)	5 (42%)	No Responses	1/2 = 50%
Technologist	15 (39%)	2 (33%)	2 (17%)	3 (25%)		1/2 = 50%
Radiology Nurse	3 (18%)		1 (8%)	1 (8%)		1/2 = 50%
Referring Physician/ Nurse or Physician Assistant	9 (23%)	1 (16.5%)	3 (25%)	2 (17%)		1/2 = 50%
Administrator	7 (18%)	1 (16.5%)	3 (25%)	1 (8%)		

This finding is relatively similar to the source of bullying in the Accreditation Council of Graduate Medical Education study.

On an optimistic note, the members of our radiology department reported that the incidence of bullying that they have personally experienced or observed appears to be decreasing rather than increasing. Nevertheless, while the lower incidence rate relative to prior industry evaluations is optimistic, our departmental radiology leadership will partner with institutional Human Resources to determine how radiology team members are defining and/or interpreting acts associated with bullying as well as to identify the underlying causes and work to further reduce the occurrence of bullying. Leadership will openly embrace the feedback from the bullying survey to discuss observations with radiology supervisors and managers and encourage team level and, in some cases, shift level discussions with staff members.

These conversations will focus on two elements: (1) transparent communication of survey results in an open forum to garner additional insight and, more important, (2) reeducation of the team around behavioral expectations and the importance of open communication and escalation of concerns.

A primary role of leadership is to provide a work environment that promotes safety, productivity, engagement, and work satisfaction; if any of these parameters are jeopardized—regardless of an individual’s professional category or position—open communication with leadership intervention is needed. Leaders need to investigate concerns brought to their attention and respond accordingly with feedback and coaching, behavioral interventions, or progressive discipline. Behavioral expectations need to be managed regardless of seniority or professional title.

Our study has also demonstrated that an adequate response rate can be

obtained using the short survey instrument we developed. Electronically sending a simple instrument such as our short survey can easily assess the incidence of perceived bullying in any radiology department. This simple survey could be distributed annually to follow the incidence of this problem to be certain that it is not worsening or deleteriously changing. The first step in resolving the problem of bullying is to understand its incidence and to determine the sources of the problems.

The consequences of workplace bullying have been described, as well as how bullying can adversely affect patients, healthcare organizations, and the victims.¹ Educating the workforce regarding this form of mistreatment is the first step in resolving the problem. Obtaining data about those responsible for producing this problem is paramount in changing the environment and unmasking the problem. We recommend using our short and simple survey

instrument to develop specific localized information about this problem.

This study, of course, has limitations. Because the survey was tested at a single institution, the institution's culture of complying with surveys may not be representative of the universe of radiology practices. Also, because of the one-institution design of the study, the actual incidence of bullying in radiology departments may vary around the United States. This survey could be tested in other radiology departments to make a more comprehensive determination of the incidence of bullying in the radiology profession. There also may be implicit bias in the survey because a defined list of sources of bullying was included as a means of making the survey instrument easy to fill out.

Bullying in the radiology workforce can be quantitated and followed for change with a short and simple survey instrument. Bullying does appear to occur in the radiology workforce but may be less than the reported incidence in hospitals overall. Once the incidence is quantified, the first step to address these issues is educating all components of the hospital environment of this potential problem and then to follow with the survey instrument for interval change.

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This study was approved by the Institutional Review Board of Ochsner Clinic Foundation.



Rapid Fire Go!

By Melody W. Mulaik, MSHS, CRA, FAHRA, RCC, CPC, CPC-H

At the AHRA Annual Meeting in Anaheim, I had the privilege of presenting an extended session on “Radiology Coding Tips and Traps.” This year it had a slightly different name, “What Every Radiology Administrator Needs to Know about Coding & Billing in 2017.” There was a lot of information covered and I received some great questions from the audience. That session is always one of my favorites since it allows for a wide variety of topics and I get the chance to learn something from the audience. This article will provide a high level overview of the key items from the “Overall Coding & Compliance” portion of the session. Time and space does not permit a deep dive in all of the areas, but my hope is that this information will cause you to evaluate your operations to ensure that you are being compliant and ensuring appropriate coding and reimbursement for your organization.

