RULE XVII, EXHIBIT A

Low Back Pain

Medical Treatment Guidelines

December 1, 2001

(Previously Adopted April 1993, revised April 30, 1994, March 2, 1995 & March 15, 1998)

Presented By:

State of Colorado

Department of Labor and Employment

DIVISION OF WORKERS' COMPENSATION

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A. INTRODUCTION

This document has been prepared by the Colorado Department of Labor and Employment, Division of Workers' Compensation (Division) and should be interpreted within the context of guidelines for physicians/providers treating individuals qualifying under Colorado's Workers' Compensation Act as injured workers with low back pain.

Although the primary purpose of this document is advisory and educational, these guidelines are enforceable under the Workers' Compensation rules of Procedure, 7 CCR 1101-3. The Division recognizes that acceptable medical practice may include deviations from these guidelines, as individual cases dictate. Therefore, these guidelines are not relevant as evidence of a provider's legal standard of professional care.

To properly utilize this document, the reader should not skip nor overlook any sections.

B. GENERAL GUIDELINE PRINCIPLES

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

1. Application of Guidelines

The Division provides procedures to implement medical treatment guidelines and to foster communication to resolve disputes among the provider, payer and patient through the Worker's Compensation Rules of Procedure, Rule XVII and Rule VIII. In lieu of more costly litigation, parties may wish to seek administrative dispute resolution services through the Division.

2. Education

Education of the patient and family, as well as the employer, insurer, policy makers and the community should be the primary emphasis in the treatment of low back pain and disability. Currently, practitioners often think of education last, after medications, manual therapy and surgery. Practitioners must develop and implement an effective strategy and skills to educate

patients, employers, insurance systems, policy makers and the community as a whole. An education-based paradigm should always start with inexpensive communication providing reassuring information to the patient. More in-depth education currently exists within a treatment regime employing functional restorative and innovative programs of prevention and rehabilitation. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of facilitating self-management of symptoms and prevention.

3. Treatment Paramater 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.

4. Active Interventions

Interventions emphasizing patient responsibility, such as therapeutic exercise and/or functional treatment, are generally emphasized over passive modalities, especially as treatment progresses. Generally, passive interventions are viewed as a means to facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains.

5. Active Therapeutic Exercise Program

Exercise program goals should incorporate patient strength, endurance, flexibility, coordination, and education. This includes functional application in vocational or community settings.

6. Positive Patient Response

Positive results are defined primarily as functional gains that can be objectively measured. Objective functional gains include, but are not limited to, positional tolerances, range-of-motion, strength, endurance, activities of daily living, cognition, psychological behavior, and efficiency/velocity measures that 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.

7. Re-Evaluate Treatment Every 3 to 4 Weeks

If a given treatment or modality is not producing positive results within 3 to 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.

8. 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 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 conditions.

9. Six-Month Time Frame

The prognosis drops precipitously for returning an injured worker to work once he/she has been temporarily totally disabled for more than six months. The emphasis within these guidelines is to move patients along a continuum of care and return-to-work within a six-month time frame, whenever possible. It is important to note that time frames may not be pertinent to injuries that do not involve work-time loss or are not occupationally related.

10. Return-to-Work

Return-to-work is therapeutic, assuming the work is not likely to aggravate the basic problem or increase long-term pain. The practitioner must provide specific physical limitations and the patient should never be released to "sedentary" or "light duty." The following physical limitations should be considered and modified as recommended: lifting, pushing, pulling, crouching, walking, using stairs, bending at the waist, awkward and/or sustained postures, tolerance for sitting or standing, hot and cold environments, data entry and other repetitive motion tasks, sustained grip, tool usage and vibration factors. Even if there is residual chronic pain, return-to-work is not necessarily contraindicated.

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 of the patient's job duties. Clarification should be obtained from the employer or, if necessary, including, but not limited to, an occupational health nurse, occupational therapist, vocational rehabilitation specialist, or an industrial hygienist.

11. Delayed Recovery

Strongly consider a psychological evaluation, if not previously provided, as well as initiating interdisciplinary rehabilitation treatment and vocational goal setting, for those patients who are failing to make expected progress 6 to 12 weeks after an injury. The Division recognizes that 3 to 10% of all industrially injured patients will not recover within the timelines outlined in this document despite optimal care. Such individuals may require

treatments 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.

12. Guideline Recommendations and Inclusion of Medical Evidence

Guidelines are recommendations based on available evidence and/or consensus recommendations. When possible, guideline recommendations will note the level of evidence supporting the treatment recommendation. When interpreting medical evidence statements in the guideline, the following apply:

Consensus means the opinion of experienced professionals based on general medical principles. Consensus recommendations are designated in the guideline as "generally well accepted," "generally accepted," "acceptable," or "well established."

"Some" means the recommendation considered at least one adequate scientific study, which reported that a treatment was effective.

"Good" means the recommendation considered the availability of multiple adequate scientific studies or at least one relevant high-quality scientific study, which reported that a treatment was effective.

"Strong" means the recommendation considered the availability of multiple relevant and high quality scientific studies, which arrived at similar conclusions about the effectiveness of a treatment.

All recommendations in the guideline are considered to represent reasonable care in appropriately selected cases, regardless of the level of evidence or consensus statement attached to it. Those procedures considered inappropriate, unreasonable, or unnecessary are designated in the guideline as being "not recommended."

13. Care Beyond Maximum Medical Improvement (MMI)

MMI should be declared when a patient's condition has plateaued to the point where the authorized treating physician no longer believes further medical intervention is likely to result in improved function. However, some patients may require treatment after MMI has been declared in order to maintain their functional state. The recommendations in this guideline are for pre-MMI care and are not intended to limit post-MMI treatment.

The remainder of this document should be interpreted within the parameters of these

guideline principles that may lead to more optimal medical and functional outcomes for injured workers.

