January/February 2016 volume 38 number 1

RADJOLOGY MANAGEMENT

The Journal of AHRA: The Association for Medical Imaging Management

Streamlining
Throughput
with the
Implementation
of a CT Coordinator

By Kathleen Johnson, MSN, RN, CRN, Charles E. Johnson, MD, MC (FS), USN, Linda Porter, RT(R)(CT), and Karen Bryant, RT(R)(CT)

An Onboarding Program for the CT Department



By Brandi Baldwin, MSRS, RT(R)(CT)(MR)

Improving HCAHPS
Scores with Advances
in Digital Radiography

By Marianne Matthews, Gregg Cretella, and William Nicholas, MBA, RT(R)





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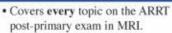
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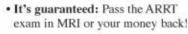
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Cover: The AHRA Education Foundation (EF), in cooperation with the AHRA, obtains and provides resources to enhance the effectiveness of imaging and healthcare disciplines. Happy 25th! Learn more at www.ahraonline. org/foundation.

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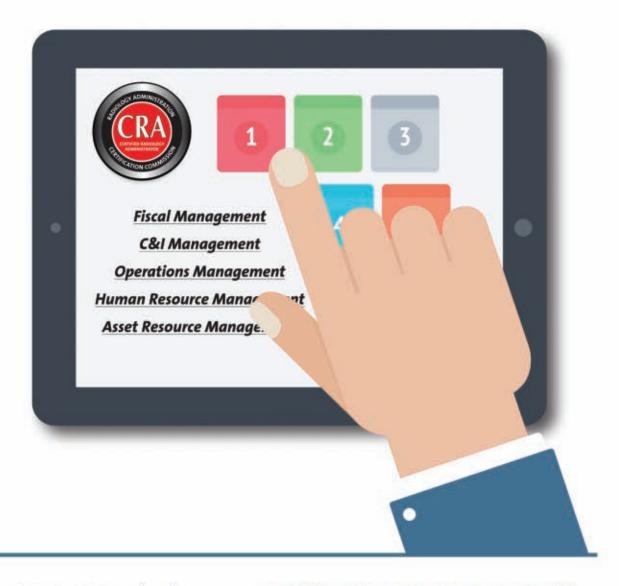
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viewpoint

We Believe

By Debra L. Murphy

At the start of 2016, like with every New Year, there is a lot of change on the horizon for medical imaging. But can we talk for a minute about what remains the same? Just like a New Year's diet, the constants in life are our comfort foods. The changes are a little harder to swallow. Ten years ago, in the Jan/Feb 2006 issue of *Radiology Management*, one of the feature articles was about patient safety. In 1996, there was an article on benchmarking in healthcare. And in 1986, AHRA members were talking about reimbursement (specifically, HHS had recently approved Medicare payment for MRI.)

All these topics are just as relevant in 2016 and it's these common threads that drive AHRA forward as an organization. The staff here at AHRA headquarters recently did a little activity based on the work of Simon Sinek's *Start with Why* in which he claims: "People don't buy what you do; people buy why you do it. If you talk about what you believe, you will attract those who believe what you believe." We then completed the statement, "At AHRA, we believe . . ." and the two big themes that came out of this exercise were:

At AHRA, we believe that we are all in this together.

At AHRA, we believe that with the right tools, every imaging administrator can be a successful leader.

So for all the change that's in store for healthcare and for you, just remember, we believe in you. As do the over 5,000 AHRA members who are willing to lend a hand, share their experiences, and manage the change. As you continue to focus on the patient experience, benchmarking, and reimbursement, the AHRA staff will be working hard to support those endeavors. That's a New Year's resolution I can stick to.

Deb Murphy is the Deputy Executive Director at AHRA. She is also managing editor of Radiology Management and may be contacted at dmurphy@ahraonline.org.



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Signal to Noise: A Different View

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

In 1986, when I was finishing x-ray school, MRI (or NMR back then) was just gaining credibility as a viable diagnostic tool. No one but the physicists and engineers who developed and built the first MRI systems knew what they were doing and how it was being done. At that time there were no MRI techs, but rather x-ray, ultrasound, nuc med techs; biologists; and physicists all looking to change careers doing MR. After all, there was no radiation being delivered and what could be the worst thing that could happen your watch may stop and your credit cards might get wiped out if you got too close to the magnet.

A lot of us who wanted to expand our early career opportunities started to take classes not given by the x-ray schools, but in many cases local four year universities. I took one of these classes in 1986 and the professor who was in the physics department taught the class by being one chapter ahead of the students he was teaching. I don't remember much about the class other than there were only really 2 or 3 sequences. Everything was based on T1 and T2 and the basic premise of MRI was you put the patient in the magnet, turned the magnet on, have the atoms all line up, shut off the magnet, and the images were gathered when the lined up atoms went back to their normal state. Made sense to me. After all, I was just brand new to the x-ray field and the inverse square rule was still fresh on my mind. It made sense, so why not spinning tops and lined up atoms?

I started doing some MRI at a clinic I was working in part time. I was instructed what sequences to run and was put behind the console and told what buttons to push and then let the machine do the rest. This wasn't brain surgery, rather just the definition of button pusher. The most interesting part of working MRI back then was the unit we had was a .25 Tesla system that did not have auto tuning included. Between sequences you had to go into the magnet room, grab a big plastic stick with a cup attached, put the cup on a switch in the gantry, then turn the stick until all the lights on the gantry changed from red to green. Once this happened, you could go back to the console and then initiate the next sequence. Obviously, this made for some less than quality images, but the radiologists were just as lost as to what they were looking at as us technologists were.

Twenty years later, I am no longer performing MRI but responsible for comparing, analyzing, selecting, and recommending which MRI to buy. This is no small feat, especially when a basic 1.5T magnet can cost more than \$1 million and you don't get a second chance if you make the wrong choice. I have to admit, I do get lost listening to all the new features on MRIs that the different vendors present to me. T1 and T2 sound

about the same, but that's about it. The more the vendor talks the more I want to say, "Let me call the MRI lead tech who can help translate in words I can understand." One of the more confusing concepts, which now makes sense, is signal to noise. For the longest time I could not figure out what that meant. I know most of you are saying, "Man, that's an easy one—how can you not understand that concept?" True, but we all have our mental block and SNR was mine until I listened to a Peter Gabriel song when it all became clear.

In the song "Signal to Noise," Gabriel simply lays out the point I have been missing for so many years. One simple line from the song "Turn up the signal, wipe out the noise" made it so clear to me that every time some MRI sales rep talked about how their SNR was much better and efficient than the other guy's I knew that the more signal you had the less noisy image and, theoretically, the better the image. I finally figured it out.

I was living in my MRI expertise delusion when I bought a live Peter Gabriel album with my new favorite song on it. I excitedly put the CD in my car and flipped to that track. Before the song started, Gabriel explained the true meaning of the song. Surprisingly, it was not about MRI imaging, but about communication and how clear and available communication (especially where there is none) can eliminate rumors and

editorial

innuendo and improve the quality of life or work of the people receiving the communication. Turn up the signal, wipe out the noise was not about MRI signals, but about how a lack of information and truth causes rumors, innuendo, and low morale. Lack of accurate information or noise will create anxiety and fear in everyone who is not getting the truth. By increasing communication with accurate information we are increasing the signal and wiping out the noise that a lack of communication causes.

In a time of change and uncertainty that each of us are going through, making sure we are giving staff the full story and being transparent in our communication is key to keeping them engaged and not fearful of things that may never happen. It is our job as managers to be the calm in the storm and make sure we explain what is going on in the organization to ensure everyone knows what is happening and they have some degree of stability in their lives. It may not always be the message they want to hear, but a lack of information increases the noise of rumors and uncertainty that only detracts from the good work that you and your team are doing. So turn up the signal and wipe out the noise by being available and upfront with your staff. Have them realize you're in this together and you will keep them up to date on information that you can give them.

So thanks, Peter Gabriel, for finally teaching me about MRI and more importantly reminding me of something I already knew—that open and honest communication with your people is the only way to keep them engaged and working for the same goal, which is great patient care.

Paul A. Dubiel, MS, RT(R), CRA, FAHRA has been the senior director, imaging at Seton Family of Hospitals in Austin, TX since 2002. An AHRA member since 1993, he is currently editor-in-chief of Radiology Management and has volunteered for numerous other task forces and committees. Paul can be contacted at pdubiel@seton.org.

New MRI Equipment at a Rural Hospital

By Bobbi Jo Weir, RT(R)(CT)(MR)

Blue Mountain Hospital District (BMHD), founded in 1949, is a critical access community hospital providing healthcare to approximately 7685 residents in rural Eastern Oregon. BMHD is located in John Day, Oregon, and serves the 4528 square mile area with a 25 bed hospital and 52 bed nursing home.

The hospital staff consists of approximately 130 FTEs, including six family practice physicians, one general surgeon, and one family nurse practitioner. The hospital offers three ICU/CCU beds, two birthing suites, and a med surg floor. The surgery department has two operating suites and a three bed recovery unit, while the ED has two trauma bays and one minor procedure room. As a level IV trauma center in the Oregon State Trauma System, BMHD provides 24 hour ED coverage and medical evacuation to tertiary care centers, with a helipad on site. Providing the quickest possible care for rural patients is a priority for the BMHD ambulance department, which is staffed by three full time paramedics and 25 volunteer EMTs.

As an additional service to the community, the district hosts an array of specialists from nearby facilities. These visiting physicians and their staff provide specialty care ranging from clinic appointments to surgical procedures.

The imaging department consists of a five FTE team, who yield approximately 600 exams in all available modalities per month. BMHD had been working toward upgrading imaging equipment since 2010, when the CT department replaced a 4 slice scanner with a 64 slice scanner, and the mammography department acquired a digital mammography unit. In 2012, the aging fluoro/x-ray equipment was replaced with a new digital fluoro/x-ray machine. Then 2013 saw a 1.0 Tesla MRI replaced by a large bore 1.5 Tesla scanner. Plans to upgrade from a CR to DR image reader and replace the dexa scanner are in the works.

BMHD has had MRI services for the last 10 years; however, the old scanner, though there permanently, was housed in a trailer. This older scanner had a removable docking table that could be taken into the hospital via a hydraulic lift built into the side of the trailer. ED, inpatients, and patients with walking disabilities could be transported to and from the scanner safely using this table.

Ferromagnetic materials are extremely dangerous in the MRI exam room because the MRI is a giant magnet with tremendous force. It will attract these materials whether they are as small as a bobby pin or as large as a patient bed. The force by which the object is drawn

into the magnetic bore is unstoppable and incredibly dangerous for any person or object between the two. A non-MRI approved gurney or wheelchair cannot, under any circumstance be taken near the MRI exam room. The risk for falls and slips is much magnified with ill patients who are not in full control of their actions, as is the injury risk for employees who are attempting to assist these patients.

With the purchase of the new large bore scanner, a permanent modular building was placed outside the ED entrance and a sidewalk was built to ensure safe passage to and from the main building. See Figures 1 and 2. The new 1.5 Tesla scanner has a permanently attached patient couch; therefore, staff was left with no safe way to transport patients who could not walk of their own volition.

In late 2013, the BMHD imaging department applied for and received the AHRA & Toshiba Putting Patients First grant. The platform used to attain the grant was the importance of an MRI compatible wheelchair and gurney and the immediate need for these tools at BMHD. The acquisition of an MRI compatible wheelchair and gurney (see Figure 3) has improved patient comfort by eliminating the need for patients who are unable to walk easily to make

in the industry



Figure 1 • Emergency department entrance on left; MRI on right. Long walk for patients.



Figure 2 • Another view of the walkway.



Figure 3 • The equipment: MRI compatible wheelchair and gurney.

the painful journey from the shielded area into the scan room. Patients can be transported directly from their bedsides to the exam table with one piece of equipment and little chance for slips, falls, fatigue, and pain. The likelihood of staff injury diminishes vastly when patients can be properly transferred from a wheelchair or gurney directly to the exam table.

Our goal in the imaging department is to provide a smooth, unproblematic experience for patients. Providing safe, comfortable transportation to and from an exam is an integral part of that experience. Thanks to the AHRA & Toshiba Putting Patients First grant we are able to accomplish this goal every day.

