



Choosing Wisely® Recommendation Analysis: Prioritizing Opportunities for Reducing Inappropriate Care

IMAGING FOR NONSPECIFIC LOW BACK PAIN

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Evidence Justification

Five clinical specialty societies recommend against the use of imaging for nonspecific low back pain. We summarize the reasoning provided by the clinical societies to justify the inclusion of this service, including assignment of this service into one of 5 evidentiary categories of “wasteful” services arising from the evidence on benefits, risks, and costs (Gliwa, 2014).

American Academy of Family Physicians

Don't do imaging for low back pain within the first six weeks, unless red flags are present.

American Association of Neurological Surgeons and Congress of Neurological Surgeons

Don't obtain imaging (plain radiographs, magnetic resonance imaging, computed tomography [CT], or other advanced imaging) of the spine in patients with nonspecific acute low back pain and without red flags.

American College of Occupational and Environmental Medicine

Don't initially obtain X-rays for injured workers with acute nonspecific low back pain

American College of Physicians

Don't obtain imaging studies in patients with nonspecific low back pain

North American Spine Society

Don't recommend advanced imaging (e.g., MRI) of the spine within the first six weeks in patients with nonspecific acute low back pain in the absence of red flags.

Specialty Society Rationale

Low back pain is among the most common causes of disability and lost productivity in the United States, and more than 80% of the population will experience low back pain in their lifetime (Rubin, 2007). Physicians perform tests such as computed tomography (CT) scans, magnetic resonance imaging (MRI), and X-rays for low back pain to determine the presence of serious

underlying conditions, such as cancer or spinal infection. Clinical guidelines state that low back pain can be adequately managed without imaging and instead refer to physical examination, medical history, initial pain management (as needed), and physical therapy as the best first course of action (Davis et al., 2008). Imaging may be warranted if the patient experiences no improvement in six weeks, or when more complicating factors are present, such as severe progressive neurologic deficit, history of cancer, trauma, fracture, or infection, or when symptoms are present to indicate a serious underlying condition.

In cases of uncomplicated low back pain, however, patients are unlikely to benefit from imaging studies and may even do worse relative to patients who utilize conservative measures such as heat, over-the-counter pain medication, and physical exercise (American Academy of Family Physicians, 2012). The results of imaging studies are unlikely to alter clinical management for back pain since most findings cannot be tied to a specific anatomic cause (Manek, 2005). The likelihood of identifying a serious underlying condition of lower back pain with imaging is also rare. One study estimates that only 0.01% of patients with low back pain in primary care settings have spinal infection, and 0.7% have metastatic cancer (Deyo et al., 1992; Jarvik et al., 2002). Most patients with low back pain experience improvements in pain and function within four weeks with no serious improvements from imaging, demonstrating little gain for the potential risks involved (Chou, 2011).

Routine imaging can subject patients to unnecessary harm, by finding abnormalities that are not clinically relevant that lead to further downstream testing, spinal injections, and in some cases, surgery. Imaging studies may also cause unnecessary exposure to radiation. Lumbar radiography is responsible for the greatest proportion of total radiation dose from medical imaging in the U.S. given its frequency of use (Fazel et al., 2009). One study estimated that patients who received an MRI during the first month of back pain were eight times more likely to have surgery and experience a five-fold increase in medical expenses with no observed gains in recovery time as compared to patients undergoing no imaging (Webster and Cifuentes, 2010). The cost of imaging studies is often substantial. CT scans and MRI for the lower back are typically over \$1000, while X-rays are approximately \$300 (Consumer Reports Health and American Academy of Family Physicians, 2012).

Table 1. “Wasteful Care” Evidence Category

1. Insufficient evidence to evaluate comparative benefit for any indication
2. Insufficient evidence to evaluate comparative benefit for use beyond the boundaries of established indications, frequency, intensity, or dosage
3. Adequate evidence demonstrating equivalent benefit with higher risk, higher cost, or both
4. Adequate evidence demonstrating a small comparative benefit not large enough to justify the higher risk to patients, higher cost, or both
5. Adequate evidence demonstrating improved comparative benefit, lower risk, lower cost, or both when using the intervention

Source: Gliwa and Pearson, 2014

Current Use and Variation in Practice

- *Estimated population affected: 1,116,000– 2,560,000**
- *Excess Cost of Practice: \$82 million – \$226 million**

**Estimates are for Medicare population only*

Source: Schwartz AL, Landon BE, Elshaug AG, et al., Measuring Low-Value Care in Medicare. JAMA Intern Med. 2014;174(7):1067-1076.

