

ACTION BRIEF

Employer Strategies that Drive Value



MEDICAL IMAGING

BROADENING THE FOCUS TO INCLUDE COST AND VALUE

ACTION STEPS FOR EMPLOYERS:

1. Require annual physics testing and reporting.
2. Insist on clinical peer review.
3. Optimize utilization management oversight.
4. Demand quality management in cone-beam CT imaging for diagnosis and treatment planning.
5. Manage the patient experience.

As high-deductible health plans went mainstream, employers and employees became increasingly sensitive to (and surprised by) high cost and quality variability between healthcare facilities. High cost did not necessarily indicate high quality; likewise, low cost did not correlate with low quality. Arbitrary pricing and scant quality data at the provider or facility level left payers and patients to make largely uninformed healthcare decisions.

HOW DOES MEDICAL IMAGING FIT IN?

Access to healthcare cost and quality information is slowly improving in many areas. But the temptation to choose a medical imaging provider based solely on cost persists.

Despite recent efforts to manage costs, medical imaging still constitutes a



significant share of healthcare expense. In 2016, imaging accounted for nearly 10% of healthcare spending, at a cost of about \$100 billion. This expense is not for lack of competition in the imaging field. The US has more than 6,500 imaging facilities; the field remains highly competitive, with the 50 largest competitors capturing just 29% of the market.

Purchaser efforts to control imaging costs have focused on utilization.

This is with good reason. A 2016 study comparing 11 developed nations found that healthcare use in the US was similar to that of other nations—except for medical imaging. According to the study, the US performed about 43% more MRIs per 1,000 people, and 62% more CTs. While the pace of growth for imaging in the US has slowed, rates have continued to rise.

With their laser focus on the cost of imaging, however, purchasers have lost sight of the larger picture—value.

Are they paying for high-quality medical imaging? And how is that defined?

“Medical Imaging is essential for providing accurate diagnosis, assessing disease, and monitoring treatment. Purchasers and payers have a unique opportunity to establish quality measures that help ensure beneficiaries receive consistent quality, appropriate access, and cost-effective care provided in a safe environment. Establishing multidisciplinary consensus standards helps ensure that purchasers, payers and beneficiaries receive consistent medical imaging value, which helps reduce wasteful spending, optimize medical care, and improve patient outcomes.”

—Suresh K. Mukherji, MD, MBA, FACR, clinical professor, Marian University; director of head & neck imaging, ProScan Imaging; Regional Medical Director, Envision Physician Service; and medical director, Economic Alliance of Michigan

In one study, **images of 136 patients with known or presumed head and neck cancer were reinterpreted by a neuroradiologist, with a change in interpretation for over 40% of the patients. These image reinterpretations altered treatment in 55 (98%) of 56 patients and affected the prognosis for 53 patients.**

The reinterpretation had a significant effect on the staging, management and prognosis of these patients.



In another study, a 63-year-old woman with a history of lower back pain was scanned at 10 different MRI centers over a period of three weeks. This study found marked variability in the interpretive findings and a high prevalence of interpretive errors. **The authors concluded that where a patient obtains an MRI examination and which radiologist interprets the examination may have a direct impact on radiological diagnosis, subsequent choice of treatment, and clinical outcome.**

The quality of radiology services has a major impact on the cost and

“A quality MRI or CT scan can improve the accuracy of diagnoses early in the care journey, helping create the correct treatment plan and the best opportunity for recovery.”

-Lisa Woods, senior director of benefits design, Walmart (NPR News)

quality of care across the healthcare spectrum. High-quality imaging and interpretation provide a foundation for accurate diagnoses and effective treatment. Still, the variability in treatment recommendations indicates that imaging is also a considerable contributor to waste, leading to costly and ill-advised procedures.

1. Require annual physics testing and reporting.

Purchasers should require that imaging providers in their network perform periodic testing by a diagnostic medical physicist to ensure that machines are emitting appropriate amounts of radiation while achieving high image quality. Periodic testing helps ensure this. Purchasers are also encouraged to make sure participating providers are running periodic quality-assessment evaluations to confirm that the imaging equipment is properly calibrated. Health plans should require:

- ▶ Annual physics testing/written report by an independent and licensed physicist
- ▶ Routine internal physics testing using a phantom as part of the quality-assurance process
- ▶ Initial and ongoing physics testing and calibration, following the manufacturer’s recommendation
- ▶ Daily physics calibration conducted by the radiologist technologist



2. Insist on clinical peer review.

Informed purchasers insist on a clinical peer review process in which providers evaluate each other’s clinical performance. This process ensures consistent and evidence-based decision making. Make sure health plans require peer review:

- ▶ Participate in ACR’s [RadPeer Program](#)
- ▶ Incorporate the peer review process integrated into [Integrated Voice Recognition/RIS/HIS](#)
- ▶ Conduct internal peer review using internal criteria

3. Optimize utilization management oversight.

Health plans typically require pre-authorization for many imaging procedures, and purchasers are responsible for ensuring that recommended treatments and services fall under “generally accepted standards of care.” Purchasers must collaborate

EXISTING REGULATIONS

Attempts have been made over the years to address imaging quality and performance. The federal government has adopted some regulatory requirements to promote high-quality imaging, and some states have established regulations.