Bobbi Jo Weir, RT(R)(CT)(MR) was a technologist with Blue Mountain Hospital District for eight years before recently moving to Boise, Idaho. To contact BMHD imaging, please email the imaging manager, Dan Goldblatt, at radmanager@myway.com.



Site Neutral Payment Gaining Traction on Capitol Hill

By Bill Finerfrock and Nathan Baugh

On November 2, 2015, President Obama signed into law the Bipartisan Budget Act of 2015 (Public Law No: 114-74), which achieved two main aims¹:

- 1. The law extends the borrowing authority of the federal government (sometimes referred to as the debt ceiling) for two years; and,
- 2. The law raises the federal discretionary spending caps for Fiscal Year 2016 by \$50 billion and Fiscal Year 2017 by \$30 billion.

Despite the increased spending authorization, the CBO has scored the bill as "budget neutral" meaning that the law will pay for itself. There are numerous financial offsets in the law that will generate "savings" or new revenue to achieve the budget neutral result. These offsets range from selling oil in the Strategic Petroleum Reserve (new revenue) to changes in the federal crop insurance program that will reduce spending. When combined, all of the offset provisions are projected to save the government \$80 billion and, thus, the increased spending caps will theoretically have no impact on the long term deficit.

The new law also adopts a number of other less publicized changes that could have an impact on hospitals and imaging departments. Of particular interest to AHRA members will be a significant change to how "new" off campus hospital outpatient departments are paid by Medicare.

Section 603 of PL 114-74 designates that all new off campus provider-based hospital outpatient departments (HOPDs) will be paid using either the Physician Fee Schedule (PFS) or the Ambulatory Surgical Center fee schedule rather than the Hospital Outpatient Prospective Payment System (HOPPS) rate for Medicare claims. This new payment policy is often referred to as "site neutral" payments.

Numerous studies and newspaper articles over the past few years have documented that the Medicare payments for services provided in these off campus provider-based HOPDs are often dramatically higher than what Medicare would pay for the same exact service if performed in a physician's office using the Medicare Physician Fee Schedule (MPFS) payment.

The significant difference in payments between the two payment methodologies incentivized many independent off campus physician offices to sell their practices to a hospital, have it designated as "provider-based" and receive the higher HOPPS rate. For example, a recent report by the Medicare Payment Advisory Commission (MedPAC) noted²:

"... Medicare pays \$58 for a 15-minute visit to a doctor's office and 70 percent more—\$98.70 — for the same consultation in the outpatient department of a hospital. The patient also pays more: \$24.68, rather than \$14.50."

Some media reports indicated that the payment differential could be two to three times higher. According to a report by the Department of Health and Human Services Inspector General, Medicare could save \$15 billion over 5 years if Medicare applied the ambulatory surgical center payment rates to hospital outpatient services with low or no clinical risks.³ However, that incentive is no longer available.

Unsurprisingly, not everyone was on board with this change. The American Hospital Association (AHA) is pushing Congress to amend this new provision by allowing off site HOPDs already under development to continue to be paid under the PPS. The AHA is arguing that facilities that were under development (ie, paperwork had been submitted to appropriate regulatory authorities, construction had already begun, etc) would be considered "existing" rather than

regulatory affairs

"new" under the law. This way, hospitals and others that had already made a commitment to the development of these off campus facilities would be able to move ahead based upon the financial expectations in place when the facilities were conceived. However, they face an uphill battle on Capitol Hill.

This law marks the first time Congress has passed a "site-neutral" provision, and is likely a result of increased scrutiny by MedPAC, the Government Accountability Office (GAO), and the HHS Inspector General. One cannot discount the aggressive lobbying efforts in Washington by physician organizations long angered over what they perceived as underpayment for services when compared to these hospital outpatient department payments.

An organized coalition called the Alliance for Site Neutral Payment Reform (which includes payers such as Blue Cross and Blue Shield, as well as physician groups such as the American College of Physicians and the American Academy of Family Physicians) co-signed a letter in January 2014 to Congress highlighting the disparity in reimbursement for certain procedures between HOPDs and physician's offices.

All of this legislative activity comes after a string of media stories regarding the disparity between HOPPS rates and PFS rates for the same service. A 2012 Wall Street Journal article highlighted a four-fold price increase in the cost of a heart scan after the office was converted to a HOPD.4 It described a "structural shift . . . sweeping through healthcare in the US" whereby hospitals are buying private physician practices to take advantage of the "more generous" rates. Hospitals argue that the payment differences are necessary because they are regulated differently than a doctor's office and must provide emergency care to the uninsured. While many agree that there is a valid justification for a differential payment between hospitals and physician's offices, the wide disparity in reimbursement for the same services continues to draw attention to the issue.

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Streamlining Throughput with the Implementation of a CT Coordinator

By Kathleen Johnson, MSN, RN, CRN, **Charles E. Johnson,** MD, MC (FS), USN, **Linda Porter,** RT(R)(CT), **and Karen Bryant,** RT(R)(CT)

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

EXECUTIVE SUMMARY

- Imaging departments today are challenged with streamlining processes to keep up with advancements in healthcare, the increasing complexity of imaging studies and procedures, and bundling of charges for services rendered.
- Ordering providers are often required to get insurance pre-authorizations for imaging orders, and what is preauthorized must be the study/ procedure performed or reimbursement is not guaranteed. Insurance companies have inhibited radiologists from providing optimal service by placing restrictions on changing orders per radiologist protocol to best meet the individual needs of each patient.
- Many healthcare systems that are using a central scheduling model are losing money due to scans and procedures being inappropriately ordered and preauthorized. Implementing a computed tomography (CT) coordinator can streamline throughput of imaging services in radiology departments.
- The CT improvement project described here used a Lean methodology Plan-Do-Check-Act (PDCA) approach to increase the effectiveness of an organization's ability to maximize process efficiency and revenue.

ments are made and demand increases for imaging services, evidence-based throughput strategies must be employed to improve the effectiveness of an organization's ability to increase process efficiency. The following computed tomography (CT) improvement initiative is a process change that utilized the Plan-Do-Check-Act (PDCA) Lean methodology approach to streamline throughput of outpatient CT studies at Sacred Heart Health System (SHHS) in Pensacola, Florida. This article will outline the assessment, planning, implementation, and outcome phases of the change process. Volumes associated with the improvement initiative, anticipated costs of implementing the change on a full time basis, and a summary of

As technological advance-

Assessment/Planning

cess will be reviewed.

Identified failure points in the CT processing system were adversely affecting patient safety and satisfaction, employee satisfaction, efficiency, effectiveness, revenue, and workflow of daily operations in this division of the imaging

the reimbursement data to identify the

potential profit margin of the new pro-

department (Figure 1). These failure points included:

- Scheduling discrepancies
- Ineffective communication with community healthcare providers and patients
- · Inadequate patient education
- Bottlenecks in throughput specific to lab processing
- Employee dissatisfaction due to the inefficient workflow
- Patient dissatisfaction with the oral contrast consumption protocol

By eliminating non-valued steps in the process using the Lean Six Sigma PDCA approach, and re-distributing task responsibilities, adversely affected components of the system were revised to improve throughput while creating a new high quality, evidence-based process (Figure 2). The change process promotes an ease of workflow; is aligned with the mission, values, and vision of the organization; and complies with both state and Joint Commission regulations. Stakeholders include leaders and front line personnel from imaging, pharmacy, lab, outpatient services, and education department, as well as the providers in the community and patients receiving medical services.

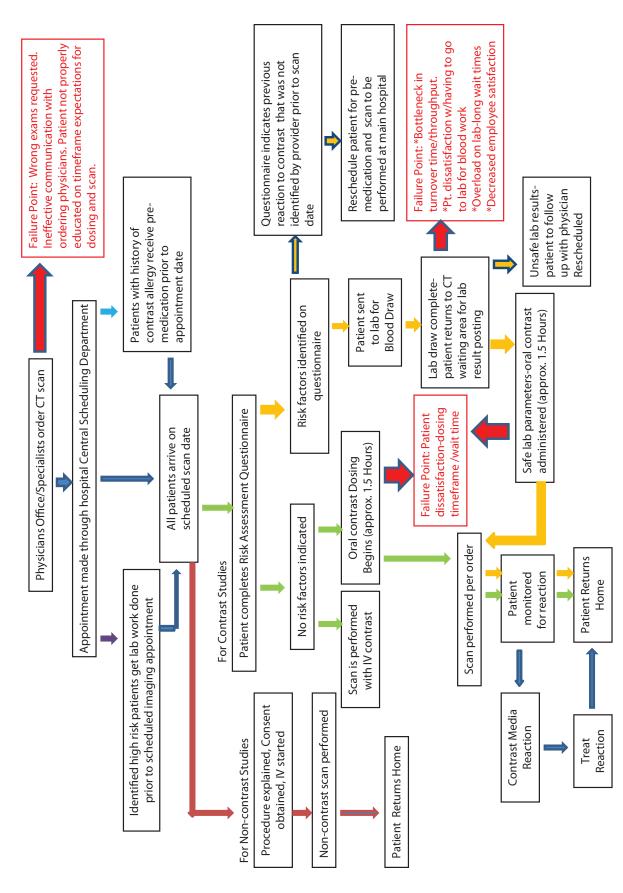
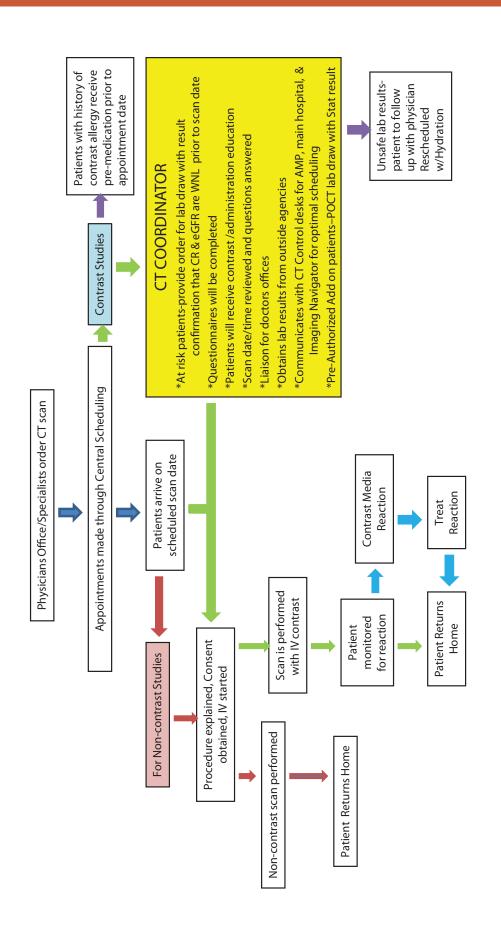


Figure 1 · Current Outpatient CT Throughput Process



*File Room to escort patients back to CT scanner area at Main Hospital

Figure 2 · Proposed "Lean" Outpatient CT Throughput Process

- Verify correct scan is ordered
- ✓ Review patient's chart for pertinent information
- ✓ Ensure order is placed for labs & oral contrast if needed
- ✓ Ensure patient questionnaires are completed prior to date of scan
- ✓ Review instructions with patients regarding scheduled scan date & arrival time
- Ensure patient receives contrast "acting agent" & education on contrast administration
- ✓ Ensure patients are fully prepared for scan date.
- Liaison for patients with questions/concerns
- ✓ Check lab result in SHH system or acquire results from outside lab source
- ✓ Contact and follow-up with PCP for further instruction if labs contra-indicate contrast study
- ✓ Liaison for referring physicians
- ✓ Collaborates with Central Scheduling (cancellations/re-schedules/wrong dates)
- ✓ Assist with IV starts for outpatients on date of scan
- Assist with contrast administration and lab processing for add-ons
- Document scan type and protocol to use on questionnaire form
- Ensure Checklists are filed in the designated accordion folder at scheduled scan sites

Figure 3 • CT Coordinator Role

A literature search was conducted to compile evidence-based research data to support the improvement initiative. The following were components of the proposed change:

- A revised contrast questionnaire form was constructed to remove non-valued information and improve workflow.
- · A blood draw competency for technologists was devised to ensure proficiency of front line personnel in performing point-of-care (POC) blood draws to eliminate the bottleneck occurring with lab processing.
- A CT coordinator role was developed to decrease scheduling discrepancies and improve communication with providers and patients (Figure 3).
- A coordinator checklist was devised to ensure patients would be prepared and comprehensively educated on their

- scheduled intervention prior to the day of the procedure (Figure 4).
- The system was revised so that patients would have a choice to consume oral contrast at home versus at the facility prior to scheduled scans.

