

SUPPLEMENT TO  
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# APPLIED RADIOLOGY®

THE JOURNAL OF PRACTICAL MEDICAL IMAGING AND MANAGEMENT

## The Role of Technology in Value-based Healthcare

CMS Quality Measures and  
Their Impact on Radiology

Leveraging 360 Degrees of Safety  
and a Solid Partnership

Driving Clinical Transformation  
for the Acute Stroke Population

Optimize Dose Management for  
Every Patient, Every Time

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# APPLIED RADIOLOGY

THE JOURNAL OF PRACTICAL MEDICAL IMAGING AND MANAGEMENT

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Cynthia E. Keen

## **Art and Production**

Barbara A. Shopiro

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## Introduction

### The Role of Technology in Value-based Healthcare

Healthcare reform is rapidly moving forward in the United States, with significant implications for all medical specialties, including radiology. As healthcare delivery and payment shift from longstanding fee-for-service paradigms to any number of value-based models, medical imaging clinicians of all stripes will need to adapt to the emerging new world order.

With this in mind, Toshiba America Medical Systems is hosting an evening event at RSNA 2014 focused on patient and provider safety, physician quality measures, and provider collaboration as they relate to radiology.

This special supplement, which Toshiba is proud to offer the readers of *Applied Radiology*, serves as a complement to this event. It is our hope that this supplement and its corresponding event at this year's RSNA meeting will help to expand and advance the conversation around improving patient care in radiology in the years ahead.

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## Contributors



### **CMS Quality Measures and Their Impact on Radiology**

**Saurabh Jha, MD**, Assistant Professor of Radiology, Hospital of the University of Pennsylvania, Philadelphia, PA



### **Leveraging 360 Degrees of Safety and a Solid Partnership**

**Karen Botts**, Director of Radiology, PinnacleHealth, Harrisburg, PA



### **Driving Clinical Transformation for the Acute Stroke Population**

**Adnan Siddiqui, MD**, Professor and Vice Chairman of Neurosurgery, University at Buffalo School of Medicine; Director, Toshiba Stroke and Vascular Research Center; Director, Training & Education, Jacobs Institute; and Director, Stroke Service, Gates Vascular Institute, all in Buffalo, NY

# CMS Quality Measures and Their Impact on Radiology

Cynthia E. Keen

The Physician Quality Reporting System (PQRS) was initiated by the U.S. Centers for Medicare and Medicaid Services (CMS) in 2007 to establish a standard of reporting quality metrics to promote patient outcomes and quality treatment.

Initially a voluntary program offering bonus payments paid to participating physicians, PQRS became mandatory as part of the Patient Protection and Affordable Care Act of 2010. As of Jan. 1, 2015, physicians who fail to participate will incur penalties of 1.5% on reimbursements for Medicare/Medicaid patients.

Data can be submitted through a claims-based method, in which measures are tied to reimbursement claims for CPT codes, or through registry reporting. In May 2014, the ACR National Radiology Data Registry (NRDR) was recognized by CMS as a Qualified Clinical Data Registry. The ACR lists on its website ([www.acr.org/Quality-Safety/Quality-Measurement/PQRS/Measures](http://www.acr.org/Quality-Safety/Quality-Measurement/PQRS/Measures)) 34 measurement specifications applicable to radiologists: nine for diagnostic radiology, one for nuclear medicine, 11 for interventional radiology, and 13 for radiation oncology.

## Will PQRS result in measurable improvement of patient care and treatment value in radiology?

In the view of Saurabh Jha, MD, this remains an open question.

"Value is very nebulous," said Dr. Jha, an assistant professor of radiology at the Hospital of the University of Pennsylvania



The ACR website ([www.acr.org/Quality-Safety/Quality-Measurement/PQRS/Measures](http://www.acr.org/Quality-Safety/Quality-Measurement/PQRS/Measures)) lists 34 measurement specifications applicable to radiologists.

in Philadelphia, PA. "There are many elements of radiology that represent value. Radiologists know what they are, but defining value precisely is problematic. Value is defined as quality divided by cost. Being able to accurately compare quality includes many things that cannot be measured. And if measurement isn't possible, how can you precisely compare quality?"