Even though all relevant specialty society guidelines support initial management without imaging for patients with uncomplicated low back pain, many physicians continue to order routine imaging without a clear clinical indication. A recent study of Medicaid beneficiaries in Washington estimated that among enrollees with a primary diagnosis of low back pain, 14% received an X-ray, CT scan, or MRI within 4 weeks of diagnosis (Washington Health Alliance, 2014). Another retrospective study of Medicare claims data from 2009 evaluating the prevalence of low-value services found that among a representative sample of approximately 1.4 million beneficiaries, 54,000– 122,000 (4% - 9%) of individuals with a diagnosis of low back pain received non-indicated imaging, corresponding to 1.1 – 2.5 million individuals for the entire Medicare population (Schwartz et al., 2014). The lower range limits imaging studies to those performed within six weeks of first diagnosis of low back pain, and excludes diagnoses of cancer, neurological impairment, endocarditis, and symptoms of other potentially serious complications. Another retrospective analysis using Medicare claims data between 2006 and 2011 to compare rates of low-value services estimated that among 2 million beneficiaries with uncomplicated low back pain, approximately 23% received an X-ray, CT scan, or MRI within six-weeks of initial diagnosis (Colla et al., 2014).

The Schwartz study estimated that annual Medicare spending on imaging for uncomplicated low back pain ranged from \$82 million - \$226 million (2014). These estimates do not include any costs associated with follow-up care yielded by test results, so the potential for cost-savings from reducing overuse may be higher.

Sociology of Practice

We conducted unstructured interviews with national clinical experts representing the fields of radiology and internal medicine to understand the multi-faceted influences that drive the use of imaging studies for uncomplicated low back pain, as well as the most effective methods to reduce inappropriate use of these services. Key themes and lessons from these conversations are summarized below.

A range of issues contribute to the overuse of imaging for low back pain. First, physicians noted that patient preferences and demand play a significant role. Patients living with low back pain want a clear diagnosis and confirmation that a more serious underlying condition is not present. Many patients are unaware of the risks associated with unnecessary imaging, and many experts interviewed felt they lack the resources and time to engage patients in a conversation of the potential harms and wasteful spending involved. As physicians take on more administrative tasks and increased caseloads, experts noted that referring a patient for additional testing can be more expedient than explaining to patients why further imaging may not benefit cases of uncomplicated low back pain. Linking physician bonuses and quality scoring to patient satisfaction has also potentially exacerbated this problem, as patients tend to equate more care with better care, incentivizing physicians to provide imaging for low back pain even when not indicated. Experts feel that they are never penalized by patients for ordering imaging tests that are unnecessary, but receive negative ratings when a patient expects imaging and does not receive it. Physicians underscored the importance of further development and dissemination of patient education materials, like those included as part of the Choosing Wisely® campaign, to help raise awareness of over-testing and to aid patients in understanding the major considerations involved in imaging decisions.

Physicians interviewed also emphasized financial incentives as a major driver of overuse in this area. Fee-for-service systems that reward physicians based on volume incentivize self-referrals. Advanced imaging technology is expensive to acquire and operate, so practices with MRI or CT scan machines may be motivated to increase utilization of these technologies. Experts also noted that practices receive higher reimbursement for MRI compared to conventional imaging technology, providing further impetus for physicians to prescribe expensive imaging. Financial incentives may also distort patient demand. Experts noted that insurance policies that allow for the provision of diagnostic studies with limited co-payments mask the cost of these procedures and leave patients immune to the expense of unnecessary, wasteful imaging tests. Some

experts advocated for value-based insurance designs that instill higher deductibles or co-payments for services that do not meet appropriateness guidelines and are shown to have little to no benefit for patients.

Physician education and training may also be a factor in overuse of diagnostic imaging for uncomplicated low back pain, as some physicians fail to take a comprehensive medical history to document the lack of weakness, radiculopathy, or sensory loss that makes imaging unnecessary. Experts advocated for greater decision-support tools at the point of care to help busy physicians avoid ordering unnecessary testing.

Experts also view tort reform as an important issue, but perceived concerns for liability to be less of a concern in this area. Physicians explained that it is exceedingly rare that low back pain results in a life-threatening situation, unlike other clinical areas where internal bleeding or tumors could potentially be missed by forgoing imaging.

Though imaging for uncomplicated low back pain remains an area of significant waste, some levers are in place to reduce unnecessary care in this area. First, health plans commonly require preauthorization for outpatient imaging services, including MRI and CT scans, and some do not reimburse imaging for low back pain within six-weeks of the initial diagnosis. Experts noted, however, that there are still clearly issues with how criteria are being implemented and enforced, and that more could be done to standardize criteria and limit inappropriate use of services. Some experts cautioned that efforts should be made to streamline preauthorization policies as to the extent possible, since the administrative burden on physicians to receive approval for indicated imaging tests can be a separate source of inefficiency. Experts noted that physician organizations, such as the American College of Physicians (ACP) and the National Physician Alliance, have launched initiatives to educate physicians on the overuse of imaging for low back pain. Similar to the Choosing Wisely campaign, the ACP's "High Value, Cost-Conscious Care Initiative" has adopted low back imaging as one of its major priority areas, and has created patient summaries, physician videos, and other training materials to help increase awareness and education on over testing in this area. Experts also emphasized how payment reform and the evolution towards capitated reimbursement and accountable care delivery systems may also reduce financial incentives for over-testing.

