

LOW BACK PAIN - TREATMENT GUIDELINES

recommended by the

PHYSICIAN ADVISORY COMMITTEE

(Adopted by the Administrator of the Oklahoma Workers' Compensation Court on January 2, 1996)

Effective January 2, 1996

Last revised January 31, 2003 - Effective July 1, 2003

Introduction

The Physician Advisory Committee (PAC), a statutorily created advisory body to the Oklahoma Workers' Compensation Court, has been directed by Oklahoma Statute to propose, adopt, and recommend treatment guidelines for injured Oklahoma workers. The PAC is composed of nine members; three appointed by the Governor, three appointed by the President Pro Tempore of the State Senate, and three appointed by the Speaker of the Oklahoma House of Representatives. By statute, the Governor's appointees must include a doctor of medicine and surgery, a family practitioner in a rural community of the state, and an osteopathic physician; the President Pro Tempore's appointees must include a doctor of medicine and surgery, a doctor of medicine or an osteopathic physician, and a podiatric physician; and the Speaker's appointees must include an osteopathic physician, a doctor of medicine or an osteopathic physician, and a chiropractic physician.

The Committee's research indicates spine care, and particularly medical treatment of low back injuries, to be the most costly category of health care in the workers' compensation system in terms of actual dollars spent. Our first formal guidelines, therefore, deal with spine care.

We received input from a wide variety of sources including employers, insurance carriers, and health care providers. Appropriate scientific literature has been reviewed. Practice parameters of the various specialty societies (North American Spine Society; American Academy of Orthopaedic Surgeons, Clinical Policies, Herniated Lumbar Disk, July, 1991 and Clinical Guidelines on Low Back Pain) were reviewed as well. Additionally, The Guidelines for Chiropractic Quality Assurance and Practice Parameters, (Proceedings of the Mercy Center Consensus Conference) and the Department of Health and Human Services, Agency for Health Care Policy and Research Clinical Practice Guidelines Number 14, Acute Low Back Problems in Adults, were included for review. Treatment protocols from Texas, Colorado, Minnesota, California, Washington, Rhode Island, and West Virginia were also utilized.

The philosophy of this Committee has been "keep it simple". We also believe that, for the guidelines to stand the test of time, they must be **fair** and **reasonable**.

The objective of the Low Back Pain Treatment Guidelines is to provide standards for prompt, reasonable and appropriate treatment for work place injuries and to expedite optimum recovery and return to work, while containing medical costs in the workers' compensation system.

The first step in achieving this objective requires that an employer report a compensable injury in a timely fashion to ensure there is no delay in the treatment of the compensable injury. It is important that the employer work with the insurance carrier and health care providers to ensure the injured worker is given the opportunity to return to work in either a modified or full duty status as quickly as medically possible.

These guidelines are not to be used as a fixed treatment protocol, but rather identify a normal course of treatment, and reflect typical courses of intervention. It is anticipated that there will be injured workers who will require less or more treatment than the average. It is acknowledged that in atypical cases, treatment falling outside these

guidelines will occasionally be necessary. However, those cases that exceed the guidelines' level of treatment will be subject to more careful scrutiny and review and will require documentation of the special circumstances that justify the treatment. These guidelines should not be seen as prescribing the type and frequency or length of intervention. Treatment must be based on patient need and 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 do not affect any determination of liability for an injury under the Oklahoma Workers' Compensation Act, 85 O.S., Section 1, et seq., and are not intended to expand or restrict a health care provider's scope of practice under any other statutes. These guidelines are not intended to supersede applicable provisions of the Oklahoma Workers' Compensation Court's Schedule of Medical Fees.

I. GENERAL PRINCIPLES

- A. Education of patients, employers, insurance carriers, judges, and health care providers is critical to the appropriate treatment of low back injuries. Most often the most inexpensive, yet effective treatment, involves education through direct communication which leads to effective self-management of symptoms.
- B. Timeliness of treatment cannot be emphasized enough. It is well documented that prognosis for a favorable outcome drops precipitously once an injured worker has been off work for greater than six (6) months. Significant delays in medical care for whatever reason are a detriment to the injured Oklahoma worker.

II. GENERAL GUIDELINE PRINCIPLES

The principles summarized in this section are key to the intended implementation of these guidelines and critical to the reader's application of the guidelines in this document.

- A. ***Re-evaluate Treatment Every 2-4 Weeks:*** If a given treatment or modality is not producing positive functional results within 2-4 weeks, the treatment should be either modified or discontinued. Reconsideration of diagnosis should also occur in the event of poor response to a seemingly rational intervention. If the patient is not responding appropriately to conservative medical treatment, referral for manipulative treatment should be considered. If the patient is not responding to manipulative treatment, then referral for conservative medical/physical therapy treatment should be considered.
- B. ***Positive Patient Response:*** Positive results are defined primarily as functional and/or physiologic gains which can be objectively measured. Objective functional gains include, but are not limited to, positional tolerances, strength, endurance, range of motion, decreased muscle tension and efficiency/velocity measures which can be quantified. Subjective reports of pain and function should be considered and given relative weight when the pain has anatomic and physiologic correlation. Anatomic correlation must be based on objective findings.
- C. ***Modalities and Therapeutic Procedures:***

"Modality" means any physical agent applied to produce therapeutic changes in biologic tissue, including, but not limited to, thermal, acoustic, light, mechanical, or electric energy.

"Therapeutic procedure" means a manner of effecting changes through the application of clinical skills and/or services that attempt to improve function. Therapeutic procedures include, but are not limited to, education, massage, manual traction, myofascial release, manipulation, and joint mobilization.

- D. ***Surgical Interventions:*** Surgery should be contemplated within the context of expected functional outcome and not purely for the purpose of pain relief. The concept of "cure" with respect to surgical treatment of low back pain by itself is generally a misnomer. All operative interventions must be based upon positive correlation of clinical findings, clinical course and diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s).
- E. ***Active Interventions:*** Interventions involving therapeutic exercise and emphasizing patient responsibility are generally emphasized over passive modalities, especially as treatment progresses. Generally, passive and palliative interventions are viewed as a means to facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains.
- F. ***Active Therapeutic Exercise Program:*** An exercise program should contain elements of improving patient strength, endurance, flexibility and education.
- G. ***Delayed Recovery:*** A psychological screen should be considered, as well as initiating interdisciplinary rehabilitation treatment, for those patients who are failing to make expected progress 6-12 weeks after treatment. The Physician Advisory Committee recognizes that 3-10% of all industrially injured patients with low back pain will not recover within the time lines outlined in this document despite optimal care. Such individuals may require treatment beyond the limits discussed within this document, but such treatment will require clear documentation by the authorized treating practitioner focusing on objective functional gains afforded by further treatment and impact upon prognosis.
- H. ***Treatment Parameter Duration:*** Time frames for specific interventions commence **once treatments have been initiated**, not on the date of injury. Obviously, duration will be impacted by patient compliance, as well as availability of services. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this document.
- I. ***Return to Work:*** Even if there is residual chronic pain, return-to-work is **not** necessarily contraindicated. Return-to-work may be therapeutic, assuming the work is not likely to aggravate the basic problem. The practitioner must write detailed restrictions when returning a patient to limited duty. At a minimum, the following functions should be addressed: lifting, pushing, pulling, squatting, stooping, walking, using stairs, bending at the waist and tolerance for sitting or standing. The patient should never be released to "light duty" without specific physical limitations. The practitioner should understand all of the physical demands of the patient's job position before returning the patient to full duty and should request clarification from the employer, if necessary.