Dr. Jha, who has a scholarly interest in the value of radiology, has established a website on value: [www.valueofimaging.com](http://www.valueofimaging.com). This educational repository, underwritten from an education grant from the RSNA, focuses on the economics of diagnostic imaging and the value of information. Dr. Jha will discuss CMS quality measures and their impact on radiology in a presentation at an evening event at this year's RSNA meeting in Chicago.

The PQRS requirements represent quality measures that physicians and their representing organizations believe are important. From radiology's

perspective, Dr. Jha said, this includes items that are reasonably easy quality metrics to procure, including radiation dose, patient exposure time in fluoroscopic-guided procedures, providing a reminder system for screening mammograms, and reporting the percentage of final reports for screening mammograms that are classified as "probably benign."

## But are the measurements relevant, and how appropriate are they?

According to Dr. Jha, reporting radiation dose so that that it falls within the range of acceptable doses of the specific procedures does not necessarily reflect quality of clinical judgment or risk to the patient unless it is put into context of a clinical need, patient's medical condition and age – i.e., neither the risk of radiation nor the benefits of the diagnostic test are captured by reporting the dose.

Dr. Jha pointed out that performing a cardiac CT angiography on a patient

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*“Quality is when a radiologist evaluates the need to expose a patient to radiation based on the patient’s condition, the patient’s age, and the value of the imaging procedure.”*

— Saurabh Jha, MD, Assistant Professor of Radiology, Hospital of the University of Pennsylvania, Philadelphia, PA

presenting to the ED with chest pain represents value, because appropriate treatment decisions can be made very rapidly. But what if a patient presents to the ED on a regular basis and has repeat (negative) CTs to rule out pulmonary embolism? He may have a low single radiation dose but a high cumulative dose and, more importantly, unwarranted studies.

Monitoring radiation dose can be a value proposition, particularly if it encourages a tailoring of the protocol and application of clinical nuance, and for a patient close to reaching the threshold of radiation, substitution with a test with less or no ionizing radiation.

“Radiologists must deepen their understanding of PQRS metrics for other clinicians, and see if imaging can help clinicians reach their metrics — something for which we will be appreciated,” he said.

“The PQRS program is well-meaning, and it may stimulate more awareness of the need to provide valuable services to patients and ordering physicians,” Dr. Jha continued, “but it is largely of uncertain value, because the metrics that are easy to report and easy to acquire need to be placed in greater context.”

“Radiologists need to comply—there is no point in shooting the messenger that is trying to improve our compliance with PQRS, but we need to step beyond PQRS,” he said. “Utilization management is not a formal part of this program, but that is where radiologists can make a great contribution.”

Dr. Jha believes all radiologists should act on behalf of patients in managing imaging utilization so that patients get the appropriate study—and not an unnecessary investigation. Dr. Jha trained in the United Kingdom at

a time when imaging was a scarce commodity in the National Health Service.

“To get through the gate for approval on a patient’s CT exam, clinicians had to be at the top of their game,” he said. “To triage effectively, radiologists had to think like the referring physicians. Both sides pushed each other, resulting in clinical acumen improvements for both. This has not been part of the culture in the United States, and it should be, for the sake of resources and patients, and for the sake of radiologists.”

In the U.S., Dr. Jha argues, radiologists traditionally have not wanted to question a referring physician. While that has been financially rewarding and led to job security for radiologists, the U.S. healthcare system is undergoing seismic changes. The American College of Radiology Imaging 3.0 initiative includes use of its appropriateness criteria.

“In my experience, guidelines help but are not enough,” Dr. Jha said. “I am a strong advocate of radiologists getting personally involved in clinical medicine beyond the film reading. They must aggressively but constructively consult with referring physicians.”

“We need to be proactive clinicians,” he said. “We can make a huge impact with primary care physicians who would benefit from our knowledge about what exams to order, and the risk of overdiagnosis when ordering a test for reassurance sake, and also by our producing unambiguous, informative reports. We need to develop clinical-imaging conferences, act as imaging consultants, and conduct imaging rounds. Benchmarks need to be established to define an acceptable proportion of negative studies,” he emphasized.

It’s also the radiologist’s job to educate and reassure, Dr. Jha said, noting that media focus on the dangers of radiation exposure from imaging must be put into context.