C. INITIAL DIAGNOSTIC PROCEDURES

The Division recommends the following 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. Standard procedures, that should be utilized when initially diagnosing a work-related low back pain complaint, are listed below.

1. History-Taking and Physical Examination (Hx & PE)

History taking and physical examinations are generally accepted, well established and widely used procedures that establish the foundation/basis for and dictates subsequent stages of diagnostic and therapeutic procedures. When findings of clinical evaluations and those of other diagnostic procedures are not complementing each other, the objective clinical findings should have preference. The medical records should reasonably document the following.

a. History of Present Injury:

1) Mechanism of injury. This includes details of symptom onset and progression;

2) Relationship to work. This includes a statement of the probability that the illness or injury is work-related;

3) Location of pain, nature of symptoms, and alleviating/exacerbating factors (e.g., sitting tolerance);

4) Presence of lower extremity numbness, weakness, or paresthesias, especially if precipitated by coughing or sneezing;

5) Alteration in bowel, bladder, or sexual function;

6) Prior occupational and non-occupational injuries to the same area including specific prior treatment, chronic or recurrent symptoms, and any functional limitations; and

7) Ability to perform job duties and activities of daily living.

b. Past History:

1) Past medical includes neoplasm, gout, arthritis, hypertension, kidney stones, and diabetes;

2) Review of systems includes symptoms of rheumatologic, neurologic, endocrine, neoplastic, infectious, and other systemic diseases;

3) Smoking history; and

4) Vocational and recreational pursuits.

c. Physical Examination

Physical examinations should include accepted tests and exam techniques applicable to the area being examined, including:

1) General inspection, including stance and gait;

2) Visual inspection;

3) Palpation;

4) Lumber range of motion, quality of motion, and presence of muscle spasm. Motion evaluation of specific joints may be indicated;

5) Nerve tension testing;

6) Sensory and motor examination of the lower extremities with specific nerve root focus;

7) Deep tendon reflexes with or without Babinski's;

8) If applicable to injury, anal sphincter tone and/or perianal sensation; and

9) If applicable, abdominal examination, vascular examination, circumferential lower extremity measurements, or evaluation of hip or other lower extremity abnormalities.

2. Radiographic Imaging

Radiographic imaging of the lumbosacral spine is a generally accepted, well-established and widely used diagnostic procedure when specific indications based on history and/or physical examination are present. It should not be routinely performed. The mechanism of injury and specific indications for the radiograph should be listed on the request form to aid the radiologist and x-ray technician. Suggested indications include:

1) History of significant trauma, especially blunt trauma or fall from a height;

2) Age over 55 years;

3) Unexplained or persistent low back pain for at least 6 weeks or that is worse with rest;

4) Localized pain, fever, constitutional symptoms, or history or exam suggestive of intravenous drug abuse, prolonged steroid use, or osteomyelitis;

5) Suspected lesion in the lumbosacral spine as a part of a systemic illness such as a rheumatic/rheumatoid disorder or endocrinopathy. Suspected lesions may require special views;

6) Past medical history suggestive of pre-existing spinal disease, spinal instrumentation, or tumor; and

7) Roentgenographic evaluation may be appropriate before high-velocity/low amplitude manipulation or Grade IV to V mobilization.

3. Laboratory Testing

Laboratory tests are generally accepted well established and widely used procedures. They are, however, rarely indicated at the time of initial evaluation, unless there is suspicion of systemic illness, infection, neoplasia, or underlying rheumatologic disorder, connective tissue disorder, or based on history and/or physical examination. Laboratory tests can provide useful diagnostic information. Tests include, but are not limited to:

1) CBC with differential can detect infection, blood dyscrasias, and medication side effects;

2) Erythrocyte sedimentation rate, rheumatoid factor, ANA, HLA, and C-reactive protein can be used to detect evidence of a rheumatologic, infection, or connective tissue disorder;

3) Serum calcium, phosphorous, uric acid, alkaline phosphatase, and acid phosphatase can detect metabolic bone disease;

4) Urinalysis for bacteria (usually with culture and sensitivity), calcium, phosphorus, hydroxyproline, or hematuria; and

5) Liver and kidney function may be performed for prolonged anti-inflammatory use or other medications requiring monitoring.

D. 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 complementary procedure in combination with other procedures(s), or a proper sequential order in multiple procedures will ensure maximum diagnostic accuracy; minimize adverse effect to patients and cost effectiveness by avoiding duplication or redundancy.

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 procedure results.

Magnetic resonance imaging (MRI), myelography, or CT scanning following myelography 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 can be a complementary diagnostic procedure if the first or preceding procedures, in conjunction with clinical information, cannot provide an accurate diagnosis. Usually, preference of a procedure over others depends upon availability, a patient's tolerance and/or the treating practitioner's familiarity with the procedure.

1. Imaging Studies

Imaging studies are generally accepted, well established and widely used diagnostic procedures. When indicated, imaging studies can be utilized for further evaluation of the low back, based upon the mechanism of injury, symptoms, and patient history. Prudent choice of a single diagnostic procedure, a complementary combination of procedures, or a proper sequential order of complementary procedures will help ensure maximum diagnostic accuracy and minimize adverse effect to the patient. When the findings of the diagnostic imaging and testing procedures are not consistent with the clinical examination, the clinical findings should have preference. The studies below are listed in frequency of use, not importance:

a. Magnetic Resonance Imaging (MRI)

MRI is rarely indicated in patients with non-traumatic acute low back pain with no neuropathic signs or symptoms. It is generally the first follow-up imaging study in individuals who respond poorly to proper initial conservative care. MRI is useful in suspected nerve root compression, myelopathy, masses, infections, metastatic disease, disc herniation, annular tear, and cord contusion. It is contraindicated in patients with certain implants.