III. HERNIATED LUMBAR DISK

Patients under treatment by their own physician who fail to improve two to four weeks after diagnosis - refer to an appropriate specialist with the intent of ruling in or out surgical intervention.

A. *Background*

Herniations occur most commonly through a posterolateral defect, but midline herniations may occur. Resulting compression of the spinal nerve root causes inflammation and pain, usually along the anatomic course of the nerve. In the lumbar spine, this most often occurs at the L4 and L5 disk levels, causing pressure on the corresponding L5 and S1 nerve roots. As a result of both mechanical and biochemical changes around the nerve root, the patient will experience pain, paresthesia, and possibly weakness in the leg or legs, usually below the knee. The rare herniations at the L1, L2 and L3 levels are usually associated with pain, paresthesia, and weakness above the knee. Back pain may or may not be a presenting complaint with any herniated lumbar disk.

B. *Diagnostic Criteria*

Pertinent Historical and Physical Findings

Back pain is usually the first symptom and may or may not abate as the pain and paresthesias begin to radiate down the leg. The leg pain is often described as a sharp, shooting pain that radiates along the anatomic course of the nerve from proximal to distal. The onset may be sudden or insidious. The patient often has difficulty getting up from sitting or supine positions and commonly leans or lists to one side or the other. Motion of the spine is limited due to pain and muscle spasm. The neurological examination may be normal if the compressed nerve is still functional, or it may yield objective evidence of impaired nerve function (e.g. atrophy, weakness, sensory alteration or diminished reflex) depending upon the nerve root affected. Signs of nerve root tension (e.g. positive straight leg raising) may also be present.

When the L4 disk herniates, it usually causes pressure on the L5 nerve root resulting in weakness of the great toe extensor or other dorsiflexor muscles of the foot and sensory loss along the medial aspect of the foot to the great toe, but it is usually not associated with reflex abnormality. When the L5 disk herniates, it usually causes pressure on the S1 nerve root, resulting in a sensory deficit in the posterior calf area and lateral aspect of the foot in addition to a diminished Achilles reflex and occasionally weakness of the plantar flexors of the foot.

IV. INITIAL DIAGNOSTIC PROCEDURES (Obtained from North American Spine Society and American Academy of Orthopaedic Surgeons)

There are four standard procedures that should be utilized when initially diagnosing a work-related low back pain complaint; these procedures are:

- A. **History Taking** : Generally accepted, well established and widely used procedures which establish the foundation/basis for and dictate all other following stages of diagnostic and therapeutic procedures. When findings of clinical evaluations (Hx & PE) and those of other diagnostic procedures are not complimenting each other, the objective-clinical-findings should have preference.

Significant history would include: 1) Location of symptoms (percent low back or leg), 2) Duration (acute versus chronic), 3) Mechanism of onset, 4) Character or description of pain, 5) Neurological history (distribution, bowel and bladder symptoms, weakness, numbness [such as saddle numbness]), 6) Constitutional symptoms such as fever or weight loss, and 7) Previous spinal surgery with persistent pain.

- B. **Physical Exam** : Significant physical examination should include 1) Inspection of posture, stance, and gait, 2) Range of motion testing of the spine, hip, and lower extremities, 3) Specific tests such as straight leg raise, 4) Neurological tests, 5) Directed medical examination.

- C. **Routine X-Rays** : Radiographs are not indicated in all instances of work-related injury. However, an anteroposterior (AP) and lateral radiograph of the lumbar spine taken on 14" x 17" size film or smaller at the initial visit shall be allowed. Additional radiographs shall be prohibited unless supported by reasonable medical evidence or if determined necessary at the final evaluation. AP lateral and spot lateral should be made available to subsequent physicians and reasonable attempts should be made to obtain them.

- D. **Laboratory Tests**: Various laboratory diagnostic tests are generally accepted, well established and widely used procedures. Laboratory tests are, however, **rarely** indicated at the time of initial evaluation for a patient with low back pain. When a patient's history and physical examination suggests infection, metabolic-endocrinologic disorders, tumorous conditions, systemic musculoskeletal disorders (e.g., rheumatoid arthritis or ankylosing spondylitis), or prolonged use of medications (e.g., non-steroidal anti-inflammatory medications), laboratory tests, including, but not limited to, the following can provide useful diagnostic information:

1. Sedimentation rate: non-specific, but elevated in infection, neoplastic conditions and systemic arthritic conditions.
2. Rheumatoid work-up: serum rheumatoid factor, ANA, HLA-B27 titre.
3. Serum calcium, phosphorus, uric acid, alkaline and acid phosphatase for metabolic, endocrine and neoplastic conditions.
4. CBC, liver and kidney function profiles for metabolic or endocrine disorders or for adverse effects of various medications.
5. Endocrine work-up: diabetes mellitus, parathyroid or thyroid disease.
6. Serum protein electrophoresis.
7. Urinalysis: bacteria, calcium, phosphorus or hydroxy-proline.
8. Bacteriological (microorganism) work-up: wound, blood and tissue.

The Physician Advisory Committee recommends the above diagnostic procedures be considered, at least initially, the responsibility of the workers' compensation carrier to ensure that an accurate diagnosis and treatment plan can be established.

V. FOLLOW-UP DIAGNOSTIC IMAGING AND TESTING PROCEDURES

One diagnostic imaging procedure may provide the same or distinctive information as obtained by other procedures. Therefore, prudent choice of procedure(s) for a single diagnostic procedure, a complimentary procedure in combination with other procedure(s), or a proper sequential order in multiple procedures will ensure maximum diagnostic accuracy, minimum adverse effect to patients and cost effectiveness by avoiding duplication or redundancy. The primary goal is accurate determination of the anatomic lesion.

All diagnostic imaging procedures have a significant percentage of specificity and sensitivity for various diagnoses. None is specifically characteristic of a certain diagnosis. Clinical information obtained by history taking and physical examination should be the basis for selection and interpretation of imaging procedures results.