“Quality is when a radiologist evaluates the need to expose a patient to radiation based on the patient’s condition, the patient’s age, and the value of the imaging procedure,” he said. “No patient should be put in the position of not being given an imaging procedure that could reach a serious diagnosis based on fears of unknown risks of radiation-induced cancer at low doses, and it is very important that a radiologist be a patient advocate, whether fighting for a needed exam or denying an inappropriate one. To do this effectively, radiologists need to develop extensive knowledge of clinical medicine.”

PQRS gathers metrics that determine value at the federal level, but radiologists should also be sure to articulate activities associated with value at the local level.

“Quality and value are a blank slate,” he said. “The blankness of the slate is a huge opportunity for radiologists to fill what we think is measurable and of value. If we don’t articulate, someone else will do so for us.”

Dr. Jha said that considering the changing reimbursement landscape, if radiologists’ value is restricted to film reading, they face the very real risk of commoditization.

“And when that happens we will be judged by how fast we read, how many we read and how low we charge for our reads — the cheapest hamster on the fastest wheel will win,” he concluded.

*Per University of Pennsylvania Conflict of Interest Policy, Dr. Jha discloses that he has received speaking fees and travel reimbursement from Toshiba America Medical Systems.*

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# PinnacleHealth: Leveraging 360 Degrees of Safety and a Solid Partnership

Cynthia E. Keen

**T**oshiba recently launched its new “360 Degrees of Safety” campaign, which is designed to increase awareness and use of safety features on the company’s medical imaging technologies, as well as on consultative and training programs the company offers its clients.

For her part, Karen Botts, Director of Radiology at Harrisburg, PA-based PinnacleHealth, is all in.

With a career spanning nearly 40 years, Ms. Botts has experienced firsthand the growth of medical imaging from basic, film-based radiography through today’s plethora of advanced, digital imaging modalities such as CT, MRI, mammography and others. And she fully recognizes the importance and significance of initiatives like “360 Degrees” and strategic partnerships with a company like Toshiba America Medical Systems to improve the safety of patients and imaging professionals in radiology.

“In an accountable care organization (ACO) environment, we are going to be much more accountable to the people who seek our services. PinnacleHealth has always promoted safety, but we now consistently reevaluate what we do in the context of quality—better quality, better safety,” Botts, who will deliver a presentation on safety in radiology during an evening event at this year’s RSNA meeting in Chicago, said in a recent interview.

## **Safety is a key factor in success**

PinnacleHealth is a non-profit community healthcare system with



*PinnacleHealth is a non-profit community healthcare system in Harrisburg, PA.*

three acute-care hospitals and 17 outpatient/imaging facilities located in Harrisburg and its suburbs. The system offers a wide variety of innovative treatment programs and ranks in the top 5% of Pennsylvania hospitals for major joint replacements, heart catheterization and stenting, open heart surgery, kidney transplantation, and spine/back surgery. The system is also a recipient of The Joint Commission Gold Seal of Approval Certification and other awards for exemplary performance.

With respect to improving safety in Pinnacle’s various radiology departments, Botts said, “We are focusing more on deciding what the best study is for a patient based on evidence-based guidelines and the clinical conditions they present with. We want to perform the best and right study the first time an exam is ordered, and not subject a patient to what may be a series of exams. What this means is improving our connections and communications with the doctors who order exams, to

encourage discussions about what is best for a patient.”

“In addition to radiation dose-reduction technology incorporated into the CT equipment and the AIDR 3D iterative reconstruction software that makes CT exams so much safer for patients,” Botts said, “there are other features that subtly improve quality and safety for both our patients and our technologists.” These include the one-button command that lowers the CT table to make it easier for patients to get on and off without fear of falling.

“This helps our technologists as well, because it reduces the risk of back injuries,” she said, adding that ultrasound equipment is light and easy on the shoulders, wrists, and arms of sonographers—an important quality considering that rotator cuff tears are an occupational hazard of the profession.

“The combination of large-bore MRI scanners that also have quiet gradients can make a claustrophobic patient comfortable enough that they

*“We are focusing more on deciding what the best study is for a patient based on evidence-based guidelines and the clinical conditions they present with.”*

*— Karen Botts, Director of Radiology, PinnacleHealth, Harrisburg, PA*



*Large-bore MRI scanners with quiet gradients can make a claustrophobic patient comfortable enough to tolerate even lengthy MRI exams.*

will tolerate a MRI exam. It's amazing how much of an impact a decreased noise level has on a patient who is claustrophobic," Ms. Botts said.