In general, the high field, conventional, MRI provides better resolution. A lower field scan may be indicated when a patient cannot fit into a high field scanner or who is too claustrophobic despite sedation. Inadequate

resolution on the first scan may require a second MRI using a different technique. All questions in this regard should be discussed with the MRI center and/or radiologist.

b. Computerized Axial Tomography (CT)

CT provides excellent visualization of bone and is used to further evaluate bony masses and suspected fractures not clearly identified on radiographic evaluation. It may sometimes be done as a complement to MRI scanning to better delineate bony osteophyte formation in the neural foramen. Instrument-scatter reduction software provides better resolution when metallic artifact is of concern.

c. Lineal Tomography

Lineal tomography is infrequently used, yet may be helpful in the evaluation of bone surfaces, bony fusion, or pseudoarthrosis.

d. Bone Scan (Radioisotope Bone Scanning)

Bone scanning is generally accepted, well established and widely used. Bone scanning is more sensitive but less specific than MRI. ^{99M}Technecium diphosphonate uptake reflects osteoblastic activity and may be useful in metastatic/primary bone tumors, stress fractures, osteomyelitis, and inflammatory lesions, but cannot distinguish between these entities.

e. Myelography

Myelography is the injection of radiopaque material into the spinal subarachnoid space with x-rays then taken to define anatomy. It may be used as a pre-surgical diagnostic procedure to obtain accurate information of characteristics, location, and spatial relationships among soft tissue and bony structures. Myelography is an invasive procedure with complications including nausea, vomiting, headache, convulsion, arachnoiditis, CSF leakage, allergic reactions, bleeding, and infection. Therefore, myelography should only be considered when CT and MRI are unavailable, for morbidly obese or multiple-operated patients, and when other tests prove non-diagnostic in the surgical candidate. The use of small needles and a less toxic, water-soluble, nonionic contrast is preferred.

f. CT Myelogram

CT myelogram provides more detailed information about relationships between neural elements and surrounding anatomy and is appropriate in patients with multiple prior operations or tumorous conditions.

g. Electrodiagnostic Studies (EMG/NCV)

Electrodiagnostic studies include, but are not limited to, electromyography (EMG) and nerve conduction studies (NCS). These are generally accepted, well established, and widely used diagnostic procedures. Electrodiagnostic studies may be useful in the evaluation of patients with suspected radiculopathy.

h. Other Radionuclide Scanning

Indium and gallium scans are generally accepted, well established, and widely used procedures usually to help diagnose lesions seen on other diagnostic imaging studies. ^{67}Gallium citrate scans are used to localize tumor, infection, and abcesses. ^{111}Indium-labeled leukocyte scanning is utilized for localization of infection or inflammation.

2. Other Tests

The following studies are listed by frequency of use, not importance:

a. Personality/Psychological/Psychosocial/Evaluation

Personality/psychological/psychosocial evaluations are generally accepted and well-established diagnostic procedures with selective use in the acute low back pain population, but have more widespread use in sub-acute and chronic low back pain populations.

Diagnostic testing procedures may be useful for patients with symptoms of depression, delayed recovery, chronic pain, recurrent painful conditions, disability problems, and for pre-operative evaluation as well as a possible predictive value for post-operative response. Psychological testing should provide differentiation between pre-existing depression versus injury-caused depression, as well as post-traumatic stress disorder.

Formal psychological or psychosocial evaluation should be performed on patients not making expected progress within 6-12 weeks following injury and whose subjective symptoms do not correlate with objective signs and tests. In addition to the customary initial exam, the evaluation of the injured worker should specifically address the following areas:

1) Employment history;
2) Interpersonal relationships — both social and work;
3) Leisure activities;
4) Current perception of the medical system;
5) Results of current treatment;

6) Perceived locus of control; and

7) Childhood history, including abuse and family history of disability.

Results should provide clinicians with a better understanding of the patient, thus allowing for more effective rehabilitation. The evaluation will determine the need for further psychosocial interventions, and in those cases, a DSM IV diagnosis should be determined and documented. An individual with a PhD, PsyD, or Psychiatric MD/DO credentials may perform initial evaluations, which are generally completed within one to two hours. When issues of chronic pain are identified, the evaluation should be more extensive and follow testing procedures as outlined in Division Rule XVII, Exhibit F, Chronic Pain Disorder Medical Treatment Guideline.

(1) Frequency: One time visit for evaluation. If psychometric testing is indicated as a portion of the initial evaluation, time for such testing should not exceed an additional two hours of professional time.

b. Electrodiagnostic Testing

Electrodiagnostic tests include, but are not limited to, Electromyography (EMG), Nerve Conduction Studies (NCS), and Somatosensory Evoked Potentials (SSEP). These are generally accepted, well-established and widely used diagnostic procedures. The SSEP study, although it is generally accepted, has limited use. Electrodiagnostic studies may be useful for patients with suspected neural involvement whose symptoms are persistent or unresponsive to initial conservative treatments. They are used to differentiate peripheral neural deficits from radicular and spinal cord neural deficits and to rule out concomitant myopathy. Current Perception Threshold Evaluation (CPT) may be useful as a screening tool, but its diagnostic efficacy in the evaluation of industrial low back pain has not been determined.

In general, these diagnostic procedures are complementary to imaging procedures such as CT, MRI, and/or myelography or diagnostic injection procedures. Electrodiagnostic studies may provide useful, correlative neuropathophysiological information that would be otherwise unobtainable from the standard radiologic studies discussed above.

c. Injections — Diagnostic

1) Description — Diagnostic spinal injections are generally accepted, well-established procedures. These injections may be useful for localizing the source of pain, and may have added therapeutic value when combined with injection of therapeutic medication(s). Each diagnostic injection has inherent risk and risk versus benefit should always be evaluated when considering injection therapy. Since these procedures are invasive, less invasive 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.

   The interpretation of the test result is primarily based upon pain response. The diagnostic significance of the test result should be evaluated in conjunction with clinical information and the results of other diagnostic procedures. Injections with local anesthetics of differing duration are required to confirm the diagnosis of pain. In some cases, injections at multiple levels may be required to accurately diagnose low back pain. Refer to "Injections – Therapeutic" for information on specific injections.