Myelography, CT and MRI may provide useful information for many spinal disorders. When a diagnostic procedure, in conjunction with clinical information, can provide sufficient information to establish an accurate diagnosis, the second diagnostic procedure will become a redundant procedure. At the same time, a subsequent diagnostic procedure(s) can be a complimentary diagnostic procedure if the first or preceding procedures, in conjunction with clinical information, cannot provide an accurate diagnosis. Usually, preference of a procedure to others depends upon availability, a patient's tolerance and/or the treating practitioner or radiologist's familiarity with the procedure.

- A. ***Myelography:*** a generally accepted, well established and widely used diagnostic procedure for low back disorders as a pre-surgical diagnostic procedure to obtain accurate information of characteristics, location and spatial relationships among structures (e.g., bone, disc, neural elements, etc.). Myelography is rarely used in non-surgical cases where definitive information is necessary for non-operative management.

Since myelography provides information similar to CT or MRI, preference of this procedure is usually considered when CT or MRI are unavailable for morbidly obese patients, multiple-operated patients, patients with spinal hardware, and when other tests prove non-diagnostic. Myelography with fluoroscopy can provide information on instability in cases of spondylolysis, spinal fusion or spinal stenosis.

Myelography is an invasive procedure and, therefore, not a benign procedure. It has complications including nausea, vomiting, headache, convulsion, arachnoiditis, CSF leakage, allergic reactions and infection. To minimize these complications, the use of small needles and a less-toxic, water-soluble, non-ionic contrast is preferred.

- B. ***Computerized Axial Tomography (CT):*** a generally accepted, well established and widely used diagnostic procedure. As indicated in the preceding sections, can either be singularly diagnostic in conjunction with clinical information, redundant or complimentary to other procedures.

CT is useful for patients whose symptoms are persistent or unresponsive to non-specific conservative treatments and who are considered for diagnostic-specific conservative management and/or surgical treatment. Preference for this procedure is considered in the patient with poor tolerance or intolerance to myelography or MRI. Scientific literature to date indicates CT is not as

accurate as MRI scans except as noted below. CT provides information of more focused and limited anatomical areas and is the preferred modality for visualization of suspected bony lesions in the spine.

- C. ***Magnetic Resonance Imaging (MRI):*** a generally accepted, well established procedure, but with limited use within the first month following initiation of treatment for those patients with non-traumatic **acute** low back pain and no neuropathic signs or symptoms. This modality is widely used in the sub-acute (over 4-6 weeks) and chronic low back pain population. MRI, as described in preceding sections, can be singularly diagnostic with information, redundant or complimentary. Preference for this procedure is considered with patients with primary disc pathology and/or poor tolerance or intolerance to myelography/CT.

MRI provides much better information about spinal cord and disc pathology than CT or myelogram. It is contraindicated in patients with magnetic sensitive implants which may be deformed under a magnetic field. These may include cardiac pacemakers, cerebral aneurysm clips and magnetic sensitive implants and/or ocular foreign bodies. Patients with claustrophobia have poor tolerance and may require sedation. MRI may not be the diagnostic modality of choice for the morbidly obese.

- D. ***CT-Myelogram:*** a generally accepted, well established procedure in patients with acute low back pain but with limited use within the first month following initiation of treatment. This modality is widely used in patients with sub-acute (4-6 weeks) or chronic low back pain.

It provides more detailed information of relationship between neural elements and surrounding pathologic or normal anatomy. This test is primarily indicated in low back pain patients whose pre-eminent complaint involves sciatica and leg pain. It is useful in, but not limited to, multiple-operated spine or tumorous conditions of the spine cases. Since the procedure combines with myelography, all the preceding statements under myelography apply to this section.

- E. ***Intravenous Enhanced CT:*** a generally accepted, well established diagnostic procedure but with limited use. This procedure is useful for differentiating scar versus disc herniation versus spinal cord tumors. The diagnostic value of this procedure for this purpose is better than plain CT but is equal to MRI. MRI with gadolinium may be a superior diagnostic modality to differentiate between the above diagnoses. Intravenous Enhanced CT is contraindicated in patients with allergic reaction to contrast medium.

- F. ***Gadolinium Enhanced MRI:*** an accepted and established diagnostic procedure but with limited use. This procedure is most useful for differentiating scar versus recurrent disc herniation as well as diagnosing spinal tumors or hemorrhage. It may also be helpful in infectious disorders such as discitis or osteomyelitis.

- G. ***Discography:*** a generally accepted, well established diagnostic procedure but with limited use. The Physician Advisory Committee recommends application of criteria discussed in the *Position Statement on Discography* by The Executive Committee of The North American Spine Society (NASS) with respect to this diagnostic modality (Spine, vol. 13, p. 1343, 1988) as summarized below:

Discography may be indicated when a patient has a history of unremitting low back pain of greater than **three** months duration with or without leg pain which has been unresponsive to conservative interventions. Discography may prove useful in the evaluation of the surgical spine; i.e., pseudoarthrosis, recurrent disc herniation, persistent pain despite what appears to be adequate spinal fusion, annular tear, and internal disc disruption. In addition, discography may prove useful in evaluation of the number of lumbar spine levels which might require fusion. It has also been utilized to differentiate organic from psychogenic factors. CT-Discography provides further detailed information about morphological abnormalities of the disc and possible lateral disc herniations.

Interpretation of the procedure should be based on quantification of pain response, volume injected, the pattern of contrast and the amount of pressure of injecting the contrast medium. Pain response is the most important part of the procedure (i.e., onset,

concordant/discordant, nature, character and distribution). Therefore, standardization of technique is **imperative**.

Discography is an invasive diagnostic procedure and has complications including discitis, nerve damage, chemical meningitis, pain exacerbation and anaphylaxis. It is contraindicated in cases of known allergic reactions.

In addition to the NASS guidelines, the Physician Advisory Committee feels, prior to consideration of discography, the patient should undergo other diagnostic modalities in an effort to define the etiology of the patient's complaint. These modalities should include, though are not limited to, myelography, CT or MRI. Psychological screening may be indicated prior to proceeding with discography. Discography should generally be utilized as a diagnostic procedure in preparation for surgical intervention.

- H. ***Technetium/Indium/Gallium Scanning:*** a generally accepted, well established and widely used procedure. Isotope scanning procedures using Technetium are non-specific scans to help to determine osteoblastic activity and may be useful in metastatic/primary bone tumors, stress fractures, osteomyelitis and inflammatory lesions. Gallium scanning is a more specific technique for evaluating infection and abscess. Interpretation of the results of these procedures should be made in conjunction with clinical information. These procedures are usually combined with other diagnostic imaging procedures.
- I. ***Electro-Diagnostic Studies:*** procedures include, but are not limited to, electromyography (EMG), Nerve Conduction Studies and Somata-Sensory-Evoked Potentials (SSEP). EMG and nerve conduction studies are generally accepted, well established and widely used diagnostic procedures. The SSEP study is a generally accepted, well established diagnostic procedure but with limited use. Electro-diagnostic studies may be useful for patients with suspected neural involvement whose symptoms are persistent or unresponsive to initial conservative treatments. It is used to differentiate peripheral from radicular and spinal cord neural deficits and to rule out concomitant myopathy.