Additionally, the U.S. Food and Drug Administration (FDA) regulates CT imaging systems; however, these regulations affect the manufacturers of the systems, rather than the users. Further complicating the landscape, the [Medicare Improvements for Patients and Providers Act \(MIPPA\)](#) allows Centers for Medicare and Medicaid Services (CMS) the authority to designate accrediting organizations, but these organizations accredit only the suppliers and not hospitals.

Accreditation bodies such as the [American College of Radiology](#), the [Intersocietal Accreditation Commission](#), the [Joint Commission](#), and [RadSite](#) have tackled the issue.

Nonetheless, medical imaging quality remains highly variable, with recent studies revealing alarming inconsistencies in imaging accuracy, interpretation, and resulting diagnosis and treatment recommendations.



with health plans to monitor the utilization-management (UM) approval process so neither the imaging provider nor the patient is caught by an unexpected delay or a denial. Ask health plans:

- ▶ Is the UM system, including pre-authorization process, automated?
- ▶ Are clinical review criteria evidence-based?

- ▶ Are response times tracked, including adverse benefit determinations and the appeals process?
- ▶ If care is denied, is a radiologist from the UM program available to answer questions from the referring or rendering provider?
- ▶ Is the UM program accredited? (E.g., by NCQA, URAC or AAHCC)

4. Require that cone beam computed tomography (CBCT) imaging be managed for diagnosis and treatment planning.

CBCT imaging has become increasingly important in diagnosis and treatment planning. In certain cases, it can promote better clinical diagnosis with less ionizing radiation. Unfortunately, CBCT is not regulated in most jurisdictions because it is a relatively new type of imaging exam. In addition, many

payers do not yet directly reimburse for CBCT imaging. Purchasers will benefit from ensuring that health plans are managing the quality of cone beam imaging by requiring:

- ▶ Physics testing and reporting for CBCT imaging systems
- ▶ Interpretation of CBCT images by qualified providers, such as:
 - ▶ Board-certified or board-eligible radiologists
 - ▶ Physicians (MDs and DOs)
 - ▶ Trained specialists within their scope of practice (e.g., podiatrist reading only the foot, ankle and lower extremities)
- ▶ CBCT imaging systems to be properly accredited by, for example:
 - ▶ IAC Dental CBCT
 - ▶ RadSite Dental CBCT
 - ▶ RadSite Medical CBCT

5. Manage the patient experience.

Employers and other purchasers have a duty to require health plans to manage patient satisfaction and engagement. Key indicators are “wait time” (time until the next available appointment) and “turnaround time” (time between the imaging study and final interpretation by the radiologist). Patient communication and patient engagement in diagnosis and treatment are critical to effective care management. Health plans must require providers to report:

- ▶ Average wait time for outpatient imaging procedures
- ▶ Required turnaround time for imaging services
- ▶ How the imaging results are communicated back to the ordering provider and the patient



Many Factors Can Affect Ultrasound Quality

These complex systems have many components that break down over time

There is very little federal or state regulation of ultrasound systems because they do not use ionizing radiation. Findings from a regulatory and literature review and expert opinion supports the hypothesis that there is a correlation between the increasing age of an ultrasound machine and a decrease in quality.

Modality	Effective Life Age	Maximum Extended Life (including 5-year extension for upgrades)
Ultrasound	10 years	15 years
Computed Tomography (CT)	10 years	Nil
X-ray	15 years	20 years
Orthopantomogram (OPG)	15 years	20 years
Mammography	10 years	15 years
Fluoroscopy	15 years	20 years
Nuclear Medicine (excluding PET)	10 years	15 years
Magnetic Resonance Imaging (MRI)	10 years	15 years
Angiography	10 years	Nil

Ultrasound Utilization

Frequency of Use	HIGH, e.g., 24 hours 5 days per week or 750 8-hour shifts per year	MID, e.g., 16 hours 5 days per week or 500 8-hour shifts per year	LOW, e.g., 8 hours 5 days per week or 250 8-hour shifts per year
		> 4,000 exams per year	2,000–4,000 exams per year
Life Expectancy	7 years	8 years	9 years

RESOURCES FOR EMPLOYERS:

- [To Improve Health, Cut Costs, Walmart Pushes for Better Medical Imaging for Workers](#)
- [Considerations for Exchanging and Sharing Medical Images for Improved Collaboration and Patient Care: HIMSS-SIIM Collaborative White Paper](#)
- [United States Diagnostic Imaging Centers Industry Analysis 2019: 50 Largest Competitors Capture Just 29% of the Market](#)
- [Health Care Spending in the United States and Other High-Income Countries](#)
- [Trends in Use of Medical Imaging in US Health Care Systems and in Ontario, Canada](#)
- [Reinterpretation of Cross-Sectional Images in Patients with Head and Neck Cancer in the Setting of a Multidisciplinary Cancer Center](#)
- [Variability in Diagnostic Error Rates of 10 MRI Centers Performing Lumbar Spine MRI Examinations on the Same Patient Within a 3-Week Period](#)



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