Site Neutral Payment and PO/PN Modifiers

The Bipartisan Budget Act of 2015 requires that items or services that are furnished on or after 1/1/17 be reimbursed through the Medicare Physician Fee Schedule (MPFS) or Ambulatory Surgical Classification (ASC) payment system instead of OPSS, which means much lower reimbursement for many

procedures. It specifically defines an off campus outpatient department as one that is located more than 250 yards from the hospital’s main campus. This requirement only relates to new facilities that are established after 11/2/15. Hospital outpatient departments billing under the Outpatient Prospective Payment System (OPSS) prior to 11/2/15 are “grandfathered” and not impacted by these reductions. Only off campus hospital departments (PBD) are impacted and the requirement does not include satellite hospital facilities or hospital owned, provider-based entities such as home health agencies or skilled nursing facilities.

In the 2017 OPSS Final Rule, exemptions were listed for: dedicated emergency departments, off-campus PBDs that were furnishing and billing prior to 11/2/15, services furnished in a hospital department within 250 yards of a remote location of the hospital, and new entities with a signed construction agreement in place 11/2/15. It is recommended that you have competent healthcare regulatory counsel review all contracts that might fall into this last exception. An off-campus PBD will lose its exemption if it relocates (*except for emergency approved circumstances*).

To appropriately inform the Centers for Medicare and Medicaid Services (CMS) that “excepted” services were provided in this setting the “PO” modifier must be applied to every procedure or service performed in an off-campus

provider-based department of a hospital, such as an off-campus physician office owned by a hospital and maintained as an outpatient department. This modifier is only applied on hospital outpatient claims (UB04/CMS1450) and should result in payment at the regular OPSS rate.

Conversely, the “PN” modifier must be appended to all codes for all nonexcepted services. This is not limited to radiology and must be applied to all services. These services were scheduled to be paid under the MPFS; however, the reimbursement is actually 50% of the relevant Ambulatory Payment Classification (APC). In the 2018 OPSS Proposed Rule CMS has indicated that they are seeking to lower reimbursement even more, to only 25% of the APC reimbursement. The Final Rule, which is scheduled to be published in early November, will provide additional information on any changes.

FX Modifier

This modifier is required to indicate that a film x-ray was taken (as opposed to digital). The application of this modifier triggers the 20% payment reduction required by the Consolidated Appropriations Act of 2016 for x-rays taken using film rather than digital radiography. There is not a listing of codes to which this should be applied—use “whenever an imaging service is an X-ray taken using film.”

2017 National Correct Coding Policy (NCCP)

Several items of note were included in the 2017 Edition of the NCCP. The first one related to addressing that patient scheduling should not be based on reimbursement concerns. Specifically, they state:

“MUE and NCCI PTP edits are based on services provided by the same physician to the same beneficiary on the same date of service. Physicians should not inconvenience beneficiaries nor increase risks to beneficiaries by performing services on different dates of service to avoid MUE or NCCI PTP edits.”

Before you think that this is only related to physicians it is important that you read the fine print. There is also verbiage that states:

“In this Manual many policies are described utilizing the term “physician”. Unless indicated differently the usage of this term does not restrict the policies to physicians only but applies to all practitioners, hospitals, providers, or suppliers eligible to bill the relevant HCPCS/CPT codes pursuant to applicable portions of the Social Security Act (SSA) of 1965, the Code of Federal Regulations (CFR), and Medicare rules. In some sections of this Manual, the term “physician” would not include some of these entities because specific rules do not apply to them. For example, Anesthesia Rules and Global Surgery Rules do not apply to hospitals.”

The NCCP also contained new verbiage related to Comparative Imaging Studies. Comparative studies are defined as imaging studies following procedures like fracture reduction or intubation to look for complications and to check the results of the procedure. In Chapter 9 of the NCCP, the Professional Component (PC) of these studies is not separately reportable if performed by the same physician/group. You can bill if the images were following a procedure performed by a different physician/group. As of the publication of this article, no additional clarification has been given by CMS.

Industry standards have interpreted this to be the same physician who performed the service—eg, ortho surg. To ensure compliance and appropriate coding practices you need to evaluate your policies to ensure consistency within your organization.

Finally, the NCCP contained new language addressing diagnostic studies performed on the same day using the same modality as guidance for an interventional procedure. The verbiage specifically states:

“All Ultrasound, CT, & MR guidance includes diagnostic studies of the same modality of the same anatomic area on the same day, even if the diagnostic imaging was performed during a separate encounter.”