The Joint Commission was contacted to ensure that the proposed changes were in compliance with the organization's regulations and standards. Multiple meetings were held with stakeholders within the organization during the planning phase to ensure that the finalized process was a collaborative integration of ideas that could be implemented successfully. The Institute of Medicine's (IOMs) six aims for improving quality care and the "Radiology 21st Century Quality Indicators" were used as a framework to substantiate the proposed improvement initiative. A healthcare organization that achieves major gains in meeting the IOM's 21st Century Aims for Quality Care will be far more effective at meeting the needs of patients seeking medical services (Figure 5).1

Implementation

Due to budget constraints, an additional full time equivalent (FTE) was not initially granted for the proposed CT coordinator role. An internal CT technologist expert was briefed on the change initiative and asked to participate in piloting the CT coordinator position. The new process was piloted two days per week with minimal overtime cost to the organization. A staff meeting was held with all employees involved in the pilot process prior to its launch to formally present the improvement initiative, instruct staff members on the change process, and answer questions.



	CT COORDINATOR CHECKL	LIST
Patient Name:	Contact Number:	Scan Date:
Scan Ordered: Cert. line called & verified YesNo		
Day of Scan Technologist verified and labs obtained	I no change in patient health status	us since date questionnaire was completed
Lab Draw Complete Lab Results Complet Ordering physician o	(CR/eGFR) & Oral Contrast or Results Acquired from Outside La	ate contrast study
Questionnaire Comp Leducated Patient on Patient Picked up Co	oleted Contrast Administration ontrast e & Arrival Time Reviewed with Patio	

Filed alphabetically in a designated accordion folder at scheduled scan site

Figure 4 • CT Coordinator Checklist

At this meeting, all vested employees were verbally instructed on the imperative team approach that must occur during the pilot phase of implementation in order to substantiate sustaining and standardizing the evidence-based change. Starting on a culture changing journey is challenging for all employees involved, but the transformation empowers personnel to improve the quality of services rendered.² As implementation of the initiative ensued, meetings continued to be held with stakeholders to revise and refine identified workflow issues associated with

the piloted process to further improve throughput. As proposed changes were implemented, outcomes reflected success. After evaluating the remarkable initial outcome data, the FTE for the CT coordinator position was granted by the hospital's executive board. The change process has been successfully implemented and sustained on a full time basis since 2012.

Volumes

Volume data depicting the need for change and reflecting the success of the CT improvement initiative was derived from tracking:

- Scheduling discrepancies
- · Cancellations
- Reschedules
- · No shows
- Budgeted versus actual number of scans performed
- Number of patients requiring labs prior to procedure
- · Patient satisfaction
- Employee satisfaction
- Early, on time, and late start times

Customer satisfaction
Repeat/reject rates
Wait time
Report TAT
Net operating margin
CPT coding accuracy
Medical necessity review
Peer review
PACS related issues
Critical incidents
Complications
Radiation safety issues
Employee Injury

Patient Demographics

Patient safety issues

Image quality issues

Equipment issues

Report availability **Unsigned reports Examination schedule** Exams ordered but not performed Exams complete/not interpreted Net revenue Number of procedures No shows Cost per examination Salary Non-salary expenses Cost analysis **Productivity** Turnover rate/vacancy rate Invasive procedure review Rad./pathology report correlation

Rad./Ultrasound report correlation

43% of QI's are Improved with the proposed CT Initiative (Highlighted in Red)

Figure 5 • Radiology 21st Century Quality Indicators

Length of stay in department

The central scheduling department consists of non-clinical personnel who are responsible for scheduling all imaging studies for five Ascension Health facilities, including SHHS. The complexity of CT imaging studies and interventions presents a challenge for non-clinical staff members tasked with appropriately scheduling scans and procedures. In the first pilot month of the CT improvement initiative, 39% of the procedures scheduled were found to have discrepancies. Several of these discrepancies involved the scheduling of certain types of scans in multiple time slots when only one time slot was needed to complete the procedure. Catching these discrepancies in advance has allowed the CT coordinator to open up inappropriately scheduled time slots to schedule additional scans, improving throughput and revenue.

The CT coordinator has been able to ensure that patients are properly scheduled and prepped for their procedures prior to the day of the scan, minimizing discrepancies to reduce cancellations and reschedules. Patients are contacted and reminded of their upcoming scheduled procedures to minimize the no show rate. The results indicate a positive downward trend that can be, in part, attributed to the piloted change process. The CT coordinator verifies that the scan/procedure ordered is indicated, pre-authorized, properly scheduled, and performed, decreasing reimbursement discrepancies.

Expected annual net revenue per scan is roughly 34% of the billable amount. Increasing capacity by one scan per week can increase annual net revenue from anywhere between \$12,216 to \$286,981 according to the billable amounts charged by the hospital for services rendered. An increase of one scan per day can yield, annually, between \$61,084 and \$41,434,908 depending on the type of scan performed.

It is important to continuously evaluate and update system processes to minimize the use of outdated information and maximize evidence-based practice.

The Medical Executive Committee at SHHS approved the implementation of a newly revised contrast policy prior to the start of the improvement initiative pilot process. It is important to continuously evaluate and update system processes to minimize the use of outdated information and maximize evidence-based practice.3 The first order of business was to ensure the implementation of this best practice policy to promote patient safety. Since lab processing was already considered a failure point in the throughput process, the number of at-risk patients that were falling under the new policy versus the old policy was tracked to further substantiate the benefit of a process change. The number of at-risk patients requiring labs prior to procedures incrementally increased after the implementation of the revised contrast policy; this data supports the proposal that lab draws should be completed prior to the day of the scheduled scans, and point-of-care blood draws should be performed on same day add-on patients in order to reduce bottlenecking, maximize throughput efficiency, improve patient satisfaction, and positively impact

Early, on time, and late start time volumes were tracked to gauge workflow during the first several months of the piloted change process. An improvement in workflow will positively impact throughput. Decreased wait times improve process efficiency; maximizing efficiency positively impacts revenue.

Outcomes

Metrics to evaluate the effectiveness of the improvement initiative included tracking:

- The monthly measured volume of outpatient procedures
- Early, on time, and late procedure start times
- Cancellation, re-schedule, and no show trends
- Discrepancies found on piloted days of the month
- Captured time slots

Patient and employee satisfaction surveys also provided qualitative data regarding the piloted change process.

The initial outcome data exceeded expectations. Measured procedure volumes trended upward, and cancellations, re-schedules, and no show rates all trended downward. Pilot data revealed that 67% of the procedures performed had early start times, 32% started on time, and 1% started late. Late starts were delayed no longer than five minutes after the scheduled start time and were completed within the allotted time frame for the procedure. The CT coordinator was able to catch and correct 100% of the scheduling discrepancies on the dates the process was piloted. During the first month of implementing the improvement initiative two days per week, the captured time slots directly associated with the pilot process yielded approximately \$22,618 net revenue. Monthly net revenue has steadily maintained higher than anticipated outcomes, supporting the initial proposed investment of one FTE to permanently sustain the change process.

Integrating patient feedback into process change initiatives improves the quality of healthcare services provided.⁴ In the first six months of the change initiative, patient satisfaction surveys were distributed to all patients who participated in the pilot study process. Results reflect qualitative data regarding overall appointment experience, wait time, contrast consumption preference, and whether the patients would recommend SHHS to their family and friends for future medical treatment. Survey data indicated that the change process either met and/or exceeded 100% of the patients' expectations for their overall experience and wait time. Patients were supportive of having the option to pick up and consume oral contrast at home versus having to show up at the medical facility two hours prior to the scheduled procedure to consume oral contrast on site. Ninety nine percent of patients involved in the pilot process stated that they would be likely to recommend SHHS medical services to family and friends.

Employee satisfaction can decrease staff turnover, which in turn decreases human resource marketing, hiring, and training costs.⁵ A survey was administered during the sixth piloted month of the change process to gauge the level of impact that the improvement initiative was making on employee satisfaction. One hundred percent of employees surveyed agreed that the change process improved their job satisfaction, allows them to focus more on patient safety and satisfaction, and improves the overall quality of the medical services provided in the CT division of the Imaging Department. The improvement initiative has positively impacted the culture of this Imaging Department division.

Cost and Reimbursement

The anticipated cost associated with transitioning the CT improvement piloted process into a sustained change initiative required minimal financial investment; approval of one FTE was the only requirement for sustainability of the CT coordinator position outside of the purchase of a locked storage cabinet in the outpatient setting to house POC supplies and contrast media. Having more than one technologist trained to function in the coordinator role allows for rotation to minimize burnout, and promotes maintenance of technical skills to perform studies in the hospital, emergency department, and outpatient settings. Additional resources are not required to establish a rotating coordinator system, but it is recommended that the individuals working in this position have the level of experience and knowledge needed to effectively and efficiently schedule and process patients for complex studies.

Procedures in the CT division of the Imaging Department are billed by scan type. As previously stated, 34% of the billable amount is an approximate total net revenue average percentage for all payer sources combined. This percentage was used for determining the net revenue and profit margin for the change process.

The active role that the CT coordinator has played in fixing scheduling discrepancies to open additional time slots has increased revenue for the organization. The expected net revenue generated by these captured time slots, and the appropriate ordering, scheduling, and pre-authorization of scans yields a positive projected annual net profit margin even when the investment for project sustainability is subtracted out at the current rate of success. Scan types are expected to vary from month to month so fluctuations are expected in the projected annual net revenue. Captured time slots and reductions in cancellations, reschedules, and no shows are reflected in a reported 22% increase in outpatient net revenue over the projected revenue for the three piloted months of this project.

Conclusion

This initiative was sustained to improve throughput in the outpatient CT division of imaging departments, but has concepts that can be applied to several other divisions. Clearly defining and exceeding the goals, objectives, and anticipated outcomes with minimal cost validates that the CT coordinator is a value added position. Tracking volumes has been an important component to substantiate the correlation between the pilot process and the increase in revenue. Using initial outcome data to calculate and reflect a recognizable increase in net revenue to support the proposed full time implementation of the change process. The change process is an efficient, effective, and equitable change to improve revenue, patient safety, and promote both patient and employee satisfaction. **

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OUESTIONS

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. Which of the following is not a benefit of using the PDCA framework as a model for process change?
 - a. The use of specialty trained leaders called Black Belts, Green Belts, or Master Black Belts to manage and oversee the change process.
 - Lean process that allows all stakeholders to actively participate.
 - c. Expeditious and repetitive process for continuous improvement
 - d. Decreased organizational burden
- 2. Patient dissatisfaction with the initial CT throughout process included all but which of the following components?
 - a. Oral contrast dosing
 - b. Lab/blood work processing
 - c. Education
 - d. Image quality
- Identified failure points in the imaging department with the initial throughput process included all of the following except:
 - a. Scheduling
 - b. Communication between ordering providers, patients, and the radiology team
 - c. Staffing
 - d. Patient education
- 4. Components of the "Lean" change process include all of the following except:
 - a. Implementation of a CT coordinator
 - b. Decentralized scheduling
 - c. Checklist to ensure comprehensive care
 - d. Revised contrast questionnaire

- Allowing patients to pick up and consume oral contrast at home prior to a CT scan appointment complies with The Joint Commission regulations.
 - a. True
 - b. False
- Data collected to evaluate success of change process includes all except:
 - a. Cancellations, reschedules, no-shows
 - b. Patient satisfaction
 - c. Employee dissatisfaction
 - d. Budgeted versus actual number of scans performed
- 7. A component of the PDCA model is the:
 - a. Steering committee
 - b. Tollgates
 - c. Sponsor and champion
 - d. Ongoing training and active participation
- The CT coordinator role includes all of the following except:
 - a. Manage staffing levels
 - b. Liaison for referring providers
 - c. Verify correct scan is ordered
 - d. Liaison for patients



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Don't Ever Devalue Your Product

By Mark Lerner

I recently attended my eighth annual Fight Night Gala. The event, which raised a record \$5.1 million for improving the health and education of children living in poverty, is the creation of Joseph E. Robert, Jr, the wealthy Washington, DC area philanthropist who passed away at the end of 2011. I have written a couple of times about this man. Mr. Robert's life inspired many, including myself, to try and become kinder individuals. I have a picture of me and Mr. Robert on a shelf in my office as a reminder of the generosity we should show toward those in need.

