



## Complete Summary

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### GUIDELINE TITLE

Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 13: injection therapies, low-back pain, and lumbar fusion.

### BIBLIOGRAPHIC SOURCE(S)

Resnick DK, Choudhri TF, Dailey AT, Groff MW, Khoo L, Matz PG, Mummaneni P, Watters WC 3rd, Wang J, Walters BC, Hadley MN, American Association of Neurological Surgeons/Congress of Neurological Surgeons. Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 13: injection therapies, low-back pain, and lumbar fusion. J Neurosurg Spine 2005 Jun;2(6):707-15. [73 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

Chronic low-back pain resulting from degenerative disease of the lumbar spine

### GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness  
Diagnosis  
Management  
Technology Assessment

## **CLINICAL SPECIALTY**

Anesthesiology  
Internal Medicine  
Neurology  
Physical Medicine and Rehabilitation

## **INTENDED USERS**

Health Plans  
Managed Care Organizations  
Physicians

## **GUIDELINE OBJECTIVE(S)**

To answer the following three questions:

1. Are lumbar epidural steroid injections (ESIs) effective for improving the outcomes of patients with chronic low-back pain resulting from degenerative disease of the lumbar spine?
2. Are lumbar facet injections effective for improving the outcomes of patients with chronic low-back pain resulting from degenerative disease of the lumbar spine?
3. Are lumbar trigger point injections (TPIs) effective for improving the outcomes of patients with chronic low-back pain resulting from degenerative disease of the lumbar spine?

## **TARGET POPULATION**

Patients with chronic low-back pain resulting from degenerative disease of the lumbar spine

## **INTERVENTIONS AND PRACTICES CONSIDERED**

Injection therapies, including facet injection, epidural steroid injection (ESI), and trigger point injection (TIP)

**Note:** See the "Major Recommendations" field for specific indications.

## **MAJOR OUTCOMES CONSIDERED**

- Effectiveness of injection therapies in terms of pain relief, analgesic use, disability scores, spinal range of motion, and patient satisfaction
- Predictive value of lumbar facet injections

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Hand-searches of Published Literature (Primary Sources)  
Hand-searches of Published Literature (Secondary Sources)  
Searches of Electronic Databases

## **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

A computerized search of the database of the National Library of Medicine was conducted for the period of 1996 to July 2003 using the terms "epidural steroid injections or blocks," "caudal injections or blocks," "selective nerve root injections or blocks," "transforaminal injections or blocks," "facet injections or blocks," "median nerve blocks," and "trigger point injections." The search was limited to publications in the English language. Review papers were also a source of references and any new titles identified were added to the search results yielding a total of 1486 papers. Papers not concerned with lumbar epidural steroid injections (ESIs), lumbar facet injections, or lumbar trigger point injections (TPIs) were discarded. Papers restricted to the evaluation of the role of injections for the management of radiculopathy or acute back pain were also rejected. Fifty papers were identified as providing relevant medical evidence concerning the use of lumbar epidural steroid injections, 48 papers for lumbar facet injections, and 17 papers for lumbar trigger point injections. All papers providing Class II or better evidence and selected papers providing Class III evidence regarding the use of injections in the treatment of chronic low-back pain are recorded by injection type in Tables 1 to 3 in the original guideline document. Significant supportive data from Class III studies and review articles are provided by the references listed in the bibliography of the original guideline.

## **NUMBER OF SOURCE DOCUMENTS**

15 papers providing Class II or better evidence regarding the use of injections in the treatment of chronic back pain are recorded by injection type in Tables 1 to 3 in the original guideline document.

## **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Weighting According to a Rating Scheme (Scheme Given)

## **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

### **Classes of Evidence**

**Class I** Evidence from one or more well-designed, randomized controlled clinical trials, including overviews of such trials

**Class II** Evidence from one or more well-designed comparative clinical studies, such as nonrandomized cohort studies, case-control studies, and other comparable studies, including less well-designed randomized controlled trials

**Class III** Evidence from case series, comparative studies with historical controls, case reports, and expert opinion as well as significantly flawed randomized controlled trials

## **METHODS USED TO ANALYZE THE EVIDENCE**

Systematic Review with Evidence Tables

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

The group culled through literally thousands of references to identify the most scientifically robust citations available concerning each individual topic. Not every reference identified is cited. In general, if high-quality (Class I or II) medical evidence was available on a particular topic, poorer-quality evidence was only briefly summarized and rarely included in the evidentiary tables. If no high-quality evidence existed, or if there was significant disagreement between similarly classified evidence sources, then the Class III and supporting medical evidence were discussed in greater detail. If multiple reports were available that provided similar information, a few were chosen as illustrative examples.