In general, these diagnostic procedures are used as complimentary diagnostic procedures to imaging procedures such as CT, MRI, and/or myelography or diagnostic injection procedures. Electro-diagnostic studies may provide useful, correlative neuropathophysiological information that would

be otherwise unobtainable from the standard radiologic studies discussed above.

- J. ***Diagnostic Analgesic Injection Studies:*** including facet joint injection, selective nerve root injection, differential spinal block, sacroiliac joint injection, and sympathetic blocks. These are generally accepted, well established diagnostic procedures and may be useful diagnostic procedures for localizing the source of pain but with limited use.

These diagnostic procedures are invasive and less or non-invasive procedures should be considered first. Selection of patients, choice of procedure and localization of the level for injection should be determined by clinical information indicating strong suspicion for pathologic condition(s) and the source of pain symptoms.

To be successful and meaningful, these diagnostic procedures require accurate needle placement. Fluoroscopic, arthrographic and/or CT needle guidance are strongly recommended. Some of these diagnostic injection procedures may have added therapeutic value and may be combined with injection of therapeutic medication(s). The interpretation of the test result is primarily based upon analgesic response to the injection and the diagnostic significance of the test result should be evaluated in conjunction with clinical information and the result of other diagnostic procedures. These injection procedures have possible complications including transient neuroapraxia, nerve injury, infection, headache, urinary retention and vaso-vagal effects.

- K. ***Physical or Functional Capacity Evaluations/Assessment:*** these evaluating tests include, but are not limited to, determinations of consistency of effort, range of motion, aerobic capacity, strength evaluation, lifting capacity, functional sitting/standing tolerances and/or functional correlation with vocational goals. These generally accepted, established evaluative procedures have widespread utility in the sub-acute and chronic back pain population, but with limited use in the acute back pain population. Physical Capacity Evaluations are an extension of the basic physical examination and may be useful for determination of impairments, setting functional restrictions and for the determination of progress, planning and monitoring of rehabilitation.

- L. ***Personality/Psychological/Psychosocial Evaluations:*** these are generally accepted and well established diagnostic procedures with selected use in the acute back pain population, but with more widespread use in the sub-acute and chronic back pain population. These procedures may be useful for patients with delayed recovery or chronic pain, recurrent painful conditions, suspected concomitant closed head injury, disability problems and for pre-op evaluation, as well as a possible predictive value for post-op response. The results of these diagnostic procedures may provide clinicians with a better understanding of the patient, thus allowing for more effective rehabilitation. Formal psychological or psychosocial screening to determine if further psychosocial interventions are indicated should be implemented in patients not making expected progress within 6-12 weeks following treatment and whose subjective symptoms do not correlate with objective signs and tests. Screening should be performed by an individual with PH.D., PSY.D., LPC, MASTERS PSYCH or PSYCHIATRIC M.D./D.O. credentials with further testing as indicated.

- M. ***Thermography:*** Not indicated.

VI. MODALITIES, THERAPEUTIC PROCEDURES, AND OTHER TREATMENT METHODS

A. ***Non-Operative Treatment Methods:***

All non-operative treatment methods referred to in these guidelines are subject to the Oklahoma Workers' Compensation Court's Schedule of Medical Fees.

All treatment modalities are generally accepted treatment procedures, although lacking valid scientific proof of efficacy. Each procedure has a certain duration of supervised implementation to produce its effect and has an optimum duration for treatment. Prolonged continuation of non-effective treatment modalities may produce adverse effects of increased disability and deconditioning. Certain modalities may be shown on a case-by-case basis to be efficacious in maintaining objective measures of function. These interventions would be cost effective via patient self-application and may be utilized beyond the duration of treatment recommended for supervised treatment procedures.

1. **Thermal Treatment:** includes applications of heat and cold (superficial and deep, including ultrasound); therapeutic modalities in this group are generally accepted, established and widely used procedures:

- a. Time to produce effect: 2-4 treatments
- b. Frequency of treatment: 3-5 times per week, decreasing to 2 times per week after one month
- c. Optimum duration: 2-3 months in conjunction with other therapies.

2. **Traction:** Therapeutic modalities in this group are generally accepted, established and widely used. In and of itself, traction should never be the sole modality of treatment in a supervised setting. Traction modalities are contraindicated in patients with tumor, infection, pregnancy, hypermobility, fracture or dislocation. Inversion traction methods are contraindicated in patients with glaucoma or hypertension. Bed traction is not an accepted modality. Manual traction is considered as a therapeutic procedure, rather than as a modality.

- a. Time to produce effect: 3 treatments; if the response is negative after 3 treatments, discontinue this modality.
- b. Optimum duration: 1-2 months; may continue this modality as needed (unsupervised) if this modality facilitates objective functional gains.

3. **Manipulation:** In general, more aggressive in-office intervention (three to five sessions per week for one to two weeks) may be necessary early. Progressively declining frequency is expected to discharge of the patient. Significant improvement within 10-14 days, three to five treatments per week. Typical treatment range 5-18 visits.

- a. Time to produce effect: 4-10 treatments
- b. Frequency of treatment: 3-5 times per week, decreasing with improvement
- c. Optimum duration: 2-4 months

Up to two modalities/procedures are allowed with each manipulation provided they will enhance patient response and do not significantly overlap physiological effects. Re-assessment at 10 visits should show significant functional and/or physiological improvement.

On-going care beyond 18 visits may be appropriate if there is demonstrated continual improvement and active care components are clearly a part of the treatment plan.

If no improvement is noted, then consideration for referral to a medical or osteopathic physician may be needed. Relapses may occur from time to time and follow-up treatment for documented relapses may be needed within the first 4-6 months of initiation of treatment. This means the first visit limitation may be exceeded in these circumstances. Generally, treatment does not exceed 3-4 visits per relapse. Repeat relapses indicate failure to improve and necessitates referral to an M.D. or D.O., or to a physical therapist, if referred by a physician as provided by law. Documentation for relapses must show relation to initial injury.

Conversely, M.D. or D.O. referral for manipulation is often indicated and appropriate, particularly within the first week following injury.

4. **Transcutaneous Electrical Nerve Stimulation (TENS):** therapeutic modalities in this group are generally accepted, established and widely used but the mode of action is poorly understood:

- a. Time to produce effect: 1 or 2 sessions per trial, up to 3 trials
- b. Frequency of treatment: 2 times per week (supervised) for 3 weeks; during this supervised period, the patient may utilize the TENS unit daily on a self-monitored basis after receiving instructions
- c. Optimum duration: 1-2 months

Initially, TENS should be prescribed within a supervised setting in order to assure proper electrode placement and patient education. TENS can be used for short-term pain control. If the response to these treatments is beneficial, it may be continued for 1-2 months and for intermittent unsupervised use thereafter **if** it facilitates objective functional gains. The Physician Advisory Committee recommends rental of a TENS unit with reassessment after 30 days. TENS is not recommended in the treatment of typical mechanical low back pain without concomitant lower extremity pain (sciatica). It may be occasionally useful in specific myofascial pain cases within the above time frames.

