DEPARTMENT OF LABOR

Division of Industrial Affairs
The Office of Workers' Compensation

Health Care Practice Guidelines

PART F Cervical Treatment Guidelines

1.0 Introduction

1.1 Pursuant to 19 **Del.C.** §2322C, health care practice guidelines have been adopted and recommended by the Workers' Compensation Oversight Panel to guide utilization of health care treatments in workers' compensation including care provided for the treatment of employees by or under the supervision of a licensed health care provider, prescription drug utilization, inpatient hospitalization and length of stay, diagnostic testing, physical therapy, chiropractic care and palliative care. The health care practice guidelines apply to all treatments provided after the effective date of the regulation adopted by the Department of Labor, May 23, 2008, and regardless of the date of injury. The cervical treatment guidelines ("Guidelines") were added to the list of treatment guidelines, effective June 1, 2009. The Guidelines are, to the extent permitted by the most current medical science or applicable science, based on well-documented scientific research concerning efficacious treatment for injuries and occupational disease. To the extent that well-documented scientific research regarding the above is not available at the time of, adoption of the Guidelines, or is not available at the time of any revision to the Guidelines, the Guidelines have been and will be based upon the best available information concerning national consensus regarding best health care practices in the relevant health care community.

1.2 The Guidelines, to the extent practical and consistent with the Act, address treatment of those physical conditions which occur with the greatest frequency, or which require the most expensive treatments, for work-related injuries based upon currently available Delaware data.

1.3 Services rendered by any health care provider certified pursuant to 19 **Del.C.** §2322D(a) to provide treatment or services for injured employees shall be presumed, in the absence of contrary evidence, to be reasonable and necessary if such treatment and/or services conform to the most current version of the Delaware health care practice guidelines.

1.4 Services rendered outside the Guidelines and/or variation in treatment recommendations from the Guidelines may represent acceptable medical care, be considered reasonable and necessary treatment and, therefore, determined to be compensable, absent evidence to the contrary, and may be payable in accordance with the Fee Schedule and Statute, accordingly.

1.5 Services provided by any health care provider that is not certified pursuant to 19 **Del.C.** §2322D(a) shall not be presumed reasonable and necessary unless such services are preauthorized by the employer or insurance carrier, subject to the exception set forth in 19 **Del.C**. §2322D(b).

1.6 Treatment of conditions unrelated to the injuries sustained in an industrial accident may be denied as unauthorized if the treatment is directed toward the non-industrial condition, unless the treatment of the unrelated injury is rendered necessary as a result of the industrial accident.

1.7 The Workers' Compensation Oversight Panel and Department of Labor recognized 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.

1.8 In accordance with the requirements of the Act, the development of the health care guidelines has been directed by a predominantly medical or other health professional panel, with recommendations then made to the Workers' Compensation Oversight Panel.

2.0 General Guideline Principles

2.1 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 chronic pain and disability. Currently, practitioners often think of education last, after medications, manual therapy, and surgery. Practitioners must implement strategies, 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 patient education is currently a component of treatment regimens which employ functional restorative, preventive, and rehabilitative programs. No treatment plan is complete without addressing issues of individual or group patient education as a means of facilitating self-management of symptoms and prevention.

2.2 Informed Decision Making. Providers should implement informed decision making as a crucial element of a successful treatment plan. Patients, with the assistance of their health care practitioner, should identify their personal and professional functional goals of treatment at the first visit. Progress towards the individual's identified functional goals should be addressed by all members of the health care team at subsequent visits and throughout the established treatment plan. Nurse case managers, physical therapists and other members of the health care team, play an integral role in informed decision making and achievement of functional goals. Patient education and informed decision making should facilitate self-management of symptoms and prevention of further injury.

2.3 Treatment Parameter. With respect to Therapy (Active or Passive), time frames/visits 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 comorbidities and availability of services. Clinical judgment may substantiate the need to accelerate or decelerate modify the time frames total number of visits discussed in this document. The majority of injured workers with Cervical pain often will achieve resolution of their condition within 8 to 24 visits (Guide to Physical Therapy Practice - Second Edition). It is anticipated that most injured workers will not require the maximum number of visits described in these guidelines. They are designed to be a ceiling and care extending beyond the maximum allowed visits may warrant utilization review.

2.4 Active 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. All rehabilitation programs must incorporate "Active Interventions" no later than 12 visits or 3 weeks after the onset of treatment. Reimbursement for passive modalities only after the first 12 visits 3 weeks of treatment without clear evidence of Active Interventions will require supportive documentation.

2.5 Active Therapeutic Exercise Program. Goals should incorporate patient strength, endurance, flexibility, coordination, and education. This includes functional application in vocational or community settings.

2.6 Positive Patient Response. Results are defined primarily as functional gains that can be objectively measured. Objective functional gains include positional tolerances, range of motion (ROM), strength, endurance, activities of daily living, cognition, 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.

2.7 Re-evaluate Treatment Every 10 to 12 Treatments. With respect to Therapy (Active or Passive), if a given treatment or modality is not producing positive results within 10 to 12 treatments, the treatment may be either modified or discontinued. Before discontinuing treatment, the provider should have a detailed discussion with the patient to determine the reason for failure to produce positive results. Reconsideration of diagnosis should also occur in the event of poor response to a seemingly rational intervention.

2.8 Surgical Interventions 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.

2.9 6-Month Time Frame. The prognosis drops precipitously for returning an injured worker to work once the injured worker has been temporarily totally disabled for more than 6 months. The emphasis within these guidelines is to move patients along a continuum of care and return to work within a 6-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.

2.10 **RETURN-TO-WORK** Return to Work. Early return to work should be a prime goal in treating occupational injuries given the poor return to work prognosis for an injured worker who has been out of work more than 6 months. The patient should be educated regarding the benefits of return to work, work restrictions and follow-up if problems arise. Employers should be encouraged to offer transitional work. This may consist of temporary work in a less demanding position, return to the regular job with restrictions, or gradual return to the regular job. Due to the large spectrum of injuries of varying severity and varying physical demands in the workplace, it is not possible to make specific return to work guidelines for each injury.

2.11 Guideline Recommendations and Inclusion of Medical Evidence. Recommendations are based on available evidence and/or consensus recommendations of the standard of care within Delaware. Those procedures considered inappropriate, unreasonable, or unnecessary are designated in the guideline as being "not recommended."

2.12 Delayed Recovery. Strongly consider a psychological evaluation, if not previously provided, as well as interdisciplinary rehabilitation and vocational goal setting, for those patients who are failing to make expected progress 6 to 12 weeks after an injury. The Department recognizes that, even despite optimal care, 3-10% of all industrially injured patients will not recover within the time lines outlined in this document. 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.

3.0 Overview of Care

3.1 Between 30 and 50% of the general population report experiencing neck pain within a given year. Neck pain in the workers compensation population usually occurs from whiplash associated disorders, other cervical strain injuries, or degenerative spondylolisthesis aggravated by work. Significant trauma resulting in fractures and/or spinal cord dysfunction is not covered in this overview.

3.2 Whiplash can result in symptoms lasting one year in about 50% of cases. Specifics such as type of headrest, direction of collision, and higher speed do not seem to predict outcome. Severity of symptoms, including the presence of neurological findings, predicts a longer recovery period. A 2013 study of whiplash injuries confirmed that passive coping techniques did increase time to recovery and return to full duty.

3.3 Neck Pain Without Radicular Pain or Neurologic Findings

3.3.1 Multiple studies confirm the importance of the first visit and the need to follow spe- cific processes in caring for the most common types of neck pain patients. It is important to perform a thorough neurological evaluation to clarify a specific diagnosis. Initial treatment should be similar for all patients who do not have “red flag” signs such as progressive neurologic deficits; myelopathy; upper extremity weakness; suspicion for epidural abscess; tumors; or other unusual presentations. Cervical strains, suspected facet syndromes, as well as disc herniations and spinal stenosis aggravations without progressive or serious neurological findings may initially be treated conservatively but not necessarily receive the same care as those with minor neurologic deficits.

3.3.2 All care begins with careful history taking, physical examination, and patient education. Additionally, the provider should present treatment options in order to lay the foundation for informed decision making. A detailed neurological exam should be done at the initial visit and repeated periodically to assess for any signs of progressive or continuing weakness, or mye- lopathy. At the first visit, patients with a benign clinical exam should understand that, with return to activity and some pain management, there is a high likelihood that their condition will improve over a period of several weeks. It is essential that neurologic exams be completed regularly to rule out disc herniations and stenosis**.**

3.3.3 Providers should take a thorough history on the first visit and carefully examine the patients to identify possible “yellow flags”, or conditions that may predispose the patient to a more complex clinical course. Examples include multiple medical diagnoses; prior history of physical or emotional abuse or chronic pain; multiple unresolved musculoskeletal conditions; depression or other psychological factors; fear-avoidant behavior; passive coping skills; limited range of motion; involvement in prior legal situations; and drug or opioid abuse etc. These patients may require multidisciplinary intervention to avoid the development of chronic pain, the use of un- necessary diagnostic testing, and prolonged treatment. Many of these “yellow flags” can be identified using validated patient-completed screening tools. Patients with persistent neurologic complaints may also require a more progressive work-up or other treatment.

3.3.4 Health care providers are expected to discuss self-management of pain with their patients. Appropriate over-the-counter medication and ice or heat, if desired by the patient may initially be helpful. If pain is severe, as in some cases with ruptured discs, opioids may be pre- scribed for a short time period. This avoids the accumulation of unused opioids that may be available for others in the household to misuse and minimizes the likelihood of opioid depend- ence. Multiple repeat prescriptions for opioids should generally be avoided. If it is necessary to prescribe opioids for more than 14 days, the provider should do the following:

3.3.4.1 Repeat a thorough neurologic and neck examination to rule out a more serious diagnosis;

3.3.4.2 Check the Physician’s Drug Monitoring Program (PDMP);

3.3.4.3 Consider urine drug screening;

3.3.4.4 Follow the patient closely; and

3.3.4.5 Consider a short screening questionnaire for abuse risk before prescribing.

3.3.5 All providers should emphasize return to activity with a detailed discussion describing exactly which activities should be performed and how often, as well as those activities that

should be avoided. The patient should identify functional goals at the initial visit which are specific to their needs. Examples include return to work, gardening, playing softball, driving, and computer use. In the absence of instability, complete bed rest or cervical immobilization is not advisable for this group of patients. The discussion of functional goals and current recommended activities should lead to return-to-work recommendations.

3.3.6 Multiple studies assessing cost-effectiveness and outcomes recommend initial inter- ventions should include education, non-opioid pain medication, and exercise or active therapy. Spinal manipulation and supervised physical therapy, often including an assessment to deter- mine the existence of directional preference, may also be appropriate for some patients. Most patients will recover with these interventions. Return to activity is important and should include return to work at appropriate physical duty levels, possibly with reduced work hours.

3.3.7 It is also appropriate to address smoking, as there is some evidence that patients who smoke respond less well to non-operative spine care and that quitting smoking results in greater improvement.

3.3.8 Many patients with musculoskeletal disorders also experience anxiety or depression. Using accepted screening tools periodically during patient visits can identify early psychological concerns. Cognitive behavioral therapy (CBT) is recommended for these patients and others who are not progressing as expected due to fear avoidance factors. CBT is as effective in populations that have disability as in those without disability.

3.3.9 It is generally not appropriate to perform invasive procedures on a patient who reports only mild neck pain. However, pain reports vary greatly among individuals with the same con- dition. Therefore, in the presence of compromised physical function that correlates with physi- cal exam findings, invasive procedures may be considered after compliance with recom- mended treatment as otherwise listed in the guidelines. The following are examples of func- tional compromise: difficulty with activities of daily living; inability to participate in the recom- mended active therapy; or lack of progress in job duty requirements.

3.3.10 Spinal injections should not be done without prior imaging to establish the diagnosis. The risks versus benefits must be carefully weighed and discussed with the patient when these interventions are considered. Both the specialist referred to and the authorized provider must thoroughly discuss and document the possible complications, the limited short-term

benefits, and the need for continuing engagement in active therapy.

3.3.11 Imaging is recommended prior to a spinal injection or to rule out other acute diagnoses such as fracture, occult cancer, infection, upper extremity weakness, signs of myelopathy, radiculopathy or suspected compression fracture. If a patient has persistent pain and imaging is deemed necessary, the ordering provider should document the elements from face-to-face discussion with the patient.

3.3.11.1 Providers should remember that many medical terms used to describe radiographic findings or used as diagnostic terms engender fear and concern in patients.

3.3.11.2 Unexplained concerns can lead patients to believe they have a significant pathological condition when, in fact, their condition is common and rarely leads to significant functional changes.

3.4 Neck Pain with Radicular and Neurological Findings. Radicular findings from a herniated disc with progressive neurological findings or obvious significant continuing weakness may be treated according to the protocol in the following section. This condition in the cervical spine is fairly common with a prevalence of 3.5/1000. Many patients with isolated radicular signs may be expected to recover without surgery; however, those with suspected spinal instability or spinal cord compression are likely to need surgery.

3.4.1 Approximately 10-20% of patients will require surgery due to severity of symptoms or lack of improvement with initial treatment. Myelopathy or myeloradiculopathy is common among patients presenting with symptomatic cervical spondylolisthesis. Therefore, the need for frequent detailed neurological exams in these patients is clear. Patients who have any signs of myelopathy or progressive neurological deficits should have expedited referral, magnetic resonance imaging (MRI), and may be appropriate for electrodiagnostic testing.

3.4.2 Any patient with neurologic findings of significant weakness or myelopathy, or significant functional impairment at 6 weeks should be considered for surgical referral since surgery should be performed before 12 weeks in order to allow the best outcome.

3.4.3 Most patients may exhibit the following signs of radiculopathy before invasive procedures are considered:

3.4.3.1 Pain in the arms greater than in the neck which interferes with function, return to work or active therapy;

3.4.3.2 Physical exam findings of abnormal reflexes, motor weakness or radicular sensation deficits;

3.4.3.3 Findings on the MRI which indicate impingement of nerves or the spinal cord corresponding to reproducible physical exam findings.

3.4.4 Patients with objective findings causing functional impairment which does not improve may require surgical treatment. Herniated discs with continued neurologic findings interfering with activity or those with spondylolisthesis and radiculopathy or myelopathy frequently require surgery. Patients with symptomatic disc herniation have the best chance for a positive func- tional outcome if they receive surgery within 3 months of the onset of radicular pain and in most instances the results are excellent. All cases requiring surgical intervention require documen- tation of a discussion with the patient to clarify that functional goals such as anticipated ADL's and work status align with patient expectations and goals.

4.0 Initial Diagnostic Procedures

4.1 The Department 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 Cervical pain complaint, are listed below.

4.2 History-taking and Physical Examination (Hx & PE). History-taking and physical examination 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.

4.2.1 History of Present Injury. A detailed history, taken in temporal proximity to the time of injury should primarily guide evaluation and treatment. The history may include:

4.2.1.1 Mechanism of injury. This includes details of symptom onset and progression, including a detailed description and the position of the body before, during, and at the end of the incident. In the absence of a known specific incident, common positioning of the body during the workday and frequency of requirements such as lifting, pushing, and pulling should be included.

4.2.1.2 Description of pain. This should include location of pain, nature of symptoms, and alleviating/exacerbating factors (e.g., sleep positions, tolerance for neck flexion). Of particular importance, is whether raising the arm over the head alleviates radicular-type symptoms. The presence of pain at night or while at rest may be a sign of more extensive pathology. The history should include both the primary and secondary complaints (e.g., primary neck pain, secondary arm pain, headaches, and shoulder girdle complaints). Pain should be quantified on a Visual Analog Scale (VAS) or similar accepted pain scale. Screening the patient for fear-avoidance issues may be useful initially to guide treatment.

