



Complete Summary

GUIDELINE TITLE

Spondylolysis, lytic spondylolisthesis and degenerative spondylolisthesis (SLD).
In: North American Spine Society phase III clinical guidelines for multidisciplinary spine care specialists.

BIBLIOGRAPHIC SOURCE(S)

North American Spine Society. Spondylolysis, lytic spondylolisthesis and degenerative spondylolisthesis (SLD). LaGrange (IL): North American Spine Society (NASS); 2000. 106 p. [241 references]

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
CONTRAINDICATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

- Spondylolysis of the lumbar spine
- Lytic spondylolisthesis (Grade 1 through Grade V) of the lumbar spine
- Degenerative spondylolisthesis of the lumbar spine

GUIDELINE CATEGORY

Diagnosis
Evaluation
Treatment

CLINICAL SPECIALTY

Anesthesiology
Chiropractic
Emergency Medicine

Family Practice
Internal Medicine
Neurological Surgery
Neurology
Orthopedic Surgery
Physical Medicine and Rehabilitation
Rheumatology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To provide an educational tool to assist multidisciplinary spine care professionals in improving quality and efficiency of care
- To provide clinicians with detailed information concerning the diagnosis and treatment of SLD
- To provide practice parameters for prompt and reasonable treatment to expedite optimum, cost-effective functional recovery from spinal disorders

TARGET POPULATION

Adults (18 years or older) with a significant complaint of back pain and associated spondylolysis or spondylolisthesis. There may be allied radicular features or neurogenic claudication. The patient's symptoms must have persisted past the 10 to 12 weeks of treatment performed as part of the Phase I treatment algorithm. A specific provisional diagnosis is not made until the beginning of the Phase II treatment algorithm.

INTERVENTIONS AND PRACTICES CONSIDERED

Initial Phase of Specialized Care

1. Assessment, such as: history and physical examination, including neurological evaluation; physical and/or functional capacity evaluations
2. Pharmacotherapy for pain control, such as: opioids; oral corticosteroids; muscle relaxants (tranquilizers); hypnotics; non-steroidal anti-inflammatory drugs
3. Non-pharmacologic pain control interventions, such as: activity modifications; manual therapy-soft tissue therapy; traction; bracing; passive modality procedures; injections (epidural steroid injection); transcutaneous electrical nerve stimulation
4. Education, such as: back school; ergonomics instruction; home exercise
5. Therapeutic exercise, such as positional exercises (various methods); home exercise instruction; return to limited activity (with comparison to job and daily living demands)
6. Mental health interventions, such as: pain and symptom control techniques; behavioral techniques

Secondary Phase of Specialized Care

1. Assessments, such as: physical and/or functional capacity evaluations as needed to assess work tolerance before intervention and return to work release; mental health evaluation to identify psychosocial barriers or the need for behavioral pain management; documentation to substantiate the need for further diagnostic testing (imaging, electrodiagnostic studies, etc.)
2. Medication modifications, such as: decrease use of narcotics, tranquilizers; antidepressants (for analgesia, sedation, mood)
3. Non-pharmacologic pain control, such as: progressive activity resumption; decrease use of passive modalities for pain control only; injection procedures (epidurals, Facet joint, pars or selective nerve root block)
4. Education on post-acute issues and overcoming inactivity
5. Therapeutic exercise, such as: progressive strengthening; aerobic conditioning; functional reconditioning; concurrent home programs
6. Mental health interventions: pharmacologic intervention; behavioral techniques
7. Uni- or interdisciplinary programs (limited intensity with consultative medical, educational, occupational and/or psychological assistance): outpatient medical rehabilitation; work conditioning; work hardening

