

Improving Costs and Imaging Procedures for Patients with Acute Low Back Pain

Evidence Shows Lumbosacral Imaging Unwarranted for Acute Low Back Pain Absent of Other Indications

The Facts

The purpose of this analysis is to quantify the potential financial savings that can be achieved through improved compliance with evidence based guidelines. The savings estimates are based on results of published research and an analysis of claims data for a commercial population.

Clinical Significance

Four out of five adults will experience significant low back pain sometime during their lives. After the common cold, problems caused by the lower back are the most frequent cause of lost workdays in adults under the age of 45.¹

Best Research Evidence

Most patients who seek attention for their back pain will improve within two weeks and experience significant improvement within four weeks. Imaging procedures of the lumbar spine, such as x-rays, Magnetic Resonance Imaging (MRI), Computed Tomography (CT), or bone scans, are not recommended during the first month of symptoms, except in the presence of indications for other serious conditions (i.e., trauma, age greater than 70 years, history of cancer, fever, neuromotor deficit, cauda equina syndrome, or suspicion of ankylosing spondylitis).^{2,3,4}

The Opportunity: Acute Low Back Pain

Based on the finding of controlled clinical trials:

Impact of Treatment

- Imaging tests are not indicated at the onset (initial 30 days) of an episode of short duration, uncomplicated acute low back pain.

Based on a claims analysis of a commercial population (non-Medicare):

Rate of Non-Compliance

In a typical health plan population, 23% of patients with uncomplicated acute low back pain receive x-rays of the lumbosacral, 5% receive MRI of the lumbar spine, and less than 1% receive CT or bone scan.

Cost of Non-Compliance

- The cost of imaging procedures will vary both geographically and by fees negotiated between health plans and their contracted physicians and hospitals. The following cost estimates represent average charges across multiple geographic areas.⁵

• MRI of lumbar spine	\$750
• X-ray of lumbosacral	\$45
• CT scan of lumbar spine	\$350
• Bone scan	\$250

Potential Savings

Based on the above assumptions of prevalence, use, and unit cost, if these unnecessary imaging tests were eliminated, the following savings^a would be generated:

Commercially insured population (estimated prevalence = 33.7 per 1,000 health plan members):

\$0.14

per member
per month (pmpm)

\$172,000

annually per 100,000
health plan members

\$51

annually per low back
pain patient

The Solution: Symmetry EBM Connect

Symmetry EBM Connect is a software engine that uses claims and laboratory results data against evidence-based practice guidelines to identify deviations in care. With Symmetry EBM Connect, users can view the rules for a specific condition and identify specific gaps in care. The entire set of rules for acute low back pain is presented here, with the four rules that support this savings opportunity highlighted.

The following EBM Connect results are based on 3.4 million members with 12 months or greater medical benefit coverage (about 40% of these members did not have a pharmacy benefit). Reporting software not included with EBM Connect.

Rule Type	Measure Description	Report Rule ID	Results Flagged "Yes"	Results Flagged "No"	Rule Not Applicable	No Rx	Total Pts. W/Condition	EBM Flag	Non-Compliance Rate
CP-C	Patient(s) that had a lumbosacral radiographic test without indications.	9139001	24,614	84,214	6,486	NA	115,314	24,614	22.6%
CP-C	Patient(s) that had a lumbar computerized axial tomography (CT) scan performed without indications.	9139002	533	108,295	6,486	NA	115,314	533	0.5%
CP-C	Patient(s) that had a lumbar spine magnetic resonance imaging (MRI) performed without indications.	9139003	5,277	103,551	6,486	NA	115,314	5,277	4.8%
CP-C	Patient(s) that had bone scan performed without indications	9139004	414	108,414	6,486	NA	115,314	414	0.4%
CP-C	Patient(s) currently taking a COX-2 inhibitor without a documented indication.	9139006	3,830	63,879	16,613	30,992	115,314	3,830	5.7%

View the specific rules applied by EBM Connect.

View the number of patients included.

View patient care measured by EBM Connect.

Identify the largest opportunities for improving outcomes and savings.

Rules Glossary

CP-C Care Pattern of Concern Identify services that may be medically unnecessary.

Notes

- a. Savings calculation = (Prevalence of Uncomplicated Acute LBP) * (((Rate of Lumbosacral X-rays) * (Unit Cost of Lumbosacral X-rays)) + ((Rate of Lumbar Spine MRI) * (Unit Cost of MRI)))

Citations

1. American Academy of Orthopaedic Surgeons. *Low Back Pain brochure*. Reviewed 2000.
2. Institute for Clinical Systems Improvement (ICSI). *Health Care Guideline: Adult Low Back Pain (2003)*. www.icsi.org
3. *Clinical practice guideline for the management of low back pain or sciatica in the primary care setting*. Veterans Health Administration, Department of Defense. Washington (DC); 1999 May.
4. Kendrick D, Fielding K, Bentley E, et al. Randomised controlled trial of lumbar spine radiography in primary care patients with low back pain. *Br Med J* 2001; 322: 400-5.
5. Ingenix data and analysis. Prevalence and use rates were based on analysis of over 150,000 patients with uncomplicated acute low back pain.

About the Authors

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Janis Diring-Khan is an epidemiologist and specialist in physician performance assessment. She presently directs research staff in analyzing the impact of compliance with evidence-based guidelines on medical costs and patient outcomes at Ingenix. She has been a leader in the development of physician profiling, integrating complexity adjustment methodologies into utilization and cost profiling and is responsible for the development of a nationwide clinical quality improvement program.

Diring-Khan received her Master of Public Health Degree in epidemiology from the University of Michigan School of Public Health in Ann Arbor. She completed her Graduate Internship in Epidemiology at Ontario Cancer Institute in Toronto. Diring-Khan holds an Associate of Science Degree in Mathematics from Mott Community College in Flint, Michigan, as well as a Bachelor of Science Degree in Zoology from Michigan State University in East Lansing.

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Dr. Kay Schwebke is board certified in Internal Medicine and Infectious Diseases. She currently is responsible for the clinical content of Symmetry EBM Connect and supervises the Innovations' clinical consultant panel. In addition, Schwebke maintains a clinical practice at Hennepin County Medical Center, is an Assistant Professor at the University of Minnesota and acts as the medical director of a long-term care facility.

Schwebke received B.A. degrees in Biology and Psychology from the University of Minnesota. She received her M.D. degree at Mount Sinai School of Medicine in New York and completed her Internal Medicine residency and Infectious Diseases fellowship programs at the University of Minnesota. She completed a Masters in Public Health, Epidemiology, in 1995.



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*preventive measures

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