4.2.1.3 Functional Assessment. Functional ability should be assessed and documented at the beginning of treatment. Periodic assessment should be recorded throughout the course of care to follow the trajectory of recovery.

4.2.2 Past History

4.2.2.1 Past medical history includes neoplasm, gout, arthritis, hypertension, diabetes, and fractures;

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

4.2.2.3 Type 1 or Type 2 diabetes. People with a body-mass index (BMI) greater than 30 may be at risk for the disease;

4.2.2.4 Smoking history. Smoking appears to be related to low back pain and thus may affect neck pain and may predispose patients to opioid addiction;

4.2.2.5 Medication use. Prescription and non-prescription including vitamins and natural products;

4.2.2.6 Vocational and recreational pursuits, including military service;

4.2.2.7 History of depression, anxiety, or other psychiatric illness.

4.2.3 Physical Examination. This may include accepted tests and exam techniques applicable to the area being examined:

4.2.3.1 General inspection, including posture, stance, and gait;

4.2.3.2 Visual inspection. Palpation of spinous processes, facets, and muscles noting myofascial tightness, tenderness, and trigger points; cervical range of motion (ROM), preferably measured or quantified range of motion, quality of motion, and presence of muscle spasm. Motion evaluation of specific joints may also be indicated. ROM should not be checked in acute trauma cases until fracture and instability have been ruled out on clinical examination, with or without radiographic evaluations. Patients with whiplash may be more likely to show decreased range of motion than asymptomatic patients;

4.2.3.3 Examination of thoracic spine and shoulder;

4.2.3.4 Motor and sensory examination of the upper muscle groups with specific nerve root focus, as well as sensation to light touch, pin prick, temperature, position and vibration. More than 2 cm difference in the circumferential measurements of the 2 upper extremities may indicate chronic muscle wasting; motor and sensory changes may implicate a specific nerve root. Testing for hip flexion weakness may be a useful indicator of possible myelopathy;

4.2.3.5 Asymmetry of deep tendon reflexes may indicate pathology. Inverted reflexes (e.g. arm flexion or triceps tap) may indicate nerve root or spinal cord pathology at the tested level. Pathologic reflexes include wrist, clonus, grasp reflex, and Hoffman's sign;

4.2.3.6 Assessment of gain, rapid walking, and balance;

4.2.3.7 Provocative tests for possible radiculopathy: The findings of provocative tests must be consistent with the patient’s history, physical exam, and

specific nerve root pathology. There is some evidence that Spurling test, traction/neck distraction and Valsalva demonstrate high specificity. The upper limb tension test (ULTT) should be done with finger and wrist extension. There is some evidence that a negative ULTT can be used to rule out radiculopathy;

4.2.3.8 For providers trained in the technique, repeated end range testing may be done to establish the presence of a directional preference, and possible centralization;

4.2.3.9 A combination of multiple physical exam test results is preferred because none are independently diagnostic.

4.2.4 Spinal Cord Evaluation. In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated. A full neurological examination for possible spinal cord injury may include:

4.2.4.1 Sharp and light touch, deep pressure, temperature, and proprioceptive sensory function; with specific identification of the level of sensory or motor deficit;

4.2.4.2 Strength testing;

4.2.4.3 Anal sphincter tone and/or perianal sensation;

4.2.4.4 Presence of pathological reflexes of the upper and lower extremities;

4.2.4.5 Testing for hip flexion weakness may be a useful indicator of possible myelopathy;

4.2.4.6 Evidence of an Incomplete Spinal Cord Injury Syndrome

4.2.4.6.1 Anterior Cord Syndrome is characterized by the loss of motor function and perception of pain and temperature below the level of the lesion with preservation of touch, vibration, and proprioception. This is typically seen after a significant compressive or flexion injury. Emergent CT or MRI is necessary to look for a possible reversible compressive lesion requiring immediate surgical intervention. The prognosis for recovery is the worst of the incomplete syndromes.

4.2.4.6.2 Brown-Sequard Syndrome is characterized by ipsilateral motor weakness and proprioceptive disturbance with contralateral alteration in pain and temperature perception below the level of the lesion. This is usually seen in cases of penetrating trauma or lateral mass fracture. Surgery is not specifically required, although debridement of the open wound may be.

4.2.4.6.3 Central Cord Syndrome is characterized by sensory and motor disturbance of all limbs, often upper extremity more than lower, and loss of bowel and bladder function with preservation of perianal sensation. This is typically seen in elderly patients with a rigid spine following hyperextension injuries. Surgery is not usually required.

4.2.4.6.4 Posterior Cord Syndrome, a rare condition, is characterized by loss of sensation below the level of the injury, but intact extremities, or motor function.

4.2.4.7 Spinal cord lesions may be classified according to the American Spine Injury Association (ASIA) impairment scale.

ASIA IMPAIRMENT SCALE
A = Complete: No motor or sensory function is preserved in the sacral segments S4-S5
B = Incomplete: Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5
C = Incomplete: Motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a muscle grade less than 3
D = Incomplete: Motor function is preserved below the neurological level, and at least half of key muscles below the neurological level have a grade of 3 or more
E = Normal: motor and sensory function are normal

A worksheet detailing dermatomes and muscle testing required is available from ASIA.

4.2.5 Soft Tissue Injury Evaluation. Soft tissue injuries are traumatic injuries to the muscles, ligaments, tendons, and/or connective tissue. The most common mechanism is sudden hyperextension and/or hyperflexion of the neck. Acceleration/deceleration on the lateral plane may also result in one of these syndromes. A true isolated cervical strain is not associated with focal neurological symptoms. The signs and pathophysiology of these injuries are not well understood. Soft tissue injuries may include cervical strain, myofascial syndromes, somatic dysfunction, and fractures.

4.3 Radiographic Imaging. Radiographic imaging of the cervical spine is a generally accepted, well-established and widely used diagnostic procedure when specific indications based on history and/or physical examination are present.

4.3.1 Basic X-ray views for the cervical spine are the anterior-posterior (AP), later, right and left obliques; odontoid; and swimmer's view.

4.3.2 Computed tomography (CT) scans may be necessary to visualize C7 and odontoid in some patients. Lateral flexion and extension views are done to evaluate instability but may have a limited role in the acute setting.

4.3.3 MRI is indicated when spinal cord injury is suspected. CT is necessary for suspected fracture/dislocation.

Specific indications for the radiograph should be listed on the request form to aid the radiologist and x-ray technician.

4.4 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. Furthermore, they may assist the provider in determining the best course of treatment for the patient. Tests include

4.3.1 Complete blood count (CBC) with differential, which can detect infection, blood dyscrasias, and medication side effects;

4.3.2 Blood-glucose level, which can be used to detect evidence of Type 1 or Type 2 diabetes;

4.3.3 Erythrocyte sedimentation rate (ESR), rheumatoid factor (RF), antinuclear antigen (ANA), human leukocyte antigen (HLA), and C-reactive protein (CRP), which can be used to detect evidence of a rheumatologic, infectious, or connective tissue disorder;

4.3.4 Serum calcium, phosphorous, uric acid, alkaline phosphatase, and acid phosphatase, which can detect metabolic bone disease;

4.3.5 Liver and kidney function, which may be performed for prolonged anti-inflammatory use or with use of other medications requiring monitoring;

4.3.6 Urinalysis for bacteria (usually with culture and sensitivity), calcium, phosphorous, hydroxyproline, or hematuria.

5.0 Diagnostic Imaging and Testing Procedures

5.1 One diagnostic imaging procedure may provide the same or distinctive information as does another procedure. Therefore, the prudent choice of a single diagnostic procedure, a complement of procedures or a sequence of procedures will optimize diagnostic accuracy; maximize cost effectiveness (by avoiding redundancy) and minimize potential adverse effects to patients. All imaging procedures have a degree of specificity and sensitivity for various diagnoses. No isolated imaging test can assure a correct diagnosis. Clinical information obtained by history taking and physical examination should form the basis for selecting an imaging procedure and interpreting its results. Magnetic resonance imaging (MRI), myelography, or Computed Axial Tomography (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.

5.2 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 cervical spine, based upon the mechanism of injury, symptoms, and patient history. Prudent choice of a single diagnostic study, a complementary combination of studies, or a proper sequential order of complementary studies 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, a careful neurological exam or referral may be appropriate, and the clinical findings should have preference.

The studies below are listed in frequency of use, not importance:

5.2.1 Magnetic Resonance Imaging (MRI). MRI is the imaging study of choice for most abnormalities of the cervical spine. MRI is useful in suspected nerve root compression, in myelopathy to evaluate the spinal cord and/or masses, infections such as epidural abscesses or disc space infection, bone marrow involvement by metastatic. MRI is contraindicated in patients with certain implanted devices; however, MRI scanners compatible with pacemakers are now available. In general, conventional full-size, high field magnet 1.5 tesla MRI provides better resolution and is preferred. A lower field scan may be indicated when a patient cannot fit into a high field scanner or 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.

5.2.1.1 Specialized MRI Scans

5.2.1.1.1 MRI with 3-dimensional Reconstruction. On rare occasions, MRI with 3-dimensional reconstruction views 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.

5.2.1.1.2 Dynamic-kinetic MRI of the Spine. Dynamic-kinetic MRI of the spine uses an MRI unit configured with a top-front open design that enables upright, weight-bear-

ing patient positioning in a variety of postures not obtainable with the recumbent images derived from conventional, closed unit MRI systems. Imaging can be obtained in flexion, extension, and rotation of the spine, as well as in erect positioning. There is a theoretical advantage to imaging sequences obtained under more physiologic conditions than in the supine position. There is currently ongoing research to establish whether the theoretical advantages of positional and kinetic MRI result in improved sensitivity and specificity in detecting spine pathology. Currently, it remains investigational, and it is not recommended until the correlation with clinical syndromes is firmly established.

5.2.1.1.3 Contrast MRI. Usually required for those with prior cervical surgery, possible infection, possible malignancy, or tumor.

5.2.2 Computed Axial Tomography (CT). CT provides excellent visualization of bone and is used to further evaluate bony masses and suspected fractures and joints 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. CT is usually utilized for suspected cervical spine fracture in a patient with negative plain films, or to further delineate a cervical fracture. CT scanning is also quite useful for congenital anomalies at the skull base and at the C1-2 levels. Instrument-scatter reduction software provides better resolution when metallic artifact is of concern. Unnecessary CT scanning should be avoided due to the radiation exposure contributing to cancer risk.

5.2.3 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. The use of small needles and a less toxic, water-soluble, nonionic contrast is recommended.

5.2.4 CT Myelogram. A CT Myelogram provides more detailed information about relationships between neural elements and surrounding anatomy and is appropriate in patients with multiple prior operations, tumorous conditions, or those that cannot have MRIs due to implants, etc.

5.2.5 Bone Scan (Radioisotope Bone Scanning). This scanning is generally accepted, well established, and widely used. It is more sensitive but less specific than MRI. ~~99m~~Technetium diphosphonate uptake reflects osteoblastic activity and may be useful in diagnosing metastatic/primary bone tumors, occult or stress fractures, osteomyelitis, infection, and inflammatory lesions, but it cannot distinguish between these conditions.

5.2.6 Other Radioisotope Scanning. Indium and gallium scans are generally accepted, well-established, widely used procedures and often used to diagnose lesions seen on other diagnostic imaging studies. Allium citrate scans are used to localize tumor, infection, and abscesses. 111Indium-labeled leukocyte scanning is utilized for localizing infection or inflammation and is not usually used for the cervical spine.

5.2.7 Dynamic [Digital] Fluroscopy. Dynamic [Digital] Fluoroscopy of the cervical spine measures the motion of intervertebral segments using a video fluoroscopy unit to capture images as the subject performs Cervical flexion and extension, storing the anatomic motion of the spine in a computer. Dynamic fluoroscopy may be used in the acute trauma setting to evaluate the cervical spine. Its superiority over MRI has not been established. If performed, full visualization of the cervical spine (C1-T1) should be accomplished prior to this procedure. In some rare cases in the post-acute setting, dynamic [digital] fluoroscopy may be used but is primarily an investigational tool and therefore requires prior authorization in the post-acute setting. No studies have yet demonstrated predictive value in terms of standard operative and non-operative therapeutic outcomes.

5.3 Other Tests. The following diagnostic procedures in this subsection are listed in alphabetical order, not by importance:

5.3.1 Electrodiagnostic Testing

5.3.1.1 Electromyography (EMG), Nerve Conduction Studies (NCS) are generally accepted, well-established and widely used diagnostic procedures. EMG and NCS, when performed and interpreted by a trained physician/electrophysiologist, 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. However, F-Wave Latencies are not diagnostic for radiculopathy. NCS without needle EMG is not diagnostic for radiculopathy and therefore is not recommended.

5.3.1.1.1 In general, EMG and NCS are complementary to imaging procedures such as CT, MRI, and/or myelography or diagnostic injection procedures.

5.3.1.1.2 Electrodiagnostic studies may provide useful, correlative neuropathophysiological information that would be otherwise unobtainable from the radiologic studies discussed above and can assist in treatment decisions, such as the need for surgery.

5.3.2 Injections - Diagnostic

5.3.2.1 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 risks, and risk versus benefit should always be evaluated when considering injection therapy. Cervical epidural injections carry additional risks of injury including death, spinal cord injury, and stroke when compared to lumbar injections. Many of the neurologic and vascular complications are related to particulate steroid solutions. For cervical spinal injections, dexamethasone or another non-particulate substance should be used. Diagnostic injections may be useful if more specific diagnosis is needed prior to other invasive procedures.

5.3.2.2 Indications. 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 from reproducible exam findings. Diagnostic blocks may be helpful when MRI or other diagnostic tests are not definitive. The number of diagnostic procedures should be limited in any individual patient to those most likely to be primary pain generators. Patients should not receive all of the diagnostic blocks listed merely in an attempt to identify 100% of the pain generators.

5.3.2.3 The interpretation of the test results is primarily based on functional change. Symptom report and pain response (via a recognized pain scale), before and at an appropriate time period after the injection should also be documented. 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 may be used to support a diagnosis. In some cases, injections at multiple levels may be required to accurately diagnose neck pain.

5.3.2.3.1 Multiple injections provided at the same session without staging may seriously dilute the diagnostic value of these procedures.

5.3.2.3.2 Practitioners must carefully weigh the diagnostic value of the procedure against the possible therapeutic value.

5.3.2.4 Special Requirements for Diagnostic Injections. Since multi-planar fluoroscopy during procedures is required to document technique and needle placement, an experienced physician should perform the procedure. Injection of contrast dye to assure correct needle placement is required to verify the flow of medication. Permanent images are required to verify needle placement. Unnecessary fluoroscopy procedure should be avoided due to the radiation exposure contributing to cancer risk. The subspecialty disciplines of the physicians performing the injections may be varied, including, anesthesiology, radiology, surgery, or physiatry. The practitioner should document hands-on training through workshops of the type offered by organizations such as the International Spine Intervention Society (ISIS) and/or completed fellowship training with interventional training. They must also be knowledgeable in radiation safety and credentialed by

a hospital or surgery center.

5.3.2.5 Specific Diagnostic Injections. In general, relief should last for at least the duration of the local anesthetic used and should significantly relieve pain and result in functional improvement.

5.3.2.5.1 Epidural injections may include transforaminal, or interlaminar injections. Transforaminal injections are generally accepted and useful in identifying the level of nerve root irritation. When performed for diagnosis, the volume of local anesthetic needed to adequately block the nerve can be estimated by the real time assessment of contrast flow patterns around the nerve prior to the application of local anesthetic. The amount of local anesthetic needed to anesthetize the nerve will generally not be more than 1.0cc.