Tertiary Phase of Specialized Care

1. Assessment (standard history and physical examination accompanied by mental health assessment, physical capacity evaluation of the injured region(s) or joint(s) and/or functional capacity evaluation of whole body performance)
2. Interdisciplinary programs (medically directed, intensive, time limited with all therapists on-site): chronic pain management; functional restoration; pharmacologic interventions; behavioral techniques
3. Pharmacologic pain control; further efforts to decrease use of habituating medication
4. Non-pharmacologic pain control techniques: injection procedures to facilitate active treatment (epidural steroid injections, selective nerve root blocks, facet joint injections, Pars block); transcutaneous electrical nerve stimulation (TENS); limited passive modalities (to facilitate active treatment)
5. Mental health interventions: behavioral techniques; pharmacologic techniques
6. Job site analysis

Surgical Intervention

1. Decompression methods
2. Fusion methods
3. Instrumentation methods
4. Other stabilization methods with or without decompression

Palliative Phase of Specialized Care

1. Assessment: Initial program design to determine operative/non-operative/medical/behavioral interventions; maintenance program established for lifelong cost-effective management
2. Medical maintenance procedures for episodic pain: Medications: non-steroidal anti-inflammatory drugs, psychotropic medications; reinstruction in fitness maintenance program, stretching, thermal modalities for self-care;

- reinstruction in relaxation, coping skills and stress management techniques; reinstruction in behavioral modification; injection procedures; limited passive modalities (e.g., manipulations)
3. Measures for severe recurrence or episodes: trial or repeat of a "refresh" secondary or tertiary phase of specialized care; special tests to predict outcome of surgical intervention (e.g., discography, diagnostic injections, response to spinal cord stimulation); repeat surgical intervention with post-operative rehabilitation
 4. Non-medical socio-economic interventions: vocational rehabilitation; resolution of injury-related permanency awards; evaluate effect of compensation (e.g., long term disability, social security disability income, health/welfare benefits) depending on disability documentation of persistent illness behaviors and projected therapeutic outcomes; evaluate effect of previous non-compliance or failure to cooperate with interventions requiring patient's active participation
 5. Intractable pain suppression procedures: transcutaneous electrical nerve stimulation; spinal cord stimulation; denervation procedures; analgesic pumps; chronic narcotic or other habituating medication

MAJOR OUTCOMES CONSIDERED

1. Objective measures of functional and/or physiologic status, such as:
 - Ability to perform activities of daily living (work and/or recreation)
 - Positional tolerances
 - Motion, strength and endurance of the affected spinal region
 - Physical efficiency
 - Health care utilization
 - Recurrences
2. Subjective reports of pain and function using standardized and validated self-report instruments
3. Sensitivity and specificity of diagnostic tests

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

All literature reviewed met the following criteria: must be available in the current collection of the National Library of Medicine; paper must have gone through peer review; study must have adequate sample size; paper must contain a description of the materials and methods used; conclusions from the paper must be substantiated by the data within the paper; the topic of study must be relevant to the recommendation being referenced in the guideline. In addition, state and national treatment guidelines and similar work by relevant parties were reviewed.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Subjective Review

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The Task Force used a literature search/evaluation plus consensus method in development of the guidelines.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Multidisciplinary work group and panel conducted multiple iterations of written review. Modifications (when supported by literature references) were then incorporated by the work group and reviewed by an internal peer review advisory panel.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Excerpted by the National Guideline Clearinghouse (NGC)

I. Initial Phase of Specialized Care (Non-Operative Interventions)

These therapeutic procedures generally are applied during the acute phase following symptom onset with an overriding principle of symptom control. Common therapeutic procedures may involve, but are not necessarily restricted to, education/reassurance, pharmacologic pain control, non-pharmacologic pain control (modalities), rest, gentle exercise, manipulation, etc. (see "Initial Phase of Specialized Care").

Initial Phase of Specialized Care

Time from Symptom Onset

This assumes the patient did not improve in Phase I (See the "Phase I Treatment Algorithm" in the original guideline document.)

In the absence of strong surgical indicators, this phase of specialty care may constitute the major therapeutic intervention over the first 6 to 12 weeks following symptom onset.

Duration

0 to 8 weeks.