### **Partnerships make a difference**

PinnacleHealth's strategic partnership with Toshiba America Medical Systems is now seven years old and still going strong. The Harrisburg Hospital, in fact, was the first hospital in the state to acquire a Toshiba Aquilion™ ONE CT scanner, the world's first dynamic volume CT system.

"Having a strategic partnership with a vendor does make a big difference," she

said. "Toshiba really is a partner, and is here when we need them. They recommend replacement modalities or new products that meet our needs, which is especially important at a time when capital funds aren't as available as they were in the past. A vendor needs to be solicitous beyond the signing of a purchase order, and Toshiba does that. Our service team goes beyond its job description."

As just one example, she described how a Toshiba service team "arrived unsolicited to help when the [American College of Radiology] was doing a spot check on us relating to ACR accreditation. The applications team is always available, in person or with 24/7

telephone support for as long as necessary, for any question a technologist may have. If I feel that additional on-location training is needed, it happens rapidly."

"We have coined a new word 'conspansion' that represents the state of our radiology department and probably many others across the nation," Botts said. "It means consolidating services while expanding areas of coverage. I think that this is being reflected by radiology vendors, who realize that while 'wow' equipment is great, having work-horse equipment built for a wide range of needs performing with the highest quality, reliability, and safety features possible, is the new reality."

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# Driving Clinical Transformation for the Acute Stroke Population

Cynthia E. Keen

Stroke is a global disease, one that is increasing as people age and life expectancies increase. In the United States, stroke is the leading cause of disability and the fourth-leading cause of death.

Pharmacological intervention, increasingly sophisticated surgical techniques and ever-advancing imaging technologies, however, offer hope that these sobering facts can be changed.

Collaboration among clinical specialties, laboratory researchers, and industry vendors is the key to realizing that hope. Perhaps no one knows that more than does Adnan H. Siddiqui, MD. Dr. Siddiqui is Professor and Vice Chairman of Neurosurgery at the University at Buffalo School of Medicine, Director of the Toshiba Stroke and Vascular Research Center (TSVRC), Director of Training and Education at the Jacobs Institute (JI), and the Director of Stroke Service at the Gates Vascular Institute (GVI), all located in Buffalo, NY.

“The GVI operates on the principle of multi-specialty collaboration. Upon admission, every stroke patient is evaluated by specialists that include neurologists, neurosurgeons, cardiologists, and other medical specialists working together as a team,” said Dr. Siddiqui. “GVI houses two of the world’s most advanced Toshiba 320-slice CT scanners, which facilitate decision making by their ability to produce an entire brain perfusion scan, a temporally resolved (4D) map of the entire blood vasculature (arteries and veins) from the chest to the top of the head, and a plain brain scan, all within 5 minutes. This enables the team to make decisions rapidly with respect to treatment options, whether to open surgical

intervention, an endovascular procedure, or medical therapy.

“Every relevant clinical discipline works together rapidly to develop the best treatment for each patient,” Dr. Siddiqui added. “We firmly believe that this improves outcomes for stroke patients, many times enabling some of them to fully recover.”

Dr. Siddiqui will be presenting during an evening event at this year’s RSNA meeting in Chicago on how GVI, JI, and the TSVRC are driving clinical transformation for the acute stroke population.

The GVI is located in a \$291 million facility adjacent to Buffalo General Medical Center, which it shares with the University at Buffalo (UB) Clinical and Translational Research Center (CTRC). With clinical facilities on the lower floors and research labs on the upper ones, the building is designed to foster collaboration between scientists and clinicians. The architectural design of GVI consists of endovascular catheterization labs and surgical operating rooms ringing a central communal area where clinicians of all vascular specialties co-mingle. This center is the result of the vision of neurovascular surgery pioneer Dr. L. Nelson Hopkins to develop a center based on his many decades of experience running the annual Jackson Hole Vascular Conferences, where specialists from all vascular specialties discussed the toughest cases with each other, with academic researchers, and with research and development engineers from all the major and minor companies in attendance. The dialogue that took place and the cross-pollination of ideas, which resulted in new and novel strategies, convinced him that

having this interaction daily would be nirvana for a global vascular center.