5.3.2.5.1.1 Needle Placement. Multi-planar fluoroscopic imaging is required for all epidural steroid injections. Injection of contrast dye to assure correct needle placement is required to verify the flow of medication. Permanent images are required to verify needle placement.

5.3.2.5.1.2 Indications. They may be used for patients who are having significant pain that is interfering with daily functions and the active therapy necessary for recovery despite medical pain management and active therapy. All injections should be preceded by an MRI. Interlaminar injections should not be done above level C6-C7, nor at the level of any stenosis as demonstrated on pre- procedure imaging review due to the higher likelihood of neural damage.

5.3.2.5.2 Medial Branch Blocks. These are generally accepted diagnostic injections, used to determine whether a patient is a candidate for radiofrequency medial branch neurotomy (also known as facet rhizotomy). To be a positive diagnostic block, the patient should report a reduction of pain of 50% or greater relief from baseline or the length of time appropriate for the local anesthetic used. A separate comparative block on a different date may be performed to confirm the level of involvement. A comparative block uses anesthetics of varying lengths of activity.

5.3.2.5.2.1 It is obligatory that sufficient data be accumulated by the examiner performing this procedure such that the value of the procedure is evident to other reviewers. This entails documentation of patient response regarding the degree and type of response to specific symptoms. To be successful the results should occur within the expected time frame and there should be pain relief of approximately 50% demonstrated by pre and post pain scores as measured by accepted pain scales (such as VAS). Examples of functional changes include reaching and lifting. Additionally, a prospective patient completed pain diary may be recorded that documents response hourly until the block has clearly worn off. The diary results should be compared to the expected duration of the local anesthetic phase of the procedure. Responses must be identified as to specific body part (e.g., neck, arm pain). The practitioner must identify the local anesthetic used and the expected duration of response for diagnostic purposes.

5.3.2.5.2.2 A separate comparative block on a different date may be performed to confirm the level of involvement. A comparative block uses anesthetics of varying lengths of activity. Medial Branch blocks are probably not helpful to determine the likelihood of success for spinal fusion.

5.3.2.5.2.3 The success rate of radiofrequency neurotomy is likely to decrease with lesser percentages of pain relief from a branch block.

5.3.2.5.2.4 It is essential that only light sedation be used for diagnostic trials in order to avoid having the sedation interfere with the patient’s ability to

interpret pain relief from the injection itself. Many patients may not need any medication. For those requiring anxiolytics, short acting agents, such as midazolam, may be used. As with all patients, the pain diary and functional testing post injection must be rigorously adhered to in order to correctly interpret the results of the diagnostic injection.

5.3.2.5.2.5 Needle Placement. Multi-planar fluoroscopic imaging is required for all medial branch blocks injections. Injection of contrast dye to assure correct needle placement is required to verify the flow of medication. Permanent images are required to verify needle placement.

Frequency and maximum duration: May be repeated once for comparative blocks. Limited to 4 anatomic facet levels.

5.3.2.5.3 Transforaminal injections are generally accepted and useful in identifying spinal pathology. When performed for diagnosis, small amounts of local anesthetic up to a total volume of 1.0 cc should be used to determine the level of nerve root irritation. A positive diagnostic block should occur within the expected time frame and there should be pain relief of approximately 50% demonstrated by pre and post pain scores as measured by accepted pain scales (such as a VAS). Examples of functional changes include reaching and lifting.

Frequency and maximum duration: Once per suspected level. Limited to three levels. May be repeated once for confirmation.

5.3.2.5.4 Zygapophyseal (Facet) Blocks. Facet blocks are generally accepted. They may be used diagnostically to direct functional rehabilitation programs. A positive diagnostic block should result in a positive diagnostic functional benefit and an 50% reduction in pain appropriate for the anesthetic used as measured by accepted pain scales (such as a VAS). They then may be repeated per the therapeutic guidelines.

5.3.2.5.4.1 Needle placement: Injection of contrast dye to assure correct needle placement is required to verify the flow of medication. Permanent images are required to verify needle placement.

5.3.2.5.4.2 Frequency and maximum duration: Once per suspected level, limited to three levels. May be repeated for confirmation.

5.3.2.5.5 Atlanto-Axial and Atlanto-Occipital injections are generally accepted for diagnosis and treatment but do not lend themselves to denervation techniques owing to variable neuroanatomy. Injection of this articulation is complicated by the proximity of the vertebral artery, which may be tortuous at the level of the C1 joint. Inadvertent injection of the vertebral artery may cause respiratory arrest, seizure, stroke, or permanent neurological sequelae. Only practitioners skilled in these injections should perform them.

Frequency and maximum duration: Once per side.

5.3.3 Provocation Discography

5.3.3.1 Description. Discography is an accepted diagnostic procedure to identify or refute 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. It is essential that all indications, pre-conditions, special considerations, procedures, reporting requirements, and results are carefully and specifically followed. Results should be interpreted judiciously.

5.3.3.2 Indications. Discography may be indicated when a patient has a history of functionally limiting, unremitting Cervical pain of greater than four months duration,

with or without arm pain, which has been unresponsive to all conservative interventions. A patient who would not consider operative therapeutic intervention is not a candidate for an invasive nontherapeutic intervention, such as provocation discography.

5.3.3.2.1 Discography may prove useful for the evaluation of the pre-surgical spine, such as pseudarthrosis, discogenic pain at levels above or below a prior spinal fusion, annular tear, or internal disc disruption.

5.3.3.2.2 Discography may show disc degeneration and annular disruption in the absence of neck pain. Discography may also elicit concordant pain in patients with mild and functionally inconsequential neck pain. Because patients with mild neck pain should not be considered for invasive treatment, discography should not be performed on these patients. In symptomatic patients with annular tears on discography, the side of the tear does not necessarily correlate with the side on which the symptoms occur. The presence of an annular tear does not necessarily identify the tear as the pain generator.

5.3.3.2.3 Discography may have a limited place in the work-up of pseudarthrosis. Discography may prove useful in evaluating the number of Cervical spine levels that might require fusion. CT Discography provides further detailed information about morphological abnormalities of the disc and possible lateral disc herniations.

5.3.3.3 Pre-conditions for provocation discography include all of the following:

5.3.3.3.1 A patient with functionally limiting, unremitting neck and/or leg pain of greater than four 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.). It is recommended that discography be reserved for use in patients with equivocal MRI findings, especially at levels adjacent to clearly pathological levels. Discography may be more sensitive than MRI or CT in detecting radial annular tears. However, radial tears must always be correlated with clinical presentation.

5.3.3.3.2 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).

5.3.3.3.3 Informed consent regarding the risks and potential diagnostic benefits of discography has been obtained.

5.3.3.4 Special Considerations

5.3.3.4.1 The procedure should be carried out by an experienced individual who has received specialized training in the technique of provocation discography.

5.3.3.4.2 Discography should be performed in a blinded format that avoids leading the patient with anticipated responses. The procedure should include one or more disc levels thought to be normal or non-painful in order to serve as an internal control. The patient should not know what level is being injected in order to avoid spurious results. Abnormal disc levels may be repeated to confirm concordance.

5.3.3.4.3 Sterile technique must be utilized.

5.3.3.4.4 Judicious use of light sedation during the procedure is acceptable, represents the most common practice nationally at the current time, and is recommended by most experts in the field. The patient must be awake and able to accurately report pain levels during the provocation portion of the procedure.

5.3.3.4.5 The discography may be performed using a manometer to record pressure.

5.3.3.4.6 Intradiscal injection of local anesthetic may be carried out after the provocation portion of the examination and the patient's response.

5.3.3.4.7 It is recommended that a post-discogram CT be considered as it frequently

provides additional useful information about disc morphology or other pathology.

5.3.3.5 Reporting of Discography. In addition to a narrative report, the discography report should contain a standardized classification of disc morphology, the pain response, and the pressure at which pain is produced. All 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.

5.3.3.5.1 When discography is performed to identify the source of a patient's neck pain, both a concordant pain response and morphological abnormalities must be present at the pathological level prior to initiating any treatment directed at that level. The patient must be awake during the provocation phase of the procedure; therefore, sedative medication must be carefully titrated.

5.3.3.5.2 Reporting of pain response should be consistent with the operational criteria of the International Spine Intervention Society (ISIS) Guidelines. The report must include the level of concordance for neck pain using a 10-point VAS, or similar accepted pain score. It should be noted that change in the VAS scale, or similar accepted pain score, before and after provocation is more important than the number reported.

5.3.3.6 Thermography. An accepted and established procedure, but it has no use as a diagnostic test for neck pain. It may be used to diagnose complex regional pain disorders.

5.3.4 Personality/Psychological/Psychosocial Evaluation. Generally accepted and well-established diagnostic procedures with selective use in the acute cervical spine injury population and more widespread use in sub-acute and chronic cervical spine populations.

5.3.4.1 These 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.

5.3.4.2 Psychological testing should provide differentiation between pre-existing depression versus injury-caused depression, as well as post-traumatic stress disorder.

5.3.4.3 Formal psychological or psychosocial evaluation may be considered 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 addition to the customary initial exam, the evaluation of the injured worker may address the following areas:

5.3.4.3.1 Employment history;

5.3.4.3.2 Interpersonal relationships, both social and work;

5.3.4.3.3 Leisure activities;

5.3.4.3.4 Current perception of the medical system;

5.3.4.3.5 Results of current treatment;

5.3.4.3.6 Perceived locus of control; and

5.3.4.3.7 Childhood history, including abuse and family history of disability.

5.3.4.4 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 Diagnostic Statistical Manual of Mental Disorders (DSM) diagnosis should be determined and documented. An individual with a PhD, PsyD, or Psychiatric MD/DO credentials should perform initial evaluations, which are generally completed within 1 to 2 hours. A professional fluent in the primary language of the patient is preferred.

5.3.4.5 When issues of chronic pain are identified, the evaluation should be more extensive and follow testing procedures as outlined in the Department’s Chronic Pain Disorder Medical Treatment Guidelines.

5.3.4.6 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.

5.3.5 Special Tests. These are generally well-accepted tests and are performed as part of a skilled assessment of the patients' capacity to return to work, his strength capacities, and physical work demand classifications and tolerance. The procedures in this subsection are listed in alphabetical order, not by importance.

5.3.5.1 Computer-Enhanced Evaluations. These may include isotonic, isometric, isokinetic, or isoinertial measurement of movement; range of motion (ROM); 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. Frequency: One time for evaluation, one for mid-treatment assessment, and one at final evaluation.

5.3.5.2 Work Hardening: Work Hardening is an interdisciplinary program addressing a patient's employability and return to work. It includes a progressive increase in the number of hours per day that a patient completes work simulation tasks until the patient can tolerate a full workday. This is accomplished by addressing the medical, behavioral, physical, functional, and vocational components of employability and return-to-work.

5.3.5.2.1 Length of visit: Up to 8 hours/day.

5.3.5.2.2 Frequency: 2 to 5 visits per week.

5.3.5.2.3 Maximum duration: 8 weeks.

Participation in a program beyond 6 weeks must be documented with respect to need and the ability to facilitate positive symptomatic or functional gains.

5.3.5.3 Functional Capacity Evaluation (FCE). This 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 (ROM), coordination and strength, worker habits, employability, as well as psychosocial aspects of competitive employment may be evaluated. Reliability of patient reports and overall effort during testing is also reported. Components of this evaluation may include:

5.3.5.3.1 Musculoskeletal screen;

5.3.5.3.2 Cardiovascular profile/aerobic capacity;

5.3.5.3.3 Coordination;

5.3.5.3.4 Lift/carrying analysis;

5.3.5.3.5 Job specific activity tolerance;

5.3.5.3.6 Maximum voluntary effort;

5.3.5.3.7 Pain assessment/psychological screening; and

5.3.5.3.8 Non-material and material handling activities. Standardized national guidelines (such as National Institute for Occupational Safety and Health (NIOSH)) should be used as the basis for FCE recommendations.

5.3.5.4 Jobsite Evaluation. A comprehensive analysis of the physical, mental, and sensory components of a specific job may be beneficial in certain circumstances. These components may include:

5.3.5.4.1 Postural tolerance (static and dynamic);

5.3.5.4.2 Aerobic requirements;

5.3.5.4.3 ROM;

5.3.5.4.4 Torque/force;

5.3.5.4.5 Lifting/carrying;

5.3.5.4.6 Cognitive demands;

5.3.5.4.7 Social interactions;

5.3.5.4.8 Visual perceptual;

5.3.5.4.9 Sensation;

5.3.5.4.10 Coordination;

5.3.5.4.11 Environmental factors of a job;

5.3.5.4.12 Repetitiveness; and

5.3.5.4.13 Essential job functions.

A jobsite evaluation may include observation and instruction of how work is done, what material changes (desk, chair) should be made, and determination of readiness to return to work.

6.0 Therapeutic Procedures - Non-Operative

6.1 Patients undergoing therapeutic procedure(s) are encouraged to return to modified or restricted duty during their rehabilitation at the earliest appropriate time. Refer to "Return-to-Work" in this section for detailed information.

6.2 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. 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.

6.3 Home therapy is an important component of therapy and may include active and passive therapeutic procedures, as well as other modalities to assist in alleviating pain, swelling, and abnormal muscle tone.

The following procedures are listed in alphabetical order.

6.4 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 a licensed acupuncturist, MD, DO, or DC with appropriate training.

6.4.1 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.

6.4.1.1 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.

6.4.1.2 Indications include joint pain, joint stiffness, soft tissue pain and inflammation, paresthesia, postsurgical pain relief, muscle spasm, and scar tissue pain.

6.4.2 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.

6.4.2.1 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.

6.4.2.2 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.

6.4.3 Total Time Frames for Acupuncture and Acupuncture with Electrical Stimulation. Time frames are not meant to be applied to each of the above sections separately. The time frames are to be applied to all acupuncture treatments regardless of the type or combination of therapies being provided.

6.4.3.1 Time to produce effect: 3 to 6 treatments.

6.4.3.2 Frequency: 1 to 3 times per week.

6.4.3.3 Maximum course duration: 14 treatments (one course).

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. An additional course of treatment beyond 14 treatments may 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.

6.4.4 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 Therapy - Active Therapy (Therapeutic Exercise) and Therapy - Passive Therapy sections (Massage and Superficial Heat and Cold Therapy) for a description of these adjunctive acupuncture modalities and time frames.

6.5 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, auditorily, 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).

6.5.1 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 of biofeedback treatment is to normalize 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 in which 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 used in conjunction with other treatment modalities.

6.5.2 Time to produce effect: 3 to 4 visits.

6.5.3 Frequency: 1 to 2 times per week.

6.5.4 Maximum duration: 10 to 12 visits. Treatment beyond 12 visits must be documented with respect to need, expectation, and ability to facilitate positive functional gains.

6.6 Injections - Therapeutic

6.6.1 Description. Therapeutic spinal injections may be used after initial conservative treatments have been undertaken. Therapeutic injections should, with rare exceptions, be used only after imaging studies and/or diagnostic injections have established pathology.

6.6.2 Special Considerations. For all injections (excluding trigger point), multi-planar fluoroscopic guidance during procedures is required to document technique and needle placement and should be performed by a physician experienced in the procedure. Permanent images are required to verify needle replacement. The subspecialty disciplines of the physicians performing injections may be varied, including anesthesiology, radiology, surgery, or physiatry. The practitioner should document hands-on training through workshops of the type offered by organizations such as the International Spine Intervention Society (ISIS) and/or completed fellowship training in pain medicine with interventional training. They must also be knowledgeable in radiation safety.