Goal of Intervention

Symptom control to facilitate rapid recovery and return to normal occupational/social activities before deconditioning or psychosocial barriers occur.

Description

This intervention is generally performed in the acute phase following symptom onset or recurrence, when little or no deconditioning has occurred due to inactivity. This phase of care may be used for any level of severity of symptoms, according to the clinical indicators. Successful treatment leading to maximum medical improvement is accomplished in 60% to 80% of spinal disorders with this phase of care, generally requiring very limited intervention.

Clinical or Behavioral Indicators (may include, but not limited to):

- Brief history of acute injury with early positive response to treatment (i.e., early symptomatic relief)
- No urgent surgical indicators on physical examination (i.e., progressive neurological deficit or incapacitating pain)
- Acute recurrence or exacerbation after prior episode
- Immediate post-operative patient

Assessments

History and physical examination, including neurological evaluation. Physical and/or functional capacity evaluations may be necessary to assess work tolerance before intervention and return to work release.

Types of Intervention (if clinically indicated and not previously unsuccessful):

Pharmacologic Pain Control Methods

- Opioids
- Oral corticosteroids
- Muscle relaxants (tranquilizers)
- Hypnotics
- Non-steroidal anti-inflammatory drugs

Non-Pharmacologic Pain Control Methods

- Activity modification
- Manual therapy-soft tissue techniques
- Traction
- Bracing
- Passive modality procedures
- Injections (epidural steroid injection)
- Transcutaneous electrical nerve stimulation

Education

- Back school
- Ergonomics instruction
- Home exercise

Therapeutic Exercise

- Positional exercises (various methods)
- Home exercise instruction
- Return to limited activity (with comparison to job and daily living demands)

Mental Health

- Pain and symptom control techniques
- Behavioral techniques

Expected Outcome

Return to normal occupational/social activities and/or maximum medical improvement.

Resumption of Activities of Daily Living

This initial phase of specialized care assumes a mild level of severity, allowing

return to usual work and recreational activities within 0 to 8 weeks, with or without modified or transitional activity return.

Failure to Respond

Documented failure to respond at any time to treatment may require additional diagnostic tests and/or treatment consistent with greater level of severity.

II. Secondary Phase of Specialized Care (Non-Operative Interventions)

These therapeutic procedures are generally applied if symptoms persist into a post-acute phase. The overriding principle is to restore function and prevent deconditioning, emphasizing supervised exercise (see "Secondary Phase of Specialized Care,").

Secondary Phase of Specialized Care

Time from Symptom Onset

Post-acute time frames since symptom onset, usually between 1 to 6 months following initial incident. May include recurrence or post-surgical care.

Duration

0 to 8 weeks beyond initial phase of specialized care.

Description

This intervention is the first stage of rehabilitation for those individuals who have not returned to productivity through the normal healing process. It is designed to facilitate return to productivity before chronic impairment. It is individualized, time-limited and of limited intensity. It is designed to prevent chronic impairment.

Goal of Intervention

Preventing progressive physical deconditioning and appearance of psychosocial barriers to functional recovery, employing a reactivation process, generally associated with the post-acute or early post-operative periods.

Clinical or Behavioral Indicators (may include, but not limited to):

- History of injury or disorder with partial response to early initial treatment (persistent symptoms and limitation of activities of daily living)
- Physical examination suggestive of early deconditioning (loss of motion and/or strength with limitation of activities of daily living)
- No urgent surgical indicators on physical examination (i.e., progressive neurological deficit or incapacitating pain)
- Evidence of limited mental health/psychosocial barriers impeding progress

Assessments

The type of assessments utilized in this phase of treatment depend on the level of severity associated with the diagnosis. Physical and/or functional

capacity evaluations may be necessary to assess work tolerance before intervention and return to work release. Mental health evaluation to identify psychosocial barriers or the need for behavioral pain management may be indicated. Documentation is required to substantiate the need for further diagnostic testing (imaging, electrodiagnostic studies, etc.).