Supervision

There have been several recent settlements published, specifically addressing alleged violations of supervision requirements for radiology services. Following are three of potential interest.

April 11, 2017—\$1,618,750 to Settle Allegations of Submitting False Claims for Medical Services Provided to Medicare Patients

January 1, 2008, through September 30, 2016, ... false claims for payment to Medicare for radiological services performed by RPAs without the proper supervision by a physician. Specifically, the RPAs performed radiological services that required “personal” supervision, but a physician was not in the room supervising the RPA when the service was performed.

<https://www.justice.gov/usao-wdok/pr/oklahoma-hospital-former-hospital-administrator-and-physicians-agree-pay-1618750-settle>

January 29, 2016— Radiology Centers Agree To Pay More Than \$8 Million For False Billing Of Medical Procedures

Among the allegations resolved was that (the facility) knowingly submitted false claims to the federal health care programs

by administering contrast dye during MRI scans on patients without proper physician supervision. . . . Federal regulations require that a physician directly supervise the administration of contrast dye when used for an MRI as a potential adverse side effect is anaphylactic shock.

<https://www.justice.gov/usao-mdfl/pr/rose-radiology-centers-agree-pay-more-8-million-false-billing-medical-procedures-and>

October 17, 2011—Failure to Follow Physician Supervision Rules Could Cost IDTF Firm \$10 Million

A recent federal court ruling backs the Department of Justice’s false claims case against an imaging provider for failure to follow Medicare physician supervision rules.

<https://www.justice.gov/archive/usao/tnm/pressReleases/2011/10-24-11.html>

The CMS supervision guidelines have been in place for two decades. Although the supervision requirements apply specifically to Medicare patients/services, contractual nondiscrimination clauses with private payers may require that hospitals and participating physicians apply the same rules for all patients. The other challenge is that typically imaging work flow also requires consistency across payors. I will not belabor the details of the supervision requirements since they have been addressed in several *Radiology Management* coding columns.

60 Day Refund Requirement

The CMS 6037-F Final Rule requires all Medicare Parts A & B healthcare providers and suppliers to report and return overpayments by the later of the date that is 60 days after the date an overpayment was identified or the due date of any corresponding cost report. Medicare Parts C and D were addressed in a separate Final Rule published in the May 23, 2014 Federal Register.

The major provisions of the Final Rule addressed: the meaning of overpayment

identification, the required lookback period for overpayment identification, and the methods available for reporting and returning identified overpayments to CMS. Overpayments must be reported and returned only if a person identifies the overpayment within six years of the date the overpayment was received. When reporting and returning an overpayment, the organization must utilize one of the following processes: applicable claims adjustment, credit

balance, self-reported refund, or another appropriate process.

Summary

There are so many other areas that could be addressed, but this at least gives you a good list to work from. As with the rest of the healthcare industry, this list will always continue to change. Think of it as an adventure—that perspective is always better than the alternative. ☸

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Say “Yes” to New Possibilities

By Tina Peralta, MBA, BS, RT(R)(M)

One of the first words that we ever learn to say as toddlers is “no.” As humans, we tend to focus on all the things that we should not or cannot do, and as a result we limit ourselves to life’s possibilities.

We’ve all heard of the importance of keeping a positive attitude in every aspect of life. A positive attitude has exponential effects on individuals, teams, and organizations as a whole. Having a positive attitude in the workplace can improve both the patient experience and employee engagement. Our radiology team was asked to improve both of these, and rather than thinking of an elaborate, costly intervention that we could implement to achieve our goal, we took a simple approach. We eliminated the word “no” from our vocabulary for one month, deciding instead to take a positive journey down the “yes” road.

We embarked on what we called our “Yes” campaign. We took the recommendation from one of our CT technologists, Maggie, to “just say yes.” Rather than focusing on the long list of scheduled patients or the many tasks that we had on our to do list for the day, we decided to take the focus off of ourselves individually and focus on saying yes to helping others complete their tasks. Our goal was to improve teamwork and collaboration not only within our department, but with everyone we encountered. The team became creative and competitive in a positive way by challenging each other and holding each other accountable for saying “yes.”



Figure 1 • “Yes” medallion given to team members.