2) Special Requirements for Diagnostic Injections — Since fluoroscopic, arthrographic and/or CT guidance during procedures is required to document technique and needle placement, an experienced physician should perform the procedure. The subspecialty disciplines of the physicians may be varied, including, but not limited to: anesthesiology, radiology, surgery, or physiatry. The practitioner should have experience in ongoing injection training workshops provided by organizations such as the International Spinal Injection Society (ISIS) and be knowledgeable in radiation safety. In addition, practitioners should obtain fluoroscopy training and radiation safety credentialing from their Departments of Radiology, as applicable.

3) Complications — General complications of diagnostic injections may include transient neurapraxia, nerve injury, infection, headache, urinary retention, and vasovagal effects, as well as epidural hematoma, permanent neurologic damage, dural perforation and CSF leakage, and spinal

meningeal abscess. Permanent paresis, anaphylaxis and arachnoiditis have been rarely reported with the use of epidural steroids.

4) Contraindications — Absolute contraindications of diagnostic injections include: (a) bacterial infection – systemic or localized to region of injection, (b) bleeding diatheses, (c) hematological conditions, and (d) possible pregnancy. Relative contraindications of diagnostic injections may include: (a) allergy to contrast, (b) poorly controlled Diabetes Mellitus or hypertension, (c) ASA/antiplatelet therapy (drug may be held for 3 days prior to injection), and (d) shellfish allergy, if contrast to be used.

5) Specific Diagnostic Injections — In general, relief should last for at least the duration of the local anesthetic used and give significant relief of pain. Refer to "Injections – Therapeutic" for information on specific therapeutic injections.

   (a) Medial Branch Blocks are primarily diagnostic injections, used to determine whether a patient is a candidate for facet rhizotomy.

   (b) Transforaminal injections are useful in identifying spinal pathology and can require repeat injections at multiple levels. When used for diagnosis, small amounts of local anesthetic (with or without steroid) up to a total volume of 1.0 to 1.5 cc should be used to determine the level of nerve root irritation. The relief should last for at least the duration of the local anesthetic used and give significant relief of pain.

d. Discography

1) Description — Discography is a generally accepted, well-established invasive diagnostic procedure to identify a discogenic source of pain for patients who are surgical candidates. Discography should only be performed by physicians who are experienced and have been proctored in the technique.

2) Indications — 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 all conservative interventions. A patient who does not desire surgical intervention is not a

candidate for an invasive non-therapeutic intervention, such as provocative discography.

Discography may prove useful for the evaluation of the pre-surgical spine, such as pseudoarthrosis, discogenic pain at levels above or below a prior spinal fusion, annular tear, or internal disc disruption. Discography is not useful in previously operated discs. In addition, discography may prove useful in evaluation of the number of lumbar spine levels that 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.

3) Preconditions for provocative discography include:

   (a) A patient with unremitting back and/or leg pain greater than 3 months duration in whom conservative treatment has been unsuccessful and in whom the specific diagnosis of the pain generator has not been made apparent on the basis of other noninvasive imaging studies (e.g., MRI, CT, plain films, etc.) and in whom a psychosocial evaluation has been considered.

   (b) Patients who are considered surgical candidates (e.g., symptoms are of sufficient magnitude and the patient has been informed of the possible surgical options that may be available based upon the results of discography). Discography should never be the sole indication for surgery.

   (c) Informed consent regarding the risks and potential diagnostic benefits of discography has been obtained.

4) Complications — Complications include, but are not limited to, discitis, nerve damage, chemical meningitis, pain exacerbation and anaphylaxis may occur with discography. Therefore, prior to consideration of discography, the patient should undergo other diagnostic modalities in an effort to define the etiology of the patient's complaint including psychological screening, myelography, CT and MRI.

5) Contraindications — Contraindications for provocative discography may include: (a) active infection of any type or continuing antibiotic treatment for infection; and/or (b)

bleeding diathesis or pharmaceutical anticoagulation with warfarin, etc.; and/or (c) significant spinal stenosis at the level being studied as visualized by MRI, myelography or CT scan; and/or (d) presence of clinical myelopathy; and/or (e) effacement of the cord, thecal sac or circumferential absence of epidural fat; and (f) known allergic reactions.

6) Special Considerations:

   (a) Discography should not be done by the treating surgeon, and the procedure should be carried out by an experienced individual who has received specialized training in the technique of provocative discography.

   (b) Discography should be performed in a blinded format that avoids leading the patient with anticipated responses. The procedure should always include one or more disc levels thought to be normal or nonpainful in order to serve as an internal control. The patient should not know what level is being injected in order to avoid spurious results.

   (c) Sterile technique should be utilized.

   (d) Judicious use of sedation during the procedure is acceptable and represents the most common practice nationally at the current time and is recommended by most experts in the field.

   (e) CT or MRI must have established spinal dimensions and ruled out spinal stenosis.

   (f) Intradiscal injection of local anesthetic should be carried out after the provocative portion of the examination and the patient's response.

   (g) It is recommended that a post-discogram CT be considered as it frequently provides additional useful information about disc morphology or other pathology.

7) Reporting of Discography — In addition to a narrative report, the discography report should contain a standardized classification of (a) disc morphology and (b) the pain response. Both results should be clearly separated in the report from the narrative portion. Asymptomatic annular tears are common and the concordant pain response is an

essential finding for a positive discogram. Alternative reporting techniques using pressure monitors are being investigated and may prove useful in identifying patients with discogenic pain.

Caution should be used when interpreting results from discography. In one study of patients without lumbar pathology, 10 percent of pain free patients experienced pain with discography and 83 percent of patients with somatization disorder experienced pain with lumbar discography.

(a) Reporting disc morphology as visualized by the post-injection CT scan (when available) should follow the Modified Dallas Discogram Scale where:

Grade 0 = Normal Nucleus

Grade 1 = Annular tear confined to inner one-third of annulus fibrosis.