Summary Statement: Drivers of Overuse and Opportunities for Improvement

Based on our research and conversations with national experts, this section synthesizes the major factors related to overuse, as well as any opportunities for improvement or existing best practices for reducing wasteful care.

Factors Related to Overuse		
<i>Patient Factors</i>	<i>Physician Factors</i>	<i>Payer Factors</i>
<ul style="list-style-type: none"> ● Patient demand/lack of education of the risks involved with unnecessary imaging, and that most low back pain goes away within four weeks with conservative measures 	<ul style="list-style-type: none"> ● Inadequate education and awareness of guidelines at the point of care ● Insufficient time and resources to engage patients on the risks/harms of over testing ● Financial incentives that reward the provision of costly procedures ● Concerns for liability 	<ul style="list-style-type: none"> ● Payment models that reward volume of services ● Low co-pays or co-insurance for diagnostic imaging services considered low-value
Opportunities for Improvement/Current Best Practices		
Opportunities for Improvement	Current Best Practices	
<ul style="list-style-type: none"> ● Disseminate further existing patient education materials and develop talking points for physicians to discuss with patients on the risks/harms of unnecessary screening ● Make greater use of global payment arrangements that reduce incentives to over-test patients ● Tier co-payments based on value to increase patient accountability for those demanding unnecessary services ● Implement decision-support systems at the point of order to assist physicians in performing a comprehensive medical history and determining if further imaging is necessary ● Explore options for tort reform that reduce physician’s liability for applying appropriate clinical criteria 	<ul style="list-style-type: none"> ● Prior authorization policies for outpatient MRI and CT scan services to control overutilization and limitation on coverage for low back pain imaging ordered within six weeks of initial diagnosis ● Physician and patient education campaigns led by physician organizations emphasizing the degree of overuse of low back pain imaging and its potential for harm ● Capitated reimbursement and accountable care organization delivery systems that help reduce financial incentives for over-testing 	

Summary Rating

This section synthesizes the information provided previously and presents a recommended priority ranking of whether this service is likely to represent the best opportunity for policy makers to improve practice and drive change. These rankings are based on considerations of 5 factors illustrated in the table below.

<i>Criteria</i>	<i>Ranking</i>
<i>Level of overuse</i>	<p>★ = Limited overuse</p> <p>★ ★ = Moderate overuse</p> <p>★ ★ ★ = Substantial overuse</p>
<i>Magnitude of individual patient harm</i>	<p>★ = Limited harm</p> <p>★ ★ = Moderate harm</p> <p>★ ★ ★ = Substantial harm</p>
<i>Ease of overcoming patient, clinician, and system barriers to reduce inappropriate care</i>	<p>★ = Limited ease</p> <p>★ ★ = Moderate ease</p> <p>★ ★ ★ = Substantial ease</p>
<i>Potential to leverage existing change programs and policy efforts</i>	<p>★ = Limited potential</p> <p>★ ★ = Moderate potential</p> <p>★ ★ ★ = Substantial potential</p>
<i>Amount of potential savings</i>	<p>★ = Limited savings</p> <p>★ ★ = Moderate savings</p> <p>★ ★ ★ = Substantial savings</p>

<i>Category</i>	<i>Score</i>	<i>Rationale</i>
<i>Level of overuse</i>	★★★	<ul style="list-style-type: none"> • Demonstrated level of significant overuse according to multiple studies comparing areas of low value care among Medicare beneficiaries • Low back pain is among the most common causes of disability and lost productivity in the U.S.
<i>Magnitude of individual patient harm</i>	★★★	<ul style="list-style-type: none"> • Can potentially lead to downstream testing that causes patient anxiety, unnecessary exposure to radiation, injections, and in some cases surgery
<i>Ease of overcoming patient, clinician, and system barriers to reduce inappropriate care</i>	★★	<ul style="list-style-type: none"> • Diagnostic codes available to identify unnecessary use with existing billing codes • Payer policies already limit unindicated use • Physician and patient incentives are embedded in reimbursement schemes that reward high volume, costly care and mask prices to consumers
<i>Opportunity to leverage existing change programs and policy efforts</i>	★★★	<ul style="list-style-type: none"> • Patient education materials available through Choosing Wisely® and other physician initiatives with opportunities for greater dissemination and collaboration • Consensus across clinical guidelines suggests opportunity for uniformed messaging and training for clinicians at point of order
<i>Amount of potential savings</i>	★★★	<ul style="list-style-type: none"> • Tests are costly, and eligible patient population is large

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