The challenge was simple. Everyone was given a medallion that said “yes” (Figure 1). They would wear the medallion as part of their work attire for an entire month. Each team member started off with one medallion but had the potential of gaining more as days went by. The rules were as follows:

1. As long as you were on the clock your medallion had to be on you and visible. If anyone was caught by a teammate not wearing the medallion, they had to give it up.
2. If the word “no” or any derivative form/phrase/sentence (ie, “I can’t”)

was used, you had to give up your medallion.

3. If asked about the “yes” medallion, you had to explain it. And boy, did we have lots of explaining to do! We had hospital administrators asking why we had a “yes” medallion around our necks. It was also a good way to break the ice with our patients and talk about our campaign, because everyone took notice. It opened communication avenues for various teams within our own department as we fervently sought out those who forgot to wear their medallions.

We found ourselves saying “yes” to everything and everyone. Everyone on the team was engaged: our director, managers, supervisors, technologists, transporters, clerical staff, technologist assistants, administrative assistants, access services team, and department coder all just said “yes.” The team even became innovative and asked if they could have a raise in salary (and I said “yes” . . . during our annual performance period).

The effect that the word “yes” had on our team was great. Saying “yes” brought an unparalleled energy to the team. The smiles on our faces increased and our connections with our patients deepened. Collaboration interdepartmentally and with other healthcare team members increased, and overall the team just seemed happier. The techs were saying yes to everything, taking the extra minutes to help our nurses turn patients, even if they already had help. We are blessed with transporters in our hospital, but they were volunteering to take patients back to their rooms. They were giving out extra warm blankets and definitely extra smiles. Most importantly, it made us all aware of how easy it is to be so caught up in our own tasks that we missed opportunities sometimes to help someone else.

When we just say “yes” we open the doors to endless possibilities, and we can experience personal and professional growth and strength like we’ve never experienced before! 🌱

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Critical Aspects of Multigenerational Team Building

By Jason T. Costanza, MS, RT(T), CMD and Sandra K. Collins, MBA, PhD

EXECUTIVE SUMMARY

- Building a team with employees of disparate age groups can present challenges. Herein synthesized are the findings of a literature review on the subject of multigenerational team building.
- A brief overview of the issue is introduced followed by a description of the distinct generational cohorts and specific team-building strategies. Additionally, management skill building and the problem of workplace conflict related to generational differences are also discussed.
- This analysis suggests that informed management practices can offer solutions for building cohesive workgroups comprised of employees from different generations.

The importance of a cohesive team in the workplace cannot be overstated. Team building in a radiology department is crucial given the patients they serve and the services they provide. Team building is so important that it has been linked to healthcare costs, employee morale, and quality patient care. Research indicates that all of these areas may be adversely affected if cohesive work teams are not nurtured and well maintained.¹

The current radiology workforce includes a more diverse pool of individuals from varying generations than ever before and developing an effective and efficient work team with disparate age groups can present a challenge to even the most seasoned radiology manager.^{2,5} It takes special managerial awareness and skill to cultivate a cohesive group of any group of employees, but building a successful multi-generational team is specifically challenging. Multi-generational team building involves thoughtful reflection and an in-depth insight regarding generational differences. Radiology managers need to fully understand the application of numerous strategies which may effectively unify, manage, and retain these employees. These could include embracing each generation through coaching, varying the reward systems, building the radiology

manager's skill set, adaptive training, and minimizing conflict.

In many instances, because there are distinct differences between the generations, a radiology manager should be flexible and try to address each generation in the most appropriate manner. In addition to age-specific management practices, it's helpful to identify the variables that all generations value and attempt to incorporate these values into a management approach. The combination of such a diverse workforce in healthcare today along with the increasing demands for efficiency and productivity makes effective team building an imperative endeavor.³

The Generations

Describing the behavioral similarities of generational cohorts based on their date of birth comes from the notion that each generation is characterized by historical, political, and social events that shape the core values, work ethic, and economic movement of its members.⁴ Typically, researchers refer to generations based on 20 to 25 year divisions.⁵ To effectively manage and team build a multigenerational group, it is useful to have some familiarity with how each generation adopted their values and what motivates these groups.