He therefore desired to establish a center in Buffalo, with its epidemic of cardiovascular and cerebrovascular disease—50% higher than anywhere else in New York State and as high as the areas within the Southeastern U.S. Stroke Belt. He hoped the center would lead to all the different vascular disciplines working together to speed up the process of advancing vascular medicine and intervention, facilitate the process of research, and incorporate entrepreneurship with both federal and state resources and industry support.

The task of putting these myriad groups in one structure under one vision resulted in the genesis of the Jacobs Institute. The JI serves as the partnership manager, what Dr. Siddiqui equates as a “functional Switzerland” between all the different constituencies at GVI and CTRC. It is an independent, non-profit institute created in partnership with UB and GVI as well as support from private philanthropists. It is a freestanding facility that is connected to a hospital, governed and led by a team of multidisciplinary physicians focused on minimally invasive treatment and prevention of vascular disease. The institute is a global magnet for training of physicians, engineers and executives in the latest vascular technologies using simulators and flow models, as well as coordinating live-case demonstrations at GVI and facilitating new device testing and novel development initiatives.

The Toshiba Stroke and Vascular Research Center, meanwhile, incorporates neuroradiology, neurology,



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neurosurgery, radiation physics, biomedical and aerospace engineering, and polymer chemistry. Researchers there are focused on image optimization and dose reduction, device development, and hemodynamics to better understand the pathological mechanisms that produce brain aneurysms and cause stroke.

Dr. Siddiqui explained that the center is unique in that it concentrates on the interventional aspects of stroke, in addition to the more common aspects of basic science investigation. The center has developed facilities and capabilities to rapidly evaluate emerging technologies in both the visualization of devices and their effectiveness in intervention. Research performed over the past decade has resulted in medical devices that have had a significant impact on treatment for both ischemic and hemorrhagic stroke and subsequently improved outcomes in patients suffering from major, previously disabling or fatal strokes.

Dr. Siddiqui and his colleagues have been focused on two major aspects of intervention in the research lab and several more in the clinic.

“We are developing better visualization for the tools we use to treat stroke, both hemorrhagic and ischemic,” Dr. Siddiqui said. “Truly phenomenal imaging technology is enabling us to visualize the tools in exquisite detail, not possible with current X-ray technology without significantly increasing the X-ray dose. A specialized camera works similar to the microscope we use during open brain surgery. Micro-angio fluoroscopy shows us how tools are interacting with the vessels and the disease process, which leads to safer and more effective utilization of the currently available technology.”

They have been working with start-up and established companies to utilize both next-generation interactive and disruptive technologies to evaluate revascularization efficiencies, both in flow

models and animal models of ischemic stroke. They are also participating in a large number of U.S. Food and Drug Administration (FDA)-regulated clinical trials that evaluate technologies to continuously improve interventional treatments for cerebrovascular disease. Aspects of pharmacologic manipulation that may have a neuroprotective effect when dealing with both hemorrhagic and ischemic strokes are being investigated. These include varied strategies such as hypothermia and pharmacologic manipulation with agents that may reduce secondary injury from neuroinflammation that occurs after a stroke.

Dr. Siddiqui is a principal investigator in three major device trials. These include the 3D separator trial, which evaluates stent retriever utilization compared to aspiration with a separator device. The SWIFT PRIME trial is evaluating patients who experience an acute ischemic stroke due to large-vessel occlusion. Stroke patients are randomized to receive either an intravenous recombinant human tissue plasminogen activator (IV t-PA) drug only, or to receive IV t-PA along with mechanical revascularization with the Solitaire stent retriever device.

The POSITIVE randomized clinical trial, which began enrolling patients in mid-2014, is aimed at determining the safety and efficacy of intra-arterial reperfusion in acute ischemic stroke patients who cannot receive IV t-PA because of contraindications or because they present too late for t-PA to work effectively. Advanced perfusion imaging is used to identify patients who are most likely to benefit from revascularization. The purpose of the trial is to demonstrate the safety and efficacy of mechanical thrombectomy over current practices of medical therapy used to treat acute ischemic stroke patients. The trial plans to enroll up to 600 patients at up to 35 participating hospitals in the U.S.