Types of Intervention (if clinically indicated and not previously unsuccessful):

Medication Modification

- Decrease use of narcotics, tranquilizers
- Antidepressants (for analgesia, sedation, mood)

Non-Pharmacologic Pain Control

- Progressive activity resumption
- Decreased use of passive modalities for pain control only
- Injection procedures (epidurals, facet joint, pars or selective nerve root blocks)

Education

- Emphasis on post-acute issues
- Overcoming inactivity

Therapeutic Exercise

- Progressive strengthening
- Aerobic conditioning
- Functional reconditioning
- Concurrent home programs

Mental Health Intervention

- Pharmacologic intervention
- Behavioral techniques

Uni- or Interdisciplinary Programs (limited intensity with consultative medical, educational, occupational and/or psychological assistance)

- Outpatient medical rehabilitation
- Work conditioning
- Work hardening

Expected Outcome

Return to normal occupational/social activities and/or maximum medical improvement.

Resumption of Activities of Daily Living

This secondary phase of specialized care is associated with a moderate level

of severity consistent with the patient expected to be released to full activities or minimally modified/transitional activity resumption lasting no more than 3 months. Treatment response to initial and/or secondary interventions should result in nearly full recovery with the exception of possible limitations restricting some heavy job or recreational demands, even after completion of a transitional work return and achievement of maximum medical improvement. (The health provider should assure the patient an opportunity to reach the highest possible functional level, eliminating all possible temporary impairment, before determining maximum medical improvement.)

Failure to Respond

Documented failure to respond may require additional diagnostic tests and/or treatments consistent with greater severity. Consider referral for mental health evaluation/assessment.

III. Tertiary Phase of Specialized Care (Non-Operative Interventions)

This is the treatment phase for those refractory to all other interventions. This is generally a medically-directed, interdisciplinary approach to reduce chronic pain and minimize permanent disability, emphasizing therapeutic exercise, education and mental health interventions (see "Tertiary Phase of Specialized Care," below).

Tertiary Phase of Specialized Care

Time from Symptom Onset

The chronic phase of symptoms and/or loss of function following symptom onset or recurrence beginning after an anticipated healing period, usually not before 3 to 6 months following symptom onset. Occasionally tertiary care may be indicated if a greater level of severity is identified in the post-acute phase of the condition.

Duration

0 to 10 weeks beyond the secondary phase of treatment.

Goal of Intervention

To represent the final phase of non-operative or post-operative treatment for severe cases, with the goal of giving patients an opportunity to actively cooperate in programs designed to achieve return to productivity. Full return to work or recreational activities may not always be possible and may necessitate the introduction of vocational rehabilitation services following completion of medical rehabilitation.

Description

The tertiary phase of care involves medically-directed interdisciplinary, individualized and intensive services designed for patients already demonstrating physical and psychosocial changes consistent with chronic pain and disability of marked severity. In general, differentiation from secondary treatment includes medical direction, intensity of services, severity of injury, individualized programmatic protocols with integration of physician, mental health and disability or pain management services and specificity of physical/psychosocial assessment, with all interdisciplinary team members.

Clinical or Behavioral Indicators (may include, but not limited to):

- Documented history of persistent failure to respond to non-operative and/or operative treatment, which surpasses the usual healing period of more than 4 to 6 months post-injury and/or post-surgery, or special cases with severe mental health issues which last more than 2 months without response to initial or secondary treatment
- History of significant psychosocial disturbance (i.e., substance abuse, affective disorders, psychiatric conditions)
- Inhibition of physical functioning producing failure to match physical capacities to daily living requirements, as evidenced by pain sensitivity, non-organic signs, fear producing physical inhibition or limited response to reactivation treatment, as documented by quantitative physical and/or functional capacity testing
- Heavy or repetitive job demands with inability to match physical capacity to work requirement after presumed adequate treatment causing inability to sustain uninterrupted work or recreation. This situation would be evidenced by a patient unable to transition to acceptable full or modified duty or significant episodes of recurrent lost time from work or recreation after presumed maximum medical improvement. The inability to match the patient's skills to any available job may necessitate vocational rehabilitation following maximum medical improvement
- Patients who cannot tolerate initial or secondary phases of care
- Psychiatric illness or mental health disturbance likely to preclude success in initial or secondary care designed for milder levels of severity