6.6.2.1 Epidural Injection (EI)

6.6.2.1.1 Description. Epidural injections are injections of corticosteroid into the epidural space. The purpose of EI is to reduce pain and inflammation in the acute or sub-acute phases of injury. EI uses two approaches: transforaminal, interlaminar (midline).

6.6.2.1.2 Needle Placement. Multi-planar fluoroscopic imaging is required for all epidural steroid injections. Contrast epidurograms allow one to verify the flow of medication into the epidural space. Permanent images are required to verify needle replacement.

6.6.2.1.3 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). Up to 80% of patients with radicular pain may have initial relief. However, only 25-57% are likely to have excellent long-term relief. Although there is no evidence regarding the effectiveness of ESI for nonradicular disc herniation, it is an accepted intervention.

6.6.2.1.4 Frequency: 1 or more levels can be injected in 1 session. Whether injections are repeated depends upon the patient's response to the previous injection. Subsequent injections may occur. Injections can be repeated if the patient has demonstrated functional gain and/or pain returns or worsens.

6.6.2.1.5 Maximum duration: 6 treatments (a treatment may include injections at 1 or 2 levels) may be done in 1 year, as per the patient's response to pain and function. Patients should be reassessed for improvement in pain (as measured by accepted pain scales) and/or evidence of functional improvement.

6.6.2.2 Zygapophyseal (Facet) Injection

6.6.2.2.1 Description. A generally accepted intra-articular or pericapsular injection of local anesthetic and corticosteroid.

6.6.2.2.2 Indications. Patients with pain suspected to be facet mediated in origin. Facet injections may be repeated if they result in increased documented functional benefit for at least 4 to 6 weeks and/or at least an 50% initial improvement in pain scales as measured by accepted pain scales (such as VAS).

6.6.2.3 Intradiscal Steroid Therapy. Intradiscal Steroid Therapy consists of injection of a steroid preparation into the intervertebral disc under fluoroscopic guidance at the time of discography. There is good evidence that it is not effective in the treatment of suspected discogenic neck pain and its use is not recommended.

6.6.3 Radio Frequency Medial Branch Neurotomy/Facet Rhizotomy

6.6.3.1 Description. A procedure designed to denervate the facet joint by ablating the corresponding sensory medial branches. Continuous percutaneous radiofrequency is the method generally used.

6.6.3.1.1 There is good evidence to support Radio Frequency Medial Branch Neurotomy in the cervical spine but benefits beyond one year are not yet established. Evidence in the Cervical spine is conflicting; however, the procedure is generally accepted. In one study, 60% of patients maintained at least 90% pain relief at 12 months.

6.6.3.1.2 Radio-frequency Medial Branch Neurotomy is the procedure of choice over alcohol, phenol, or cryoablation. Precise positioning of the probe levels using fluoroscopic guidance is required. Permanent images should be recorded to verify placement of the device.

6.6.3.2 Indications. Those patients with significant, facetogenic pain. Individuals should have met all of the following indications: Pain of well-documented facet origin, unresponsive to active and/or passive therapy. It is generally recommended that this procedure not be performed until three months of conservative therapy have been completed. All patients should have a successful response to a diagnostic medial nerve branch block and a separate comparative block. To be a positive diagnostic block the patient should report a reduction of pain of 50% or greater from baseline for the length of time appropriate for the local anesthetic used. It is suggested that this be recorded on a form. A separate comparative block on a different date may be performed to confirm the level of involvement.

6.6.3.3 Post-Procedure Therapy. Active therapy-Implementation of a gentle aerobic reconditioning program (e.g., walking, neck range of motion exercise) and neck

education within the first post-procedure week, barring complications. Instruction and participation in a long-term home-based program of ROM, core strengthening, postural or neuromuscular re-education, endurance, and stability exercises should be accomplished over a period of 4 to 10 visits post-procedure. Patients who are unwilling to engage in this therapy should not receive this procedure.

6.6.3.4 Requirements for Repeat Radiofrequency Medial Branch Neurotomy (or additional-level RF Neurotomy). In some cases, pain may recur. Successful RF Neurotomy usually provides from 6 to 18 months of relief.

Before a repeat RF Neurotomy is done, a confirmatory medial branch injection should be performed if the patient's pain pattern presents differently than the initial evaluation. In occasional patients, additional levels of RF neurotomy may be necessary. The same indications and limitations apply.

6.7 Injections – Other

The following are in alphabetical order:

6.7.1 Botulinum Toxin Injections

6.7.1.1 Description. Used to temporarily weaken or paralyze muscles. These injections may reduce muscle pain in conditions associated with spasticity or dystonia. Neutralizing antibodies develop in at least 4% of patients treated with botulinum toxin type A, rendering it ineffective. Several antigenic types of botulinum toxin have been described.

Botulinum toxin type B, first approved by the Food and Drug Administration (FDA) in 2001, is similar pharmacologically to botulinum toxin type A. It appears to be effective in patients who have become resistant to the type A toxin. The immune responses to botulinum toxins type A and B are not cross-reactive, allowing type B toxin to be used when type A action is blocked by antibody. Experimental work with healthy human volunteers suggests that muscle paralysis from type B toxin is not as complete or as long lasting as that resulting from type A. The duration of treatment effect of botulinum toxin type B for cervical dystonia has been estimated to be 12 to 16 weeks. Electromyography (EMG) needle guidance may permit more precise delivery of botulinum toxin to the target area.

6.7.1.1.1 There is strong evidence that botulinum toxin A has objective and symptomatic benefits over placebo for cervical dystonia.

6.7.1.1.2 Botulinum Injections are no longer generally recommended for cervicogenic, or other headaches based on good evidence of lack of effect. There is good evidence that botulinum toxin is not more effective than placebo for reducing the frequency of episodic migraines. It may be considered in a very small subset of patients with chronic migraines 12-15 days/month who have failed all other conservative treatment, including trials of at least 3 drug classes, and who have committed to any lifestyle changes related to headache triggers.

6.7.1.2 Indications. For conditions which produce chronic spasticity or dystonia. There should be evidence of limited range-of-motion prior to the injections. Not recommended for cervicogenic headaches.

There is insufficient evidence to support its use for longer-term pain relief of other myofascial trigger points and it is likely to cause muscle weakness or atrophy if used repeatedly. Examples of such consequences include subacromial impingement, as the stabilizers of the shoulder are weakened by repeated injections of trigger points in the upper trapezii. Therefore, it is not recommended for use for other myofascial trigger points.

6.7.1.3 Complications. There is good evidence that cervical botulinum toxin A injections cause transient dysphagia and neck weakness. Allergic reaction to medications, dry mouth and vocal hoarseness may also occur. Rare systemic effects include flu-like syndrome and weakening of distant muscle. There is an increased risk of systemic effects in patients with motor neuropathy or disorders of the neuromuscular junction.

6.7.1.4 Time to produce effect: 24 to 72 hours post injection with peak effect by 4 to 6 weeks.

6.7.1.5 Frequency: No less than 3 months between re-administration. Patients should be reassessed after each injection session for an 80% improvement in pain (as measured by accepted pain scales) and evidence of functional improvement for 3 months. A positive result would include a return to base line function, return to increased work duties, and measurable improvement in physical activity goals including return to baseline after an exacerbation.

6.7.1.6 Optimum duration: 3 to 4 months.

6.7.1.7 Maximum duration: Currently unknown. Repeat injections should be based upon functional improvement and therefore used sparingly in order to avoid development of antibodies that might render future injections ineffective. In most cases, not more than four injections are appropriate due to accompanying muscle atrophy.

6.7.2 Epiduroscopy and Epidural Lysis of Adhesions is an investigational treatment of cervical pain. It involves the introduction of a fiberoptic endoscope into the epidural space via the sacral hiatus. With cephalad advancement of the endoscope under direct visualization, the epidural space is irrigated with saline. Adhesiolysis may be done mechanically with a fiberoptic endoscope. The saline irrigation is performed with or without epiduroscopy and is intended to distend the epidural space in order to obtain an adequate visual field. It is designed to produce lysis of adhesions, which are conjectured to produce symptoms due to traction on painful nerve roots. Saline irrigation is associated with risks of elevated pressures which may impede blood flow and venous return, possibly causing ischemia of the cauda equina and retinal hemorrhage.

6.7.2.1 Other complications associated with instrumented lysis include catheter shearing, need for catheter surgical removal, infection (including meningitis), hematoma, and possible severe hemodynamic instability during application. Although epidural adhesions have been postulated to cause chronic Cervical pain, studies have failed to find a significant correlation between the level of fibrosis and pain or difficulty functioning. Studies of epidural lysis demonstrate no transient pain relief from the procedure. Given the low likelihood of a positive response, the additional costs and time requirement, and the possible complications from the procedure, epidural injection, or mechanical lysis, is not recommended.

6.7.2.2 Epiduroscopy-directed steroid injections are also not recommended as there is no evidence to support an advantage for using an epiduroscope with steroid injections.

6.7.3 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 neck. 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 neck when these structures have been damaged by mechanical insults.

6.7.4 Radio Frequency Ablation – Dorsal Nerve Root Ablation. Due to the combination of adverse side effects, time-limited effectiveness, and mixed study results, this treatment is not recommended. Refer to the Department's Chronic Pain Disorder Medical Treatment Guidelines.

6.7.5 Trigger Point Injections and Dry Needling Treatment

6.7.5.1 Description. Trigger point injections and dry needling are a generally accepted treatment. Trigger point treatment can consist 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. There is no indication for conscious sedation for patients receiving trigger point injections or dry needling. The patient must be alert to help identify the site of the injection.

6.7.5.2 Indications. Trigger point injections and dry needling may be used to relieve myofascial pain and facilitate active therapy and stretching of the affected areas.

6.7.5.3 Trigger point injections and dry needling are indicated in those patients where well circumscribed trigger points have been consistently observed. Generally, these injections and dry needling 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 or dry needling may be occasionally effective when utilized in the patient with immediate, acute onset of cervical pain.

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

6.7.5.5 Maximum duration: 8 weeks. Occasional patients may require 2 to 4 repetitions over a 1 to 2 year period.

6.8 Interdisciplinary Rehabilitation Programs. This is the gold standard of treatment for individuals with chronic pain who have not responded to less intensive modes of treatment. There is good evidence that interdisciplinary programs which include screening for psychological issues, identification of fear-avoidance beliefs and treatment barriers, and establishment of individual functional and work goals, will improve function and decrease disability. These programs should assess the impact of pain and suffering on the patient's medical, physical, psychological, social, or vocational functioning. In general, interdisciplinary programs evaluate and treat multiple and sometimes irreversible conditions, including painful musculoskeletal, neurological, and other chronic pain conditions and psychological issues, drug dependence, abuse or addiction high levels of stress and anxiety, failed surgery, and pre-existing or latent psychopathology. The number of professions involved on the team in a chronic pain program may vary due to the complexity of the needs of the person served. The Department recommends consideration of referral to an interdisciplinary program within 6 months post-injury in patients with delayed recovery unless successful surgical interventions or other medical or psychological treatment complications intervene.

6.8.1 Chronic pain patients need to be treated as outpatients within a continuum of treatment intensity. Outpatient chronic pain programs are available with services provided by a coordinated interdisciplinary team within the same facility (formal) or as coordinated among practices by the authorized treating physician (informal). Formal programs are able to provide coordinated, high intensity level of services and are recommended for most chronic pain patients who have received multiple therapies during acute management.

6.8.2 Patients with addiction problems or high dose opioid or other drugs of abuse use may require inpatient or outpatient chemical dependency treatment programs before or in conjunction with other interdisciplinary rehabilitation. Guidelines from the American Society of Addiction Medicine are available and may be consulted relating to the intensity of services required for different classes of patients in order to achieve successful treatment.

6.8.3 Informal interdisciplinary pain programs may be considered for patients who are currently employed, those who cannot attend all day programs, those with language barriers, or those living in areas not offering formal programs. Before treatment has been initiated, the patient, physician, and insurer should agree on treatment approach, methods, and goals. Generally, the type of outpatient program needed will depend on the degree of impact the pain has had on the patient's medical, physical, psychological, social or vocational functioning.

6.8.4 Inpatient pain rehabilitation programs are rarely needed but may be necessary for patients with any of the following conditions:

6.8.4.1 High risk for medical instability;

6.8.4.2 Moderate-to-severe impairment of physical/functional status;

6.8.4.3 Moderate-to-severe pain behaviors;

6.8.4.4 Moderate impairment of cognitive and/or emotional status;

6.8.4.5 Dependence on medications from which the patient needs to be withdrawn; or

6.8.4.6 The need for 24-hour supervised nursing.

6.8.5 Whether formal or informal programs, they should be comprised of the following dimensions:

6.8.5.1 Communication. To ensure positive functional outcomes, communication between the patient, insurer and all professionals involved must be coordinated and consistent. Any exchange of information must be provided to all professionals, including the patient. Care decisions should be communicated to all and should include the family or other support system.

6.8.5.2 Documentation. Through documentation by all professionals involved or discussions with the patient, it should be clear that functional goals are being actively pursued and measured on a regular basis to determine their achievement or need for modification.

6.8.5.3 Treatment Modalities. Use of modalities may be necessary early in the process to facilitate compliance with and tolerance to therapeutic exercise, physical conditioning, and increasing functional activities. Active treatments should be emphasized over passive treatments. Active treatments should encourage self-coping skills and management of pain, which can be continued independently at home or at work. Treatments that can foster a sense of dependency by the patient on the caregiver should be avoided. Treatment length should be decided based upon observed functional improvement. All treatment timeframes may be extended based upon the patient's positive functional improvement.

6.8.6 Therapeutic Exercise Programs. A therapeutic exercise program should be initiated at the start of any treatment rehabilitation. Such programs should emphasize education, independence, and the importance of an on-going exercise regimen. There is good evidence that exercise alone or part of a multi-disciplinary program results in decreased disability for workers with non-acute low back pain. Results could be similar with the cervical spine. There is not sufficient evidence to support the recommendation of any particular exercise regimen over any other exercise regimen.

6.8.7 Return-to-Work. The authorized treating physician should continually evaluate the patient for their potential to return to work. For patients currently employed, efforts should be aimed at keeping them employed. Formal rehabilitation programs should provide assistance in creating work profiles. Refer to Return-to-work in this guideline.

6.8.8 Patient Education. Patients with pain need to re-establish a healthy balance in lifestyle. All providers should educate patients on how to overcome barriers to resuming daily activity, including pain management, decreased energy levels, financial constraints, decreased physical ability, and change in family dynamics.

6.8.9 Psychosocial Evaluation and Treatment. Psychosocial evaluation should be initiated, if not previously done. Providers of care should have a thorough understanding of the patient's personality profile; especially if dependency issues are involved. Psychosocial treatment may enhance the patient's ability to participate in pain treatment rehabilitation, manage stress, and increase their problem-solving and self-management skills.

6.8.10 Vocational Assistance. Vocational assistance can define future employment opportunities or assist patients in obtaining future employment. Interdisciplinary programs are characterized by a variety of disciplines that participate in the assessment, planning, and/or implementation of the treatment program. These programs are for patients with greater levels of perceived disability, dysfunction, de-conditioning, and psychological involvement. Programs should have sufficient personnel to work with the individual in the following areas: behavior, functional, medical, cognitive, pain management, psychological, social, and vocational.

6.8.11 Formal Interdisciplinary Rehabilitation Programs

6.8.11.1 Interdisciplinary Pain Rehabilitation. An Interdisciplinary Pain Rehabilitation Program provides outcomes-focused, coordinated, goal-oriented interdisciplinary team services to measure and improve the functioning of persons with pain and encourage their appropriate use of health care system and services. The program can benefit persons who have limitations that interfere with their physical, psychological, social, or vocational functioning. The program shares information about the scope of the services and the outcomes achieved with patients, authorized providers, and insurers.