5. **Electrical Stimulation:** This modality includes application of interferential electrical stimulation. It is used to reduce swelling and inflammation arising from various musculoskeletal conditions or as a precursor to more active therapy.

- a. Time to produce effect: 2-3 treatments
- b. Frequency of treatments: 3 times one week
- c. Optimum duration: One month in conjunction with other therapies.

6. **Work Restrictions/Restriction of Activities:** bed rest and limited activity are the most common treatments in this group. Modalities in this group are generally accepted, well established and widely used. These modalities should be used only during acute onset of symptoms or during objectively documented re-exacerbations.

If at all possible, complete work cessation should be avoided since it often further aggravates the pain presentation. Modified return-to-work is almost always more

efficacious and rarely contraindicated in the vast majority of injured workers with low back pain. The practitioner must provide the employer with specific physical restrictions for modification of duties. The following functions must be considered: lifting, pushing, pulling, crouching, use of stairs, bending at the waist and tolerance for sitting and standing. The practitioner should request clarification of the patient's job duties from the employer, if an issue.

a. **Bed Rest:**

1. Time to produce effect: 2 days
2. Frequency of treatments: continuous
3. Optimum duration: 3 days
4. Maximum duration: 5 days

Prolonged restriction of activities and immobilization produce negative effects on physical and psychological aspects of the patient's recovery.

b. **Activity Restrictions:**

1. Maximum duration: 6 months but highly dependent on individual circumstances.

Requires frequent re-evaluation depending on underlying pathology and treatment plan.

7. **Medication:** the use of medication for low back disorders plays a secondary role and should never be the sole modality of treatment. If a patient's symptoms resolve quickly with medications or any other passive modality, the practitioner should still consider prescribing a brief course in back education and safety. When required, a wide range of medication is available. Modalities in this group are generally accepted, established and widely used. All narcotics and habituating medications should be prescribed with strict time, quantity and duration guidelines with a definite cessation parameter. As needed prescriptions of narcotics or habituating medications should almost always be avoided.

- a. **Narcotics:** medications should be primarily reserved for the treatment of acute low back pain or the treatment of patients with objectively documented acute exacerbations. The action of these drugs are central, affecting the patient's perception of pain rather than the pain process itself.

1. Time to produce effects: immediate
2. Frequency of treatments: every 3-4 hours
3. Optimum duration: 3 days
4. Maximum duration: 2 weeks

Narcotics are infrequently indicated in the treatment of patients with pure low back pain without fracture. In mild to moderate cases of low back pain, narcotic medication should not be used at all. Adverse effects include respiratory depression and the development of physical and psychological dependence.

- b. **Minor Tranquilizers/Muscle Relaxants:** these medications should be primarily reserved for the treatment of acute low back pain or the treatment of patients with objectively documented acute exacerbations. Muscle relaxants may have a significant effect on the early phases of acute low back pain. Their action is central and with no effect on the neuromuscular junction of the muscles themselves. Purported peripheral effects are difficult to separate from the anxiolytic central action.

1. Time to produce effect: 1 day
2. Frequency of treatment: 1-4 times daily, preferably just at night
3. Optimum Duration: 1 week
4. Maximum Duration: 4-6 weeks

- c. **Non-Steroidal Anti-Inflammatory Drugs (NSAID):** the anti-inflammatories are probably the most useful medication in acute low back pain. In mild cases, they may be the only drug required for analgesia. There are several classes of NSAID and the response of the individual patient to a specific medication is unpredictable. For this reason, a range of anti-inflammatory medication may be tried in each case with the most effective preparation being continued.

1. Time to produce effect: 3-7 days
2. Frequency of treatment: 1-4 times daily
3. Optimum duration: 2 weeks
4. Maximum continuous duration: 3 months

For prolonged use of NSAID greater than 1-3 months, patients should be monitored for adverse reactions. Appropriate intervals for metabolic screening are dependent upon the patient's age, general health status and should be within parameters listed for each specific medication as listed in the most current *Physician's Desk Reference*.

- d. **Analgesics:** acetaminophen and acetylsalicylic acid are the common choices for non-narcotic analgesics.

1. Time to produce effect: immediate, usually ineffective in severe attacks
2. Frequency of treatment: 3-5 times daily
3. Optimum duration: 3-4 days
4. Maximum continuous duration: 6 weeks

- e. **Psychotropic Medication:** in patients with a high level of anxiety or depression, a variety of psychotropic drugs may be used. In acute or sub-acute low back pain, these medications are generally unnecessary except in the use of tricyclic anti-depressants as substitutes for hypnotics and/or analgesics. In most cases, major tranquilizers, anxiolytics and anti-depressants are reserved for chronic pain disorders. Patients whose chief complaint is low back pain, but require use of major tranquilizers or anxiolytics for greater than two weeks should be considered for psychological and/or psychiatric consultation. In particular, benzodiazepenes are almost always contraindicated in patients with low back pain unless a severe

anxiety state exists requiring psychiatric supervision or in cases of extremely severe, objectively visualized acute muscle spasm. In this type of acute scenario, the maximum duration for benzodiazepam administration should be limited to less than five days.

1. Time to produce effect: 2-3 weeks
2. Frequency: for tricyclics, prefer single dose at night
3. Optimum duration: 1-6 months
4. Maximum duration: 6-12 months, with monitoring

- f. **Hypnotic Medication:** hypnotic medication may be given to back pain sufferers because of a chief complaint of "inability to sleep". Such medication must be used with caution because of their dependence-producing capabilities. The Physician Advisory Committee recommends consideration of sedating tricyclic anti-depressants as an alternative when necessary. Physical methods of restoring a normal sleep pattern can usually be employed as an alternative to medication.

1. Time to produce effect: 1-3 days
2. Frequency: at night
3. Optimum duration: 1 week
4. Maximum duration: 2 weeks

- g. **Oral Steroids:** use of oral steroids in the treatment of patients with low back pain is an accepted, established intervention, but has limited use in carefully selected patients. A one-week rule of oral steroid may be considered in patients with symptoms of sciatica and significant lower extremity pain consistent with a diagnosis of an acute radiculitis. The practitioner must be thoroughly aware of potential contraindications to the use of oral steroid, such as hypertension, diabetes mellitus, glaucoma, peptic ulcer disease, etc., which should be documented in the chart.