The Depression Generation

The Depression Generation, also sometimes referred to as mature workers, builders, veterans, or the Silent Generation, is usually considered to include those born between 1927 and 1945.³ These individuals grew up with authoritative, over-protective parents who expected proper behavior from their children.⁶ This generation believes in lifetime employment generally with one employer and values clear-cut hierarchies and professional respect. They are motivated by the belief that hard work will eventually produce rewards.⁷ Therefore, this group is very traditional and formal in the workplace and they also have a great deal of respect for senior leadership.⁶

The Baby Boomer Generation

The Baby Boomer Generation refers to people born between 1946 and 1964.^{7,8} This group grew up enjoying a healthy, growing economy with high employment and rising wages. Additionally, these individuals were encouraged to think independently, express themselves, and be what they desired to be.⁵ Their core values surround optimism and their proclivity is toward a strong work ethic, personal growth, health, and involvement.⁷ This group equates work with self-worth, contribution, and personal fulfillment.⁶

Generation X

Generation X is the name typically used to describe individuals born between 1965 and 1980.^{4,7} They largely come from dual income families and they grew up with multiculturalism, increasing divorce rates, family instability, the spread of AIDS, the decline of the abundances of the 1980s, the failure of the junk bond market, and the bankruptcies of many dot-com companies.³ They are typically independent, participate without hesitation in discussions, and form strong bonds with friends as a substitute for absent parents.⁶ They focus on personal growth, often question the status quo, and recognize that job security is a

thing of the past.⁷ This group works to live, in contrast to other groups before them who were more devoted to the workplace. They value self-reliance, life balance, technological literacy, and learning.⁹ X-ers also feel that work should be fun and they are especially motivated to achieve a balance between work and time off.^{6,7} This generation was raised in times where nothing in the job market was seemingly certain, so they do not have the same organizational commitment as older members of the workforce.⁶ Therefore, X-ers tend to be focused on finding job security by using companies to build their transferrable skills and have lower organizational loyalty than some of the other generational groups.⁵

The Millennial Generation

Those born between 1981 and 1999 are referred to as Millennials, Nexters, or Generation Y.⁷ This generation grew up in the electronic and digital age and many had access to technology before they could spell. As a consequence, they are accustomed to constant stimulation and instantaneous results.^{3,10} They bring many positive traits to the workforce, such as pragmatism, tolerance, cooperation, and technical literacy.¹¹ They value optimism, confidence, modesty, achievement, morality, and diversity.⁷ Furthermore, these dynamic individuals strive to be part of the greater good with a high sense of civic duty and morality. They are thought to approach work with a can-do attitude, have a high regard for teamwork, and trust authority expecting to work hard and be committed to their career and supervisor.³ This may not necessarily mean they are loyal to their employers. Research indicates that workers in this age group demonstrate diminished loyalty toward institutions.¹³ They tend to be mobile and possess a “here

today and gone tomorrow” philosophy keeping their career options wide open.⁹ They may be likely to change jobs every two to four years, take time between jobs to travel, and may also accept international positions during their career.¹⁴

Team Building Strategies

Considering the vast array of aforementioned cohort characteristics, radiology managers can use various team building strategies to harness the power of a diverse multi-generational workforce. Utilizing these strategies can help provide quality patient care, reduce costs, and improve both employee morale and patient satisfaction.¹

Embracing the Generations

Multigenerational employees see things differently depending on a generation's mindset and individual perspective.¹⁵ However, when team building with a group of employees of dissimilar ages, radiology managers should first recognize that there are talents, gifts, and capacities endowed upon each generation as well as its individual constituents. More specifically, it is important to understand the generational differences and their similarities to capitalize on the diversity, creativity, and energy that such a diverse group can offer.⁷ A manager can increase the effectiveness of a multi-generational workforce by embracing the group differences. It is crucial that managers know that each cohort communicates differently, has a different work ethic and varied motivational factors, and that their expected rewards for working may be dissimilar. Embracing these differences is an important first step for building effective radiology teams.¹⁶

When armed with a firm understanding of workplace behaviors and

A manager can increase the effectiveness of a multi-generational workforce by embracing the group differences.

expectations specific to each generation, radiology managers may enhance their ability to team build cohesive groups for today's demanding healthcare environment. Managers should focus on making the most of their diverse talent pool using the skills and attributes of all cohorts to the benefit of the radiology department and healthcare organization as a whole.¹⁵ This can create many organizational advantages. The positive impact of a multigenerational workforce may lead to increased productivity among the employees and ultimately a successful organization. There are multiple scenarios where diversity could enhance skills and productivity among work groups. For example, the older generations may convey wisdom to the younger generations, who may in turn share fresh ideas and more advanced technical skills.¹⁵