Grade 2 = Annular tear extending to the middle third of the annulus fibrosis.

Grade 3 = Annular tear extending to the outer one-third of the annulus fibrosis.

Grade 4 = A grade 3 tear plus dissection within the outer annulus to involve more than 30 degrees of the disc circumference.

Grade 5 = Full thickness tear with extra-annular leakage of contrast, either focal or diffuse.

(b) Reporting of pain response should be according to the modified Aprill Scheme. In this scheme, codes are assigned a response during the initial injection ("P" provocative response) and the response to an injection of the local anesthetic ("R" response) where:

P_0 = No Pain

P_1 = Procedural pain, or pain that is nonconcordant with the patient's familiar pain

P_2 = Concordant pain

R_0 = No pain relief with injection of local anesthetic

R_1 = Partial relief

R_2 = Complete relief

N = Nondiagnostic, nonphysiologic injection. The final category of "N" is suggested when the discographer concludes that the provocative portion of the injection is nondiagnostic. For example, a patient with a morphologically normal disc who responds when typical pain is reproduced is considered to have a non-diagnostic or nonphysiologic response. Other circumstances may occur that cause the discographer to conclude that the provocative portion of the injection is invalid. The category "N" should be used for these situations.

(1) Time to produce effect: Immediate

(2) Frequency: One time only

(3) Optimal duration: One time

(4) Maximum duration: Repeat discography is rarely indicated.

e. Thermography

Thermography is an accepted and established procedure, but has limited use as a diagnostic test for low back pain. It may be used to diagnose regional pain disorders and in these cases, refer to Division Rule XVII, Exhibit D, Reflex Sympathetic Dystrophy/Complex Regional Pain Syndrome Medical Treatment Guidelines.

3. Special Tests

Special tests are generally well-accepted tests and are performed as part of a skilled assessment of the patients' capacity to return to work, his/her strength capacities, and physical work demand classifications and tolerance.

a. Computer-Enhanced Evaluations

Computer-enhanced evaluations may include isotonic, isometric, isokinetic and/or isoinertial measurement of movement, range of motion, endurance or strength. Values obtained can include degrees of motion, torque forces, pressures or resistance. Indications include determining validity of effort, effectiveness of treatment and demonstrated motivation. These evaluations should not be used alone to determine return to work restrictions.

(1) Frequency: One time for evaluation. Can monitor improvements in strength every 3 to 4 weeks up to a total of 6 evaluations.

b. Functional Capacity Evaluation (FCE)

Functional capacity evaluation is a comprehensive or modified evaluation of the various aspects of function as they relate to the worker's ability to return to work. Areas such as endurance, lifting (dynamic and static), postural tolerance, specific range of motion, coordination and strength, worker habits, employability and financial status, as well as psychosocial aspects of competitive employment may be evaluated. Components of this evaluation may include: (a) musculoskeletal screen; (b) cardiovascular profile/aerobic capacity; (c) coordination; (d) lift/carrying analysis; (e) job-specific activity tolerance; (f) maximum voluntary effort; (g) pain assessment/psychological screening; and (h) non-material and material handling activities.

(1) Frequency: Can be used initially to determine baseline status. Additional evaluations can be performed to monitor and assess progress and aid in determining the endpoint for treatment.

c. Jobsite Evaluation

Jobsite evaluation is a comprehensive analysis of the physical, mental and sensory components of a specific job. These components may include, but are not limited to: (a) postural tolerance (static and dynamic); (b) aerobic requirements; (c) range of motion; (d) torque/force; (e) lifting/carrying; (f) cognitive demands; (g) social interactions; (h) visual perceptual; (i) environmental requirements of a job; (j) repetitiveness; and (k) essential functions of a job. Job descriptions provided by the employer are helpful but should not be used as a substitute for direct observation.

(1) Frequency: One time with additional visits as needed for follow-up per job site.

d. 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 and can reasonably prognosticate final restrictions,

implementation of a timely vocational assessment can be performed. The vocational assessment should provide valuable guidance in the determination of future rehabilitation program goals. It should clarify rehabilitation goals, which optimize both patient motivation and utilization of rehabilitation resources. If prognosis for return to former occupation is determined to be poor, except in the most extenuating circumstances, vocational assessment should be implemented within 3 to 12 months post-injury. Declaration of Maximum Medical Improvement should not be delayed solely due to lack of attainment of a vocational assessment.

(1) Frequency: One time with additional visits as needed for follow-up.

e. Work Tolerance Screening

Work tolerance screening is a determination of an individual's tolerance for performing a specific job as based on a job activity or task. It may include a test or procedure to specifically identify and quantify work-relevant cardiovascular, physical fitness and postural tolerance. It may also address ergonomic issues affecting the patient's return-to-work potential. May be used when a full Functional Capacity Evaluation is not indicated.

(1) Frequency: One time for evaluation. May monitor improvements in strength every 3 to 4 weeks up to a total of 6 evaluations.

E. THERAPEUTIC PROCEDURES — NON-OPERATIVE

Before initiation of any therapeutic procedure, the authorized treating provider, employer and insurer must consider these important issues in the care of the injured worker.

First, patients undergoing therapeutic procedure(s) should be released or returned to modified or restricted duty during their rehabilitation at the earliest appropriate time. Refer to "Return-to-Work" in this section for detailed information.

Second, cessation and/or review of treatment modalities should be undertaken when no further significant subjective or objective improvement in the patient's condition is noted. If patients are not responding within the recommended duration periods, alternative treatment interventions, further diagnostic studies or consultations should be pursued.

Third, providers should provide and document education to the patient. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of facilitating self-management of symptoms.

Lastly, formal psychological or psychosocial screening should be performed on patients not making expected progress within 6 to 12 weeks following injury and whose subjective symptoms do not correlate with objective signs and tests.