Another interesting aspect of Mr. Robert's time here on earth involved his influence on those who knew him to advance the field of leadership. For instance, I have told you before about the story of Bret and Amy Baier's first son, Paul, who was born with five congenital heart defects. He most certainly would have died if it were not for the heroic efforts of Beth Kennedy, a nurse who within 24 hours after Paul's birth strove to determine what was wrong with the infant even though other physicians and healthcare workers said the newborn was normal. The story is captured in The New York Times bestselling nonfiction work Special Heart by Bret Baier and Jim Mills.1 I like to share this tale with my managers as an example of the perseverance we should demonstrate in looking out for the best interests of our patients.

It just so happens that Joe Robert was one of Bret Baier's best friends. In fact, Mr. Robert makes an appearance in Mr. Baier's book, and Mr. Baier was with him four days before he died. If you go to Mr. Baier's office you will find a picture of him with Mr. Robert very similar to my own photograph.

The surgeon that saved Paul's life was Dr. Richard Jonas from Children's National Health System. As I have also written about previously, Mr. Robert arranged a \$150 million gift from the United Arab Emirates for this hospital in gratitude for his son's treatment there when he was a teenager. This is on top of the \$25 million Mr. Robert personally donated to create the Joseph E. Robert, Jr Center for Surgical Care. But it is most likely that none of these gifts would have been made without the passion and drive of Children's president and Chief Executive Officer Dr. Kurt Newman. If you go to Dr. Newman's office at the hospital you will see the wall behind his desk covered with pictures of Mr. Robert.

Another close associate of Mr. Robert's was Kevin Plank, the founder of the company Under Armour. Mr. Plank, who now has a personal worth of over \$3.9 billion, made a short video with *The Washington Post* newspaper about the founding of his firm.² He makes two excellent points. The first is that you should never devalue the worth of your product. He states that he received his first real breakthrough when his apparel was utilized in

the motion picture "Any Given Sunday." People told him that he had to provide his clothing for free so that they would be featured in the film. Mr. Plank sold his products to the producers of the movie for over \$40,000. The other concept that Mr. Plank discusses is that he describes Under Armour as a whiteboard company. He says he has these boards all around his organization with sayings on them. The one that he really likes is the one that says: "Just remember to sell shirts and shoes."

I utilize Mr. Plank's piece with my managers to emphasize two ideas. The first is that we must never undervalue the work that our staff performs on a daily basis. They take care of sometimes extremely sick patients while consistently demonstrating outstanding customer service skills. These people are heroes for their professionalism and perseverance, and therefore we need to treat them with the respect and the dignity that they deserve.

The second takeaway of Mr. Plank's presentation is around the use of white-boards to create a motivational unity of purpose around the practice of our profession. After seeing the video I had "Just remember to take care of our patients" signs posted throughout our sites. I have now replaced these with small posters that simply state, "Just Remember the Promise." The promise of course, is that we will take excellent care of those that we are imaging.

workforce planning

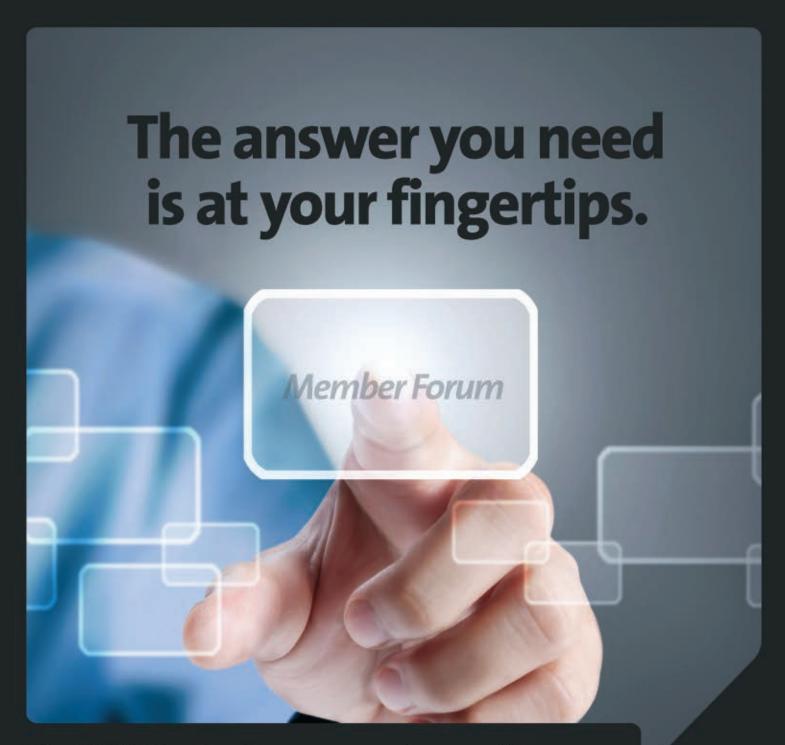
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An Onboarding Program for the CT Department

By Brandi Baldwin, MSRS, RT(R)(CT)(MR)

The credit earned from the Quick Credit[™] test accompanying this article may be applied to the CRA human resources management (HR) domain.

EXECUTIVE SUMMARY

- Healthcare organizations compete for employees in the same way television networks compete for new talent. Organizations also compete over experience, knowledge, and skills new employees bring with them. Organizations that can acclimate a new employee into the social and performance aspects of a new job the quickest create a substantial competitive advantage.
- Onboarding is the term used for orientation or organizational socialization where new employees acquire the necessary knowledge, skills, and behaviors to fit in with a new company. Computed tomography (CT) department specific onboarding programs increase the comfort level of new employees by informing them of the supervisor's and the department's expectations. Although this article discusses CT, specifically, an onboarding program could apply to all of imaging.
- With the high costs that employee turnover incurs, all departments should have an orientation program that helps retain employees as well as prepare new employees for employment. Current personnel are valuable resources for offering appropriate information for successful employment in specific departments. A structured, department specific onboarding program with the full participation and support of current staff will enhance staff retention.

Several million healthcare workers begin jobs with new organizations every year.1 It is imperative for organizations to get their technologists adjusted to the social and performance aspects of their new jobs quickly and efficiently so they can contribute to the department's success.²⁻⁴ A system should be in place to help facilitate new employees' success. The system should be set up to help new hires adjust and include an organized process and effective information exchange. This method is called onboarding, but it has been studied academically for decades under the term organizational socialization.² Onboarding is a relatively new term used by human resource (HR) directors and hiring managers to replace the process some organizations refer to as new employee orientation (NEO). Sixty six percent of organizations have some features of formal onboarding programs and 53% invest in onboarding throughout a new employee's initial year.^{2,5}

Research suggests frontline personnel, such as technologists in a healthcare setting, are essential to any organization's success. These employees are the first impression of the hospital and interact with patients on a daily basis, striving to make and keep them happy. Yet in the past, most hospitals and especially computed tomography (CT) departments hired new employees without making

sure they received the support and training they needed to be successful in their jobs.³ The result of poorly trained or misinformed staff costs the organization by affecting the brand, reputation, and customer satisfaction. 4,6 The difference between long and short term retention of an employee often pivots on an effective orientation.4 Literature was reviewed to determine the most effective methods used in onboarding new staff to ensure the efficacy and high quality of the staff recruited and trained for the CT department. High quality onboarding programs can help ensure an organization's success.4,6

Methods

Multiple databases were used to research this subject area including: Medline Complete, Academic Search Complete, Business Search Complete, Education Source, PsychInfo, MasterFile Premier, and CINAHL Complete. The articles were limited to peer reviewed articles published since 2010 with full text. The key words used in the searches were: new employee orientation, onboarding, employee engagement, enhancing orientation and retention, preceptor role, onboarding new employees, onboarding best practices, employee misunderstanding, employee onboarding, employee onboarding radiology, and employee

New employees who completed a structured onboarding program were 58% more likely to stay at the organization for more than 3 years when compared to those who did not.

orientation. The searches yielded an estimated 846 articles meeting these criteria, and 25 were selected for review because they were the most appropriate matches for the topic. A search of the US Department of Labor for job openings and labor turnover was performed for statistical data to support the research. A total of 11 sources were used because they fit the topic being presented.

A Professional Case for Onboarding

Almost monthly, new studies and researchers publish proof that onboarding has given an organization a significant competitive advantage over another.3 A recent Boston Consulting Group study of the most influential human resource management roles found recruiting was directly correlated to an organization's ability to produce 3.5 times the profit growth and 2 times the profit margin.⁷ After recruitment, onboarding was directly correlated to 2.5 times the profit growth and 1.9 times the profit margin.⁷ Therefore, organizations that have excellent recruiting and onboarding programs have 6 times better growth in profits and 3.9 times the profit margins than those organizations continuing to use a hit-ormiss approach to onboarding.7 Furthermore, new employees who completed a structured onboarding program were 58% more likely to stay at the organization for more than 3 years when compared to those who did not.^{6,7}

Program Development

The world's largest bottler of carbonated beverages, Coca-Cola, made a significant investment in training its front-line staff to ensure a reduction in turnover, improve productivity, and increase employee engagement.⁶ Coca-Cola Enterprises' successful onboarding program was one of the many inspirational examples that show companies must invest in their most valuable assets in order to be successful: their employees. To encourage employee engagement, a departmental meeting with staff and the supervisor was held to develop an outline for the department's onboarding program. By including the staff in the development of the onboarding program, they developed a sense of ownership in the program and an investment in its success.^{6,8}

The transition into a new environment is stressful enough; therefore, one study suggested creating a logical and emotional connection between the orientee, the organization, and the department.⁴ The purpose of this program is to familiarize the orientees with the department's protocols and equipment while giving them an inherent sense of belonging. The 90 day onboarding program is broken up with specific tasks taught at specific times by assigned preceptors to avoid information overload for new employees.^{2,4} The program is informal to promote discussion and active participation.^{4,8}

Providing a preceptor for a new employee is very important for the success of the onboarding program.^{4,9,10} This will ensure the orientee fits in well with the other employees. A good preceptor will heighten confidence, self-esteem, and job satisfaction.^{4,9,10} Not just any staff technologist can fill the role as a preceptor. An effective preceptor will show an interest in teaching, relate to the orientee as an individual, encourage discussion, be accessible, provide feedback, serve as a role model, be organized, and spend time with the orientee.^{9,10}

Research suggested onboarding was the key to success when hiring a new technologist. The supervisor must make sure the new technologist follows the onboarding schedule and is paired with a mentor who will show an interest in teaching, relate to the orientee as an individual, and meets the new employee's needs on every level.^{2,10,11}

Onboarding Program Structure

The following is an outline for a CT department onboarding program utilizing current research data.

Week 1

The first day will include the formal HR orientation where the new hire is introduced to the company, core values, mission statement, behavioral standards, code of conduct, dress code, and other important items.4 On day two, the new hire will attend Epic (the software used for medical records) training to ensure a thorough understanding of the hospital's electronic medical record (EMR) before the first day of departmental training. Since the Epic training is only half a day, the new hire will spend the last half of the day working on the mandatory online e-learnings. On day three, the new hire will meet with the department supervisor to begin the departmental training. The supervisor will start by introducing the new employee to everyone in the daily safety huddle or meeting.⁴ The supervisor will then take the orientee around the hospital to familiarize him or her with the facility and to get to know the new employee personally. According to research, an employee develops a sense of loyalty to an organization because the employee feels cared about as an individual. 4,8,11 The personal tour will highlight how to get to high traffic areas in the hospital such as the waiting room, cafeteria, emergency room, registration area, and parking deck. The employee will then be shown where all of the radiology departments are such as MRI, radiology, ultrasound, nuclear medicine, mammography, file room, and reading room. The supervisor should make sure to point out where the time clocks are that are convenient to the radiology staff.4 The orientee

will also be shown where the emergency fire pulls and fire extinguishers are located within the department. The tour should end with the orientee meeting the preceptor, who will present the orientee with the New Employee Onboarding binder and go over its contents in detail.