1. Time to produce effect: 3 days
2. Frequency: Either 1 dose in the morning or four times daily
3. Optimum duration: 1 week
4. Maximum duration: 1 week

8. **Therapeutic Blocks:** Epidural steroids - The Physician Advisory Committee has determined that lumbar epidural steroids may be used in patients with radicular complaints secondary to nerve root compression or nerve root irritation or inflammation. Three per year is allowed. The patient should be assessed clinically following each injection prior to recommending or performing a second or third injection. More than three injections per year would require special approval. **Epidural steroids are not used for low back pain.**

9. **Trigger Point Injections:** trigger point injections are generally accepted, well established procedures but of limited use in most patients with low back pain. Trigger point injections are indicated in those patients where well circumscribed trigger points have been consistently observed, demonstrating a local twitch response characteristic radiation of pain

pattern and local autonomic reaction, such as persistent hyperemia following palpation. Generally, these injections are not necessary unless consistently observed trigger points are not responding to specific, non-invasive, interventions within a six-week time frame. However, trigger point injections may be occasionally effective when utilized in the patient with immediate, acute onset of low back pain. Injection efficacy can be enhanced if injections are immediately followed by myofascial therapeutic interventions, such as vapocoolant spray and stretch, ischemic pressure massage (myotherapy), specific soft tissue mobilization and hotpacks.

Potential, but rare, complications of trigger point injections include infection, pneumothorax, anaphylaxis, penetration of viscera, neuroapraxia and neuropathy. As with the therapeutic blocks discussed above, trigger point injections should be utilized primarily for the purpose of facilitating functional progress. Muscles requiring injection should not be aggressively exercised until post-injection soreness resolves and/or the trial of injections has been completed. However, patients should continue in an aggressive aerobic and stretching therapeutic exercise program as tolerated throughout the time period they are undergoing intensive myofascial interventions.

- a. Frequency: Weekly, suggest no more than 2 injection sites per session per week to avoid significant post-injection soreness
- b. Optimum duration: 2 weeks
- c. Maximum duration: 3 weeks; occasionally patient may require 2-4 repetitions of trigger point injection series over a 1-2 year period.

- 10. **Sclerotherapy/Prolotherapy:** this procedure has no proven value via well-controlled, double-blind studies and may have harmful effects.
- 11. **Education:** in various forms, education is a generally accepted, well established and widely used therapeutic procedure. Patient's understanding and active participation is fundamental for successful outcome of all treatment modalities.
- 12. **Exercise:** the key to a successful conservative treatment program for low back disorders is the rapid return to normal activity. This therapeutic procedure is generally accepted, well established and widely used. The current trend is a balanced program of exercise focusing on the pain source as a means of determining the pattern of treatment. Exercise is one of the three prospective methods demonstrated to be effective in the treatment of low back pain. An effective exercise program should include aerobic (target heart rate at least 20 minutes per day, 5 days per week) and anaerobic strengthening and stabilization activities. The Physician Advisory Committee recommends utilization of *Guidelines for Exercise Testing* published by the Joint American College of Cardiology/American Heart Association with respect to cardiovascular risk reduction in the formulation of an exercise prescription. Exercises should be individualized to the patient's requirements and address the functional deficits. Every patient should have a home exercise program within one week of initiating care. The home exercise program should be progressively upgraded as the patient's condition improves.

The timing of the active exercise and rehabilitation treatment is as important as the treatment chosen. Exercise must be progressed or reduced in accordance with the

patient's clinical response and must be clearly and openly oriented toward the goal of returning the patient to normal and productive living. In general, some type of therapeutic exercise should be implemented within the first 1-2 weeks following an injury. Objective measurements of function and physiologic status are recommended to determine baseline exercise thresholds as well as to monitor progress.

13. **Lumbosacral Bracing, Foot Orthoses and Other Means of Restricting Movement:** bracing is a generally accepted, well established therapeutic modality for low back disorders but has limited use, except in cases of fracture or fusion, in which bracing may be widely used. With respect to **back braces**:

- a. Time to produce effect: 3 days
- b. Frequency of treatment (when utilized on an intermittent basis: limited to intermittent use during times of maximum physical stress.
- c. Optimum continuous duration: 3 weeks, may be longer in patients status post-fracture or fusion, followed by weaning.
- d. Maximum duration (non-fusion patients): 6 weeks, followed by weaning.

Generally, bracing should be accompanied by an active muscle strengthening routine. Foot orthotics are rarely indicated in the treatment of the vast majority of industrial low back injuries. However, on rare occasions, they may be indicated but extensive documentation would be required to vindicate cost and clarify causality issues.

14. **Therapeutic Exercise: Neuromuscular Re-education; Therapeutic Activities; and Therapeutic Procedure, Group:** These therapeutic procedures are generally accepted, well established and widely used. These procedures should be included in any standard therapeutic exercise program. Therapeutic exercise develops strength and endurance, range of motion and flexibility. Neuromuscular re-education is re-education of movement, balance, coordination, kinesthetic sense, posture, and proprioception. Therapeutic activities is direct one-on-one patient contact by the provider with use of dynamic activities to improve functional performance. Therapeutic procedure, group, is defined as activities involving two or more individuals instructed at any one time by a physician or by a licensed physical therapist, licensed physical therapy assistant, exercise physiologist, or occupational therapist, under the direction of a physician.

The injured worker is expected to be an active participant in this process attempting to reach a higher level of activity than was previously utilized during the disabling episode. The exercises must be individualized and tailored to the individual's deficits and requirements. The exercise program needs to be taught by the Physical Therapist or physician to ensure that they are properly taught and carried out. Every patient should have begun a home exercise program within one week of initiating care. In non-surgical cases of low back pain, the Physician Advisory Committee recommends initiation of a supervised reconditioning program and implementation of a less-active treatment plan if:

- a. The patient has not demonstrated objective carry-over and benefit from an assigned home exercise program; or
- b. The patient has not objectively progressed within a preceding 3 week period; or

- c. The patient has not been released to return to full duty or modified work within 3 weeks.

This does not preclude an earlier implementation of an active, supervised reconditioning program.

- (1) Time to produce effect: 2-6 weeks
- (2) Frequency of treatment: 2-5 times per week supervised for the first 3-4 weeks, decreasing to 2-4 times per week thereafter
- (3) Optimum duration: 4-8 weeks
- (4) Maximum duration: 3-4 months, exclusive of intervening medical complications.

A self-monitored program with periodic monitoring is recommended thereafter.

“Passive modalities only” in the course of treatment (greater than four visits) without exercise and education is fruitless, expensive and actually detrimental to the injured worker. Passive modalities include hot packs, cold packs, electrical stimulation and ultrasound. These modalities in conjunction with active therapy can greatly aid in decreasing pain, swelling, and/or inflammation. Modalities are most successful when combined with manual therapy, exercise and education to allow the injured worker to move, function and exercise. Abuses arise when passive modalities to the exclusion of any other active treatment is provided or when too many passive modalities are administered at a single treatment session.