Another noteworthy aspect of multigenerational team building involves the company mission and individual inclusiveness. First, it is imperative that organizations acknowledge that employees from every generation feel engaged and integrated in a purpose-driven organizational culture.¹⁵ Second, there must be a sense of inclusion among team members. Managers should involve all employees by developing policies that create a supportive work environment.⁷ These kinds of actions speak to all generations because all individuals want to feel valued at the workplace and involved in purposeful work.⁷

Team building involves fostering the mindset that individuals should work in a cooperative, helpful, and unified manner. Therefore, managers should attempt to move employees toward the acceptance of the work group as a cohesive and supportive team.¹⁷ Several things are extolled to bind a team together which a radiology manager can facilitate to build a long term team regardless of generation. These include a common vision, employee acceptance of their roles, team decision making processes, open sharing of knowledge, and mutual respect.¹⁷

A manager should not lose sight that there are also many commonalities

across the generations. Regardless of the cohort, employees share in the need to have a sense of belonging in a welcoming and engaging environment. Employees tend to look for similar things from their managers such as clearly set goals, challenging work, accurate and timely feedback, praise, and tangible rewards for a job well done.^{6,7}

Coaching the Generations

Building and leading a team often requires managers to work with staff members on an individual level. Coaching individual team members is one way to help people make the most of their own talents.⁸ Furthermore, coaching members of the team is a means to nurture the development of a successful team as a whole. However, the savvy radiology manager can approach individual employees with the awareness that people in each of the generations think about work differently.⁶ For example, when interacting with the Depression Generation, managers should focus on traditional American values such as family, hard work, honor, and respect for authority. They will expect a clear distinction between the manager and the employees. Managers will be more successful coaching these individuals if they focus on their unique characteristics during everyday aspects and manager/employee interactions. For example, when coaching this group, radiology managers might meet in a formal setting, use good manners, and communicate in a formal and proper way. It might also be prudent to value and respect their experiences, historical perspective, and perseverance.

Managing Baby Boomers will be different. However, managers should use the same philosophy and reflect upon the values of the generation before addressing the individual. Since Baby Boomers seek meaning in their work and desire acknowledgement for their individual contributions, managers should focus on articulating how these individuals make a powerful impact on the organization.⁶

Coaching Gen X-ers is best accomplished by building on their desire for

skill development. Additionally, in contrast to the Depression Generation, during mentoring or counseling, things should be kept somewhat informal. For example, offer a beverage and have a more relaxed conversation. This is more likely to help these individuals relate and respond than more traditional and formal means of communication.⁶

Unlike Generation X, Generation Y does not like overly directive coaching. Working with this group requires another approach. Strengths-based coaching, using praise and positive reinforcement, while gently exploring shortcomings are often effective.¹⁸ Managers need to balance corrective feedback with praise to avoid defensive responses. It is essential not to be overly assertive or forceful when counseling or coaching members of this group. Instead, managers should be specific, objective, and explain how changing unproductive behaviors will help increase their success.¹⁹ When coaching Millennials, it is advisable to make practical use of up-to-date technology. A variety of formats such as online and face-to-face techniques has proven effective when working with this cohort.¹⁸

Rewarding the Generations

Since they differ in what they value, a manager may need to vary the reward system to suit the preferences of the separate generations.⁸ Overall, monetary rewards have become less effective in keeping employees motivated.¹⁵ Nevertheless, there are still many ways to motivate, connect with, and foster positive relations. The provision of work-life balance, sharing of rewards, engaging employees with customized rewards, offering benefits to everyone, and building lasting relationships through open communication are effective methods.¹⁵ For example, when dealing with younger generations, organizations need to be flexible and authority figures need to be approachable.⁷ Additionally, benefits and rewards for this group may be more attractive if they are geared to the present rather than future.⁵

Aside from generational attributes, a manager may also focus on an individual's traits to gain insight into what shapes or drives each person's values.⁷ People of the same generation may vary somewhat in their reward preferences. For example, one member of the Depression Generation may expect a salary increase for years of service, whereas another may value an assigned parking spot. Knowing there are differences between employees does not leave a manager to guesswork alone. When trying to determine the correct approach for rewarding team members, it has been recommended that managers simply ask employees what types of rewards they prefer.²⁰