Assessments

Standard history and physical examination should be accompanied by mental health assessment, physical capacity evaluation of the injured region(s) or joint(s) and/or functional capacity evaluation of whole-body performance. The specific testing chosen and the need for serial assessments may be individualized to the specific patient or programmatic protocols, based on documentation of effective outcomes of return to work, lower risk of recurrent disability and decreased future medical utilization.

Types of Intervention (if clinically indicated and not previously unsuccessful):

Interdisciplinary Programs (medically directed, intensive, time limited with all therapists on-site):

- Chronic pain management
- Functional restoration
- Pharmacologic interventions
- Behavioral techniques

Pharmacologic Pain Control

- Further efforts to decrease use of habituating medication

Non-Pharmacologic Pain Control Techniques

- Injection procedures (to facilitate active treatment)
 - Epidural steroid injections
 - Facet joint injections
 - Selective nerve root blocks
 - Pars block
- Transcutaneous electrical nerve stimulation
- Limited passive modalities (to facilitate active treatment)

Mental Health Interventions

- Behavioral techniques
- Pharmacologic techniques

Job Site Analysis

Expected Outcome

Should be the last remaining medical option before maximum medical improvement.

Resumption of Activities of Daily Living

Tertiary care represents treatment for marked level of severity, which would allow return to productivity within 2 to 4 months, with or without a transitional period of modified activity (not to exceed 4 months). Treatment response to tertiary interventions will ultimately allow return to full (or permanently modified) work. There will likely be some limitation restricting medium-to-heavy work or recreational performance, accompanied by some permanent impairment, but with the patient always able to reach maximum medical improvement following completion of surgical and/or tertiary non-operative interventions. [Non-compliance or abandonment of secondary or tertiary care (which requires patient's active cooperation) result in maximum medical improvement by default.] Other outcomes include vocational rehabilitation or voluntary decision to discontinue work or recreational activities.

Failure to Respond

Documented failure to respond at any time to treatment may require additional diagnostic tests and/or treatment consistent with greater levels of severity. Consider mental health evaluation.

IV. Surgical Intervention

All operative interventions should be based on positive correlation of clinical findings, diagnostic tests, response to non-operative treatment and doctor-patient discussion of treatment options and expected outcomes. A comprehensive assimilation of these factors should be based on a specific diagnosis with positive identification of pathologic condition(s). Optimum outcomes with surgical intervention usually require application of pre-operative care and post-operative rehabilitation (see "Surgical Intervention,").

Surgical Intervention

Time from Symptom Onset

- Unless surgery is emergent or urgent, it is best delayed 2 to 4 months for a trial of non-operative interventions
- Subsequent procedures for initial surgical failure will be determined by clinical findings

Duration

Time from initial surgical procedure to initiation of post-operative rehabilitation (or full activity resumption) depends on surgical procedure.

The time to healing period ranges from 2 to 16 weeks for initial procedures and longer for secondary.

Goal of Intervention

Correction of pathological condition. Facilitate post-operative rehabilitation to the highest possible functional outcome.