- 15. **Psychosocial Intervention:** this treatment modality is generally accepted, widely used and well established. This group of therapeutic and diagnostic modalities includes, but is not limited to, individual counseling, group therapy, stress management, psychosocial crisis intervention, biofeedback, hypnosis and meditation. Any screening or diagnostic workup should clarify and distinguish between pre-existing versus aggravated versus purely causative psychological conditions. Psychosocial intervention is recommended as an important component in the total management program which should be implemented as soon as the psychosocial problem is identified. This can be used alone or in conjunction with other treatment modalities:

- a. Time to produce effect: 2-4 weeks
- b. Frequency of treatment: 1-3 times weekly (excluding hospitalization if required) for the first 4 weeks, decreasing to 1-2 times per week for the second month
- c. Optimum duration: 6-10 weeks
- d. Maximum duration: 6-12 months

Occasionally, longer supervised treatment may be required, but if further counseling beyond 6 months seems indicated, extensive documentation addressing which pertinent issues are pre-existing versus aggravated versus causative, as well as projecting a realistic functional prognosis, should be provided by the authorized treating practitioner every 4-6 weeks.

- 16. **Vocational Rehabilitation:** Initiation of vocational rehabilitation requires adequate evaluation of patients for quantification of highest functional level, motivation and

achievement of maximum medical improvement. Vocational rehabilitation may be as simple as returning to the original job or as complicated as being retrained for a new occupation.

17. **Vocational Assessment:** Once an authorized practitioner has reasonably determined and objectively documented that a patient will not be able to return to his/her former employment, can reasonably prognosticate final restrictions and date of maximum medical improvement, implementation of a timely vocational assessment can provide valuable guidance in the determination of future rehabilitation program design. Clarification of rehabilitation goals optimize both patient motivation and utilization of rehabilitation resources. Except in the most extenuating circumstances, this process should be implemented within 3-12 months post-injury at the latest, if prognosis for return to former occupation is determined to be guarded to poor. Declaration of Maximum Medical Improvement should not be delayed solely due to lack of attainment of a vocational assessment.

18. **Interdisciplinary Team Approach:** these interventions are generally accepted, well established and widely used. This group includes work hardening programs, functional restoration programs and pain clinics. In general, these programs are more comprehensive, time consuming and costly and are, therefore, appropriate for patients with greater levels of (perceived) disability, dysfunction, deconditioning and psychological involvement. **Work hardening can often be avoided if honest early return-to-work programs are implemented.**

Work Hardening Programs: Work hardening programs are generally more comprehensive than the work simulation and include education, reconditioning and specific work simulation with respect to task quality, quantity and intensity. Work hardening is generally initiated after reconditioning or functional restoration has been completed if imminent return of a patient to modified or full duty is not an option but the prognosis for returning the patient to work at completion of the program is at least fair to good. As discussed in this section, identification of realistic vocational goals is essential for the successful completion of a work hardening program. Generally, work hardening programs entail a progressive increase in the number of hours per day that a patient complete work simulation tasks until the patient can tolerate a full work day:

- | | | |
|----|-------------------------|----------------|
| 1. | Time to produce effect: | 2-4 weeks |
| 2. | Frequency of treatment: | 2-5 times/week |
| 3. | Optimum duration: | 4-6 weeks |
| 4. | Maximum duration: | 2-3 months |

B. *Operative Procedures/Inpatient Treatment*

Common Policy Statement for Operative Procedures: All operative interventions must be based upon positive correlation of clinical findings, clinical course and diagnostic tests and a comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). It is imperative to rule out nonphysiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability (e.g., peripheral neuropathy, piriformis syndrome, myofascial pain, scleratogenous or sympathetically mediated pain

syndromes, sacroiliac dysfunction, psychological conditions, etc.) prior to consideration of elective surgical intervention.

In addition, operative treatment is indicated when the natural history of the surgically treated lesion is better than the natural history for non-operatively treated lesions. All patients being considered for surgical intervention should first undergo a comprehensive neuromusculoskeletal examination to identify mechanical pain generators that may respond to non-surgical techniques or may be refractory to surgical intervention.

While sufficient time allowances for non-operative treatment is required to determine the natural cause and response to non-operative treatment of low back pain disorders, **timely decision-making** for operative intervention is critical to avoid deconditioning and increased disability (exclusive of "emergent" or urgent pathology such as cauda equina syndrome or associated rapidly progressive neurologic loss).

In general, if the program of non-operative treatment fails, operative treatment is indicated when:

- ! improvement of the symptoms have plateaued and the residual symptoms of pain and functional disability is unacceptable at the end of 6-12 weeks of treatment, or at the end of longer duration of non-operative programs for debilitated patients with complex problems; and/or
- ! frequent recurrences of symptoms cause serious functional limitations even if a non-operative treatment program provides satisfactory relief of symptoms and restoration of function on each recurrence. Mere passage of time with poorly guided treatment is not considered as an active treatment program.

In general, surgical workup and implementation for simple decompression of patients with herniated nucleus pulposus and sciatica should occur within 6-12 weeks after injury at the latest, within the above-stated contingencies. For patients with true, refractory mechanical low back pain in whom fusion is being considered, the Physician Advisory Committee recommends decisive commitment to surgical or non-surgical interventions within 5-7 months following injury, at the latest.

C. *Inpatient Treatment*

1. **Non-operative Treatment**

- a. Indications for admission
 - (1) Inability to control pain
 - (2) Severe or progressive neurologic deficit
- b. Treatment options
 - (1) Monitored bed rest with parenteral medications
- c. Indications for discharge
 - (1) Uncomplicated - Relief or improvement of leg and/or back pain
 - (2) Exceptions

- (a) No response to nonoperative treatment options requiring consideration of surgical intervention
- (b) Spinal headache after myelogram requiring IV fluids or blood patch

2. **Operative Treatment**

- a. Indications: Diagnosis confirmed by Myelography/CT, or MRI, plus one of the following three:
 - (1) Failure of nonoperative treatment to relieve symptoms
 - (2) Quality of patient's life significantly impaired
 - (3) Presence of significant or progressive neurologic deficit

In most circumstances, surgery is not indicated within the first 4 weeks unless cauda equina or progressive neurological deficit is present.

Structured rehabilitation interventions should be strongly considered post-op in any patient not making expected functional progress within three weeks post-op.

- b. **Discotomy/Discectomy:** This operative procedure is to enter into and to partially remove the disc and is a generally accepted, well established and widely used procedure. This procedure is indicated for neural decompression, painful disc conditions and removal of the disc as a part of correction of deformity. For a repeated operative procedure of discectomy, establishment of specific diagnosis and positive identification of pathologic condition are even more important than for the initial operation. Complications of this procedure include, but are not limited to, nerve damage, wrong level operation, spinal fluid leakage, infection and hemorrhage.

