



» Controllable Risk Factors in Diagnostic Imaging for Injured Workers

Preventing Common Errors Through Actionable Solutions

Advanced imaging, including the magnetic resonance imaging (MRI) and computed tomography (CT) scans frequently used in workers' compensation, help physicians diagnose workplace injuries and develop effective treatment plans. Numerous studies show that advanced imaging has improved medical outcomes in the areas of declining mortality, reduced need for exploratory surgery, and fewer and shorter hospital stays.¹ It is no wonder that, by the early 2000s, advanced diagnostic imaging was one of the fastest growing components of healthcare costs.

From 2000 to 2006, Medicare's spending on MRIs, CTs, nuclear medicine and Positron Emission Tomography (PET) scans increased from \$3.6 billion to \$7.6 billion – more than a 100% increase in a few short years.² These skyrocketing costs prompted Medicare to drastically cut per-unit reimbursements of imaging studies and to enlist utilization review solutions to ensure that all delivered tests were medically necessary. The workers' compensation industry soon followed suit as state after state drastically lowered their fee schedules for these services.

Today, unit costs for advanced diagnostic imaging services are well managed by both Medicare and Workers' Compensation – but managing unit cost is not the only important factor in managing the quality of patient care and overall claims costs. The reduction in reimbursement for MRIs and CTs has actually served to create new, increased quality and overall cost concerns.

If unit cost and utilization are under control, what else is there? How have unit cost controls negatively impacted quality and total costs?

As reimbursement rates decrease, imaging centers look for ways to reduce their operational costs and increase productivity, while dealing with limited funds to replace aging equipment. The pressure to do more with less, with existing equipment, is further exacerbated by the “need for speed” –especially in the world of workers' compensation, where injuries are often the result of trauma and a timely diagnosis is vital to the restoration of an injured worker's health and ability to earn a living.

Recent studies show that when radiologic studies are retrospectively audited, error rates are estimated to be as high as 30%.³ In addition aging equipment is impacting the diagnostic quality of the resulting studies even when the right study is requested.

Aggressive and multi-level quality assurance is clearly the next critical area of focus to insure best-in-class diagnostic imaging medical management.

» Where to Start: Controllable Risk Factors

Much time and research has gone into analyzing the different types of errors that occur in diagnostic imaging. Recent studies have identified two general categories of errors that lead to diagnostic adverse events (DAE) in diagnostic imaging. The first is cognitive or knowledge-based errors. The second is system or process related errors.⁴

Knowledge-based Errors

According to research, there are a variety of knowledge based errors that occur in diagnostic imaging, caused by lack of knowledge or specific, in-depth expertise. Knowledge-based errors can impact both the appropriateness of the service ordered, the actual quality of the resulting study and/or the written interpretation/report. A study conducted by the American Academy of Radiology found that 26% of ordering errors were made by busy primary care physicians. Examples cited included failure to specify contrast, ordering the wrong test (e.g., a CT when an MRI is appropriate) or over-ordering (e.g., requesting images of the foot and ankle when only the ankle is needed). In these examples, while diagnostic imaging was medically appropriate, the detailed knowledge regarding diagnostic best-practices was missing which led to ordering errors and the delivery of less than optimal services.

As to order errors that impact the quality of the resulting reports, guidelines in both the US and the UK recommend that all complex cases include an expert opinion. Hard-pressed primary care physicians, claims adjusters and case managers do not have the time or expertise to determine which exams are “complex” and should be read by sub-specialist radiologists.

System Related Errors

System related or operational errors are those caused by failed processes including knowledge transfer and communication. A study by the Pennsylvania Patient Safety Authority reviewed 652 adverse events in diagnostic imaging. These adverse events and their frequency were categorized as follows: wrong-procedure or test errors (50%), wrong patient identification (30%), wrong side (15%) and wrong site/body part (5%). The failed processes cited included order entry errors, poor order verification or quality assurance protocols, failure to confirm patient identity, misinterpretation of the order and illegible scripts.⁵

Controllable Errors in Diagnostic Imaging

50%

**Wrong Procedure
or Test Errors**

30%

**Wrong Patient
Identification**

15%

**Wrong Side
of Body**

5%

**Wrong Site
or Body Part**

» Consequences of Errors

Diagnostic imaging errors can have serious impacts on multiple stake holders, which include the patient, employer and the carrier. Generally, each error creates multiple inter-related consequences, for example:

Delay in or inability to identify the definitive diagnosis. The wrong test, body part, equipment or radiologist will result in a report that will not be useful in arriving at the appropriate diagnosis. At best, this will delay the development of an effective treatment plan. At worst, this will result in the development of the wrong treatment plan. Even a simple error in scheduling – or a patient cancellation – can increase the duration of care by a week or more. A report that inappropriately supports unnecessary surgery can delay recovery by months and/or negatively impact ultimate outcomes.

Patient inconvenience or harm. Over-ordering or a wrong site/body part error that results in a second test inconveniences the patient which can lead to increased stress, fear or anger. Ordering a CT inappropriately exposes patients to unnecessary harmful radiation – nearly 70 percent of radiation exposure from imaging tests comes from CT scans, which deliver a radiation dose that can be 100-1000 times the dose for plain x-rays.⁶ An unnecessary surgery can adversely impact patient recovery.

Adverse Events are Controllable Errors

UNNECESSARY CT SCANS | **EXPOSE PATIENTS**  **TO 1,000 TIMES**  **MORE RADIATION THAN PLAIN X-RAYS**

Increased costs. Unwarranted diagnostic imaging procedures or second tests incur unnecessary costs. Delayed diagnoses result in delayed return-to-work and increase lost time reimbursement. The average cost of a simple MRI with no contrast is not inexpensive – averaging approximately \$1,100⁷ – the cost of an unnecessary back surgery can well exceed \$100,000 per episode when combined with medication, rehabilitation and disability costs.⁸

Actionable Solutions

As payers, providers, health care organizations and managed care companies, it is our responsibility to help minimize the risk of error in the areas which we can most effectively impact. Fast scheduling, controlling unit cost and utilization is not enough to optimally influence medical outcomes or total medical spend.

Specialty managed care companies in particular are uniquely positioned to take a leadership position in developing new solutions and strategies. These organizations are ideally positioned between the referring physician, patient, case manager and the diagnostic imaging community to initiate verification and quality control protocols in advance of scheduling, help identify which cases require sub-specialty review, find the right sub-specialist for the right situation, the right site with the right equipment and staff, and help educate patients in advance of treatment.

Clinical Review Protocols Reduce Risk of Errors



MedRisk offers the workers' compensation industry a new and comprehensive approach to managing these services – one that effectively mitigates the high risk of errors and sub-optimal outcomes in the delivery of advanced diagnostic imaging including the following features:

- The application of best-practice clinical review protocols on 100% of its diagnostic imaging referrals insuring the appropriateness of the service order
- The application of clinical triggers which automatically flag complex cases for a centralized read with the appropriate sub-specialist
- MedRisk's dynamic scheduling algorithms which match patients to the right facility with the right equipment based on his or her unique diagnostic needs
- An ongoing real-time quality assurance program which updates site results, insuring outcomes-based facility selection

All processes and programs have been built on 20+ years of codified clinical data, developed and tested by fellowship trained radiologists and physicians, controlling knowledge based errors and system or process based errors – resulting in the best possible outcomes for patients, employers and payers.

About MedRisk

MedRisk, Inc. has been specializing in managing medical care for injured workers since the early 1990's. They are known for their innovative approach and clinically based solutions for the workers' compensation community.

For more information on MedRisk's managed physical medicine or diagnostic imaging programs, visit medrisknet.com

References

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