6.8.11.1.1 The interdisciplinary team maintains consistent integration and communication to ensure that all interdisciplinary team members are aware of the plan of care for

the patient, are exchanging information, and implement the plan of care. The team members make interdisciplinary team decisions with the patient and then ensure that decisions are communicated to the entire care team.

6.8.11.1.2 The Medical Director of the pain program should ideally be board certified in pain management; or be board certified in his or her specialty area and have completed a one-year fellowship in interdisciplinary pain medicine or palliative care recognized by a national board or have 2 years' experience in an interdisciplinary pain rehabilitation program.

6.8.11.1.3 Teams that assist in the accomplishment of functional, physical, psychological, social, and vocational goal must include: a medical director, pain team physicians, and pain team psychologist. Other disciplines on the team may include, but are not limited to: Biofeedback Therapist, Occupational Therapist, Physical Therapist, Registered Nurse, case manager, exercise physiologist, psychologist, psychiatrist, or nutritionist.

6.8.11.1.4 Time to produce effect: 10 to 12 treatments.

6.8.11.1.5 Frequency: Full time programs - No less than 5 hours/day, 5 days/week; part-time programs - 4 hours/day for 2-3 days per week.

6.8.11.1.6 Optimum duration: 3 to 12 weeks at least 2-3 times a week. With follow up visits weekly or every other week during the first 1 to 2 months after the initial program is completed.

6.8.11.1.7 Maximum duration: 4 months for full time programs and up to 6 months for part-time programs. Periodic review and monitoring thereafter for 1-year, additional follow up based upon the documented maintenance of functional gains.

6.8.11.2 Occupational Rehabilitation. This is a formal interdisciplinary program addressing a patient's employability and return-to-work. It includes a progressive increase in the number of hours per day that a patient completes work simulation tasks until the patient can tolerate a full workday. A full workday is case specific and is defined by the previous employment of the patient. Safe workplace practices and education of the employer and social support system regarding the person's status should be included. This is accomplished by addressing the medical, psychological, behavioral, physical, functional, and vocational components of employability and return-to-work.

6.8.11.2.1 There is some evidence that an integrated care program, consisting of workplace interventions and graded activity teaching that pain need not limit activity, is effective in returning patients with chronic cervical pain to work, even with minimal reported reduction of pain.

6.8.11.2.2 The occupational medicine rehabilitation interdisciplinary team should, at a minimum, be comprised of a qualified medical director who is board certified with documented training in occupational rehabilitation, team physicians having experience in occupational rehabilitation, occupational therapy, and physical therapy. As appropriate, the team may also include chiropractor, registered nurse (RN), case manager, psychologist and vocational specialist or certified biofeedback therapist.

6.8.11.2.3 Time to produce effect: 2 weeks.

6.8.11.2.4 Frequency: 2 to 5 visits per week, up to 8 hours/day.

6.8.11.2.5 Optimum duration: 2 to 4 weeks.

6.8.11.2.6 Maximum duration: 6 weeks. Participation in a program beyond six weeks must be documented with respect to need and the ability to facilitate positive symptomatic and functional gains.

6.8.12 Informal Interdisciplinary Rehabilitation Program:

6.8.12.1 A coordinated interdisciplinary pain rehabilitation program is one in which the authorized treating physician coordinates all aspects of care. This type of program is similar to the formal programs in that it is goal oriented and provides interdisciplinary rehabilitation services to manage the needs of the patient in the following areas: functional; medical; physical; psychological; social; and vocational.

6.8.12.2 This program is different from a formal program in that it involves lower frequency and intensity of services/treatment. Informal rehabilitation is geared toward those patients who do not need the intensity of service offered in a formal program or who cannot attend an all-day program due to employment, daycare, language, or other barriers.

6.8.12.3 Patients should be referred to professionals experienced in outpatient treatment of chronic pain. The Department recommends the authorized treating physician consult with physicians experienced in the treatment of chronic pain to develop the plan of care. Communication among care providers regarding clear objective goals and progress

toward the goals is essential. Employers should be involved in return to work and work restrictions and the family/social support system should be included in the treatment plan. Other disciplines likely to be involved include biofeedback therapist, occupational therapist, physical therapist, registered nurse, psychologist, case manager, exercise physiologist,

psychiatrist, and/or nutritionist.

6.8.12.3.1 Time to produce effect: 10 to 12 treatments.

6.8.12.3.2 Frequency: Full time programs - no less than 5 hours/day, 5 days/week; Part time programs - 4 hours/day for 2-3 days per week.

6.8.12.3.3 Optimum duration: 3 to 12 weeks at least 2-3 times a week. With follow up visits weekly or every other week during the first 1 to 2 months after the initial program is completed.

6.8.12.3.4 Maximum duration: 4 months for full time programs and up to 6 months for part-time programs. Periodic review and monitoring thereafter for 1-year, additional follow up based upon the documented maintenance of functional gains.

6.8.12.4 Spinal Cord Programs. Spinal Cord Systems of Care provide coordinated, case managed, and integrated service for people with spinal cord dysfunction, whether due to trauma or disease. The system includes an inpatient component in an organization licensed as a hospital and an outpatient component. Each component endorses the active participation and choice of the persons served throughout the entire program.

6.8.12.4.1 The Spinal Cord System of Care also provides or formally links with key components of care that address the lifelong needs of the persons served. This can include a highly structured program involving a team approach or can involve any of the components thereof. The interdisciplinary team should, at a minimum, be comprised of a qualified medical director who is board certified and trained in rehabilitation, a case manager, occupational therapy, physical therapy, psychologist, rehabilitation RN, DO and MD, and therapeutic recreation specialist. As appropriate, the team may also include rehabilitation counselor, respiratory therapist, social worker, or speech-language pathologist.

6.8.12.4.2 Time frame durations for any spinal cord program should be determined based upon the extent of the patient's injury and at the discretion of the rehabilitation physician in charge.

6.9 Medications. Medication use in the treatment of Cervical 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.

6.9.1 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. The patient should be educated regarding the interaction with prescription and over-the-counter medications as well as the contents of over-the-counter herbal products.

6.9.2 The use of generic medications is encouraged. The list below is not all inclusive. It is accepted that medications not on this list may be appropriate for use in the care of the injured worker.

The following are listed in alphabetical order:

6.9.3 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. Patients may not realize that many over-the-counter preparations may contain acetaminophen. The total daily dose of acetaminophen is recommended not to exceed 4 grams per 24-hour period, from all sources, including narcotic acetaminophen combination preparations.

6.9.4 Muscle Relaxants are appropriate for muscle spasm with pain. There is strong evidence that muscle relaxants are more effective than placebo for providing short-term pain relief in acute ł cervical pain. When prescribing these agents, physicians must seriously consider side effects of drowsiness or dizziness and the fact that benzodiazepines may be habit-forming.

6.9.5 Narcotics should be primarily reserved for the treatment of severe cervical pain. In mild to moderate cases of cervical pain, narcotic medication should be used cautiously on a case-by-case basis. Adverse effects include respiratory depression, the development of physical and impaired alertness. 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.

6.9.6 Nonsteroidal Anti-Inflammatory Drugs (NSAIDS) are useful for pain and inflammation. In mild cases, they may be the only drugs required for analgesia. There are several classes of NSAIDs, and the response of the individual injured worker to a specific medication is unpredictable. For this reason, a range of NSAIDs may be tried in each case with the most effective preparation being continued. Patients should be closely monitored for adverse reactions. Administration of proton pump inhibitors, Histamine 2 Blockers or prostaglandin analog misoprostol along with these NSAIDs may reduce the risk of duodenal and gastric ulceration. Intervals for metabolic screening are dependent upon the patient's age, general health status and should be within parameters listed for each specific medication.

6.9.6.1 Selective Cyclo-oxygenase-2 (COX-2) Inhibitors COX-2 inhibitors are more recent NSAIDs and differ in adverse side effect profiles from the traditional NSAIDs. The major advantages of selective COX-2 inhibitors over traditional NSAIDs are that they have less gastrointestinal toxicity and no platelet effects.

6.9.6.2 COX-2 inhibitors should not be first-line for low risk patients who will be using an NSAID short term but are indicated in select patients for whom traditional NSAIDs are not tolerated. Serious upper GI adverse events can occur even in asymptomatic patients. Patients at high risk for GI bleed include those who use alcohol, smoke, are older than 65, take corticosteroids or anti-coagulants, or have a longer duration of therapy.

6.9.7 Psychotropic/Anti-anxiety/Hypnotic Agents may be useful for treatment of mild and chronic pain, dysesthesias, sleep disorders, and depression. Antidepressant medications, such as tricyclics and Selective Serotonin Reuptake Inhibitors (SSRIs), are useful for affective disorder and chronic pain management. Tricyclic antidepressant agents, in low dose, are useful for chronic pain. Anti-anxiety medications should generally be limited to short-term use. Combinations of the above agents may be useful. As a general rule, physicians should access the patient's prior history of substance abuse or depression prior to prescribing any of these agents. Due to the habit-forming potential of the benzodiazepines and other drugs found in this class, they are not routinely recommended.

6.9.8 Tramadol is useful in relief of cervical pain and has been shown to provide pain relief equivalent to that of commonly prescribed NSAIDs. Although Tramadol may cause impaired alertness, it is generally well tolerated, does not cause gastrointestinal ulceration, or exacerbate hypertension or congestive heart failure.

6.10 Occupational Rehabilitation Programs

6.10.1 Non-Interdisciplinary. These generally accepted programs are work-related, outcome focused, individualized treatment programs.

6.10.2 Objectives of the program include, but are not limited to, improvement of cardiopulmonary and neuromusculoskeletal functions (strength, endurance, movement, flexibility, stability, and motor control functions), patient education, and symptom relief. The goal is for patients to gain full or optimal function and return to work.

6.10.3 The service may include the time-limited use of passive modalities with progression to active treatment and/or simulated/ real work.

Cervical Orthotics. Primary principles and objectives of the application of cervical orthosis include: aid in spinal stability when soft tissues or osteoligamentous structures cannot sufficiently perform their role as spinal stabilizers; restrict spinal segment movement after acute trauma or surgical procedure; control of the position through the use of control forces; and application of corrective forces to abnormal curvatures. In cases of traumatic cervical injury, the most important objective is the protection of the spinal cord and nerve root.

6.10.1 Cervical Supports

6.10.1.1 Soft Collars are well-tolerated by most patients. Cervical supports may provide symptomatic relief of pain and movement reduction in cases of acute cervical conditions. The injured worker should be advised of the potential harm from using a cervical support for a period of time greater than that which is prescribed. Harmful effects include de-conditioning of the musculature, skin irritation, and general discomfort.

6.10.1.2 Rigid Collars, such as a Philadelphia or Miami Orthosis, are useful post-operative or in emergency situations. These collars restrict flexion and extension motion, and to a lesser degree, lateral bending and rotation. Duration of wear is dependent upon the physician and degree of cervical healing but is generally not used beyond 8 weeks.

6.10.1.3 Cervicothoracic Orthosis, such as Yale and sternal occipital mandibular immobilization (SOMI) type braces, restrict flexion and extension motion to a fuller degree than the Philadelphia collar and to a better degree lateral bending and rotation. Not recommended in sprain or strain type injuries.

6.10.1.4 Halo Devices are used in the treatment of cervical fracture, dislocation, and instability at the discretion of the treating surgeon. Refer to Halo Devices in the Operative Treatment section.

6.10.1.5 Other Orthosis Devices and Equipment. Special orthosis or equipment may have a role in the rehabilitation of a cervical injury such as those injuries to a cervical nerve root resulting in upper extremity weakness or a spinal cord injury with some degree of paraparesis or tetraparesis. Use of such devices would be in a structured rehabilitation setting as part of a comprehensive rehabilitation program.

6.11 Patient Education. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of prolonging the beneficial effects of treatment, as well as facilitating self-management of symptoms and injury prevention. The patient should be encouraged to take an active role in the establishment of functional outcome goals. They should be educated on their specific injury, assessment findings, and plan of treatment. Instruction on proper body mechanics and posture, positions to avoid, self-care for exacerbation of symptoms, and home exercise should also be addressed.

6.11.1 Time to produce effect: Varies with individual patient.

6.11.2 Frequency: Should occur at every visit.

6.12 Personality/Psychological/Psychosocial Intervention

6.12.1 Psychosocial treatment is a well-established therapeutic and diagnostic intervention with selected use in acute pain problems, and more widespread use in sub-acute and chronic pain populations. Psychosocial treatment is recommended as an important component in the total management of a patient with chronic pain and should be implemented as soon as the problem is identified.

6.12.2 If a diagnosis consistent with the standards of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM) has been determined, the patient should be evaluated for the potential need for psychiatric medications. Use of any medication to treat a diagnosed condition may be ordered by the authorized treating physician or by the consulting psychiatrist. Visits for management of psychiatric medications are medical in nature and are not a component of psychosocial treatment. Therefore, separate visits for medication management may be necessary, depending on the patient and medications selected.

6.12.3 Psychosocial interventions include psychotherapeutic treatments for mental health conditions, as well as behavioral medicine treatments. These interventions may similarly be beneficial for patients without psychiatric conditions, but who may need to make major life changes in order to cope with pain or adjust to disability. Examples of these treatments include cognitive behavioral therapy, relaxation training, mindfulness training, and sleep hygiene training.

6.12.4 The screening or diagnostic workup should clarify and distinguish between pre-existing, aggravated, or purely causative psychological conditions. Therapeutic and diagnostic modalities include, but are not limited to, individual counseling, and group therapy. Treatment can occur within an individualized model, a multi-disciplinary model, or within a structured pain management program.

6.12.5 A psychologist with a PhD, PsyD, EdD credentials, or a psychiatric MD/DO may perform psychosocial treatments. Other licensed mental health providers or licensed health care providers with training in cognitive behavior therapy (CBT) or certified as CBT therapists working in consultation with a PhD, PsyD, EdD, or psychiatric MD/DO; and with experience in treating chronic pain disorders in injured workers may also perform treatment.

6.12.6 Cognitive behavioral therapy (CBT) refers to a group of psychological therapies that are sometimes referred to by more specific names, such as Rational Emotive Behavior Therapy, Rational Behavior Therapy, Rational Living Therapy, Cognitive Therapy, and Dialectic Behavior Therapy. Variations of CBT methods can be used to treat a variety of conditions, including chronic pain, depression, anxiety, phobias and post-traumatic stress disorder (PTSD). For patients with multiple diagnoses, more than one type of CBT might be needed. The CBT used in research studies is often “manualized CBT”, meaning that the treatment follows a specific protocol in a manual. In clinical settings, CBT may involve the use of standardized materials, but is also commonly adapted by a psychologist or psychiatrist to the patient’s unique circumstances. If the CBT is being performed by a non-mental health professional, a manual approach would be strongly recommended. CBT must be distinguished from neuropsychological therapies used to teach compensatory strategies to brain injured patients, which are also called “cognitive therapy.”

6.12.6.1 It should be noted that most clinical trials on CBT exclude subjects who have significant psychiatric diagnoses. Consequently, the selection of patients for CBT should include the following considerations. CBT is instructive and structured, using an educational model with homework to teach inductive rational thinking. Because of this educational model, a certain level of literacy is assumed for most CBT protocols. Patients who lack the cognitive and educational abilities required by a CBT protocol are unlikely to be successful. Further, given the highly structured nature of CBT, it is more effective when a patient’s circumstances are relatively stable. For example, if a patient is about to be evicted, is actively suicidal, or coming to sessions intoxicated, these matters will generally preempt CBT treatment for pain, and require other types of psychotherapeutic response. Conversely, literate patients whose circumstances are relatively stable, but catastrophize or cope poorly with pain or disability are often good candidates for CBT for pain. Similarly, literate patients whose circumstances are relatively stable, but who exhibit unfounded medical phobias are often good candidates for CBT for anxiety.