“We are hopeful that the outcomes of these trials, along with dozens of other stroke-related clinical trials being conducted throughout the world, will show how new technologies can change the outcome for patients and offer hope to stroke victims,” said Dr. Siddiqui.

“We want to change the way that stroke is perceived and treated. The mindset that currently exists in the United States and Europe is that a heart attack or myocardial infarction is a very treatable condition but acute ischemic stroke means either permanent disability or death. When the first signs of a stroke are seen, patients need to be rapidly brought to hospitals where they can receive the interventions that may enable them to return to a pre-morbid quality of life status. Although older people are more likely to have a stroke, they may potentially have many years of life that should have a good quality and be more than endurance of disability. Similarly, for younger patients, a return to pre-morbid status means preservation of their economic and physical viability and maintained benefit to society.”

Dr. Siddiqui acknowledged that this could be a Herculean task. He said that in the United States, only 2% to 3% of patients eligible for intravenous thrombolytic therapy actually receive the treatment. And the number of patients who get intervention is only a tiny fraction of the first number.

“There is so much room for improvement and tremendous value to change the stroke narrative. I am really excited about the innovative work I am involved with at GVI, and am happy to participate in the cutting-edge research bringing new clinical trials and options for treatment,” he said. “I hope very much that the work and research we are doing in Buffalo will benefit a very large number of patients the world over.”

# Toshiba Partners with Houston Healthcare to Optimize Dose Management for Every Patient, Every Time

Radiation from medical imaging is in the public spotlight more than ever. Once a topic kept within the medical community, radiation dose is now top of mind for patients and practitioners alike.

Houston Healthcare serves 300,000 people each year in the central Georgia region, and has worked to improve the healthcare communities it serves since its establishment in 1960. But as healthcare reform got under way, patient care and satisfaction became more important than ever.

## Situation

Houston Healthcare was determined to be a leader in patient safety. It was using four Aquilion™ CT systems from Toshiba America Medical Systems, Inc. and needed to ensure its staff was maximizing the technology to image patients with the lowest possible radiation dose.

## Solution

Houston Healthcare partnered with Toshiba to implement the comprehensive dose management program, PROTECT. Part of the PROTECT program included upgrading its three existing CT systems with the VeloCT console, which includes new enhancements for patient safety, dose management and workflow. Houston Healthcare also installed a brand-new Aquilion™ PRIME to round out its CT offerings. To maximize this technology, Toshiba ensured the team was fully educated on the CT systems, new protocols and ways to answer questions from patients about the exams.



*Houston Healthcare in Warner Robins, Georgia sees more than 300,000 patients each year.*

For Houston Healthcare, patient safety has always been a priority. Clinicians can now image patients with the lowest possible dose without compromising diagnostic accuracy, and the facility has seen a 65 percent radiation dose reduction in routine abdomen/pelvis exams, a 59 percent dose reduction for routine chest exams and a 7 percent reduction in routine head procedures.

## Benefits

- **ALARA Imaging:** Toshiba's PROTECT program helps support customers in achieving the lowest possible dose without compromising diagnostic image quality.
- **Lowering Dose and Meeting MITA XR-29 Smart Dose Standard:** Through the VeloCT upgrade, existing systems can add the latest in dose reduction and workflow technologies, like AIDR 3D. AIDR 3D also enables facilities to meet MITA XR-29 Smart Dose standard and qualify for Quality Incentives to Promote Patient Safety and Public Health in CT Diagnostic Imaging.

## • Making CT Safer for All Patients:

Through educational initiatives and protocol review, PROTECT ensures customers have all of the tools and knowledge necessary to get the right dose for every patient, every time.