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

In January 2003, a group was formed at the request of the leadership of the Congress of Neurological Surgeons (CNS) by the executive committee of the American Association of Neurological Surgeons/CNS Joint Section on Disorders of the Spine and Peripheral Nerves to perform an evidence-based review of the literature on lumbar fusion procedures for degenerative disease of the lumbar spine and to formulate treatment recommendations based on this review. In March 2003, this group was convened. Invitations were extended to approximately 12 orthopedic and neurosurgical spine surgeons active in the Joint Section or in the North American Spine Society to ensure participation of nonneurosurgical spine surgeons. The recommendations that were developed represent the product of the work of the group, with input from the Guidelines Committee of the American Association of Neurological Surgeons/CNS and the Clinical Guidelines Committee of North American Spine Society.

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

### **Grades of Recommendation**

**Standards** Recommendations of the strongest type, based on Class I evidence reflecting a high degree of clinical certainty

**Guidelines** Recommendations based on Class II evidence reflecting a moderate degree of clinical certainty

**Options** Recommendations based on Class III evidence reflecting unclear clinical certainty

## **COST ANALYSIS**

Lumbar fusion may be associated with a high short-term cost, especially if instrumentation is placed; however, there appear to be long-term economic benefits associated with lumbar fusion including resumption of employment. To describe the economic impact of lumbar fusion for degenerative disease adequately, it is important to define the patient population treated with fusion and to compare efficacy as well as the costs of other treatment alternatives. Any such analysis should include both short- and long-term costs and benefits.

See "Part 3: assessment of economic outcome" in the "Availability of Companions Documents" field for the complete analysis.

## **METHOD OF GUIDELINE VALIDATION**

External Peer Review  
Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

The committee presents data that have been reviewed by the major organizations representing neurological surgery and orthopedic surgery. The Board of Directors of the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS) Executive Committee have reviewed these Lumbar Fusion Guidelines and formally voted their approval. In addition, input and approval was received and greatly appreciated from the AANS/CNS Guidelines committee.

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

The grades of recommendations (standards, guidelines, and options) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

### **Therapeutic Recommendations**

**Standards.** Facet injections are not recommended as long-term treatment for chronic low-back pain.

**Guidelines.** There is insufficient evidence to recommend a treatment guideline.

**Options.** The use of lumbar epidural injections or trigger point injections (TPIs) is not recommended as a treatment option for long-term relief of chronic low-back pain. The use of lumbar epidural injections, facet injections, or TPIs is recommended as a treatment option to provide temporary, symptomatic relief in selected patients with chronic low-back pain.

### **Diagnostic Recommendations**

**Standards.** There is insufficient evidence to recommend a diagnostic standard.

**Guidelines.** There is insufficient evidence to recommend a diagnostic guideline.

**Options.** The use of lumbar facet injections is recommended as a diagnostic tool for predicting the response to lumbar facet radiofrequency (RF) ablation. The use of lumbar facet injections is not recommended as a diagnostic tool to predict the response to lumbar fusion surgery.

## **Summary**

In summary, there is no meaningful evidence in the medical literature that the use of epidural injections is of any long-term value in the treatment of patients with chronic low-back pain. The literature does indicate that the use of lumbar epidural injections can provide short-term relief in selected patients with chronic low-back pain.

There is evidence that suggests that facet joint injections can be used to predict outcome after radiofrequency ablation of a facet joint. The predictive ability of facet joint injections does not appear to apply to lumbar fusion surgery. No evidence exists to support the effectiveness of facet injections in the treatment of patients with chronic low-back pain.

There is conflicting evidence suggesting that the use of local TPIs can be effective for the short-term relief of low-back pain. There are no data to suggest that TPIs with either steroids or anesthetics alone provide lasting benefit for patients suffering from chronic low-back pain.