All employees are generally motivated by interesting work, new challenges, and increased responsibility which are mostly intrinsic motivating factors rather than the commonly assumed extrinsic factors such as salary increases.¹⁵ It is always wise to address the top five employee needs of any generation which include opportunity for advancement, facilitation of a better work/life balance, offering better compensation and benefits, providing respect and recognition, and access to learning and development opportunities.⁷

Building Management Skills

Potentially first and foremost, radiology managers should strive to build their own skills to capitalize on and interact with today's workforce. Researchers have found that the leadership variable itself is a major factor regarding the successful operation of a multigenerational workforce.²¹ It's imperative to direct others through informed and well developed management practices. Creating awareness, understanding, and knowledge are the preliminary steps to successfully working with employees.¹² There are many areas where a manager can focus their attention to enhance their own team building and management skills. For example, employee motivation is still one of the biggest challenges for many organizations. Radiology managers must broaden their ideas and approaches with motivation. In addition, they should

Creating awareness, understanding, and knowledge are the preliminary steps to successfully working with employees.

identify and focus on employee motivation practices that meet employees' needs regardless of age. A team builder could think of this task as a management skill improvement aimed at increasing and enhancing their own effectiveness in the application of situational motivators. Radiology managers should be cognizant of a variety of employee motivational factors and the changes in priorities of these factors over time.¹⁵ This may be more important than some realize given some research indicates that many of the main problems relating to an employee's poor job performance are tied to a manager's inability to understand different generational motivators.¹⁶ Managers need to be dynamic and flexible. Dealing with different generational groups requires managers who can adapt themselves, or the environment, to harness the attributes of each generational group in an effort to meet the needs of the organization.⁷ This is a valuable skill, but it requires self-examination and reflection to allow possibilities beyond what is familiar or habitual. Managers should know themselves and be introspective or knowledgeable of their own values. By recognizing their own biases, they may be able to more effectively overcome them when dealing with staff members of other generations.⁶

Part of this introspection revolves around understanding and employing social and emotional intelligence, which involves understanding people to such a degree that it allows one to get along well with others. This helps managers interact effectively with a multitude of individuals regardless of their varying characteristics and cultivates a cooperative environment.^{22,23} Cultivating social intelligence can be a significant tool for managers engaged in team building initiatives. For example, research indicates that emotionally intelligent managers can

rapidly ascertain their employees' needs and respond to them efficiently. They suggest that this window to emotions may be applied in an effort to motivate, plan, and achieve. Furthermore, socially intelligent managers are more able to inspire, motivate, and lead than those who lack social skills. Social intelligence has been associated with enabling managers to establish excellent workplace cultures that are inclusive, motivated, and diverse. Understanding social and emotional intelligence is a powerful and critical step for radiology managers in respect to managing a multi-generational workforce.¹⁵

All of the aforementioned techniques will serve to enhance and improve management skills if managers keep an open mind and remain guarded against their own predispositions. The challenge is the need to acknowledge the innate differences between the generations without approaching individuals with overly preconceived biases.⁶

Generationally Adaptive Training

All generations will require training at some point in a technological environment such as radiology. Additionally, all generational groups value education for one reason or another, so maintaining a team requires managers to address the educational needs of the group. To tackle this, radiology managers should approach each generation in the appropriate manner through diversification and adaptation. This may involve providing employees with many options for learning, such as synchronous learning as well as media-rich, on-demand options.¹¹ For example, given their highly traditional upbringing, the Depression Generation favors highly structured classroom learning and also prefers not to be signaled out during learning sessions.^{14,24}

For this group, training in the traditional classroom format would be preferable. Baby Boomers also value classroom-based learning over technology-based formats.¹¹ Some experts recommend training opportunities take advantage of diverse skills. For example, Baby Boomers' institutional knowledge and savvy businesses expertise might be useful in the training processes when allowed to participate as classroom instructors and mentors to younger generations. Unlike those in the Depression Generation and Baby Boomers, Generation X-ers are willing to accept technology-based learning formats that provide greater flexibility. Millennials, on the other hand, are most comfortable in a learner-centered environment. This group of young workers also relies heavily on collaboration with their peers and use of technology. They expect learning to be hands-on, collaborative, and fun and respond well to the engaging, competitive nature of games and simulations as methods of learning. Therefore, providing a variety of training options which appeal to the varying generational cohorts is a wise strategy for radiology managers to initiate. When radiology managers proactively synchronize their educational and operational environments to the needs and lifestyles of their employees the results may be more positive.¹¹