6.12.6.2 There is good evidence that psychological interventions, especially CBT, are superior to no psychological intervention for chronic cervical pain, and that self-regulatory interventions such as biofeedback and relaxation training may be equally effective. There is good evidence that 6 sessions of 1.5-hour group therapy focused on CBT skills improved function and alleviated pain in uncomplicated subacute and chronic cervical pain patients. There is some evidence that CBT provided in 7 2-hour small group sessions can reduce the severity of insomnia in chronic pain patients. A Cochrane meta-analysis grouped very heterogenous behavioral interventions and concluded that there was good evidence that CBT may reduce pain and disability, but the effect size was uncertain. In total, the evidence clearly supports cognitive behavioral therapy, and it should be offered to all chronic pain patents who do not have other serious issues, as discussed above.

6.12.6.3 CBT is often combined with active therapy in an interdisciplinary program formal or informal. It must be coordinated with a psychologist or psychiatrist. Cognitive behavioral therapy can be done in a small group or individually and the usual number of treatments varies between 8 and 16 sessions. There is some evidence that cognitive behavioral intervention with or without physical therapy reduces neck related disability in the long term, sick leave, and health care utilization. The therapy consisted of 6 2-hour sessions given weekly.

6.12.6.4 Before CBT is done, the patient must have a full psychological evaluation. The CBT program must be done under the supervision of a PhD, PsyD, EdD, or psychiatric MD/DO.

Psychological DSM Axis I disorders are common in chronic pain. One study demonstrated that the majority of patients who had failed other therapy and participated in an active therapy also suffered from major depression. However, in a program which included CBT and other psychological counseling the success rate for return to work was similar for those with and without a

DSM IV diagnosis. This study further strengthens the argument for having some psychological intervention included in all chronic pain treatment plans.

6.12.6.5 For all psychological/psychiatric interventions, an assessment and treatment plan with measurable behavioral goals, time frames, and specific interventions planned, must be provided to the treating physician prior to initiating treatment. A status report must be provided to the authorized treating physician every 2 weeks during initial more frequent treatment and monthly thereafter. The report should provide documentation of progress towards functional recovery and discussion of the psychosocial issues affecting the patient's ability to participate in treatment. The report should also address pertinent issues such as pre-existing, aggravated, or causative, as well as realistic functional prognosis.

6.12.6.6 Cognitive Behavioral Therapy (CBT) or similar treatment

6.12.6.6.1 Time to produce effect: 6 to 8 1–2-hour session, group or individual, 1-hour individual or 2-hour group.

6.12.6.6.2 Maximum duration: 16 sessions.

6.12.6.6.3 NOTE: Before CBT is done, the patient must have a full psychological evaluation. The CBT program must be done under the supervision of a PhD, PsyD, EdD, or Psychiatric MD/DO.

6.12.7 Other psychological/psychiatric interventions:

6.12.7.1 Time to produce effect: 6 to 8 weeks.

6.12.7.2 Frequency: 1 to 2 times weekly for the first 2 weeks (excluding hospitalization, if required), decreasing to 1 time per week for the second month. Thereafter, 2 to 4 times monthly with the exception of exacerbations which may require increased frequency of visits. Not to include visits for medication management.

6.12.7.3 Optimum duration: 2 to 6 months.

6.12.7.4 Maximum duration: 6 months. Not to include visits for medication management. For select patients, longer supervised psychological/psychiatric treatment may be required, especially if there are ongoing medical procedures or complications. If counseling beyond 6 months is indicated, the management of psychosocial risks or functional progress must be documented. Treatment plan/progress must show severity.

6.13 Restriction of Activities. Continuation of normal daily activities is the recommendation for chronic pain patients since immobility will negatively affect rehabilitation. Prolonged immobility results in a wide range of deleterious effects, such as a reduction in aerobic capacity and conditioning, loss of muscle strength and flexibility, increased segmental stiffness, promotion of bone demineralization, impaired disc nutrition, and the facilitation of the illness role. Immobility may range from bed rest to the continued use of orthoses, such as cervical collars. While these interventions may occasionally have been ordered in the acute phase, the provider should be aware of their impact on the patient's ability to adequately comply with and successfully complete rehabilitation. With cervical pain it is generally recommended that returning to stretching and range of motion early is likely to be beneficial. Significant restriction of range of motion may render the worker unsafe for driving.

Patients should be educated regarding the detrimental effects of immobility versus the efficacious use of limited rest periods. Adequate rest allows the patient to comply with active treatment and benefit from the rehabilitation program. In addition, complete work cessation should be avoided, if possible, since it often further aggravates the pain presentation and promotes disability. Modified return-to-work is almost always more efficacious and rarely contraindicated in the vast majority of injured workers with neck pain.

6.14 Therapy – Passive. Most of the following passive therapies and modalities are generally accepted methods of care for a variety of work-related injuries. Passive therapy includes those treatment modalities that do not require energy expenditure on the part of the patient. They are principally effective during the early phases of treatment and are directed at controlling symptoms such as pain, inflammation and swelling and to improve the rate of healing soft tissue injuries. They should be used adjunctively with active therapies such as postural stabilization and exercise programs to help control swelling, pain, and inflammation during the active rehabilitation process.

6.14.1 Please refer to General Guideline Principles, Active Interventions. Passive therapies may be used intermittently as a therapist deems appropriate or regularly if there are specific goals with objectively measured functional improvements during treatment.

6.14.2 Generally, passive interventions are viewed as a means to facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains. All rehabilitation programs must incorporate "Active Interventions" no later than twelve visits or three weeks after the onset of treatment. Reimbursement for passive modalities only after the first twelve visits or three weeks of treatment without clear evidence of Active Interventions will require supportive documentation.

6.14.3 On occasion, specific diagnoses and post-surgical conditions may warrant durations of treatment beyond those listed as "maximum." Factors such as exacerbation of symptoms, re-injury, interrupted continuity of care, and co-morbidities may also extend durations of care. Specific goals with objectively measured functional improvement during treatment must be cited to justify extended durations of care. It is recommended that, if no functional gain is observed after the number of treatments under "time to produce effect" have been completed; alternative treatment interventions, further diagnostic studies, or further consultations should be pursued.

The following passive therapies are listed in alphabetical order:

6.14.4 Electrical Stimulation (Unattended and Attended). Is an accepted treatment. Once applied, unattended electrical stimulation requires minimal on-site supervision by the provider. Indications include pain, inflammation, muscle spasm, atrophy, decreased circulation, and the need for osteogenic stimulation. A home unit should be purchased if treatment is effective and frequent use is recommended.

6.14.4.1 Time to produce effect: 2 to 4 treatments.

6.14.4.2 Maximum duration: 24 visits.

6.14.5 ~~is~~ Iontophoresis. Is an accepted treatment which consists of the transfer of medication, including steroidal anti-inflammatories and anesthetics, through the use of electrical stimulation. Indications include pain (Lidocaine), inflammation (hydrocortisone, salicylate), edema (mecholyl, hyaluronidase, salicylate), ischemia (magnesium, mecholyl, iodine), muscle spasm (magnesium, calcium), calcific deposits (acetate), scars, and keloids (sodium chloride, iodine, acetate).

6.14.5.1 Time to produce effect: 1 to 4 treatments.

6.14.5.2 Frequency: 3 times per week with at least 48 hours between treatments.

6.14.5.3 Maximum duration: 8 visits per body region.

6.14.6 Manipulation. Is generally accepted, well-established and widely used therapeutic intervention for Cervical pain. Manipulative Treatment (not therapy) is defined as the therapeutic application of manually guided forces by an operator to improve physiologic function and/or support homeostasis that has been altered by the injury or occupational disease and has associated clinical significance.

6.14.6.1 High velocity, low amplitude (HVLA) technique, chiropractic manipulation, osteopathic manipulation, muscle energy techniques, counter strain, and non-force techniques are all types of manipulative treatment. This may be applied by osteopathic physicians (D.O.), chiropractors (D.C.), properly trained physical therapists (P.T.), properly trained occupational therapist (O.T.), or properly trained medical physicians.

6.14.6.2 Under these different types of manipulation exist many subsets of different techniques that can be described as direct - a forceful engagement of a restrictive/pathologic barrier; indirect - a gentle/non-forceful disengagement of a restrictive/pathologic barrier; the patient actively assists in the treatment; and the patient relaxing, allowing the practitioner to move the body tissues. When the proper diagnosis is made and coupled with the appropriate technique, manipulation has no contraindications and can be applied to all tissues of the body. Pre-treatment assessment should be performed as part of each manipulative treatment visit to ensure that the correct diagnosis and correct treatment is employed.

6.14.6.3 High velocity, low amplitude (HVLA) manipulation is performed by taking a joint to its end range of motion and moving the articulation into the zone of accessory joint movement, well within the limits of anatomical integrity. Indications for manipulation include joint pain, decreased joint motion, and joint adhesions. Contraindications to HVLA manipulation include joint instability, fractures, severe osteoporosis, infection, metastatic cancer, active inflammatory arthritides, aortic aneurysm, and signs of progressive neurologic deficits.

6.14.6.4 Time to produce effect for all types of manipulative treatment: 1 to 6 treatments.

6.14.6.5 Frequency: Up to 3 times per week for the first 4 weeks as indicated by the severity of involvement and the desired effect, then up to 2 treatments per week for the next 4 weeks. For further treatments, twice per week or less to maintain function.

6.14.6.6 Maximum duration: 30 visits. Extended durations of care beyond what is considered "maximum" may be necessary in cases of re-injury, interrupted continuity of care, exacerbation of symptoms, and in those patients with co-morbidities. Refer to the Chronic Pain Guidelines for care beyond 6 months.

6.14.6.7 The combination of 97140 plus either CMT or OMT code is equal to one visit when performed on the same day. Any combination of manual therapeutic intervention exceeding 36 visits (not units) need to go to UR.

6.14.6.8 Mobilization (Joint) / Manipulation. Mobilization is passive movement involving oscillatory motions to the involved joints. The passive mobility is performed in a graded manner (I, II, III, IV, or V), which depicts the speed of the maneuver. It may include skilled manual joint tissue stretching. Indications include the need to improve joint play, improve intracapsular arthrokinematics, or reduce pain associated with tissue impingement.

6.14.6.8.1 Time to produce effect: 4 to 6 treatments.

6.14.6.8.2 Frequency: 2 to 3 times per week.

6.14.6.8.3 Maximum duration: 36 visits (CPT codes 97124 and 97140 cannot exceed 36 visits in combination).

6.14.7 Massage – Manual or Mechanical. Massage is manipulation of soft tissue with broad ranging relaxation and circulatory benefits. This may include techniques that include pressing, lifting, rubbing, pinching of soft tissues by, or with, the practitioner's hands. Indications include edema (peripheral or hard and non-pliable edema), muscle spasm, adhesions, the need to improve peripheral circulation and range of motion, or to increase muscle relaxation and flexibility prior to exercise.

6.14.7.1 In sub-acute cervical pain populations there is good evidence that massage can increase function when combined with exercise and patient education. Some studies have demonstrated a decrease in provider visits and pain medication use with combined therapy. One study indicated improved results with acupressure massage. It is recommended that all massage be performed by trained, experienced therapists and be accompanied by an active exercise program and patient education. In contrast to the sub-acute population, massage is a generally accepted treatment for the acute cervical pain population, although no studies have demonstrated its efficacy for this set of patients.

6.14.7.2 Time to produce effect: Immediate.

6.14.7.3 Frequency: 1 to 3 times per week.

6.14.7.4 Maximum duration: 12 visits (CPT codes 97124 and 97140 cannot exceed 36 visits in combination).

6.14.8 Mobilization (Joint). Is a generally well-accepted treatment. Mobilization is passive movement involving oscillatory motions to the vertebral segment(s). The passive mobility is performed in a graded manner (I, II, III, IV, or V), which depicts the speed and depth of joint motion during the maneuver. For further discussion on Level V joint mobilization please see section on HVLA manipulation [Refer to section 6.11.3]. It may include skilled manual joint tissue stretching.

6.14.8.1 Indications include the need to improve joint play, segmental alignment, improve intracapsular arthrokinematics, or reduce pain associated with tissue impingement. Mobilization should be accompanied by active therapy. For Level V mobilization contraindications include joint instability, fractures, severe osteoporosis, infection, metastatic cancer, active inflammatory arthritides, aortic aneurysm, and signs of progressive neurologic deficits.

6.14.8.2 Time to produce effect for all types of manipulative treatment: 1 to 6 treatments.

6.14.8.3 Frequency: Up to 3 times per week for the first 4 weeks as indicated by the severity of involvement and the desired effect, then up to 2 treatments per week for the next 4 weeks. For further treatments, twice per week or less to maintain function.

6.14.8.4 Maximum duration: 36 visits. Extended durations of care beyond what is considered "maximum" may be necessary in cases of re-injury, interrupted continuity of care, exacerbation of symptoms, and in those patients with comorbidities. Refer to the Chronic Pain Guidelines for care beyond 6 months.

6.14.8.5 Re-evaluate Treatment Every 10 to 12 Treatments. If a given treatment or modality is not producing positive results within 10 to 12 treatments, the treatment may be either modified or discontinued. Reconsideration of diagnosis should also occur in the event of poor response to a seemingly rational intervention.

CPT codes 97124 and 97140 cannot exceed 36 visits in combination.

6.14.9 Mobilization (Soft Tissue): ~~is~~ Is a generally well-accepted treatment. Mobilization of soft tissue is the skilled application of muscle energy, strain/counter strain, myofascial release, manual trigger point release, and manual therapy techniques designed to improve or normalize movement patterns through the reduction of soft tissue pain and restrictions.

These can be interactive with the patient participating or can be with the patient relaxing and letting the practitioner move the body tissues.

6.14.9.1 Indications include muscle spasm around a joint, trigger points, adhesions, and neural compression. Mobilization should be accompanied by active therapy.

6.14.9.2 Maximum duration: 36 visits re-evaluate treatment every 10 to 12 treatments if a given treatment or modality is not producing positive results within 10 to 12 treatments, the treatment may be either modified or discontinued. Reconsideration of diagnosis should also occur in the event of poor response to a seemingly rational intervention.

CPT codes 97124 and 97140 cannot exceed 36 visits in combination.

6.14.10 Short-Wave Diathermy and InfraRed Therapy

6.14.10.1 Short Wave Diathermy. Is an accepted treatment which involves the use of equipment that exposes soft tissue to a magnetic or electrical field. Indications include enhanced collagen extensibility before stretching, reduced muscle guarding, reduced inflammatory response, and enhanced re-absorption of hemorrhage/hematoma or edema. It is an accepted modality as an adjunct to acupuncture or situation where other forms of contact superficial heat are contraindicated.

6.14.10.2 Infrared Therapy is an accepted treatment which involves electromagnetic radiation including wavelengths between 780nm to 1000nm used for patients requiring the application of superficial heat in conjunction with other procedures or modalities, to reduce or decrease pain/produce analgesia, reduce stiffness/tension, myalgia, spasm, or swelling. It is an accepted modality to be used only in conjunction with acupuncture.