## **Definitions:**

### **Grades of Recommendation**

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**Options** Recommendations based on Class III evidence reflecting unclear clinical certainty

### **Classes of Evidence**

**Class I** Evidence from one or more well-designed, randomized controlled clinical trials, including overviews of such trials

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## **CLINICAL ALGORITHM(S)**

None provided

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

## **BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS**

### **POTENTIAL BENEFITS**

Appropriate use of injection therapies in patients with chronic low-back pain due to degenerative disease of the lumbar spine

### **POTENTIAL HARMS**

- The application of epidural steroid injections (ESIs) without radiographic confirmation is associated with a needle malposition rate as high as 40%.
- Respiratory depression is a common and significant side effect of morphine injection into the epidural space.

## **QUALIFYING STATEMENTS**

### **QUALIFYING STATEMENTS**

The strength of an evidence-based document is only as strong as the foundation on which it is built. This comprehensive document chronicles the state of scientific information in 2005. Many of the published reviews presented flawed results due to poorly defined outcome measures, inadequate numbers of patients, and comparison of dissimilar treatment groups. These studies of "apples and oranges" gleaned little scientific information; therefore, for the purpose of this review, the authors have discarded Class III studies whenever stronger scientific evidence was available. The result is that most of the published studies on lumbar fusion were not included on this document. When Class I or II scientific evidence was available, standards and guidelines were formulated; however, in most cases, the scientific data were only adequate to support recommendations for treatment options. The aforementioned results do not detract from the importance of this document; rather, the need for the neurosurgical community to design and complete prospective randomized controlled studies to answer the many lingering clinical questions with rigorous scientific power can clearly be seen. As more data continue to be accumulated, revisions of this document will be needed.

## **IMPLEMENTATION OF THE GUIDELINE**

### **DESCRIPTION OF IMPLEMENTATION STRATEGY**

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better  
Living with Illness

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Resnick DK, Choudhri TF, Dailey AT, Groff MW, Khoo L, Matz PG, Mummaneni P, Watters WC 3rd, Wang J, Walters BC, Hadley MN, American Association of Neurological Surgeons/Congress of Neurological Surgeons. Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 13: injection therapies, low-back pain, and lumbar fusion. J Neurosurg Spine 2005 Jun;2(6):707-15. [73 references] [PubMed](#)

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2005 Jun

### GUIDELINE DEVELOPER(S)

American Association of Neurological Surgeons - Medical Specialty Society  
Congress of Neurological Surgeons - Professional Association

### SOURCE(S) OF FUNDING

This project was funded entirely by a grant from AANS/CNS Section on Disorders of the Spine. No funding was received from any commercial entity to support the production or publication of these guidelines.

### GUIDELINE COMMITTEE

Guidelines Committee of the American Association of Neurological Surgeons/Congress of Neurological Surgeons (CNS)

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

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## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Not stated

## **ENDORSER(S)**

North American Spine Society - Medical Specialty Society

## **GUIDELINE STATUS**

This is the current release of the guideline.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available in Portable Document Format (PDF) from the [AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves Web site](#).

Print copies: Available from Daniel K. Resnick, M.D., Department of Neurological Surgery, University of Wisconsin Medical School, K4/834 Clinical Science Center, 600 Highland Avenue, Madison, Wisconsin 53792; Email: [Resnick@neurosurg.wisc.edu](mailto:Resnick@neurosurg.wisc.edu).

## **AVAILABILITY OF COMPANION DOCUMENTS**

The following are available:

- Introduction to the guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. 2005 Jun. 1 p. Available in Portable Document Format (PDF) from the [AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves Web site](#).
- Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 1: introduction and methodology. 2005 Jun. 2 p. Available in Portable Document Format (PDF) from the [AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves Web site](#).
- Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 3: assessment of economic outcome. 2005 Jun. 6 p. Available in Portable Document Format (PDF) from the [AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves Web site](#).

Print copies: Available from Daniel K. Resnick, M.D., Department of Neurological Surgery, University of Wisconsin Medical School, K4/834 Clinical Science Center, 600 Highland Avenue, Madison, Wisconsin 53792; Email: [Resnick@neurosurg.wisc.edu](mailto:Resnick@neurosurg.wisc.edu).

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on January 8, 2007. The information was verified by the guideline developer on January 29, 2007.

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