In cases where a patient is unable to attend an outpatient center, home therapy may be necessary. Home therapy may include active and passive therapeutic procedures as well as other modalities to assist in alleviating pain, swelling, and abnormal muscle tone. Home therapy is usually of short duration and continues until the patient is able to tolerate coming to an outpatient center.

Non-operative treatment procedures for low back pain can be divided into two groups: conservative care and rehabilitation. Conservative care is treatment applied to a problem in which spontaneous improvement is expected in 90% of the cases within three months. It is usually provided during the tissue-healing phase and lasts no more than six months, and often considerably less. Rehabilitation is treatment applied to a more chronic and complex problem in a patient with deconditioning and disability. It is provided during the period after tissue healing to obtain maximal medical recovery. Treatment modalities may be utilized sequentially or concomitantly depending on chronicity and complexity of the problem, and treatment plans should always be based on a diagnosis utilizing appropriate diagnostic procedures.

The following procedures are listed in alphabetical order.

1. Acupuncture

Acupuncture is an accepted and widely used procedure for the relief of pain and inflammation and there is some scientific evidence to support its use. The exact mode of action is only partially understood. Western medicine studies suggest that acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation, and affects the release of neurotransmitters. Acupuncture is commonly used as an alternative or in addition to traditional Western pharmaceuticals. While it is commonly used when pain medication is reduced or not tolerated, it may be used as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity. Acupuncture should be performed by credentialed practitioners.

a. Acupuncture

Acupuncture is the insertion and removal of filiform needles to stimulate acupoints (acupuncture points). Needles may be inserted, manipulated and retained for a period of time. Acupuncture can be used to reduce

pain, reduce inflammation, increase blood flow, increase range of motion, decrease the side effect of medication-induced nausea, promote relaxation in an anxious patient, and reduce muscle spasm.

Indications include joint pain, joint stiffness, soft tissue pain and inflammation, paresthesia, post-surgical pain relief, muscle spasm, and scar tissue pain.

(1) Time to produce effect: 3 to 6 treatments

(2) Frequency: 1 to 3 times per week

(3) Optimum duration: 1 to 2 months

(4) Maximum duration: 14 treatments

b. Acupuncture with Electrical Stimulation

Acupuncture with electrical stimulation is the use of electrical current (micro- amperage or milli-amperage) on the needles at the acupuncture site. It is used to increase effectiveness of the needles by continuous stimulation of the acupoint. Physiological effects (depending on location and settings) can include endorphin release for pain relief, reduction of inflammation, increased blood circulation, analgesia through interruption of pain stimulus, and muscle relaxation.

It is indicated to treat chronic pain conditions, radiating pain along a nerve pathway, muscle spasm, inflammation, scar tissue pain, and pain located in multiple sites.

(1) Time to produce effect: 3 to 6 treatments

(2) Frequency: 1 to 3 times per week

(3) Optimum duration: 1 to 2 months

(4) Maximum duration: 14 treatments

c. Other Acupuncture Modalities

Acupuncture treatment is based on individual patient needs and therefore treatment may include a combination of procedures to enhance treatment effect. Other procedures may include the use of heat, soft tissue manipulation/massage, and exercise. Refer to Active Therapy (Therapeutic Exercise) and Passive Therapy sections (Massage and Superficial Heat and Cold Therapy) for a description of these adjunctive acupuncture modalities.

(1) Time to produce effect: 3 to 6 treatments

(2) Frequency: 1 to 3 times per week

(3) Optimum duration: 1 to 2 months

(4) Maximum duration: 14 treatments

Any of the above acupuncture treatments may extend longer if objective functional gains can be documented or when symptomatic benefits facilitate progression in the patient's treatment program. Treatment beyond 14 treatments must be documented with respect to need and ability to facilitate positive symptomatic or functional gains. Such care should be re-evaluated and documented with each series of treatments.

2. Biofeedback

Biofeedback is a form of behavioral medicine that helps patients learn self-awareness and self-regulation skills for the purpose of gaining greater control of their physiology, such as muscle activity, brain waves, and measures of autonomic nervous system activity. Electronic instrumentation is used to monitor the targeted physiology and then displayed or fed back to the patient visually, auditorially, or tactilely, with coaching by a biofeedback specialist. Biofeedback is provided by clinicians certified in biofeedback and/or who have documented specialized education, advanced training, or direct or supervised experience qualifying them to provide the specialized treatment needed (e.g., surface EMG, EEG, or other).

Treatment is individualized to the patient's work-related diagnosis and needs. Home practice of skills is required for mastery and may be facilitated by the use of home training tapes. The ultimate goal in biofeedback treatment is normalizing the physiology to the pre-injury status to the extent possible and involves transfer of learned skills to the workplace and daily life. Candidates for biofeedback therapy or training must be motivated to learn and practice biofeedback and self-regulation techniques.

Indications for biofeedback include individuals who are suffering from musculoskeletal injury where muscle dysfunction or other physiological indicators of excessive or prolonged stress response affects and/or delays recovery. Other applications include training to improve self-management of emotional stress/pain responses such as anxiety, depression, anger, sleep disturbance, and other central and autonomic nervous system imbalances. Biofeedback is often utilized along with other treatment modalities.

(1) Time to produce effect: 3 to 4 sessions

(2) Frequency: 1 to 2 times per week

(3) Optimum duration: 5 to 6 sessions

(4) Maximum duration: 10 to 12 sessions. Treatment beyond 12 sessions must be documented with respect to need, expectation, and ability to facilitate positive symptomatic or functional gains.

3. Injections — Therapeutic

a. Therapeutic Spinal Injections

Description — Therapeutic spinal injections, which include epidural steroid and facet injections, are generally accepted, well-established procedures. They may be used after initial conservative treatment, such as physical and occupational therapy, medication, manual therapy, exercise, acupuncture etc., has been undertaken. Therapeutic injections should be used only after pathology has been demonstrated. Injections are invasive procedures that can cause serious complications thus clinical indications and contraindications should be closely adhered to. It is recommended that all patients have an appropriate exercise program that may include a functionally directed rehabilitation program.