The new employee must know exactly what is expected of him or her in order to function properly.²⁻⁴ The New Employee Onboarding binder holds a plethora of information about the department such as policies and procedures, examples of forms used in the department, important phone numbers, 90-day competencies, and an acknowledgement form for the new employee to sign. The acknowledgement form places responsibility on the employee for learning all of the departmental policies and procedures, completing the 90-day competencies, and returning them to the supervisor on or before the date on the form (or 90 days from the hire date). The rest of the first week will consist of computer applications training with the preceptor since the majority of all healthcare facilities now operate with some sort of EMR charting system. Employees are more productive and confident when they receive job specific training, which has been shown to reduce costly mistakes.^{4,7} Employee engagement can be higher when supervisor support is perceived as high and it is also important to have regular meetings throughout the onboarding process. 2,8 Managing the early experience of new hires can decrease role ambiguity.9 One study recommended the supervisor work closely with the new hire to ensure the new hire was properly integrated into the work group; therefore, at the end of each week the supervisor, orientee, and preceptor should briefly meet to discuss progress or concerns.4

Week 2

The second week will consist of training on departmental specific patient care and exam preparations. This training can be done on any of the shifts but will be done with the supervisor or lead technologist. This will introduce the orientee to departmental forms, patient interviewing, IV access training, responding to and reporting codes, rapid responses, IV infiltrations, and allergic reactions. The lead technologist or preceptor will pay close attention to the orientee's ability to communicate with patients with empathy and compassion. Patients benefit from an employee's skills, positive attitude, and efficiency. The orientee will also learn the departmental protocols for oral and IV contrast dosing along with the types of exams completed by the department. The supervisor will also make sure the orientee understands the chain of command when given certain situations that will need to be reported or documented for patient, family, or staff safety.4

Weeks 3 and 4

The new employee will shadow the preceptor for the next couple of weeks to attain an introductory lesson on proper usage of the CT scanner(s) in the department. The orientee will be shown all of the hardware components of the scanner first, then shown how to navigate the program software. The orientee will learn how to find and refresh the worklists, pull up a patient, choose an exam, set up an exam, send exams to PACS or other workstations, and troubleshoot problems. The orientee will also be taught when and how to run calibrations and QA/QC tests. A thorough explanation of how to properly shut down and reboot the system and when this is necessary will also be explained.

Weeks 5-7

Over the next three weeks, the orientee will shadow the lead technologist or preceptor, observing the department's workflow. The expectation is for the orientee to become more comfortable with the process from start to end for any routine exam for inpatients, emergency room patients, and outpatients.

Week 8

During week 8 the orientee will work on second shift with the lead technologist or preceptor to become familiar with the departmental workflow on that shift. It is believed in the radiology work community that knowing what is done on other shifts will make a technologist more resourceful, especially when working on a shift when there are fewer supervisors, managers, and doctors on duty. This helps to force the orientee to think outside of the box when handling any situation.

Week 9

During week 9 the orientee will work on third shift with the overnight technologist to become familiar with the departmental workflow at night. The orientee will observe how the technologist efficiently gets work done when alone and without a transporter. The night technologist will show the orientee how to send exams to Nighthawk for an outside radiologist to give preliminary findings for the emergency room physicians and how to use effective communication with nurses and physicians to get patients performed in a timely manner. Since the weekend shift workflow is similar to that of the night shift, the orientee will not be expected to rotate through a weekend shift; however, if the orientee is not able to work overnight he or she will rotate through a weekend shift instead.

Week 10

Week 10 will consist of interventional procedures training during the week day with the lead technologist or preceptor. The orientee will be trained on all of the equipment and instruments used for interventional procedure cases. An overview of room set up and sterile field practice will also be demonstrated. The preceptor will perform thorough training on specimen collection, packaging,

Employees are more productive and confident when they receive job specific training, which has been shown to reduce costly mistakes. and documentation in addition to communication expectations with the pathology staff. The orientee will also learn how to chart supplies used in the EMR and the scanning protocols set up on each scanner. By the end of the week, the employee will be expected to perform a routine biopsy or drainage independently or with minimal assistance from the preceptor.

Weeks 11 and 12

The remaining two weeks will be used as a wrap-up using a hands on approach. The orientee will be expected to independently perform all routine exams for inpatients, emergency room patients, and outpatients with little or no errors. The supervisor will observe the orientee and document any areas that need improvement or extra training. By the end of the twelfth week, the supervisor will determine whether or not to extend the training period, if the orientee passed the training period and is ready for independent working, or if termination is necessary.

Conclusion

CT department specific onboarding programs will increase the comfort level of new employees by informing them of the supervisor's and department's expectations. With the high costs that employee turnover incurs, all departments should have an orientation program that helps retain employees as well as prepare new employees for employment. Current personnel are valuable resources for offering appropriate information for successful employment in specific departments. A structured, department specific onboarding program with the full participation and support of current staff will enhance staff retention.

The format of the program should be reviewed as necessary to meet the needs of the department. There are opportunities for future research associating onboarding content with the establishment of knowledge essential for employment in the department, job satisfaction of technologists in the department, and staff retention.

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OUESTIONS

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- The term used for orientation or organizational socialization where new employees acquire the necessary knowledge, skills, and behaviors to fit in with a new company is known as:
 - a. Meet and greet sessions
 - b. New Kid on the Block training
 - c. Acclimatization
 - d. Onboarding
- Coca-Cola Enterprises' successful onboarding program was one of the many inspirational examples that show companies must invest in their most valuable assets in order to be successful. This asset was:
 - a. Better cafeteria food
 - b. Better parking for employees
 - c. Their employees
 - d. More vacation days
- Computed tomography (CT) department specific onboarding programs decrease the comfort level of new employees by informing them of the supervisor's and the department's expectations.
 - a. True
 - b. False
- The transition into a new environment is stressful enough; therefore, one study suggested creating a logical and emotional connection between:
 - a. The orientee, the HR representative, and the manager
 - b. The orientee, the organization, and the department
 - c. The manager, the orientee, and the patients
 - d. The orientee, the patient, and the doctor

- 5. For a successful onboarding program, what is very important to provide a new employee?
 - a. Preceptor
 - b. Hospital map
 - c. Lunch voucher
 - d. Gift certificate to the local shopping mall
- 6. What holds a plethora of information about the department, such as policies and procedures, examples of forms used in the department, important phone numbers, 90-day competencies, and an acknowledgement form for the new employee to sign?
 - a. The New Employee Onboarding binder
 - b. The Department Policy and Procedural Manual
 - c. The Big Binder of Important Stuff
 - d. The Department Bible
- 7. The new employee will learn department specific patient care and exam specific exam preparations in addition to IV access training in which week of training?
 - a. Week 1
 - b. Week 7
 - c. Week 3
 - d. Week 2
- 8. The new employee will spend time learning the techniques used for interventional procedures such as an overview of room set up and sterile field technique during which week of training?
 - a. Week 9
 - b. Week 8
 - c. Week 6
 - d. Week 10



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Top Ten List for 2016

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

While there are certain coding and compliance issues that don't change from year to year there are always new coding and compliance updates that occur each year as well as specific areas that deserve an annual review to ensure accuracy. As you review operational practices for 2016 there are several key areas that deserve an extra review. This "Top 10 List for 2016" should not be considered allencompassing, but should at least provide a starting point to guide the review of your organizational practices. The order of priority is subjective and all issues require compliance.

10. Reporting of Off Campus Services

Issue: Both hospitals and radiology practices need to ensure that they are appropriately reporting services performed in an off-campus provider-based department.

Hospital: The Centers for Medicare and Medicaid Services (CMS) is continuing to evaluate differences in payment between different locations (hospital, free-standing, etc). For this reason they are seeking to capture additional information on both the hospital and physician claim forms. Effective January 1, 2016, the hospital must apply modifier PO (Services, procedures, and/or surgeries furnished at off-campus provider-based

outpatient departments) on the CMS-1450 (UB-04) hospital claim for every procedure or service performed in an off-campus provider-based department of a hospital, such as an off-campus physician office that is owned by a hospital and maintained as an outpatient department. Modifier PO should not be applied on the claim for the physician's professional service.

Physician: During 2015, CMS published new Place of Service (POS) code 19 for off-campus hospital outpatient services. POS 19, Off Campus-Outpatient Hospital is defined as "A portion of an off-campus hospital provider based department which provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation services to sick or injured persons who do not require hospitalization or institutionalization." POS 22 was also revised to include only services performed on the hospital's main campus. These new POS codes went into effect on January 1, 2016. POS 22 should be reported for outpatient services performed on the hospital's main campus eg, in the radiology department of the main hospital facility. POS 19 is to be used for services performed in an offcampus provider-based department eg, a physician office or imaging center that is located away from the main campus but is classified by the hospital as an outpatient department rather than an office location. Providers who are unsure

how to classify a particular location should ask the hospital that owns it.

Medical Necessity Denials from ICD-10

Issue: Medical necessity denials caused by incorrectly updated payor insurance policies need to be appealed to receive proper payment.

When ICD-10 was implemented on October 1, 2015 many payor policies were not appropriately updated to reflect all of the previously covered conditions. When errors were discovered some payors updated their systems immediately and reprocessed the claims right away and others indicated that there would be a future correction. For example, when the Medicare Administrative Contractors (MACs) updated their DXA policies they inadvertently omitted the body specific diagnosis codes required by coding guidelines and only allowed the unspecified code(s). This error resulted in a multitude of denials. CMS released a special MLN Matters article to address this issue, but the change was not incorporated into the claim edits until January 4, 2016 so claims could not be resubmitted until that date.1

It is important that all radiology organizations ensure that any claim denials caused by ICD-10 policy conversion errors be appropriately addressed so that reimbursement is not inadvertently forfeited.

8. Lung Cancer Screening

Issue: Lung cancer screening services must be submitted with the correct HCPCS code and diagnosis code. The initial diagnosis code list did not contain all of the codes to address covered services so many claims may have to be appealed.

Medicare coverage for Low Dose Computed Tomography (LDCT) was effective on the date of the National Coverage Determination (NCD) (February 2, 2015), but CMS did not issue billing instructions for LDCT until November 2015 (Transmittal 3374). The Transmittal indicated that the Medicare claims processing systems would not be able to process LDCT claims until January 4, 2016. On that date, providers will be able to submit claims for any services performed on or after the NCD effective date.

LDCT lung cancer screening should be reported to Medicare with G0297 (Low Dose CT Scan [LDCT] for lung cancer screening). Transmittal 3374 stated that claims would be paid only if submitted with one of the following diagnosis codes:

- For services prior to October 1, 2015: V15.82 (*History of tobacco use*)
- For services on or after October 1, 2015: Z87.891 (Personal history of nicotine dependence)

This is inconsistent with the NCD, which says that LDCT is covered both for current smokers and ex-smokers. For this reason it is likely that CMS will add other covered diagnosis codes in the future to address current smokers. It is important that any denials for LDCT be reviewed and appealed if denials were received despite being performed and properly billed in accordance with the guidelines.

7. Tomosynthesis

Issue: Tomosynthesis is not a covered service for all payors so ensuring proper billing practices for all payors is crucial.

While Medicare does provide reimbursement for both screening and diagnostic tomosynthesis there is not widespread coverage by commercial payors. Ensuring that you bill individual patients appropriately is a key compliance concern. There are valid differences in how facilities choose to approach the billing of tomosynthesis, but these differences do not include inappropriately balanced billing of Medicare patients or charging for services that a patient has not agreed to prior to the study.

6. New Urinary & Biliary Codes

Issue: New codes require system updates and training to ensure accurate assignment.

Without a doubt, the biggest areas with changes for 2016 are in the biliary and urinary sections. The codes received a complete overhaul which completely changed how the codes are assigned for these procedures. This change will not only impact coding but also the utilization numbers since pyelograms/nephrostograms and cholangiograms are now included in many of the therapeutic procedure codes.

5. CT Modifier

Issue: CT scans performed on an XR-29 non-compliant machine must be accurately billed with the CT modifier to Medicare.