Clinical or Behavioral Indicators (may include, but not limited to):

- Documented history of failure to respond to initial and/or secondary treatment with symptoms suggestive of surgically treatable lesion (i.e., persistent leg pain, limitation of activities of daily living or perceived weakness)
- Physical examination findings consistent with surgically treatable lesion (i.e., positive straight leg raise, hypesthesia, weakness or loss of motion)
- Structural diagnostic testing, (i.e., magnetic resonance imaging, computed tomography, myelogram) consistent with a surgically treatable lesion noted on the above diagnostics. Surgery would not occur except on objective findings of structural defects

Expected Outcome

- Return to normal occupational/social activities and/or recreation
- Maximum medical improvement after appropriate post-operative care

Resumption of Activities of Daily Living

- Initial surgical intervention implies a level of severity, which should allow return to modified work within 6 to 12 weeks post-operatively based on job demands, usually after a post-operative rehabilitation intervention
- Subsequent procedures for failure of initial surgery may require up to 6 months to resume activities of daily living
- There may be limitations restricting medium-to-heavy work or recreational demands accompanied by some permanent impairment

Failure to Respond

Documented failure to respond to treatment at any time may require additional diagnostic tests and/or treatment consistent with greater levels of severity. Failure to respond may indicate a need for mental health evaluation. Patients declining to participate in appropriate surgical intervention and/or alternative non-operative treatment requiring active cooperation, may be determined to have reached maximum medical improvement by default.

V. Palliative Phase of Specialized Care

Some patients complete a full algorithmic approach to treatment of spondylolisthesis (whether or not surgery has been utilized) and reach a medical end point with persistent pain. While the vast majority of patients respond to the phases of care outlined in the spondylolisthesis guidelines (see Sections I through IV), some continue with chronic pain and disability in spite of optimum treatment opportunities. Such patients may become candidates for palliative treatment. Palliative treatment is designed to provide reasonable efforts to control chronic pain, while continuing to strive for the highest functional levels. It is important to note that some patients may prefer to be passive recipients of interventional procedures or medications rather than actively participating in therapeutic exercise, education and mental health interventions designed to produce independence. Care should be carefully targeted in these individuals to prevent excessive, prolonged health care utilization and disability documentation (see “Palliative Phase of Specialized Care or Failed Back Syndrome,” below).

Palliative Phase of Specialized Care or Failed Back Syndrome

Time from Symptom Onset

This final phase of care begins after all reasonable treatments for initial spondylolysis or lytic spondylolisthesis and degenerative spondylolisthesis (SLD), both surgical and non-operative, have been attempted and/or have failed to bring about satisfactory abatement of symptoms or administrative maximum medical improvement (MMI) (see the section titled “General Guideline Principles and Terminology” in the original guideline document).

Duration

- Initial phase: 3 months
- Maintenance program: lifelong

Description

The palliative phase of specialized care may involve:

- Medical maintenance procedures to limit severity of recurrent episodes of pain/disability
- Additional diagnostic and surgical or non-operative interventions to address recurrent or secondary sequelae of treated initial SLD
- Medical and/or non-medical procedures specifically designed to ameliorate chronic pain or disability

Goal of Intervention

To palliate chronic pain, including efforts to resolve recurrent or secondary mechanical abnormalities after completing treatment for initial SLD. Lifelong patient maintenance in a cost-effective structure at maximum functional capacity.

Clinical or Behavioral Indicators (may include, but not limited to):

- Documented history of persistent failure to respond to prior treatment for initial SLD, which surpasses a medical end point
- Persistent or recurrent psychosocial or psychiatric disturbance associated with intractable pain and/or disability
- History of persistent or recurrent associated non-medical socio-economic issues resulting in secondary gain disincentives to recovery (e.g., ongoing compensation-related litigation, private or federal long term disability payments, other financial or health benefits tied to disability documentation)

Assessments

Initial program design to determine operative/non-operative/medical/behavioral interventions. Maintenance program established for lifelong cost-effective management. Includes mechanism for management of crisis as well as symptoms. Decreases utilization of emergency services.