Generational Differences and Conflict

Conflict in the workplace is always a potential problem when diverse individuals are brought together. It is certainly an area that warrants the attention of radiology managers who seek to build and maintain harmonious and productive work groups. Generational differences add a unique variable to the conflict equation.¹² Research indicates there is a significant connection between generational cohorts and conflict attributed to generational work-value dissimilarities.²¹ For example, when radiology managers and coworkers lack understanding of

each other's generational differences, the condition exists for increased tension, decreased job satisfaction, and reduced productivity.²⁰ The consequence of a variety of generational groups working together is that misunderstandings concerning values, expectations, work ethics, communication styles, and approaches to problem solving may be common occurrences.^{6,7,25} Unfortunately, these types of misunderstandings may lead to other destructive behaviors. Research indicates that negative, unpleasant, and uncooperative coworkers are impediments to work happiness.²⁵ Additionally, stereotypes and critical attitudes undermine team member relationships.¹⁰ Some personalities pose potential threats to group cohesion.¹ This is particularly true when having differing perspectives and value systems results in activities such as shaming one another, exhibiting passive hostility, and finding ways to sabotage teams.²⁶

The aforementioned conflict issues and sources of disagreement could be exacerbated, amplified, or created due to generational differences. Teamwork and collaboration among staff members is vital to providing patient-centered care. Therefore, radiology managers must strive to mitigate the interference that generational differences can present. Given the right tools and information, managers can effectively resolve and reduce conflict. First and foremost, a manager's role is to bring staff members together for the common goals of patient safety and quality of care in a supportive and mutually respectful environment.¹⁰ Therefore, radiology managers and team leaders must be watchful for negative personalities in an effort to protect the solidarity of the team. More specifically, the radiology manager should foster an environment that acknowledges the values, talents, and work ethics of each generation to promote teamwork. One method of building bridges and allowing the generations to appreciate each other is to assign cross-generational teams to various projects. When assigning members to a team, a radiology manager may want to think in terms of skill sets

or about who would benefit from working and learning from someone else.² Such cross-generational teams help to promote shared work values and reduce work-value conflict.²¹

To reduce generational conflict, radiology managers should be cognizant of a number of strategies. Providing consistent employment expectations and organizational goals along with clear policies and clear procedures is one of the foundational aspects associated with reducing conflict. Furthermore, radiology managers should create an inclusive environment for all employees offering a flexible, open, and approachable style of dealing with all generations.⁷

Recognizing generational expectations can help dramatically improve communications and the effectiveness of work teams.⁶ A suitable way to begin the interventional process is to be prepared with diversity training that emphasizes listening and questioning skills so management can better understand the differences between cohorts under their supervision.²¹ Helping employees appreciate each other's alternative perspectives can often help to resolve conflict.⁶ The application of listening skills means to train oneself and team members to fully and completely listen to their coworkers. The more colleagues and coworkers listen to one another, the more successful the workplace will be.² In addition, focusing on the expertise rather than the difference that each individual brings to a team can aid coworkers in eventually valuing the unique set of attributes and skills that each employee contributes.⁶

Although knowledge of generational differences is useful when dealing with a diverse work group, these concepts are just generalizations and cannot possibly address each and every member of a specific cohort.⁵ Furthermore, all conflict does not necessarily always stem from generational differences alone. Before ascribing conflict solely to generational dissimilarities, radiology managers should consider the individual issues before addressing the solution.⁷ One basic but important

conflict countermeasure is to encourage respect and trust.¹ A respectful culture can be fostered in many ways including listening and not interrupting, maintaining eye contact, being polite in communication, and responding promptly to emails.¹² Another noteworthy point is that, in general, members of every generation want to avoid conflict.²⁷ This is important because efforts to reduce conflict are most likely to be viewed as a positive team-building endeavor which will hopefully generate more trust in management's values and goals.

Conclusion

Today's radiology workforce consists of four different generational cohorts with different values, work attitudes, and learning styles. In the effort to build and maintain a highly productive and cohesive work team, a radiology manager is obliged to address generational differences. Fortunately, there are many tactics that can be used to mold, solidify, and thoughtfully direct a team. These include embracing, coaching, and varying rewards by generation; bolstering one's own management skills; adaptively training different generations; and working to minimize conflict. If a radiology manager applies informed management practices there is a potential to create and maintain a highly productive work group.

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