It is not new information that the Protecting Access to Medicare Act of 2014 (Section 218) instituted a Medicare payment reduction for CT scans performed on scanners that do not meet the National Electrical Manufacturers Association (NEMA) Standard XR-29-2013, "Standard Attributes on CT Equipment Related to Dose Optimization and Management." The reduction applies to technical component payments under the Medicare Physician Fee Schedule and to hospital payments under the Outpatient Prospective Payment System. Effective January 1, 2016 payments have been reduced by 5% in 2016 and will be reduced by 15% in subsequent years.

Effective January 1, 2016, both hospital-based and non-hospital-based imaging facilities must apply the "CT" modifier to the CT scan procedure code when they are billing Medicare for the TC and the scan was performed on a scanner that is not XR-29 compliant. The "CT" modifier is defined as "Computed tomography services furnished using equipment that does not meet each of the attributes of the National Electrical Manufacturers Association (NEMA) XR-29-2013 standard."

So if you have at least one non XR-29 compliant CT scanner you must ensure that you are appropriately appending the "CT" modifier so that this information is communicated appropriately to CMS. For more information, view the November 2015 AHRA webinar "XR-29 and the Final Rule" (www.ahraonline. org/webinars). Additionally, the American College of Radiology (ACR) has posted Frequently Asked Questions about XR-29 in the Radiology Safety section of its website.

4. Radiology Extenders/Supervision

Issue: It is imperative that compliance requirements be followed when billing (or not!) for services performed by non-radiologists.

There are many non-physicians who perform radiology services and it is very important that you understand the difference between what a person is allowed to do clinically and what you are allowed to bill for. At the present time, there is a definite gap and it usually reveals itself with barium studies and other procedures that require personal supervision.

In the radiology environment, nonphysician practitioners (NPPs) are physician assistants (PAs) and nurse practitioners (NPs). Radiology practitioner assistants (RPAs) and radiologist assistants (RAs), commonly referred to as extenders, are NOT considered NPPs and may not be treated as such under any circumstances. While state guidelines govern clinical scope of practice, billing guidelines are governed by CMS. Supervision guidelines must be met to ensure compliance with CMS guidelines. Also, just because a patient does not have Medicare does not mean that you do not have to follow the CMS supervision guidelines. Many of the private payor contracts specify that they will follow CMS guidelines so you could be inadvertently violating individual payor contracts. There is detailed information on the regulations and guidelines in the March/April 2014 Radiology Management coding column.

3. "X" Modifiers

Issue: Correctly applying modifiers is critical to avoiding denials and ensuring appropriate reimbursement.

The assignment of modifiers is arguably just as important as the initial assignment of a procedure code to represent the performed service. It is also one of the areas that sometimes creates great frustration and angst for radiology professionals. The responsibility for assigning modifiers varies significantly by organization; however, it is critical that radiology administrators know who is doing it and on what information they are basing their decisions to apply or not apply modifiers.

The four "X" modifiers that were created by CMS to be utilized instead of modifier 59 are still not standardly applied across MACs nor are they accepted by all commercial payors. For this reason, it is critical that organizations monitor their denials and make appropriate adjustments during the charge generation process to minimize the number of billing errors caused by incorrect modifier usage.

2. Post Procedure Mammograms

Issue: Post procedure mammograms may be billed after non-mammogram guided percutaneous procedures.

Whether or not you can bill for a post procedure mammogram has arguably

been one of the most ever changing issues in breast imaging. One year you can, the next year you can't. For 2016, the guidance has changed once again and hopefully this is the final time. CMS has provided guidance that the post-procedure mammogram is not billable if the procedure was performed under mammographic guidance. The verbiage specifically excluding "stereotactic guidance" has been removed. The 2016 edition of the National Correct Coding Initiative Policy Manual (Chapter 9) states:

If a breast biopsy, needle localization wire, metallic localization clip, or other breast procedure is performed with mammographic guidance (e.g., 19281, 19282), the physician should not separately report a post procedure mammography code (e.g., 77051, 77052, 77055-77057, G0202-G0206) for the same patient encounter. The radiologic guidance codes include all imaging by the defined modality required to perform the procedure.

So what does this mean? If you perform a post procedure mammogram and there is supporting documentation in the radiology report then it is appropriate for both the facility and the radiologist to bill for this service, unless the procedure was performed under mammographic guidance. Remember that in the non-hospital setting, there must be an order for the post-procedure mammogram from the patient's treating physician. Also, the Mammography Quality Standards Act (MQSA) requires the facility to notify the patient about the results of any diagnostic mammogram, including one performed following a procedure.

1. Clinical Data on Orders

Issue: The lack of clinical data on orders creates potential challenges for reimbursement as well as patient care.

The implementation of ICD-10 does not require a change in how providers practice medicine or treat patients. Rather, it demands more accurate documentation and gives providers more diagnostic choices to capture new data to ensure they are paid for the complex work they perform. Orders do not require a higher volume of clinical documentation, but rather more precise documentation (ie, laterality, specificity, anatomic sites, etc). Ensuring a detailed order can be facilitated through the effective use of electronic medical record (EMR) templates and prompts. How referring providers utilize their EMRs will have a major impact on the detail and quality of the clinical information provided on radiological orders. Do your referring providers really know in what circumstances they are not providing sufficient information?

When providing feedback to your referring providers it is important to be as specific as possible and to provide friendly reminders about what is and is not allowed in terms of clinical documentation for orders. For example, while the phrases "rule-out," "suspected," "evaluate for," etc may be helpful to the referring provider, they are not sufficient as stand-alone statements since a patient's signs and symptoms must be included on the order. The essence of what we need from the referring providers is details, details, and more details related to the patient's condition. Specifically, we need location, severity, context, and the story (for injuries) as it applies to a designated medical condition. All injuries have a story and in radiology we want to know what it is. How did it happen? Where did it happen? And, if appropriate for the injury, why did it happen? This information not only facilitates correct diagnosis coding for the injury itself but also guides the correct selection of the 7th digit for the encounter type.

Initially, it can sound like we are asking the referring provider for a lot more data but in reality the details required for the radiology order are the same details required for the clinical assessment and patient progress note. We are only asking that the referring provider give us the information that they already know.

Summary

These ten items should cover many of the key issues impacting imaging. Every organization should create their own list on an annual basis and update it quarterly. Ensuring compliance with the myriad coding, reimbursement, and regulatory requirements is ongoing. Embrace the challenge, don't get discouraged and know that your efforts make a difference!

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ICD-10: Bone Density Revisited

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

Several weeks after ICD-10 implementation, imaging facilities and radiology practices began to receive denials on their Medicare claims for bone density studies—specifically, those performed on patients with osteopenia.

Osteopenia is a covered condition under the National Coverage Determination for bone mass measurements. The Medicare Benefit Policy Manual (Chapter 15, Section 80.5.) states that studies are covered for individuals "with vertebral abnormalities as demonstrated by an x-ray to be indicative of osteoporosis, osteopenia, or vertebral fracture." But problems arose when Medicare's ICD-9-CM diagnosis codes for bone density studies were translated to ICD-10-CM.

In ICD-9-CM osteopenia is classified to code 733.90 (Disorder of bone and cartilage, unspecified). This code is used for osteopenia of any part of the skeleton, as well as for unspecified skeletal disorders. In ICD-10-CM, however, there are multiple codes in subcategory M85.8 (Other specified disorders of bone density and structure) for osteopenia of specific body areas, such as the right thigh (M85.851) or left shoulder (M85.812).

Because the ICD-9-CM code is non-specific, the CMS General Equivalence Mappings (GEMS) crosswalk it to a non-specific ICD-10-CM code, M85.9 (*Disorder of bone density and structure, unspecified*). CMS included M85.9 in the list of covered ICD-10-CM codes for bone density studies but did not include the

specific osteopenia codes from subcategory M85.8.

Radiology providers alerted the office of the CMS ICD-10 Ombudsman to this problem, and the agency responded quickly. In a Special Edition MLN Matters article (SE1525), CMS announced that additional osteopenia codes would be added as part of the January 4, 2016 updates to the Medicare claims edits. The additional codes will be covered effective October 1, 2015. The following codes will be added:

Other specified disorders of

bone density and structure.

M85.80

	bone density and structure,
	unspecified site
M85.811	Other specified disorders of
	bone density and structure,
	right shoulder
M85.812	Other specified disorders of
	bone density and structure,
	left shoulder
M85.821	Other specified disorders of
	bone density and structure,
	right upper arm
M85.822	Other specified disorders of
	bone density and structure,
	left upper arm
M85.831	Other specified disorders of
	bone density and structure,
	right forearm
	-

M85.831	Other specified disorders of
	bone density and structure,
	right forearm
M85.832	Other specified disorders of
	bone density and structure,
	left forearm
M85.841	Other specified disorders of
	bone density and structure,
	right hand

M85.842 Other specified disorders of bone density and structure, left hand

M85.851 Other specified disorders of bone density and structure, right thigh

M85.852 Other specified disorders of bone density and structure, left thigh

M85.861 Other specified disorders of bone density and structure, right lower leg

M85.862 Other specified disorders of bone density and structure, left lower leg

M85.871 Other specified disorders of bone density and structure, right ankle and foot

M85.872 Other specified disorders of bone density and structure, left ankle and foot

M85.88 Other specified disorders of bone density and structure, other site

M85.89 Other specified disorders of bone density and structure, multiple sites

It is important to note that CMS is not

adding all of the codes in subcategory M85.8. Codes for unspecified laterality, such as M85.859 (Other specified disorders of bone density and structure, unspecified thigh) will not be covered. If osteopenia is

thigh) will not be covered. If osteopenia is diagnosed in the femoral neck, for example, it will be important for the report to state which side was affected so that the appropriate code can be assigned.

The takeaway from this issue is that it is not a waste of time to notify payors about problems with ICD-10 coverage policy conversions. Reaching out to the payor is the appropriate course of action when a new policy contains obvious omissions. It is not appropriate to manipulate documentation and coding practices to generate a covered code when the patient's condition does not support that code. Creating this type of "work-around" for a bad coverage policy can only put the provider in jeopardy long term.

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Improving HCAHPS Scores with Advances in Digital Radiography

By Marianne Matthews, Gregg Cretella, and William Nicholas, MBA, RT(R)

EXECUTIVE SUMMARY

- The imaging department can be instrumental in contributing to a healthcare facility's ability to succeed in this new era of competition. Advances in DR technology can improve patient perceptions in the imaging department by improving efficiencies and outcomes which, in turn, can ultimately bolster overall HCAHPS scores.
- Specific areas for improved scores by utilization of DR include nurse communication, doctor communication, pain management, and communication about medication.
- Value based purchasing brought with it

 mandate for hospitals to track key
 metrics, which requires an investment
 in time, tools, and human resources.
 However, this mandate also presents
 hospitals and imaging departments,
 with an opportunity to leverage those
 very metrics to better market their
 facilities.

The Affordable Care Act of

2010 (ACA) ushered in a new era of consumer driven healthcare representing a sea of changes for the healthcare industry as well as for patients. With the establishment of Medicare's Value-Based Purchasing (VBP) program and its domains of care—and, specifically, the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey-patients' perceptions of their care became paramount in two critical ways. First, going forward, HCAHPS patient satisfaction measures would have a direct impact on reimbursements that hospitals would receive from Medicare. Second, HCAHPS measures provided a means for hospitals to differentiate themselves from one another. For hospitals and health systems across the nation, the ACA opened the door to a brave new world of consumerism and competition.

The imaging department can be instrumental in contributing to a health-care facility's ability to succeed in this new era of competition. For example, advances in digital radiography (DR) technology can improve patient perceptions in the imaging department by improving efficiencies and outcomes which, in turn, can ultimately bolster overall HCAHPS scores. Furthermore, a facility can then leverage the improvements gained through the use of advanced DR technology by marketing

these efficiencies and benefits directly to the healthcare consumer.

A hospital's digital radiography service can be a valuable differentiator that attracts more new patients to the department while helping the hospital maximize reimbursement.

Domains of Care Continue to Evolve

The reimbursement landscape has changed dramatically over the past few years. Beginning in 2013, hospitals were rewarded or penalized based on meeting specific goals linked to the various domains of care under Medicare's VBP program. To be clear, these domains of care are not radiology specific, but rather, overall hospital measures.