Types of Intervention (if clinically indicated and not previously unsuccessful):

Medical Maintenance Procedures for Episodic Pain

- Medications: non-steroidal anti-inflammatory drugs, psychotropic medications
- Reinstruction in fitness maintenance program, stretching, thermal modalities for self-care
- Reinstruction in relaxation, coping skills and stress management techniques
- Reinstruction in behavioral modification
- Injection procedures
- Limited passive modalities (e.g., manipulations)

Severe Recurrence or Episodes

- Trial or repeat of "refresher" secondary or tertiary phase of specialized care
- Special tests to predict outcome of surgical intervention (e.g., discography, diagnostic injections, response to spinal cord stimulation)
- Repeat surgical intervention with post-operative rehabilitation

Non-Medical Socio-Economic Interventions

- Vocational rehabilitation
- Resolution of injury-related permanency awards

- Evaluate effect of compensation (e.g., long term disability, social security disability income, health/welfare benefits) Depending on disability documentation of persistent illness behaviors and projected therapeutic outcomes
- Evaluate effect of previous non-compliance or failure to cooperate with interventions requiring patient's active participation

Intractable Pain Suppression Procedures

- Transcutaneous electrical nerve stimulation
- Spinal cord stimulation
- Denervation procedures
- Analgesic pumps
- Chronic narcotic or other habituating usage

Expected Outcome

- Partial abatement of symptoms
- Partial return to societal productivity
- Minimize dependence on financial/health benefits requiring documentation on ongoing disability; maximize physical and functional capacities
- Return to best possible activities of daily living

CLINICAL ALGORITHM(S)

Algorithms are provided for:

- Universe of adult patients with low back pain/sciatica [acute] - Phase I
- Adult patients with low back pain/sciatica [acute] – Phase II
- Adult patients with spondylolysis or lytic spondylolisthesis and degenerative spondylolisthesis (SLD) - Phase III

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of diagnostic tests, evaluation, treatment, and management of adults with spondylolysis, lytic spondylolisthesis and degenerative spondylolisthesis (SLD) may lead to:

- Cost-effective health care
- Positive patient outcomes, such as:

- Functional and/or physiologic gains:
 - Return to regular activities of daily living (work and/or recreation)
 - Improvement in positional tolerances; motion, strength and endurance of the affected spinal region
 - Improved physical efficiency
 - Decreased health care utilization
 - Avoidance of recurrences
- Subjective reports of decreased pain and increased function using standardized and validated self-report instruments
- Education of patients, insurance carriers, health care providers and other interested parties is critical to the appropriate treatment of spinal disorders. Education and communication between health care providers can lead to expedited review and precertification of care

POTENTIAL HARMS

- Diagnostic tests may have harmful side effects and may lead to false positive or false negative results. Medical decision may be made based on incorrect results.
- All medications should be monitored for their known potential side effects and interactions and should, therefore, be used cautiously. Prescribing physicians should obtain a history of known allergies and prior and present medication usage. All medications should be prescribed with strict instructions regarding dosing and duration guidelines.
- Opioids may cause physical or psychological dependence, although dependence is uncommon if used in a limited fashion.
- Non-steroidal anti-inflammatory drugs (NSAIDs) are relatively contraindicated in patients with renal insufficiency or pregnancy. Administer cautiously in individuals with hypertension or gastrointestinal intolerance. Side effects and toxicity should be monitored during administration.
- Muscle relaxants have the potential to produce dependency, create mental confusion, depression and abuse.
- Sedatives can cause a paradoxical reaction negating the use of the drugs.
- Antidepressants can cause dry mouth, sedation, weight gain, epigastric disturbance and impotence.
- Oral corticosteroids may cause sleeplessness, restlessness, gastrointestinal upset, palpitations, facial flushing, hyperpyrexia, electrolyte disturbances and hyperglycemia; should be used for relatively short duration to reduce potential for hypothalamic-pituitary suppression.
- Anticonvulsants may cause somnolence, dizziness, fatigue and ataxia that frequently resolves within 2 weeks.
- Surgical interventions pose risk of minor or serious complications as well as treatment failure. The risks of reduction in the adult may outweigh the perceived benefits in most cases.