The Physician Advisory Committee strongly suggests implementation of a gentle aerobic reconditioning program (e.g., walking) and back education within the first post-op week, **barring complications**. The Physician Advisory Committee recommends patients be returned to work, barring any complications, based upon optimal formal rehabilitation and their individual work category as defined by the U.S. Department of Labor:

- (1) **Sedentary Work Category:** generally within 2 to 6 weeks post-op, barring complications.
- (2) **Light Work Category:** generally within 4 to 12 weeks post-op, barring complications.
- (3) **Medium Work Category:** generally within 6 to 14 weeks post-op, barring complications.
- (4) **Medium/Heavy Work Category:** generally within 6 to 16 weeks post-op, barring complications.

- (5) **Heavy to Very Heavy Work Category:** generally, the prognosis is guarded. Once reasonable restrictions can be predicted, the Physician Advisory Committee recommends consideration of Vocational Assessment as soon as possible.

The practitioner should consider and document any specific physical limitations that may apply, such as tolerance for sitting, prior to return to duty. The practitioner must provide the employer with specific physical restrictions for modification of duties. The following functions must be considered: lifting, pushing, pulling, crouching, use of stairs, bending at the waist and tolerance for sitting and standing. The practitioner should request clarification of the patient's job duties from the employer, if an issue.

- c. **Chemoneucleolysis:** A surgical procedure to inject a proteolytic enzyme into the disc to obtain an enzymatic degradation of the nucleus pulposus; recommended for decompression of symptomatic herniated discs in continuity causing neural compression. Complications of the procedure include, but are not limited to, severe adverse reaction, neurologic complications including transverse myelitis, infection and back muscle spasm. Currently, the Physician Advisory Committee recommends this procedure not be considered a reasonable standard for surgical intervention in Oklahoma for injured workers with low back pain or radiculopathy.
- d. **Laminotomy/Laminectomy/Foramenotomy/Facetectomy:** These surgical procedures are partial or total removal of various parts of vertebral bone to provide access to produce neural decompression and are generally accepted, well established and widely used procedures. Indications for these procedures in the patient with acute low back pain include cauda equina syndrome with or without bowel/bladder dysfunction and/or progressive objective neurologic deficit.

The extent of decompression should be limited to the area of recognized pathology based upon clinical information and results of diagnostic tests. Injudicious neurodecompressive procedures are usually ineffective and may cause destabilization of the spinal motion segment. Complications include, but are not limited to, nerve injury, post-surgical instability, CSF leakage and infection.

- e. **Spinal Fusion:** A generally accepted, well established and widely used surgical procedure for various spinal disorders including fracture, fracture-dislocation, infection, deformity, tumor or tumorous conditions, instability, discogenic pain and low back pain disorders. Indications for spinal fusion may include:
- (1) Neural arch defect (spondylosis, spondylolytic spondylolisthesis, congenital unilateral neural arch hypoplasia)
 - (2) Segmental instability (excessive motion as in degenerative spondylolisthesis, surgically induced segmental instability)
 - (3) Functional Spinal Unit Failure (internal disc disruption and painful motion segment as in annular tears, disc resorption and facet syndrome)

- (4) Revision surgery for failed previous operation(s) if significant functional gains are anticipated. Revision surgery for purposes of pain relief only must be approached with **extreme** caution due to the less than 50% success rate reported in the literature.
- (5) Infection, tumor or deformity of the lumbosacral spine which cause intractable pain, neurological deficit and/or functional disability.

All pathological conditions for spinal fusion must be identified prior to any surgical intervention with a reasonable degree of certainty to be the source of symptoms by various diagnostic techniques (injection, neurophysiologic, electrophysiologic, psychometric and/or imaging techniques) and clinical information.

The Physician Advisory Committee recommends consideration of pre-op screening of neighboring segmental levels via MRI and/or CT/Discography prior to definitive fusion intervention. Barring complications, patients responding favorably to spinal fusion, may be able to return to sedentary-to-light work within 6-12 weeks post-op, light-to-medium work within 6-9 months post-op and medium-to-medium/heavy work within 6-12 months post-op. Patients requiring fusion whose previous occupation involved heavy-to-very-heavy labor should be considered for vocational assessment as soon as reasonable restrictions can be predicted. As previously noted, the practitioner must release the patient with specific physical restrictions and should obtain a clear job description from the employer, if necessary.

In that once an injured worker is off work greater than 6-9 months, the functional prognosis with or without fusion becomes guarded for that individual. An aggressive approach toward decision making is recommended when considering patients for possible fusion with completion of diagnostic workup and implementation of surgery, when indicated, within 5 months post-injury, whenever possible.

Contraindications for lumbar fusion:

- (1) Primary surgery for a new acute disc herniation with unilateral radiation of leg pain much greater than back pain.
- (2) Greater than 2 contiguous levels to be fused.

Both (1) and (2) require special approval.

- f. **Internal Fixation Systems:** Various internal fixation systems are used as an adjunct to spinal fusion procedure. Some are generally accepted and well established procedures and are now the standard of care at many spine centers. These systems may be utilized in those cases including degenerative spinal disorders known to have a high rate of failure by spinal fusion procedure alone. They may be used to obtain and maintain alignment while a spinal fusion heals. The operating surgeon's familiarity with the use of a given system is the most important factor in the successful use of a particular system.

Risk factors which lead to a high rate of failure of fusion which may benefit from enhanced fusion rates utilizing internal fixation include smoking, obesity, repeat fusion, multiple levels, floating fusion, diabetes, spondylolisthesis, use of allograft, metabolic bone disease, history of spinal fusion non-union or delayed union at other levels.

Earlier rehabilitation and return to work is possible with internal fixation. Removal of implants may be needed following successful fusion.

g. **Bone Growth Stimulator Indications:**

- | | | | |
|---|-----------------|---|------------------------|
| ! | Smoking | ! | Allograft |
| ! | Obesity | ! | Metabolic Bone Disease |
| ! | Floating Fusion | ! | Multiple Fusion Levels |
| ! | Diabetes | ! | History of Non-Union |

- h. **Re-Operations:** Re-operation is indicated only when the functional outcome following the re-operation is expected to be better within a reasonable degree of certainty than the outcome of other non-invasive or less invasive treatment procedures. "Functional" outcome refers to the patient's ability to improve functional tolerances such as sitting, standing, walking, strength, endurance, and/or vocational status.

The Common Policy Statement for Operative Treatment Procedures is even more important for this situation. While timely surgical decision making is critical to avoid deconditioning and increased disability, a time limited trial of reconditioning should be tried prior to re-operation. Re-operation has a high rate of complications and failure and may lead to disproportionately increased disability.

- i. **IDET Procedure:** IDET procedure may be indicated after four to six months of conservative treatment that has failed. Before proceeding with the IDET procedure, the patient must have a positive concordant discogram at that level.