Special Considerations — For all injections (excluding trigger point) fluoroscopic, arthrographic and/or CT guidance during procedures is recommended to document technique and needle placement, and should be performed by a physician experienced in the procedure. The subspecialty disciplines of the physicians may be varied, including, but not limited to: anesthesiology, radiology, surgery, or physiatry. The practitioner should participation in ongoing injection training workshops such as those sponsored by International Society for Injection Studies (ISIS) and be knowledgeable in radiation safety. In addition, practitioners should obtain fluoroscopy training and radiation safety credentialing from their Departments of Radiology, as applicable.

Complications — General complications of spinal injections may include (a) transient neurapraxia, local pain, nerve injury, infection, headache, urinary retention and vasovagal effects; (b) epidural hematoma, permanent neuralgic damage, dural perforation and CSF leakage, spinal meningeal abscess; and or (c) suppression of the hypothalamic pituitary adrenal axis, which may be steroid dose dependent. Permanent paresis, anaphylaxis and arachnoiditis have been rarely reported with the use of epidural steroids.

Contraindications — Absolute contraindications of diagnostic injections include: (a) bacterial infection–systemic or localized to region of injection, (b) bleeding diatheses, (c) hematological conditions, and (d)

possible pregnancy. Relative contraindications of diagnostic injections may include: (a) allergy to contrast, (b) poorly controlled Diabetes Mellitus or hypertension, (c) ASA/antiplatelet therapy (drug may be held for 3 days prior to injection), (d) shellfish allergy, if contrast to be used.

1) Epidural Steroid Injection (ESI)

(a) Description — Epidural steroid injections are injections of corticosteroid into the epidural space. The purpose of ESI is to reduce pain and inflammation, restoring range of motion and thereby facilitating progress in more active treatment programs. ESI use three approaches: transforminal, translaminar (midline), and caudal. There is good evidence to support a preference for a transforaminal approach. The evidence also suggests that the transforaminal approach can deliver medication to the target tissue with few complications and is therefore used to identify the specific site of pathology. This is also the preferred approach for post-surgical patients.

(b) Needle Placement — Spinal imaging is required for all transforaminal epidural steroid injections. Since injections performed without radiographic guidance result in an increased risk of incorrect needle placement, spinal imaging is recommended for caudal and translaminar injections if available within 30 miles of the patient's home. Contrast epidurograms allow one to verify the flow of medication into the epidural space.

(c) Indications — There is some evidence that epidural steroid injections are effective for patients with radicular pain or radiculopathy (sensory or motor loss in a specific dermatome or myotome). Although there is no evidence regarding the effectiveness of ESI for non-radicular pain, it is a generally accepted intervention. Selected cases of vertebral compression fracture may be helped by ESI.

(1) Time to produce effect: Local anesthetic, approximately 30 minutes; corticosteroid, 48 to 72 hours for 80% of patients and 2 weeks for 20%.

(2) Frequency: One or more divided levels can be injected in one session. Whether injections are repeated depends upon the patient's response to the previous injection session. Subsequent injection sessions may occur after 1 to 2 weeks if patient response has been favorable. Injections can be repeated after a hiatus of three months if the patient has demonstrated functional gain and pain returns or worsens. If ESIs are repeated in the future, there should be increasing duration of relief and continued functional gain.

(3) Optimum duration: Usually 1 to 3 sessions of injection(s), depending upon each patient's response and functional gain.

(4) Maximum duration: Up to 3 to 4 sessions of injections may be done as per the patient's response to pain and function. Patients should be reassessed after each injection session.

2) Zygoapophyseal (Facet) Injection

(a) Description — Intra-articular or pericapsular injection of local anesthetic and corticosteroid. Medial branch nerve blocks are diagnostic only. There is conflicting evidence to support a long-term therapeutic effect using facet injections.

(b) Indications — Facet injections may be considered in those patients whose history and examination are suggestive of a facet pain generator. Lumbar facet injections are primarily of diagnostic value. The therapeutic value of facet injections provides short-term pain relief for patients to progress through a functionally directed rehabilitation program. These injections are useful when used in conjunction with Manipulation Under Joint Anesthesia (MUJA). Facet injections determine level(s) of lumbar facet

involvement and the degree of pain coming from the posterior elements. Facet injections may help determine the best therapeutic exercise approach (i.e., lumbar stabilization vs. sacroiliac stabilization).

(1) Time to produce effect: Approximately 30 minutes for local anesthetic; 48 to 72 hours for corticosteroid.

(2) Frequency: 1 to 3 sessions for each joint.

(3) Optimum duration: 1 to 3 sessions of injections for each joint.

(4) Maximum duration: 3 intra-synovial or medial branch nerve injections per joint can be done for facilitating a therapeutic exercise program.

b. Facet Rhizotomy (Radio Frequency Medial Branch Neurotomy)

(a) Description — A procedure designed to denervate the facet joint by ablating the periarticular facet nerve branches. Percutaneous radiofrequency is the method generally used. There is good evidence to support this procedure in the cervical spine but benefits beyond one year are not yet established. Evidence in the lumbar spine is conflicting, however, the procedure is generally accepted.

(b) Indications — Pain of well-documented facet origin, unresponsive to active and/or passive therapy, unresponsive to manual therapy, and in which a psychosocial evaluation has been performed. This procedure is commonly used to provide a window of pain relief allowing for participation in active therapy. All patients must have a successful response to diagnostic medial nerve branch blocks. A successful response is considered to be a 90 percent or greater relief of pain for the length of time appropriate to the local anesthetic used (i.e., bupivacaine greater than lidocaine). Radio-frequency rhizotomy is the procedure of choice over alcohol, phenol, or cryoablation. Precise positioning of the probe using fluoroscopic guidance is

recommended since the maximum effective radius of the device is 2 milimeters.