In 2013, operating payments to hospitals were adjusted by 1% (up or down, depending on whether the facility met its goals) with two domains of care being weighted; specifically, process of care (70% weight) and HCAHPS (30% weight). In 2014, the domains of care expanded to include outcomes, and in 2015 an efficiency measure was added. At the same time, payment adjustments continued to evolve.

By 2017, the adjustment will reach 2%. Moreover, new domains will be introduced and weighted; specifically, clinical care outcomes/process (25% weight; 5% weight), efficiency and cost

Administrators and staff can identify ways to leverage patient experiences in the imaging department that reflect, or correlate with, specific HCAHPS measures.

reduction (20% weight), patient safety (20% weight), and HCAHPS will be known as patient/caregiver experience (25% weight).

The domains of care will continue to evolve in 2018 and beyond, with new measures being added regularly. What does all of this mean for hospitals? It points to ongoing opportunities for hospitals to look for new metrics to track; and in areas where they meet or exceed their goals, metrics can make a difference in attracting patients in a consumer-driven healthcare environment. Used effectively, good metrics can translate into smart marketing for the institution at large.

At the same time, there is an opportunity for imaging departments. Administrators and staff can identify ways to leverage patient experiences in the imaging department that reflect, or correlate with, specific HCAHPS measures. For example, if a technologist uses the correct sized detector on a patient that might correlate to a better pain management score—a legitimate HCAHPS measure—because the technologist chose the right tool and avoided hurting or causing any discomfort to the patient.

Just as hospitals are presently tracking four domains of care across the institution—process of care, efficiency, outcomes, and HCAHPS measures—so, too, can the imaging department track its own domains of care. Radiology specific processes of care and efficiencies drive radiology outcomes, which ultimately effect (positively or negatively) patient perceptions. Patient perceptions of their experiences with the imaging department are, in essence, radiology measures, which can then link back to broader HCAHPS measures.

Therefore, for imaging departments in today's competitive environment, one key goal is to constantly improve patient perceptions or radiology measures. Advances

in DR technology—for example, DR equipment functionality and room layout, sophisticated digital image processing, advances in detector technology, and dose management tools—all lend themselves to this important mission.

What follows is a review of select examples to better understand how this concept can be applied in a busy imaging department.

Nurse Communication Scores

Presently, there is an HCAHPS measure for nurse communication in the patient satisfaction survey. One could make a case that a correlative radiology measure would be technologist communication. After all, good patient-technologist interaction could be a key factor in a patient's perception of how he or she would rate time spent in the x-ray department. Today's advanced DR equipment supports good technologist communication in a number of ways. DR equipment today features:

- Simple, close-at-hand controls that keep the technologist focused on the patient
- Table/wall Bucky features that expedite patient positioning and minimize patient discomfort
- Automation that allows for consistent exam reproducibility, expedited positioning, and fewer staff repetitive stress injuries
- DR room architectures that expedite exam processes and minimize patient discomfort

As shown in Figure 1, advanced DR room technology lends itself to positive patient-technologist communication. Under radiology's domains of care, the process of care in this case, or the goal, is to get the technologist to be as focused as possible

on the patient as opposed to the equipment. As mentioned, DR equipment offers close-at-hand controls and automated features that allow for just that, which in turn, provides an efficiency—expedited exam completion. That drives an outcome of a timely and actionable exam result. After all, the quicker the technologist gets the patient in, and prompts the patient to participate in the exam, the sooner the technologist can capture quality images. This, in turn, allows the radiologist to read the images, produce an actionable report, and start the patient's treatment in a timely manner.

As this example demonstrates, DR room technology can help deliver an important imaging department measure—a patient perception—of good technologist communication. Moreover, good technologist communication could be perceived as a valuable metric for a hospital aiming to improve HCAHPS satisfaction measures in the category of nurse communication.

Doctor Communication Scores

Over the past five years, vendors have made major gains in digital image processing, and subsequently in the image quality produced by advanced DR technology. For example, unlike film x-rays, today's DR technology allows radiologists to see a high degree of image quality not only in the region of interest, but also throughout the entire exposure region.

Additionally, significant progress has been made in advanced applications with DR image processing. For example, dual energy subtraction provides more diagnostic visibility to the radiologist by removing specific information from the image—such as soft tissue or bone—offering a clear view of the region of interest

Digital tomosynthesis is yet another example of a recent advance that provides radiologists with greater clinical information. A single sweep of the x-ray tube across the region of interest produces a series of tomographic slices, allowing the radiologist to scroll through and find

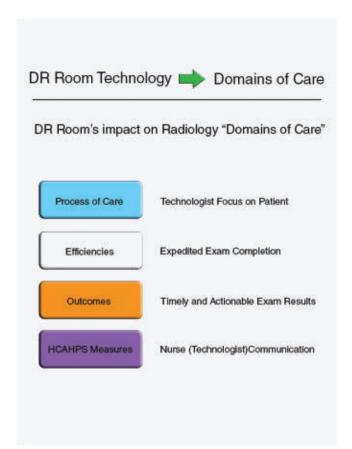




Figure 1 Figure 2

small fractures or identify abnormalities that might otherwise be missed.

These sophisticated advances in image processing and advanced applications provide another opportunity for the imaging department to bolster HCAHPS scores. Consider, for example, the HCAHPS question regarding doctor communication. As shown in Figure 2, in the imaging department the process of care (ie, the end result the technologist is striving for) is to acquire maximum clinical information for the radiologist. Today's advances like dual energy subtraction and tomosynthesis help achieve that goal. The efficiency gained is reduced turnaround time and efficient report generation by the radiologist, both of which drive an achievable outcome of a timely start to the patient's treatment. This scenario could be viewed

as a positive influencer when it comes to boosting a hospital's HCAHPS measure of doctor communication.

Pain Management Scores

One of the most recent advances in DR image processing—the ability to improve image contrast for images taken without a grid—is changing the fundamentals of radiography, particularly in portable x-ray imaging. In fact, this is becoming a common standard operating procedure for portable imaging in many hospitals. Positioning detectors and anti-scatter grids can cause discomfort to patients, especially the very old or infirm. However, new DR image processing technologies mean that facilities can achieve the same high quality images without a grid.

This translates into another opportunity to improve HCAHPS scores, specifically, in the pain management category. When performing an imaging exam, the technologist's goal is to reduce disturbance to the patient. By using portable DR technology that improves image contrast for images taken without a grid, the efficiencies gained include faster detector set-up and easier positioning. The outcome is reduced patient discomfort, which should reflect well in an HCAHPS survey question about pain management.

Case Study: Legacy Emanuel Medical Center

Tommy Williams, RT R, CT, BSN, MBA, manager of imaging services at Emanuel Medical Center/Randall Children's Hospital in Portland, OR has seen an upward trend in pain management HCAHPS

scores which he attributes in part to the use of portable DR equipment with advanced image processing capabilities that do not require a grid.

According to Williams, prior to the use of this technology, patients reported discomfort on HCAHPS surveys as it concerned their travel to the x-ray department, the exam itself, and returning to the room. Each step negatively affected pain management, and in total these steps affected the way the patient viewed the overall hospital stay.

However, after implementing new DR portables with image processing that improves image contrast for images taken without a grid, Williams saw pain management scores move from 7's and 8's to 9's and 10's. The new technology offers reduced detector set up time and easier positioning which, in turn, aids in reducing disturbance to the patient. All of this is especially important to trauma patients or those who have chronic diseases where pain is a daily problem. The upshot: Less grid work means higher pain management scores for Legacy Emanuel.

Dose Management Increases Communication about Medication Scores

Gains in DR dose efficiency,—and the technology's ability to track and measure radiation dose—offer another significant way for the radiology department to contribute to better HCAHPS scores.

Exposure to harmful radiation from diagnostic imaging is a concern for all patients, be they pediatric or adult. However, since the introduction of digital radiography some 32 years ago, dose efficiency has improved dramatically. Manufacturers are continually making advances to DR detectors—be they gadolinium or cesium iodide—that lower dose to the patient without sacrificing image quality.

A comparison of a typical computed radiography (CR) chest exam with a DR chest exam provides a good barometer of just how far DR technology has Over the last 32 years, advances in DR technology have enabled the lowering patient dose without sacrificing image quality.

FCR © 120kV, 4mAs

FDR © 120kV, 1mAs

Figure 3 • CR chest exam acquired at a typical exposure condition for this patient's size along with the same patient's DR exam at one quarter of the dose.

come in regards to dose. Figure 3 shows a CR chest exam acquired at a typical exposure condition for this patient's size along with the same patient's DR exam at one quarter of the dose. Even at one quarter of the dose, image quality was not compromised. This is an example of how today's dose efficient DR technology delivers a high quality clinical image to the radiologist while providing a 75% reduction of dose to the patient.

Moreover, today's DR systems offer a wealth of tools so that facilities can measure, monitor, and track patient dose and, ultimately, achieve appropriate dose delivery for future patient populations. Clearly, DR dose management has come a long way, and the imaging department can leverage the advances to improve HCAHPS measures, particularly as it concerns communication about medications.

As outlined in Figure 4, the technologist's goal is always to strive for as low as reasonably achievable (ALARA) image acquisitions. The efficiencies brought on by using DR technology are improved image quality with low remnant x-rays

resulting in reduced patient dose. Because x-ray dose is a medication, a facility using low dose DR technology has an opportunity to educate patients about dose through face-to-face discussions as well as educational literature. This, in turn, could contribute to the hospital receiving a good score in communication about medication on patient HCAHPS surveys.

Case Study: Via Christi Health

Via Christi Health's three hospitals in Wichita, KS have implemented a dose management program that is making a real difference for patients. According to US Navy Capt (Ret) Jerry Thomas, MS, DABR, CHP, DABSNM, diagnostic medical physicist, the institution's objective is to capture the highest quality images at the lowest possible dose. To that end, Via Christi replaced its entire chest and portable x-ray units with cesium iodide DR detectors, which are far more dose efficient. The result: a reduction in dose across all DR studies by at least 50% compared to previous CR units.

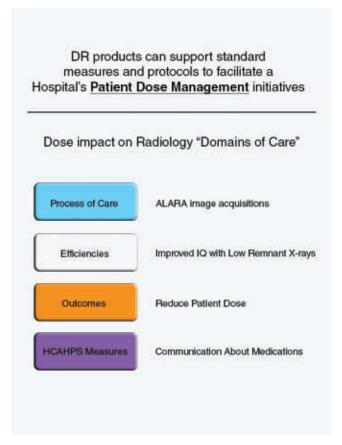


Figure 4

In addition, over the past year, Via Christi implemented a dose management quality control program. To date, the team has tracked over 70,000 DR studies and is now in the process of analyzing the data in two key ways. They are grouping the data by procedure and looking at dose distribution on given procedures on both portable and fixed units. The team is also assessing exposure differences between different technologists administering the same procedure.

According to Capt Thomas, the long term goal is to come up with established deviation indexes as well as identify technologists that may benefit from additional training on equipment or for a given procedure. With a successful dose management program and a QC initiative underway, Via Christi is well positioned to leverage its dose story, improve patient perceptions of the imaging

department, and potentially have a positive impact on HCAHPS measures.

An Era of Metrics and Marketing

Medicare's VBP program brought with it a mandate for hospitals to track key metrics, which requires an investment in time, tools, and human resources. However, this mandate also presented hospitals, and imaging departments, with an opportunity to leverage those very metrics to better market their facilities.

Consider the primary marketing challenges an imaging department faces today: commoditization of services, reliance on referring physicians, "lack of value" patient perceptions, and communication of the right message. Now consider the brave, new world today's healthcare facilities operate in. It's a highly competitive, consumer driven,

post-ACA era. From a marketing perspective, it no longer makes sense to depend solely on referring physicians for new patients. Rather, it is imperative for imaging departments to attract patients directly, and they can do so by improving patient perceptions of their time spent in the imaging department.

As demonstrated in the foregoing examples, advanced DR technology is making a positive difference in imaging departments across the nation. Now is the time to leverage the improvements gained from DR—be it more comfortable exams, faster reports and treatment, or efficient dose management—directly with the consumer.