6.14.11 Superficial Heat and Cold Therapy (excluding Infrared Therapy). Is a generally accepted treatment. Superficial heat and cold are thermal agents applied in various manners that lower or raise the body tissue temperature for the reduction of pain, inflammation, and/or effusion resulting from injury or induced by exercise. Includes application of heat just above the surface of the skin at acupuncture points. Indications include acute pain, edema and hemorrhage, need to increase pain threshold, reduce

muscle spasm, and promote stretching/flexibility. Cold and heat packs can be used at home as an extension of therapy in the clinic setting.

6.14.11.1 Time to produce effect: immediate.

6.14.11.2 Frequency: 2 to 5 times per week.

6.14.11.3 Maximum duration: 12 visits with maximum visits 1 per day.

6.14.12 Traction - Manual. Is an accepted treatment and an integral part of manual manipulation or joint mobilization. Indications include decreased joint space, muscle spasm around joints, and the need for increased synovial nutrition and response. Manual traction is contraindicated in patients with tumor, infection, fracture, or fracture dislocation.

6.14.13 Traction - Mechanical. Traction modalities are contraindicated in patients with tumor, infections, fracture, or fracture dislocation. Non-oscillating inversion traction methods are contraindicated in patients with glaucoma or hypertension. Motorized traction/decompression devices are included and billed as mechanical traction (i.e. VAX-D, DRX9000, etc.). A home Cervical traction unit can be purchased if proves effective and the home unit can provide a similar treatment.

6.14.13.1 Time to produce effect: 1 to 3 sessions up to 30 minutes. If response is negative after 3 treatments, discontinue this modality.

6.14.13.2 Frequency: 2 to 3 times per week. A home cervical traction unit can be purchased if therapy proves effective.

6.14.13.3 Maximum duration: 24 visits.

6.14.14 Transcutaneous Electrical Nerve Stimulation (TENS). Is a generally accepted treatment. TENS should include at least 1 instructional session for proper application and use. Indications include muscle spasm, atrophy, and decreased circulation and pain control. Minimal TENS unit parameters should include pulse rate, pulse width and amplitude modulation. Consistent, measurable functional improvement should be documented prior to the purchase of a home unit.

6.14.14.1 Time to produce effect: Immediate.

6.14.14.2 Frequency: Variable.

6.14.15 Ultrasound (including Phonophoresis). Is an accepted treatment. Ultrasound uses sonic generators to deliver acoustic energy for therapeutic thermal and/or non-thermal soft tissue effects. Indications include scar tissue, adhesions, collagen fiber and muscle spasm, and the need to extend muscle tissue or accelerate the soft tissue healing. Ultrasound with electrical stimulation is concurrent delivery of electrical energy that involves dispersive electrode placement. Indications include muscle spasm, scar tissue, pain modulation, and muscle facilitation. Phonophoresis is the transfer of medication to the target tissue to control inflammation and pain through the use of sonic generators. These topical medications include steroidal anti-inflammatory and anesthetics.

6.14.15.1 Time to produce effect: 6 to 15 treatments.

6.14.15.2 Frequency: 3 times per week.

6.14.15.3 Maximum duration: 24 visits.

6.15 Therapy – Active. The following active therapies are widely used and accepted methods of care for a variety of work-related injuries. They are based on the philosophy that therapeutic exercise and/or activity are beneficial for restoring flexibility, strength, endurance, function, range of motion, and can alleviate discomfort. Active therapy requires an internal effort by the individual to complete a specific exercise or task. This form of therapy requires supervision from a therapist or medical provider such as verbal, visual, and/or tactile instruction(s). At times, the provider may help stabilize the patient or guide the movement pattern, but the energy required to complete the task is predominately executed by the patient.

Patients should be instructed to continue active therapies at home as an extension of the treatment process in order to maintain improvement levels. Follow-up visits to reinforce and monitor progress and proper technique are recommended. Home exercise can include exercise with or without mechanical assistance or resistance and functional activities with assistive devices.

The following active therapies are listed in alphabetical order:

6.15.1 Activities of Daily Living (ADL). Are well-established interventions which involve instruction, active-assisted training, and/or adaptation of activities or equipment to improve a person's capacity in normal daily activities such as self-care, work re-integration training, homemaking, and driving.

6.15.1.1 Time to produce effect: 4 to 5 treatments.

6.15.1.2 Maximum duration: 10 visits.

6.15.2 Aquatic Therapy. Is a well-accepted treatment which consists of the therapeutic use of aquatic immersion for therapeutic exercise to promote strengthening, core stabilization, endurance, range of motion, flexibility, body mechanics, and pain management. Aquatic therapy includes the implementation of active therapeutic procedures in a swimming or therapeutic pool. The water provides a buoyancy force that lessens the amount of force gravity applies to the body. The decreased gravity effect allows the patient to have a mechanical advantage and more likely have a successful trial of therapeutic exercise. The therapy may be indicated for individuals who:

6.15.2.1 Cannot tolerate active land-based or full-weight bearing therapeutic procedures;

6.15.2.2 Require increased support in the presence of proprioceptive deficit;

6.15.2.3 Are at risk of compression fracture due to decreased bone density;

6.15.2.4 Have symptoms that are exacerbated in a dry environment;

6.15.2.5 Would have a higher probability of meeting active therapeutic goals than in a land-based environment.

The pool should be large enough to allow full extremity range of motion and fully erect posture. Aquatic vests, belts and other devices can be used to provide stability, balance, buoyancy, and resistance.

6.15.2.6 Time to produce effect: 4 to 5 treatments.

6.15.2.7 Frequency: 3 to 5 times per week.

6.15.2.8 Maximum duration: 18 visits. A self-directed program is recommended after the supervised aquatics program has been established, or alternatively a transition to a land-based environment exercise program.

6.15.3 Functional Activities. Are well-established interventions which involve the use of therapeutic activity to enhance mobility, body mechanics, employability, coordination, balance, and sensory motor integration.

6.15.3.1 Time to produce effect: 4 to 5 treatments.

6.15.3.2 Frequency: 3 to 5 times per week.

6.15.3.3 Maximum duration: 24 visits. Total number of visits 97110 and 97530 should not exceed 40 visits without preauthorization.

6.15.4 Functional Electrical Stimulation. Is an accepted treatment in which the application of electrical current to elicit involuntary or assisted contractions of atrophied and/or impaired muscles. It may be indicated for impaired muscle function due to radiculopathy.

6.15.4.1 Time to produce effect: 2 to 6 treatments.

6.15.4.2 Frequency: 3 times per week.

6.15.4.3 Maximum duration: 24 visits inclusive of electrical muscle stimulation codes if beneficial provide with home unit.

6.15.5 Neuromuscular Re-education. Is a generally accepted treatment. It is the skilled application of exercise with manual, mechanical, or electrical facilitation to enhance strength; movement patterns; neuromuscular response; proprioception, kinesthetic sense and coordination; education of movement, balance, and posture. Indications include the need to promote neuromuscular responses through carefully timed proprioceptive stimuli, to elicit and improve motor activity in patterns similar to normal neurologically developed sequences and improve Neuromotor response with independent control.

6.15.5.1 Time to produce effect: 2 to 6 treatments.

6.15.5.2 Frequency: 3-5 times per week.

6.15.5.3 Maximum duration: 36 visits.

6.15.6 Therapeutic Exercise. Is a generally well-accepted treatment. Therapeutic exercise, with or without mechanical assistance or resistance, may include isoinertial, isotonic, isometric and isokinetic types of exercises. Indications include the need for cardiovascular fitness, reduced edema, improved muscle strength, improved connective tissue strength and integrity, increased bone density, promotion of circulation to enhance soft tissue healing, improvement of muscle recruitment, improved proprioception, and coordination, and increased range of motion. Therapeutic exercises are used to promote normal movement patterns, and can also include complementary/alternative exercise movement therapy (with oversight of a physician or appropriate healthcare professional).

6.15.7 Spinal Stabilization. Is a generally well-accepted treatment. The goal of this therapeutic program is to strengthen the spine in its neural and anatomic position. The stabilization is dynamic which allows whole body movements while maintaining a stabilized spine. It is the ability to move and function normally through postures and activities without creating undue vertebral stress.

6.15.7.1 Time to produce effect: 2 to 6 treatments.

6.15.7.2 Frequency: 3 to 5 times per week.

6.15.7.3 Maximum duration: 36 visits. Total number of visits of 97110 & 97530 may not exceed 40 visits without preauthorization.

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7.0 Therapeutic Procedures - Operative

7.1 In order to justify operative interventions, clinical findings, clinical course, and diagnostic tests must be consistent resulting in a reasonable likelihood of at least a measurable and meaningful functional and symptomatic improvement. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic conditions and in most cases a specific site of nerve root compression, spinal cord compression, spinal instability or signs of degenerative disease. It is imperative to rule out non-physiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability (e.g., psychological conditions, peripheral neuropathy, myofascial pain, rheumatologic, or other pain syndromes, etc.) prior to consideration of elective surgical intervention.

7.2 Operative treatment is indicated when the natural history of surgically treated lesions 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.

7.3 While sufficient time allowances for non-operative treatment are required to determine the natural cause and response to non-operative treatment of cervical pain disorders, an accurate diagnosis and timely decision making for operative intervention are critical. Thorough neurological exams should be performed periodically to assure timely treatment; to avoid deconditioning and increased disability; and to treat emergent pathology or neurologically compromising conditions which may require early surgery.

7.4 In situations requiring the possible need for reoperation, and spinal fusions or total disc replacements over two levels, a second opinion may be necessary. Interdisciplinary interventions should be strongly considered post-operatively in patients not making functional progress within expected time.

7.5 General Recommendations. If cervical fusion is being considered, it is recommended that the injured worker be encouraged to quit or decrease smoking for at least 2 weeks prior to surgery and during the time of healing. Because smokers have a higher risk of non-union and higher post-operative costs, it is recommended that insurers cover a smoking cessation program peri-operatively.

7.6 General Indications for Surgery. In general, if the program of non-operative treatment fails, operative treatment is indicated when symptoms and findings suggest a surgically amenable

problem and:

7.6.1 Improvement of the symptoms has plateaued, and the residual symptoms of pain and functional disability are unacceptable at the end of 6 to 12 weeks of active therapy and manual treatment. (Mere passage of time with poorly guided treatment is not considered an active treatment program.) In cases of myelopathy and some cases of severe nerve root compression, earlier intervention is indicated.

7.6.2 Frequent recurrences of symptoms cause serious functional limitations, even if a non-operative active treatment program provides significant improvement of symptoms, and restoration of function on each recurrence.

7.6.3 The patient and treating physician have identified functional operative goals and the likelihood of achieving improved ability to perform activities of daily living or work activities. The patient should agree to comply with the pre- and post-operative treatment plan including home exercise. The provider should be especially careful to make sure the patient understands the amount of post-operative treatment required and the length of partial- and full-disability expected post-operatively. The patient should have committed to the recommended post-operative treatment plan and fully completed the recommended active, manual and pre-operative treatment plans.

7.6.4 There are some clinical scenarios which necessitate surgical interventions. Surgical workup and implementation of decompression of patients with herniated nucleus pulposus and radiculopathy should occur within 6 to 12 weeks, at the latest, after injury within the above stated contingencies. Small herniations and most protrusions are often not pain generators, however small foraminal disc herniations are likely to compress the nerve root and may require surgical removal.

7.6.5 In order to qualify for surgery for nerve root compression, the patient may exhibit the following signs of radiculopathy before invasive procedures are considered:

7.6.5.1 Pain in the arms greater than in the neck which interferes with function, return to work or active therapy;

7.6.5.2 Physical exam findings of abnormal reflexes, motor weakness or radicular sensation deficits;

7.6.5.3 Findings on the MRI which indicate impingement of nerves or the spinal cord corresponding to reproducible physical exam findings.

7.6.6 Treatment of myelopathy may occur earlier. Surgical procedures should be directed toward neurological findings which correlate with MRI imaging. For the unusual patients with refractory cervical pain in whom fusion is being considered, it is strongly recommended that a decisive commitment to surgical or non-surgical interventions occur within five months following injury.

7.6.7 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 outcomes” refer to the patient’s ability to improve functional tolerances such as, standing, walking, strength, endurance, functional cervical range of motion, or vocational status. While timely surgical decision-making is critical to avoid de- conditioning 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.

7.6.8 Every post-operative patient should be involved in an active treatment program after clearance by the surgeon. Interdisciplinary interventions should be strongly considered post-operatively in any patient not making functional progress within expected time frames.

7.6.9 Informed decision making should be documented for all invasive procedures. This must include a thorough discussion of the pros and cons of the procedure and the possible complications as well as the natural history of the identified diagnosis. Since most patients with the most common conditions will improve significantly over time, without invasive interventions, patients must be able to make well-informed decisions regarding their treatment**.**

7.6.10 Return to work restrictions should be specific according to the recommendations in Return-to-Work section. Most surgical patients can return to a limited level of duty between 6 to 12 weeks. Full activity is generally achieved between 3 months to 1 year, depending on the procedure, the type of duties performed, and healing of the individual. Patient should be informed of expected time off work.

7.6.11 Acute Fractures & Dislocations. Decisions regarding the need for surgery in acute traumatic injury will depend on the specific injury type and possibility of long-term neurologic damage. Acute disc herniations may occur in the presence of traumatic injury.

7.6.12 Halo Immobilization

7.6.12.1 Description. Intervention that restricts flexion-extension motion. Halo vest will provide significant but not complete rotational control and is the most effective device for treating unstable injuries to the cervical spine.

7.6.12.2 Complications. May include pin infection, pin loosening, and palsy of the sixth cranial nerve.

7.6.12.3 Surgical Indications. Cervical fractures requiring the need for nearly complete restriction of rotational control, and to prevent graft dislodgment, spine mal-alignment, or pseudarthrosis. Decision for use of halo is at the discretion of the surgeon based upon the patients' specific injury. Not indicated for unstable skull fractures or if skin overlying pin sites is traumatized.

7.6.12.4 Operative Treatment. Placement of the pins and apparatus.

7.6.12.5 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6, Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. Traction may be required for re-alignment or fracture reduction (amount to be determined by surgeon), active or passive therapy, and pin care.

7.6.13 Anterior or Posterior Decompression with Fusion

7.6.13.1 Description. To provide relief of pressure on the cervical spinal cord and nerve roots and improve alignment and stabilization of the spine. May involve the use of bone grafts, sometimes combined with instrumentation, to produce a rigid connection between two or more adjacent vertebrae.

7.6.13.2 Complications. Instrumentation failure, such as screw loosening, plate failure, or dislodgement (more common in posterior instrumentation), incomplete decompression, bone graft donor site pain, in-hospital mortality, deep wound infection, superficial infection, graft extrusion, cerebral spinal fluid (CSF) leak, laryngeal nerve damage (anterior approach), and iatrogenic kyphosis.

7.6.13.3 Surgical Indications. When a significant neurological deficit exists in the presence of spinal canal compromise or nerve root pressure.

7.6.13.4 Operative Treatment. Both anterior and posterior surgical decompression of the cervical spine are widely accepted. The approach is guided by location of the compressive pathology as well as the presence of other concomitant injuries. Posterior stabilization and fusion alone may be indicated for patients who have been realigned with traction and do not have significant canal compromise.

7.6.13.4.1 The anterior approach is acceptable if there is disc or vertebral body anteriorly compromising the canal**.**

7.6.13.4.2 The posterior approach may be indicated in radiculopathy in the absence of myelopathy and with evidence of pseudarthrosis on radiographs, or if the compression pathology is arising posteriorly.

7.6.13.5 Choice of instrumentation is based on the patient's anatomy, the patient's pathology, and surgeon's experience and preference.