CONTRAINDICATIONS

CONTRAINDICATIONS

Contraindications to magnetic resonance imaging include: presence of ferromagnetic cerebral aneurysm clips and ferromagnetic cochlear implants,

cardiac pacemakers, dorsal column stimulator leads and foreign bodies in the eye orbits. Relative contraindications include pregnancy, transcutaneous nerve stimulators, severe claustrophobia and spinal implants which can distort the images.

Non-steroidal anti-inflammatory drugs (NSAIDs) are relatively contraindicated in patients with renal insufficiency or pregnancy. Administer cautiously in individuals with hypertension or gastrointestinal intolerance. Side effects and toxicity should be monitored during administration.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These guidelines do not represent a "standard of care."
- These guidelines are not a fixed treatment protocol, but rather identify a normal course of treatment and reflect typical courses of intervention. They are intended to reflect contemporary treatment concepts related to painful spinal disorders of the lumbar spine, regardless of the context in which they exist (e.g., age, gender, injury or workers' compensation jurisdiction). For this reason, it is anticipated that there will be patients who will require less or more treatment than the average. It is also acknowledged that in atypical cases, treatment falling outside these guidelines will sometimes be necessary. These guidelines should not be seen as prescribing the type, frequency or duration of intervention. Treatment should be based on the individual patient's need and the doctor's professional judgment. This document is designed to function as a guideline and should not be used as the sole reason for denial of treatments and services. These guidelines are not intended to expand or restrict a health care provider's scope of practice or supersede applicable ethical standards or provisions of law.
- These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific procedure or treatment is to be made by the physician in light of all circumstances presented by the patient and the needs and resources particular to the locality or institution.

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
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

North American Spine Society. Spondylolysis, lytic spondylolisthesis and degenerative spondylolisthesis (SLD). LaGrange (IL): North American Spine Society (NASS); 2000. 106 p. [241 references]

ADAPTATION

The Phase III guidelines incorporate and expand the basic spondylolisthesis treatment algorithm developed by the North American Spine Society and the American Academy of Orthopaedic Surgeons in Phase II Low Back Pain/Sciatica (Acute).

DATE RELEASED

2000

GUIDELINE DEVELOPER(S)

North American Spine Society - Medical Specialty Society

GUIDELINE DEVELOPER COMMENT

The North American Spine Society Task Force on Clinical Guidelines and its advisory panels are made up of North American Spine Society members and consulting health care professionals representing the multi-disciplinary scope of the organization. Participants represent the specialties of orthopedic surgery, neurosurgery, physical medicine and rehabilitation, neurology, anesthesia, radiology, family practice, psychology, rheumatology and psychiatry.

SOURCE(S) OF FUNDING

North American Spine Society (NASS)

GUIDELINE COMMITTEE

North American Spine Society (NASS) Task Force on Clinical Guidelines

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group: David A. Wong, MD; Tom G. Mayer, MD; William C. Watters, MD; William A. Sims, MD; Jeffrey M. Spivak, MD; Michael Brant-Zawadzki, MD; Brian G. Cuddy, MD; Stuart M. Weinstein, MD

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available from the North American Spine Society (NASS), 22 Calendar Court, 2nd Floor, LaGrange, IL 60525; Telephone (708) 588-8080, Fax (708) 588-1080. An order form is available from the [North American Spine Society Web site](#).

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

The following are available:

- Adult isthmic spondylolisthesis. Patient education brochure. LaGrange (IL): North American Spine Society, 2000.
- NSAIDs. Patient education brochure. LaGrange (IL): North American Spine Society, 2001.
- Spinal fusion surgery. Patient education brochure. LaGrange (IL): North American Spine Society, 2001.

Print copies: Available from the North American Spine Society (NASS), 22 Calendar Court, 2nd Floor, LaGrange, IL 60525; Telephone (708) 588-8080, Fax (708) 588-1080. An order form is available from the [North American Spine Society Web site](#).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on December 21, 2001. The information was verified by the guideline developer as of February 14, 2002.

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