Moreover, communicating the right message for the organization is key. Imaging departments can discover their differentiators within the various domains of care (processes, efficiencies and outcomes) explored earlier. By carefully examining these metrics, a department will discover its own unique strengths which will be the right message to package and market to prospective patients.

Figures 5 and 6 depict examples of two kinds of billboard advertising created by hospitals to promote their facilities and attract new patients. In Figure 5, the headline "One of the Area's Top Performers" is accompanied by an image of a Joint Commission quality approval seal. While the billboard might relay an impressive message to physicians, it is virtually meaningless to the average consumer who knows little, if anything, about The Joint Commission. This kind of "push" marketing strategy is directed solely to the referral base and, therefore, delivers limited results in a consumer driven health system.

Conversely, the billboard in Figure 6 features an image of a small child and speaks directly to today's healthcare consumer: "It matters to you. It matters to us. Low dose. Clear images." This kind of "pull" marketing strategy leverages the advances of DR technology while delivering a comforting message about radiation dose, which is an important concern of today's patients.

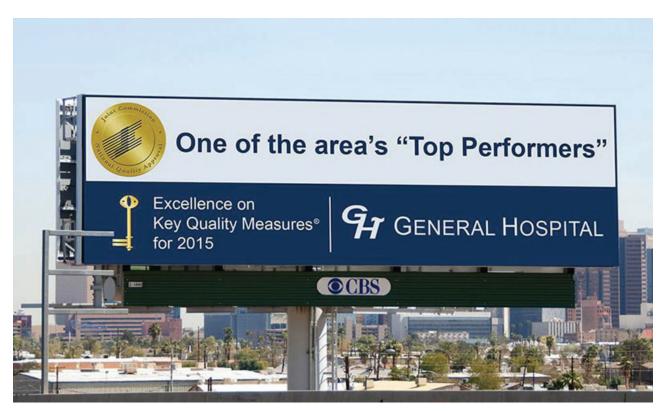


Figure 5 • Example of a "push" marketing strategy.



Figure 6 • Example of a "pull" marketing strategy.

Conclusion

Today's imaging department can be instrumental in attracting new patients and helping the hospital maximize reimbursement. A well-run DR service can improve patient perceptions and, ultimately, boost HCAHPS scores. Moreover, departments that develop and track metrics through the processes, outcomes, and efficiencies domains of care are arming themselves with a marketing advantage. These metrics can be turned into powerful messages that have real meaning to patients—be it about pain management, staff responsiveness, dose management, or other benefits that speak to patient needs.

In conclusion, imaging departments today have the means to capture critical metrics using advanced DR technology. That, in turn, can make a big difference in marketing the department and the hospital in a consumer-driven healthcare era.

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This article is based on a presentation titled "Advances in Digital Radiography: A Marketing Opportunity," given by Gregg Cretella and William Nicholas at the 2015 AHRA Annual Meeting in Las Vegas. The article recaps some of the salient points and, in addition, offers select real world examples from hospitals that are applying some of the tactics described in their presentation.

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Changing the Culture

By Roberta Edge, CRA, FAHRA

Editor's note: This article is the final in a series about the author's Lean journey. The others can be found in the Jan/Feb, May/Jun, Sep/Oct, and Nov/Dec 2015 issues of Radiology Management.

Happy New Year! This year, 2016, is the beginning of our sixth year as an organization on a Lean journey. As the last installment of my series of articles documenting this experience, I thought I would talk about the hardest obstacle to overcome: culture.

As discussed in the Nov/Dec 2015 article, most of us in leadership roles today were taught a 1950s style of management, referred to as command and control, or transactional management. Being in charge, having all the answers and everyone doing what you tell them to do because you said so, worked up to a certain point. It is also a method that allows every single person in the organization to "punt upstairs" when anything is not quite right. Staff can say, "No one told me," middle management can say, "It's not my policy," and the buck ultimately stops in the C-suite. In a Lean culture, all these excuses and ways to absolve the individual of responsibility for the success of the organization go away. There is nowhere to hide, because everything we do is transparent.

As a leadership team, we embarked on a daily engagement system of teaching every staff member how to problem solve using a process map, every section of the organization engaged in 5S (sort, set-in order, shine, standardize, and sustain), and everyone writing standard work as a result of changes made to processes as a result of this work. Additionally, every supervisor, manager, and director was expected to not only have leader standard work, they have to be able to coach standard work, actively remove waste from processes, be engaged in organization-wide process improvement, and be able to teach safety techniques. Remember our quest: "All green by Halloween," meaning all sections and all leaders would meet these goals by the end of October? That turned out to be a very ambitious endeavor, so much so we extended the deadline to November 30th because this was tied to the employee and leader bonus incentive. The noble goal was we would do this because it was the right thing to do for our organization. Sadly, many are not on the level of performing for the greater good, and are performing behaviors because there is an external motivator (a bonus). It can also be said, if people have been successful in their performance for decades, why change?

At first, hearing and realizing people were performing because of the bonus frustrated our COO and others on the team doing the auditing (later changed to coaching). Members of the coaching team were upset because they arrived at the place of doing this work for the sake of our patients and the greater good of our community, employees, and clinicians. We realized that we are too expensive and if we don't get waste out of our processes, we could end up out of

business. This would not be good for the communities we serve that already do not have enough clinicians to care for them. Another problem was to be able to articulate and demonstrate skills being looked for. How do you know someone is an effective coach? "You know if vou see it" doesn't help someone who is struggling to learn and needs a model to follow. How do you explain to a supervisor that she is successful with one of her teams because the team is so engaged, and not successful with another of her teams because her coaching skills are lacking? How do we as Lean coaches support that supervisor as she learns to be humble with her difficult team and learns how to lead them in a way they can follow? Time, patience, and support are the ingredients for success. There is no substitute for being in the Gemba (workplace) with "big eyes, big ears, and small mouth," so you can see.

Our COO, who is our Lean champion, was very worried about our team's progress (see Table 1). She was concerned that if we "didn't keep the pressure on" everything would stop. She was worried if she or our CMO (the Lean champion for the physicians) left the organization that all this work would have been for naught. I had the opportunity to share with her the power of her words. For one section of our department, the team was really struggling and the leaders were getting frustrated. It felt to them like nothing they were doing was good enough for her. On their last coaching session, she passed

	Metrics	Initial	Target	3/31/2015	7/31/2015	9/30/2015
Quality	Department has a process map posted (by Business Units)	7%	70%	15%	70%	90%
Service	Standard work documented and actively in use for one process	7%	95%	15%	70%	98%
Finance	5s trained & implemented (score 3+ / by Business Unit)	10%	95%	38%	40%	85%
People	Leaders actively coaching to elminate waste	10%	100%	10%	30%	14%

them on the audit and wrote, "While the leaders are not quite there, the team has made such tremendous progress since the last visit, it is clear the leaders are working hard with the team." I pointed out to her that these kind words were all it took to get my team to feel good about themselves and to further engage in the work. I asked her if we could embrace what I called "pressurized kindness." To the best of my knowledge this is an original idea. Pressurized kindness would include keeping the pressure in the leadership team and staff to get to the next level by "upping the ante" on expectations for the next year, and practicing giving words of encouragement both in person and in writing so people can learn.

She conducted a survey to see if our leadership team felt staff and themselves would continue to need an external motivator (bonus) to stay engaged with three choices: agree, neutral, or disagree. The majority felt that for both staff and leaders, this will need to be part of the incentive for 2016 (see Table 2).

Did we make progress this year? Yes, we did, although perhaps not as much as we would have liked. Moving from 7% of the sections being able to use a process map to 90% in less than a year is phenomenal, as is moving from 7% of staff to 98% of staff using standard work. Just to highlight some of the changes that have come from our efforts, one of our podiatry sections learned their autoclave process was very time consuming and a potential safety risk to the staff. They mapped out the process and determined it would be safer to send their instruments to the hospital and let central processing sterilize their instruments. They performed a PDSA (plan-do-study-act) cycle and labeled the instruments by color coding by doctor, and initiated a two bin system to know when they were running low. By changing this process, they collectively saved 110 minutes per day. The coaching to this team is: What are you going to do with the time you saved? Can you work with your clinician to see one more patient each? This is for

the supervisor and her dyad partner to work with the doctors in the section to improve access for our patients.

Where we need to continue to focus our energies is on coaching our leadership team to see waste and remove it from process, along with their teams. This is going to take time, as is evidenced by places like Virginia Mason, an organization that has been on the Lean journey for more than a decade. Our problem is we do not have a decade to embed this good work, to remove waste from processes, sustain 5S and standard work, to lower our costs while maintaining quality for the patients in the communities we serve. There is no more rewarding work than this.

The vision of the future state is that most of the problem solving will be done by the staff. Leaders will spend time coaching, mentoring, and removing barriers so the staff can successfully problem solve. We will know we have arrived if, in a few years, when I retire, my position could be eliminated and that FTE repurposed for a greater need for the organization.

■ TABLE 2. Staff Incentive Survey				
Lean Work with Incentive	Percent agree or neutral			
For staff	75%			
For leadership	64%			

Robbie Edge, CRA, MHA, RT(R)(M), CRT, FAHRA is a Sutter certified black belt and director of imaging services at Sutter Gould Medical Foundation in Modesto, CA. She can be contacted at EdgeRo@sutterhealth.org.

RADIOLOGY MANAGEMENT

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Leadership with Love

By Gordon Ah Tye, FAHRA

Over the past three decades, we've come a long way when it comes to leadership and management. Our jobs are inherently complex not only because of the technology, but also because of the responsibility we carry to provide high quality, efficient, diagnostic services. So, effective leadership is all about business and technology, right? Actually, we shouldn't confuse good leadership with good management.

Our organization recently brought in a motivational speaker, Colleen Sweeney, RN, who provided great leadership tips that challenged us to assess and rate ourselves as leaders. She provided us with a great pocket book entitled "The Hospital Leader Check List." It highlighted the 100 characteristics of top leaders, but we will just look at the TOP 10:

- Say hello to EVERYONE. I was raised by my mom to say hello to people. I can still hear her say it to me in Chinese! It's ingrained in our organization's culture, and people always tell me how friendly people are in our facilities.
- 2. Constantly chat up other departments and people. We had interactive training for all employees two years ago, and part of the training was to "manage up." Tell patients they are in good hands with those who will be caring for them. It injects pride and confidence in staff.
- 3. Pick up trash daily. If you ask a group "How many of you work for Environmental Services?" everyone should raise their hand. I pick up

- trash around the campuses daily. I should carry gloves.
- 4. Take vacations to rest, recharge, and rethink. Taking time off is so critical to ensure you are taking care of yourself. That means not checking your email, too! Balance between our work and private lives is the key to job satisfaction. Your fellow employees can tell when you're not happy. You need to bring your best person to work every day.
- 5. Act like the employee you want other employees to be. Be a good role model and walk the talk with your daily attitude and behaviors. We can't expect our staff to be upbeat and energetic if we don't exhibit these behaviors ourselves.
- 6. Park far away. The closest parking spaces should be for those who use your facility. Convenience and ease of parking is a big deal for patients and families dealing with illness. Leave the best spaces for those that need them. I don't know about you, but I can use the exercise.
- 7. Know employee names. At my age, this is a tough one. But when rounding, I really try to know as many people's names as possible. Don't underestimate the power of being kind and personal to as many people as possible in your daily interactions. A great work environment is about cultivating relationships, and depositing into your emotional bank with others.
- 8. Hire people with a huge capacity for empathy. Many of us moved up

- the ranks as caregivers. That's why our profession is special. Encourage your organization to have prospective employees take a personality profile, which gets to the root of people's tendencies.
- 9. Become addicted to a positive attitude. We can control our emotions by taking ownership of the person we present ourselves as, every day. Choose to be friendly and engaged with people, all the time. It's infectious and sends a great message.
- 10. Obsess about recognition. I have always been a strong advocate of recognizing staff. They simply feel good about having their actions recognized. It leads to great employee satisfaction ratings, which translates into great patient satisfaction scores.

Being a good leader really has to do with being a good person. Kindness, thoughtfulness, sincerity, and caring for people are the true hallmarks of being a leader who can be trusted, respected, and loved. And you know how important being loved is! I tell that to my staff at the end of every staff meeting, and I know it makes a difference. I love you guys, too!

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