7.6.13.6 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6. Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. Cervical bracing may be appropriate, usually for 6–12 weeks with fusion. Home programs with instruction in activities of daily living (ADLs), limitations in range of motion, posture, and a daily walking program should be an early part of the rehabilitation process. Referral to a formal rehabilitation program, with emphasis on cervical, scapular, and thoracic strengthening, and restoration of range of motion (ROM), is appropriate once the fusion is solid and without complication. Post-operative active treatment will frequently require a repeat of the therapy sessions previously ordered. If it is performed, care should be taken not to overly mobilize the section above and below the fusion at that time. The goals of the therapy program should include instruction in a long-term home-based exercise program.

7.6.14 Recombinant Human Bone Morphogenetic Protein (rhBMP-2) is a member of a family

of cytokines capable of inducing bone formation. It is produced from genetically modified cell lines using molecular cloning techniques. Use of rhBMP-2 in the cervical spine may carry a risk of swelling and ectopic bone formation which can encroach on neurovascular structures and on the esophagus. A retrospective analysis comparing anterior cervical fusion (ACF) and posterior cervical fusion for myelopathy or radiculopathy with and without rhBMP found that use of rhBMP increased rates of dysphagia in ACFs and increased costs for both types of fusions. The study did not report on long-term outcomes. There is good evidence that rhBMP increases the likelihood of dysphagia, dysphonia and other postoperative complications when used with anterior cervical fusions of the date of adoption the Food and Drug Administration (FDA) has not approved its use in the cervical spine. At the time of this guideline, cervical application of rhBMP-2 is not recommended. If the FDA approves its use in the cervical spine, its use in the cervical spine will be reconsidered.

7.6.15 Disc Herniation and Other Cervical Conditions. Operative treatment is indicated only when the natural history of an operatively treatable problem is better than the natural history of the problem without operative treatment. All patients being considered for surgical intervention should undergo a comprehensive neuromuscular examination to identify pain generators that may respond to nonsurgical techniques or may be refractory to surgical intervention. Timely decision making for operative intervention is critical to avoid deconditioning, and increased disability of the cervical spine.

If cervical fusion with discectomy is being considered, it is recommended that the injured worker refrain from smoking for at least 6 weeks prior to surgery and during the time of healing. Because smokers have a higher risk of non-union and higher post-operative costs, it is recommended that insurers cover a smoking cessation program peri-operatively.

7.7 General Indications for Surgery. Operative intervention should be considered, and a consultation obtained when improvement of radicular symptoms has plateaued, and the residual symptoms of pain and functional disability are unacceptable at the end of 6 weeks of treatment. In cases of multiple trauma or complex injuries, the procedure may be delayed due to lack of early recognition or the need to treat other conditions first. Choice of operative approach and hardware instrumentation is based on anatomy, the patient's pathology, and the surgeon's experience and preference.

7.8 Specific Indications include:

7.8.1 For Patients with Myelopathy: Expedited surgical evaluation and treatment are indicated.

7.8.2 For Patients with Cervical Radiculopathy:

7.8.2.1 Early intervention may be required for acute incapacitating pain ~~or~~ in the presence of severe or progressive neurological deficits, persistent motor deficit; or

7.8.2.2 Persistent or recurrent arm pain with functional limitations, unresponsive to conservative treatment after six weeks; or

7.8.2.3 Progressive functional neurological deficit; or

7.8.2.4 Static neurological deficit associated with significant radicular pain; and

7.4.2.5 Confirmatory imaging studies (usually MRI) consistent with clinical findings, demonstrating nerve root or spinal cord compromise.

7.4.3 ~~in~~ For Patients with Persistent Non-radicular Cervical Pain: In the absence of a radiculopathy, it is recommended that a decisive commitment to surgical or nonsurgical interventions be made no sooner than 3 months, following injury. In patients with non-radicular cervical pain for whom fusion is being considered, required pre-operative indications include all of the following:

7.4.3.1 When the program of non-operative treatment fails; and

7.4.3.2 Improvement of the symptoms has plateaued, and the residual symptoms of pain and signs of functional disability are unacceptable at the end of active treatment; and/or

7.4.3.3 Frequent recurrences of symptoms cause serious functional limitations even if a non-operative active treatment program provides satisfactory relief of symptoms, and restoration of function on each recurrence.

For any potential surgery, particularly fusions, it is recommended that the injured worker refrain from smoking for at least 6 weeks during the period of healing. Because smokers have a higher risk of non-union and higher post-operative costs, it is recommended that insurers cover a smoking cessation program peri-operatively.

7.5 Surgical Procedures. Surgical procedures include:

7.5.1 Anterior Cervical Discectomy with or without Fusion

7.5.1.1 Description. Procedure to relieve pressure on one or more nerve roots or the spinal cord. It may be performed with or without the use of a microscope, but generally with some form of magnification.

7.5.1.2 Operative Treatment. Complete disc excision is usually performed. Cervical plating may be used to prevent graft dislodgment or collapse especially for multi-level disease, and to provide higher fusion rates, decreased kyphosis and increased lordosis. There does not appear to be a difference in outcome between anterior cervical discectomy and fusion performed with allograft, autograft, cage or arthroplasty for safety.

Recombinant Human Bone Morphogenetic Protein (rhBMP-2). Not recommended.

7.5.1.3 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6. Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. Cervical bracing may be appropriate (usually 6- 12 weeks with fusion). Home programs with instruction in ADLs, limitation in range of motion, posture, and a daily walking program should be an early part of the rehabilitation process.

7.5.2 Anterior Cervical Corpectomy

7.5.2.1 Description. Anterior removal of a portion or the entire vertebral body to decompress the spinal canal. This usually includes removal of the adjacent discs. By definition, this always involves fusion.

7.5.2.2 Surgical Indications. Single or two-level spinal stenosis, spondylolisthesis, or severe kyphosis, with cord compression. For any potential surgery, particularly fusions, it is recommended that the injured worker refrain from smoking for at least 6 weeks prior to surgery and during the period of healing. Because smokers have a higher risk of non-union and higher post-operative costs, it is recommended that insurers cover a smoking cessation program peri- operatively.

7.5.2.3 Operative Treatment. Neural decompression, fusion with instrumentation, or halo vest placement to maintain cervical position. Hemicorpectomy may be done when only a portion of the vertebral body needs to be resected. Allografts may be used for single bone graft fusion; however, autografts are generally preferable for multi-level fusions unless a large strut graft is required.

7.5.2.4 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. Cervical bracing may be appropriate (usually 6-12 weeks with fusion). Home programs with instruction in ADLs, limitation in range of motion posture, and a daily walking program should be an early part of the rehabilitation process. Core strength should be emphasized. Referral to a formal rehabilitation program with emphasis on cervical, scapular, and thoracic strengthening and restoration of functional ROM is appropriate once fusion is solid and without complication. Post-operative active treatment will frequently require a repeat of the therapy sessions previously ordered, with an emphasis on core strengthening. If it

is performed, care should be taken not to overly mobilize the section above and below the fusion at that time. The goals of the therapy program should include instruction in a long-term home-based exercise program.

7.5.3 Posterior Cervical Laminectomy, Foraminotomy, Discectomy with or without Fusion

7.5.3.1 Description. Surgical removal of a portion of the lamina in order to gain access to the spinal cord or nerve roots with or without fusion. Posterior partial laminectomy without fusion is frequently considered for lateral disc herniation.

7.5.3.2 Surgical Indications. Neural compression. For any potential surgery, particularly fusions, it is recommended that the injured worker refrain from smoking for at least 6 weeks prior to surgery and during the period of healing. Because smokers have a higher risk of non-union and higher post-operative costs, it is recommended that insurers cover a smoking cessation program peri-operatively.

7.5.3.3 Operative Treatment. Laminotomy, laminectomy, partial discectomy, foraminotomy and spinal cord or nerve root decompression with or without fusion and instrumentation.

7.5.3.4 Post-Operative Therapy. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6. Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. Cervical bracing may be appropriate (usually 6 to 12 weeks with fusion). Home programs with instruction in ADLs, limitation in range of motion, posture, and a daily walking program should be an early part of the rehabilitation process. Core strength should be emphasized. Referral to a formal rehabilitation program with emphasis on cervical, scapular, and thoracic strengthening and restoration of functional ROM is appropriate fusion is solid and without complication. Post-operative active treatment will frequently require a repeat of the therapy sessions previously ordered, with an emphasis on core strengthening. If it is performed, care should be taken not to overly mobilize the section above and below the fusion at that time. The goals of the therapy program should include instruction in a long-term home-based exercise program.

7.5.4 Posterior Cervical Laminoplasty

7.5.4.1 Description. Technique that increases anterior or posterior dimensions of the spinal canal while leaving posterior elements partially intact. It may be performed with or without the use of a microscope.

7.5.4.2 Surgical Indications. Multi-level disease: cervical spinal stenosis or spondylitic myelopathy. Not indicated in cervical kyphosis. For any potential surgery, particularly fusions, it is recommended that the injured worker refrain from smoking for at least 6 weeks prior to surgery and during the period of healing. Because smokers have a higher risk of non-union and higher post-operative costs,

it is recommended that insurers cover a smoking cessation program peri-operatively.

7.5.4.3 Operative Treatment. Posterior approach, with or without instrumentation.

7.5.4.4 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6. Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions. May include 4 to 12 weeks of cervical bracing. Home programs with instruction in ADLs, limitation in range of motion, posture, and daily walking program should be an early part of the rehabilitation process. Referral to a formal rehabilitation program with emphasis on cervical, scapular, and thoracic strengthening and restoration of ROM is appropriate once the cervical spine is stable and without complication. Patients should have had active therapy prior to surgery. Post-operative active treatment will frequently require a repeat of the sessions previously ordered. The goals of the therapy program should include instruction in a long-term, home-based exercise program.

7.5.5 Percutaneous Discectomy

7.5.5.1 Description. An invasive operative procedure to accomplished partial removal of the disc through a needle, which allows aspiration of a portion of the disc under imaging control.

7.5.5.2 Surgical Indications. Percutaneous discectomy is indicated only in cases of suspected septic discitis in order to obtain diagnostic tissue. The procedure is not recommended for contained herniations or bulges with associated radiculopathy due to lack of evidence to support long-term improvement.

7.5.5.3 Operative Treatment - Partial Discectomy

7.5.6 Total Artificial Cervical Disc Replacement (TDR). Involves the insertion of prosthetic device into the cervical intervertebral space with the goal of maintaining physiologic motion at the treated cervical segment. The use of artificial discs in motion-preserving technology is based on the surgeon's preference and training. One advantage of disc replacement over fusion is the generally shorter recovery time. Two systematic reviews comparing replacement and fusion showed a tendency, but not statistically significant toward earlier return to work, and good long-term return to work for both procedures. There is strong evidence that in patients with single level radiculopathy or myelopathy cervical artificial disc produces 2-year success rates at least equal to those of anterior cervical discectomy and fusion (ACDF) with allograft interbody fusion and an anterior plate. There is some evidence that TDR requires fewer revision operations than ACDF after the first two years of treatment and that TDR slightly decreases neck pain at 5 years compared to ACDF. Half of the reoperations in the ACDF group were at adjacent levels. There is good evidence that arthroplasty produces greater segmental range of motion after 1-2 years than fusion, but its clinical significance is unknown. Another study following disc replacement patients noted symptomatic recurrent radiculopathy at the same or adjacent segments with an annual rate of 3.1%. The rate of recurrence was higher for those with pre-existing degenerative disc disease at other levels or those with significant osteopenia.

7.5.6.1 Description. Involves the insertion of a prosthetic device into an intervertebral space from which a degenerated disc has been removed, sparing only the peripheral annulus. The endplates are positioned under intraoperative fluoroscopic guidance for optimal placement in the sagittal and frontal planes. The prosthetic device is designed to distribute the mechanical load of the vertebrae in a physiologic manner and maintain ROM.

7.5.6.2 General Selection Criteria. For cervical disc replacement includes symptomatic 1- or 2-level degenerative disc disease with radiculopathy. The patient must also meet fusion surgery criteria, and if the patient is not a candidate for fusion, a disc replacement procedure should not be considered. Additionally, the patient should be able to comply with pre-and post-surgery protocol.

7.5.6.3 The Theoretical Advantage of total disc arthroplasty is that it preserves range of motion and physiologic loading of the disc. This could be an advantage for adults who are physically active. Studies do not demonstrate a long-term advantage of measured function or pain over comparison groups undergoing fusion. The longevity of this prosthetic device has not yet been determined. Significant technical training and experience is required to perform this procedure successfully. Surgeons must be well-versed in anterior spinal techniques and should have attended appropriate training courses or have undergone training during a fellowship. Mentoring and proctoring of procedures is highly recommended. Reasonable pre-operative evaluation may include an angiogram. The angiogram may be either with contrast or with magnetic resonance imaging.

7.5.6.4 Surgical Indications. Patient meets one of the 2 sets of indications:

7.5.6.4.1 Symptomatic 1-level or 2-level degenerative disc disease (on MRI) with established radiculopathy or myelopathy and not improved after 6 weeks of therapy; or

7.5.6.4.2 Radiculopathy or myelopathy documented by EMG or MRI with correlated objective findings or positive at one level.

7.5.6.5 Contraindications

7.5.6.5.1 Osteopenia, osteoporosis, or any metabolic bone disease;

7.5.6.5.2 Significant spinal deformity/scoliosis;

7.5.6.5.3 Symptomatic facet joint arthrosis – If imaging findings and physical findings of pain on extension and lateral bending are present, exploration of facetogenic pain should be completed prior to disc replacement for axial pain;

7.5.6.5.4 Spinal instability;

7.5.6.5.5 Deficient posterior elements;

7.5.6.5.6 Infection;

7.5.6.5.7 Previous compression or burst fracture;

7.5.6.5.8 Multiple-level degenerative disc disease (DDD);

7.5.6.5.9 Spondylolisthesis greater than 3 mm;

7.5.6.5.10 Chronic steroid use or use of other medication known to interfere with bone or soft tissue healing;

7.5.6.5.11 Allergy to device components/materials;

7.5.6.5.12 Active malignancy;

7.5.6.5.13 Generalized chronic pain.

7.5.6.6 Post-Operative Treatment. An individualized rehabilitation program based upon communication between the surgeon and the therapist and using the therapies as outlined in Section 6. Therapeutic Procedures Non-Operative. In all cases, communication between the physician and therapist is important to the timing of exercise progressions**.** Bracing may be appropriate. A formal physical therapy program should be implemented post-operatively. Active treatment, which patients should have had prior to surgery, will frequently require a repeat of the sessions previously ordered. The implementation of a gentle aerobic reconditioning program and neck education within the first post-operative week is appropriate in uncomplicated post-surgical cases. Some patients may benefit from several occupational therapy visits to improve performance of ADLs. Participation in an active therapy program which includes restoration of ROM, core stabilization, strengthening, and endurance is recommended to be initiated at the discretion of the surgeon. Full range of motions is limited initially. Sedentary duty may be able to begin within 6 weeks in uncomplicated cases. The goals of the therapy program should include instruction in a long-term home-based exercise program.

7.5.7 Percutaneous Radiofrequency Disc Decompression. Percutaneous radiofrequency disc decompression of the cervical spine is an investigational procedure that introduces a 19-gauge cannula under local anesthesia and fluoroscopic guidance into the nucleus pulposus of a contained herniated disc, using radiofrequency energy to dissolve and remove disc material. Pressure inside the disc is lowered as a result. The only trial was limited to a population not likely to apply to the workers' compensation population. It is not recommended.

7.5.8 Intraoperative Monitoring. A common intraoperative electrodiagnostic technique that may include somatosensory evoked potentials (SSEP), motor evoked potentials (MEP), or pedicle screw monitoring. The monitoring procedure may be used to evaluate spinal cord integrity and screw placement during the operative procedure.