(c) Complications — Bleeding, infection, or neural injury. The clinician must be aware of the risk of developing a deafferentation centralized pain syndrome as a complication of this and other neuroablative procedures.

(d) Post-Procedure Therapy — Active active and/or passive therapy. Implementation of a gentle aerobic reconditioning program (e.g., walking) and back education within the first post-procedure week, barring complications. Instruction and participation in a long-term home-based program of ROM, strengthening, endurance and stability exercises should be done 3 to 4 weeks post-procedure.

c. Sacroiliac Joint Injection

(a) Description — Injection of local anesthetic in an intra-articular fashion into the sacroiliac joint under radiographic guidance. May include the use of corticosteroids. Long-term therapeutic effect has not yet been established.

(b) Indications — Primarily diagnostic to rule out sacroiliac joint dysfunction vs. other pain generators. Intra-articular injection can be of value in diagnosing the pain generator. There should be documented relief from previously painful maneuvers (e.g., Patrick's test) on post-injection physical exam. Therapeutic response varies. Sacroiliac joint blocks may facilitate functionally directed rehabilitation program.

(1) Time to produce effect: Approximately 30 minutes for local anesthetic; 48 to 72 hours for corticosteroid.

(2) Frequency: 1 to 3 sessions of injections.

(3) Optimum duration: 1 to 3 sessions.

(4) Maximum duration: 3 sessions of injections. Once diagnosis has been

documented by intrajoint injection, posterior ligament block may be as effective as intra-joint injection for therapeutic value unless the primary pain is coming from an anterior capsular pain generator.

d. Trigger Point Injections

(a) Description — Trigger point injection consists of dry needling or injection of local anesthetic with or without corticosteroid into highly localized, extremely sensitive bands of skeletal muscle fibers that produce local and referred pain when activated. Medication is injected in a four-quadrant manner in the area of maximum tenderness. Injection efficacy can be enhanced if injections are immediately followed by myofascial therapeutic interventions, such as vapo-coolant spray and stretch, ischemic pressure massage (myotherapy), specific soft tissue mobilization and physical modalities. The effectiveness of trigger point injection is uncertain, in part due to the difficulty of demonstrating advantages of active medication over injection of saline. Needling alone may be responsible for some of the therapeutic response.

(b) Indications — Trigger point injections may be used to relieve myofascial pain and facilitate active therapy and stretching of the affected areas. They are to be used as an adjunctive treatment in combination with other treatment modalities such as functional restoration programs. Trigger point injections should be utilized primarily for the purpose of facilitating functional progress. Patients should continue in an aggressive aerobic and stretching therapeutic exercise program as tolerated throughout the time period they are undergoing intensive myofascial interventions. Myofascial pain is often associated with other underlying structural problems and any abnormalities need to be ruled out prior to injection.

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, noninvasive, myofascial interventions within approximately a 6 week time frame. However, trigger point injections may be occasionally effective when utilized in the patient with immediate, acute onset of low back pain.

(c) Complications — Potential but rare complications of trigger point injections include infection, pneumothorax, anaphylaxis, penetration of viscera, neurapraxia and neuropathy. If corticosteroids are injected in addition to local anesthetic, there is a risk of local myopathy developing. Severe pain on injection suggests the possibility of an intraneural injection, and the needle should be immediately repositioned.

(1) Time to produce effect: Local anesthetic 30 minutes; 24 to 48 hours for no anesthesia.

(2) Frequency: Weekly. Suggest no more than 4 injection sites per session per week to avoid significant post-injection soreness.

(3) Optimum duration: 4 Weeks.

(4) Maximum duration: 8 weeks. Occasional patients may require 2 to 4 repetitions of trigger point injection series over a 1 to 2 year period.

e. Prolotherapy

Prolotherapy, also known as sclerotherapy, consists of a series of injections of hypertonic dextrose, with or without glycerine and phenol, into the ligamentous structures of the low back. Its proponents claim that the inflammatory response to the injections will recruit cytokine growth factors involved in the proliferation of connective tissue, stabilizing the ligaments of the low back when these structures have been damaged by mechanical insults.

There are conflicting studies concerning the effectiveness of prolotherapy in the low back. Lasting functional improvement has not been shown. The injections are invasive, may be painful to the patient, are not generally accepted or widely used. Therefore, the use of prolotherapy for low back pain is not recommended.

f. Sympathetic Injections

Refer to Division Rule XVII, Exhibit D, Reflex Sympathetic Dystrophy/Complex Regional Pain Syndrome Medical Treatment Guideline for specific information regarding the use of these injections.

4. Medications

Medication use in the treatment of low back injuries is appropriate for controlling acute and chronic pain and inflammation. Use of medications will vary widely due to the spectrum of injuries from simple strains to post-surgical healing. All drugs should be used according to patient needs. A thorough medication history, including use of alternative and over the counter medications, should be performed at the time of the initial visit and updated periodically.

Nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen are useful in the treatment of inflammation. These same medications can be used for pain control.

Narcotic medications should be prescribed with strict time, quantity and duration guidelines, and with definitive cessation parameters. Pain is subjective in nature and should be evaluated using a scale to rate effectiveness of the narcotic prescribed. Other medications, including antidepressants, may be useful in selected patients with chronic pain. Tramadol, a centrally acting non-narcotic, can be useful to provide pain relief. Other medications, including antidepressants, may be useful in selected patients with chronic pain.

Topical agents may be beneficial in the management of localized low back pain.

The following are listed in alphabetical order:

a. Acetaminophen

Acetaminophen is an effective analgesic with antipyretic but not anti-inflammatory activity. Acetaminophen is generally well tolerated, causes little or no gastrointestinal irritation and is not associated with ulcer formation. Acetaminophen has been associated with liver toxicity in overdose situations or in chronic alcohol use.

(1) Optimum duration: 7 to 10 days.