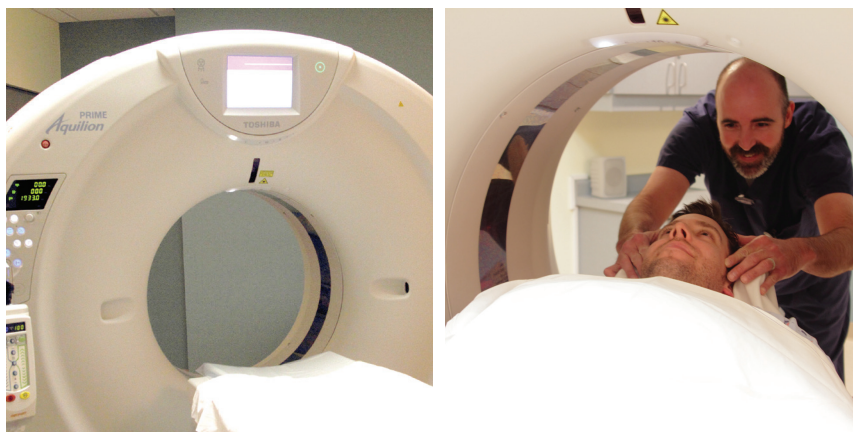
For its CT imaging, Houston Healthcare was using three Aquilion™ systems and had just recently purchased a new Aquilion PRIME from Toshiba. With the right CT technology, and a dose-reduction committee with Toshiba's strategic partner Phoenix Technology Corp., Houston Healthcare had its foundation in place and needed a program to tie all the elements together. That answer was Toshiba's comprehensive dose management program, PROTECT.

## A Role Model for Lowering Dose

PROTECT is a three-year, comprehensive CT radiation dose management program combining Toshiba's technology solutions with its education and support. Through in-person collaboration, Toshiba experts review the system's hardware and software and consider implementation of additional

*“Technology upgrades through Toshiba’s VeloCT program, such as AIDR 3D, have been imperative to achieving dose levels significantly lower than the standards set by the American College of Radiology.”*

— Tim Sisco, Director of Cardiovascular and Imaging Services, Houston Healthcare



Houston Healthcare uses three Aquilion™ 64s and an Aquilion PRIME from Toshiba, utilized for all general CT exams including head, abdomen, pelvis and chest.



Houston Healthcare CT Imaging Team

dose reduction technologies. Now, Houston Healthcare can ensure quality care and safety are priorities during every patient exam.

As part of the program, Houston Healthcare upgraded its three existing Aquilion 64 CT systems with the most comprehensive dose-reduction technologies and dose management tools, included as part of the VeloCT console upgrade.

“Technology upgrades through Toshiba’s VeloCT program, such as AIDR 3D, have been imperative to achieving dose levels significantly lower than the standards set by the American College of Radiology,” said Tim Sisco, Director of Cardiovascular and Imaging Services, Houston Healthcare.

Through the PROTECT partnership program, Houston Healthcare has achieved tremendous dose savings.

Clinicians achieved a 65 percent reduction in routine abdomen/pelvis exams, a 59 percent dose reduction for routine chest exams and a 7 percent reduction in routine head procedures.

“Houston Healthcare has addressed the national concerns regarding radiation safety with a positive and proactive investment of resources toward improving patient safety in radiology,” said Sandra Paige, MS, medical physicist, Phoenix Technology Corporation. “These efforts include providing education and training to the public and medical community to increase awareness about medical radiation exposure, and the implementation of new medical imaging equipment.”

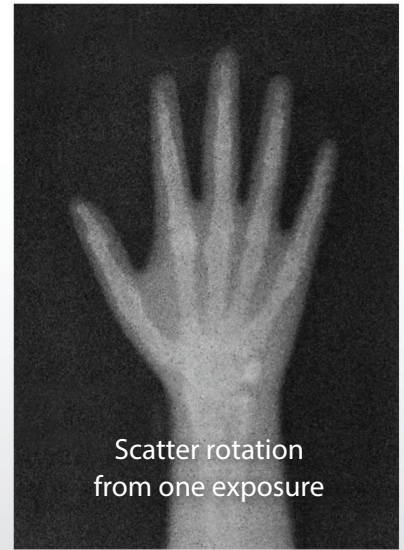
### **PROTECTing Patients with Safer Exams**

Not only does PROTECT help facilities lower dose, it also raises awareness and educates patients on CT technology and the importance of low-dose exams.

“With the PROTECT program in place,” Sisco said, “both our physicians and technicians have learned how to have conversations with patients about dose safety and reassure them that the exams they are receiving are being conducted with the lowest possible dose to produce the high image quality required for accurate diagnoses.”

Lowering CT radiation dose is more than just good technology. Toshiba’s PROTECT program is a partnership that lets healthcare providers know that CT dose and safety is not a choice.

“ I was shocked at the scatter radiation levels we’re exposed to. ”



9' from patient at 15 degrees  
4' from tube at 30 degrees  
115 KV @ 4 MAS

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